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SOCIAL SUPPORT AND ATTENTION TO SOCIAL CUES IN TYPE A INDIVIDUALS

By

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ABSTRACT

SOCIAL SUPPORT AND ATTENTION TO SOCIAL CUES IN TYPE A INDIVIDUALS

By

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The Type A behavior pattern (TABP) is associated with an increased risk for coronary heart disease. This study examined how Type A individuals differ from Type B individuals in their attention to social stimuli. The relationship between TABP and social support and the relationship between social support and attention to social stimuli was also investigated.

A dual-task involving the discrimination of two social stimuli (angry male face, angry female face) and neutral letters was performed by 48 undergraduate students (24 males, 24 females). Signal detection theory methods were used to distinguish between sensitivity to the angry faces and willingness to report angry faces. The results revealed that Type As and Type Bs were not different in sensitivity to primary focus male or female angry faces. Type As were less sensitive to the secondary focus male angry face than Type Bs; however, there was no difference between Type As and Type Bs in sensitivity to the secondary focus female angry face. Type As exhibited a bias against reporting the primary focus male angry face but not the primary focus female face. Type As and Type Bs did not

differ in response bias for the secondary focus angry faces.

Type As reported receiving a greater amount of social support than Type Bs. Type As also reported larger available unconflicted support networks. Type As and Type Bs did not differ in perceived quality of support or size of conflicted support networks.

There was a significant negative correlation between total amount of support received and sensitivity to the secondary focus male angry face; the same correlation involving the female angry face was not significant. Willingness to report angry faces was unrelated to social support.

The differences in sensitivity and response bias for the male and female angry faces were interpreted as the result of the difference in the difficulty in detecting the two faces. The results suggest that Type As inhibit their attention to peripheral cues of anger and are unwilling to acknowledge perceiving central cues of anger in order to perform well on a primary task. Recommendations for future research are discussed.

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INTRODUCTION

A strong association has been shown to exist between coronary heart disease (CHD) and the impatient, competitive, and aggressive behavioral style known as the Type A behavior pattern (Dembroski, MacDougall, Herd, & Shields, 1983; Dembroski, Weiss, Shields, Haynes, & Feinleib, 1978; Krantz, Glass, Schaeffer, & Davia, 1982). Research on Type A has taken three major directions. One has been to examine the physiological correlates of the behavior pattern in order to understand the physiological mechanisms that may mediate between the behavior pattern and CHD (Herd, 1978). A second has been to study the environmental conditions under which Type A individuals experience exaggerated physiological activity (e.g., Dembroski, MacDougall, & Shields, 1977; Manuck, Craft, & Gold, 1978; Van Egeren, 1979). A third has been to focus on the cognitive functioning of Type A individuals, on the assumption that specific cognitive processes may underlie the behavioral and physiological responses associated with the Type A behavior pattern (Jennings, 1983). The latter approach provided the impetus for the present research.

Type A Behavior and Attention

Type As have been described as extremely alert and hypervigilant but inattentive to task-irrelevant information (e.g., Bortner & Rosenman, 1967). This description led Weidner and Matthews (1978) to suggest that,

in the face of environmental stresses, Type As tend to focus their attention on doing well on the task at hand. As a result, they do not notice peripheral stimuli that are not immediately relevant to task performance, such as physical symptoms or subtle social cues. Matthews and Brunson (1979) conducted a series of laboratory experiments to test this hypothesis. The first study examined Type As' and Type Bs' performances on two concurrent tasks, in which one was defined as central or primary and one was defined as peripheral or secondary. Assumptions of the dual-task paradigm are that individuals have a limited attentional capacity and that relative performance on the two tasks varies according to the amount of attention allocated to them, provided the individual's attentional capacity is fully utilized. Focusing of attention is reflected by deterioration of performance on the secondary task, and enhanced performance on the primary task (e.g., Bahrick, Fitts, & Rankin, 1952; Hockey, 1970). The primary task in the Matthews and Brunson research was the Stroop Color-Naming Task and the secondary task was to depress a telegraph key upon the onset of a light. In this experiment Type As performed poorer on the secondary task and better on the primary task, compared to Type Bs.

In another experiment distracting noise was combined with the Stroop task. Noise has been previously shown to improve performance on the color-naming task (Hartley & Adams, 1974). This apparently occurs because subjects exposed to noise actively suppress their attention to the noise; in doing so, they also suppress their attention to other task-irrelevant cues, including the name of the color of the stimulus word (Houston, 1969). If Type As attend less to task-irrelevant peripheral stimuli than Type Bs do simply because they are attending to the central task, then the Stroop performance of As should not be affected by the

presence of a distractor. However, if As actively suppress their attention to distractors, the performance of As should be facilitated by the presence of a distractor. In fact, the performance of Type As improved in the presence of the distracting noise, whereas the performance of Type Bs was unaffected by the distracting noise. The findings of Matthews and Brunson (1979) suggest that Type As allocate more attention to central events and less to peripheral events than do Type Bs. Moreover, Type As seem to actively suppress their attention to peripheral events that might distract them from performing well on a task.

Subsequent research has further supported the contention that Type As focus more attention on central events and less attention on peripheral events than do Type Bs. Stern, Harris, and Elverum (1981) compared the performance of Type As and Type Bs on arithmetic tasks with an embedded recall task and vice versa (arithmetic embedded in a recall task). In both conditions, Type As performed better than Type Bs on the task defined as primary and worse than Type Bs on the task defined as secondary. Humphries, Carver, and Neumann (1983) compared Type As and Type Bs in a study of category formation. With moderate and high but not low incentive for performances, Type As formed categories characterized by relatively restrictive defintions. The investigators suggest that Type As focus on the central tendencies in an evolving category and correspondingly ignore less frequently occurring attributes. Type Bs, who presumably are less likely to ignore peripheral attributes, formed categories that had broader definitions, encompassing both frequent and infrequent attributes. Strube, Turner, and Perrillo (1983) examined the effects of pleasant background music on task performance of Type As and Type Bs. Simple melodies have been shown to have a soothing effect, which enhances performance. Type

Bs performed better when background music was present. In contrast, performance of Type As was unaffected by the presence of background music, presumably because the As suppressed paying attention to it. Taken together, these studies support the notion that Type As and Type Bs differ in how they allocate attention. Specifically, Type As focus their attention more on the task at hand and attend less to peripheral events than Type Bs do.

Differences in how Type As and Type Bs allocate attention may be explained in terms of Easterbrook's (1959) hypothesis that arousal narrows the span of attention, leading to a decrease in the range of cue utilization. In other words, increases in arousal will presumably result in the ignoring of task-irrelevant or incidental cues. Despite the psychophysiological complexity of arousal (Humphries & Revelle, 1984), experimental conditions considered to be "arousing" do seem to increase attention to central events and decrease sensitivity of peripheral events (e.g., Hockey, 1979). Evidence shows that Type As have greater increases in sympathetic nervous system arousal than Type Bs do while performing challenging tasks, although no differences have been reported in resting levels (Dembroski, et al., 1977; Manuck, et al., 1978). It may be argued that in earlier cited dual-task experiments (e.g., Matthews & Brunson, 1979; Stern et al., 1981), Type As were more aroused than Type Bs as a result of the challenging experimental conditions. The increase in arousal may have led to a decrease in the range of cue utilization among Type As which, in turn, impaired their performance on peripheral tasks. Thus it is possible that differences in arousal underlie the differences in Type As' and Type Bs' strategies of attention allocation.

Cohen (1978) suggests that attentional focusing is an adaptive

response to information overload under conditions of environmental stress. This interpretation is based on a limited processing capacity model of attention (Kahneman, 1973). According to this model, an individual has a limited amount of attention that can be allocated at any one time. Information overload is said to occur when this attentional capacity is exceeded, for instance, when there are too many inputs to be processed or when successive inputs come too fast. Attention can be divided across several information sources depending on how much capacity each source requires. During a task, an individual must allocate attention among competing information sources including task-relevant cues and task-irrelevant cues (e.g., negative affect, symptoms of fatigue, or background noise). When an individual allocates more attention to one source, the allocation of attention to other sources must be reduced because the total capacity is limited.

As indicated earlier, the limited processing capacity model serves as the conceptual basis for dual-task experiments (e.g., Cohen & Lezak, 1977; Matthews & Brunson, 1979; Stern et al., 1981). It also provides a framework for understanding Type A and Type B differences in attention allocation. Jenkins (1975) described Type As as individuals who become more upset than Type Bs by excessive task demands. Therefore, a dual-task situation might be expected to produce greater stress responses in Type As than Type Bs. Environmental stressors such as noise (Finkleman & Glass, 1970), crowding (Saegert, Mackintosh, & West, 1975) and task overload (Kanarick & Petersen, 1969) reportedly result in a focusing of attention on aspects of the environment most relevant to task performance at the expense of less relevant cues. The tendency for Type As more than Type Bs to ignore peripheral cues while focusing their attention on central

events may therefore be due to the greater stress responses in Type As as a result of the dual-task situation.

Attention to Social and Health Cues

The tendency of Type As to inhibit their attention to distracting, peripheral events should affect the likelihood of their noting and acting upon social and health cues. Clinical as well as experimental observations concur that Type A individuals are less likely to report health relevant cues than Type B individuals. For instance, Type As report less severe physical symptoms than Type Bs do while performing a stressful task (Weidner & Matthews, 1978). The selective attention of Type A individuals may lead them to ignore early symptoms of CHD and not seek medical attention. This notion is consistent with the observations by Greene, Moss, and Goldstein (1974) that myocardial infarction patients, who more often than not are Type As, often ignore symptoms and delay seeking medical care.

Another health implication of selective attention is the ignoring of subtle, but important, social cues. Social cues are events, such as facial expressions, which provide information necessary for the maintenance of adequate relationships. Important social cues include information about the emotions and subtly expressed needs of others. The neglect of such cues may decrease the likelihood of helping another, expressing concern for another, or responding appropriately to another's needs, which, in turn, may impair one's social relationships (Berkowitz, 1972).

The effect of restricted attention on awareness of social cues has been demonstrated by Cohen and Lezak (1977). Subjects were asked to memorize nonsense syllables with a secondary task of noting slides of persons engaged in an activity. When noise was added to the task, memory for the incidental social information decreased. Noise also causes

decreases in helping as reported by Matthews and Canon (1975) and reduces the amount of information subjects use in forming personality judgments as reported by Siegal and Steele (1979). These studies show a reduction in awareness of social cues under conditions (e.g., noise) designed to exceed attentional capacity (Cohen, 1978).

Type A Behavior and Social Support

Research has determined that the support provided by social relationships can promote health (Cobb, 1976), speed recovery from illness (Berle, Pinsky, Wolf, & Wolf, 1952), and extend life (Weisman & Worden, 1975). Lack of social support has been associated with chronic disease (Wolf, 1975), distress (Caplan, 1971), and higher mortality (Berkman & Syme, 1979). Bruhn (Bruhn, 1980; Bruhn, McCrady, & duPlessis, 1968) found that individuals experiencing conflict in their marriage and at work and difficulty communicating effectively with others were more likely to develop CHD than individuals not reporting these characteristics. Theil, Parker, and Bruce (1973) reported a significantly higher frequency of divorce among men with myocardial infarction. Weiss (1973) found significant differences in CHD mortality rates between married and never-married, divorced, and widowed subjects, despite no significant differences in serum cholesterol levels and blood pressure.

Price (1982) has suggested that the hard-driving, competitive, and hostile behavior of the Type A individual may lead to conflict within social relationships, resulting in poor quality social support systems and a lack of close, intimate friendships. There is some evidence that Type As have inadequate social support networks. Type As have been found to devote less time to interpersonal activities (Becker & Byrne, 1984), to devalue interpersonal relationships (Suls, Becker, & Mullen, 1981), to be

uncomfortable in social settings (Jenkins, Zyzanski, & Ryan, 1977), and to become nervous, distracted, and impatient when working with others (Gastorf, Suls, & Sanders, 1980). Type As obtain lower scores on an index of social support, indicating that they have fewer and less satisfactory social relationships (Waldron et al., 1980). This finding was partially confirmed by General (1983), who reported low perceived quality of social support among Type A coronary patients.

Type A coronary patients are also likely to view their families as less cohesive and supportive and report fewer contacts with friends and relatives (Black, 1980). Margolis, McLeroy, Runyan, and Kaplan (1983) suggested that Type As are more likely to define their intimate relationships as competitive. This was supported in a study by Orth-Gomer (1979), who found that a large percentage of Type As who have had heart attacks report having a predominantly adversarial relationship with their spouses. Burke, Weir, and DuWors (1979) report low levels of marital satisfaction among the wives of Type A men. Their findings suggest that Type A husbands may be less likely than Type B husbands to confide in their wives. Support for this interpretation comes from Jennings and Pilkonis (cited in Jennings, 1983), who found that half of Type As in their study reported no confidant or only a single confidant, while Type Bs all reported two or more confidants. These findings indicate that the quality as well as quantity of social support available to Type As is less than that available to Type Bs.

Type As may have less adequate social support systems than Type Bs because Type As place relatively little importance on social relationships. Type As generally place high value on achieving and derive satisfaction primarily from activities that produce tangible accomplishment (Price,

1982). This reliance is often at the expense of personal relationships, since neither family nor friends are generally seen as contributing to material success. Price (1982) argues that personal relationships therefore merit less attention from Type A individuals.

Type As may also have less social support because of their attitudinal set reflecting hostility. Type As tend to view others as bad, selfish, and exploitative (Williams et al., 1980). They are inclined to project excessively high standards onto others and feel justified in acting highly critical and intolerant of others (Price, 1982). Price (1982) also points out that the hostile behavior of Type As tends to elicit hostile and aggressive reactions from others. Type As, without realizing that they have created a great deal of the hostile reactions they perceive in others, may come to believe that they live in a hostile world. As a result of this belief, Type As, compared to Type Bs, may be more likely to misperceive hostility in others. That is, Type As may be more inclined to report that others are angry when this is not the case. This perceptual set toward hostility may, in turn, have a negative impact on Type As' social relationships; Type As may find that they have less social support as a result of their exaggerated tendency to "see" anger in others.

Conceptualizing Social Support

Researchers disagree on what constitutes social support (Barrera & Ainlay, 1983; Thoits, 1982). As Kahn and Antonucci (1980) point out, "social support is one of those terms that carries considerable colloquial meaning and has therefore been more often used than defined" (p. 392). This lack of agreement concerning the conceptualization of social support has led to inconsistencies and inadequacies in measurement. Analyses of the social support literature (Kaplan, Cassel, & Gore, 1977; Mitchell &

Trickett, 1980; Thoits, 1982; Wilcox, 1981) indicates that social support has both quantitative and qualitative dimensions. The quantitative dimension of social support describes the structure of individuals' social networks. Thus, some researchers have derived social support from specific demographic information, such as marital status (Eaton, 1978), access to a confidant (Brown, Bhrolchain, & Harris, 1975), and participation in community organizations (Lin, Simeone, Ensel, & Kuo, 1979), while others have used indices such as numbers of sources and frequency of social contacts (Berkman & Syme, 1979). Such structural measures often assume that the availability of a large social network or frequent social contacts are equivalent to a high degree of support. These are questionable assumptions since available support does not necessarily translate into enacted support, and not all social contacts are necessarily supportive in nature (Wellman, 1981).

According to Cobb (1976), social support is essentially information that one is loved, esteemed, and part of a network of mutual obligation. He regards the cognitive appraisal of support as primarily important in the measurement of social support. Other researchers interested in individuals' subjective evaluation of support have looked at satisfaction with support (Hirsch, 1979), happiness with key relationships (Nuckolls, Cassel, & Kaplan, 1972), and adequacy of social attachments (Henderson et al., 1978). Schaefer, Coyne, and Lazarus (1981) have emphasized the importance of measuring both the quality of support as perceived by the individual, and the quantity of support as measured in terms of network size and frequency of contacts, since different indices may relate differently to health. Wilcox (1981), for example, in one of the few studies which compared the qualitative and quantitative dimensions of social

support, found that emotional support was more predictive of mental health than social network figures. The social network represents what is available to the individual from an objective viewpoint, and emotional support represents the way in which the individual perceives and feels about his or her social support system (Kaplan, Cassel, & Gore, 1977).

The majority of studies of social support have examined either the qualitative or the quantitative aspects of social support but have not combined them into a comprehensive assessment (Bruhn & Phillips, 1984). Some recently developed instruments, such as the Arizona Social Support Interview Schedule (ASSIS), (Barrera, 1981), incorporate a multidimensional approach to assessing social support. In addition to describing social networks, the ASSIS measures available and enacted social support and satisfaction with support. The ASSIS also makes a distinction between strictly supportive network members and those who are sources of interpersonal conflict; thus, it is possible to calculate conflicted as well as unconflicted network size.

Theory of Signal Detection

Research on perceptual differences between Type As and Type Bs has presupposed that reported detection of stimuli depends solely on sensitivity, which is a joint function of individual ability and stimulus characteristics. This assumption is false. An observer's response bias affects the obtained value of a sensory threshold (Price, 1966). Response bias is a function of motivational, attitudinal and strategic factors; it influences an observer's subjective standard or criterion for reporting the presence or absence of a stimulus. Conventional methods of studying perception, which have used the classical threshold as an indicator of sensitivity, are inadequate because they confound sensitivity and response

bias.

Hake and Rodwan (1966) point out that reluctance to report the presence of a stimulus until the evidence is great results in few hits (true positives) and tends to raise the traditional estimate of the sensory threshold. On the other hand, willingness to report the presence of a stimulus on the basis of minimal evidence results in an increased number of hits and tends to lower the estimate of the threshold. The apparent changes in sensitivity stem from the fact that false alarms (false positives) are not adequately assessed by traditional threshold measurement procedures.

Both hit rate and false alarm rate must be accounted for in any adequate description of an observer's perceptual performance (Price, 1966). In studies (which used traditional psychophysical methods) indicating that Type As are less attentive than Type Bs to peripheral stimuli (e.g., Matthews & Brunson, 1979; Stern et al., 1981), it may be that Type As adopt stricter criteria for reporting the presence of peripheral stimuli and, as a result, only appear to be less sensitive to the stimulus. In studies of personality and perception, a subject's criterion and its attitudinal and motivational determinants are of interest as well as his perceptual sensitivity. To handle the problem of independently assessing these two elements of perceptual performance a model known as the theory of signal detection (Green & Swets, 1966) has been developed.

In the general signal detection problem, an observation is made of events within a fixed interval of time, and a decision is made, based on this observation, whether the interval contained only background interference or a signal as well. The interference is referred to as noise (N), and the alternative is termed signal plus noise (SN). It is assumed that noise is

constant, whereas the signal may or may not be present during a specified interval. Thus, the signal is always observed in a background of noise. Noise is inherent in sensory processes, but it also may be introduced by the external (i.e., experimental) situation. Noise may be any stimulus not designated as a signal, but which may be confused with it.

The term observation refers to the sensory datum on which a decision is based. It is assumed that an observation may vary continuously along a single dimension. A given observation is further assumed to arise, with specific a priori probabilities, either from noise alone or from signal plus noise. These assumptions are portrayed graphically in Figure 1. The observation is labeled x and is plotted on the abscissa. Repeated presentations of N and SN form overlapping normal distributions, labeled $Fn(x)$ and $Fsn(x)$, respectively. In Figure 1, $Fn(x)$ represents the probability density that x will result given the occurrence of noise alone, and $Fsn(x)$ represents the probability density that x will result given the occurrence of signal plus noise. The distributions overlap to the extent there is confusion between noise alone and signal plus noise. During a given interval an observer is required to make a decision indicating whether an observation is more representative of the signal plus noise distribution or the noise distribution. In effect, the observer is testing statistical hypotheses and taking risks associated with Type I and Type II errors.

The theory of signal detection assumes that subjects make decisions about stimulus events by comparing any given observation with some subjective standard. Subjects are assumed to adopt a cutoff point (the criterion) on the common dimension of observations associated with noise and signal plus noise. An observation that matches or exceeds the criterion will be considered more representative of signal plus noise than noise

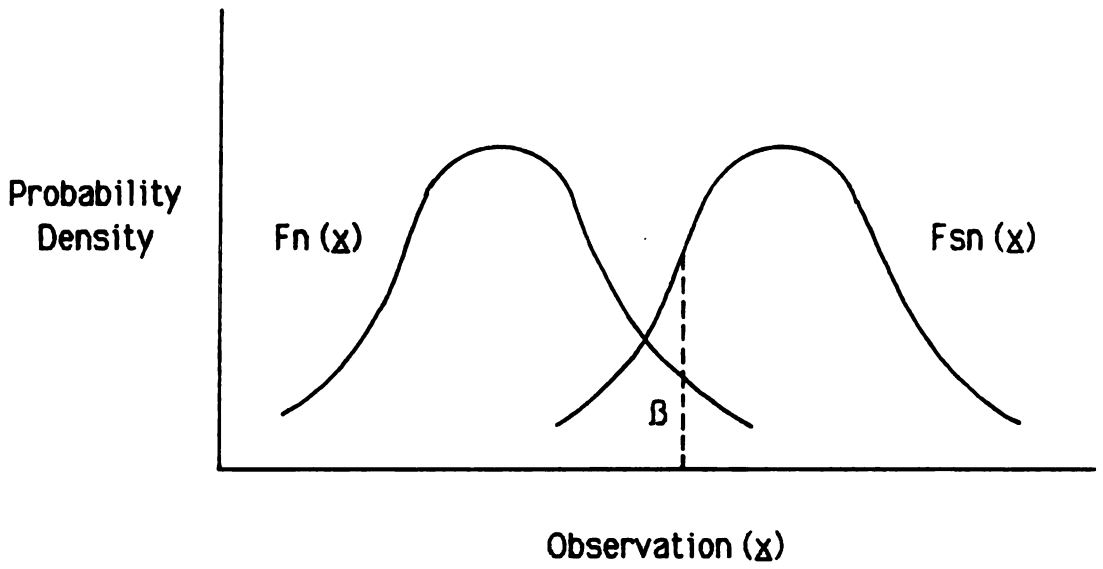


Figure 1. Probability density functions of signal plus noise (sn) and no signal (n). After Swets, Tanner, and Birdsall, 1961.

alone and the response will be "yes." Conversely, an observation that is less than the criterion will be considered more representative of noise alone than signal plus noise and the response will be "no." The particular criterion adopted by an observer depends on the consequences associated with correct and incorrect responses as well as the a priori probabilities of signal plus noise and noise alone occurring within a specified interval.

In Figure 1, the area under the signal plus noise curve to the right of the criterion (β) corresponds to the hit rate (HR), and the area under the noise curve to the right of β corresponds to the false alarm rate (FAR). If a subject establishes a cutoff point far to the right, few hits and few false alarms will be obtained; the subject has adopted a "strict" criterion for reporting SN. If a subject establishes a cutoff point far to the left, both HR and FAR will be increased; the subject has adopted a "lax" criterion for reporting SN.

The accuracy of an observer's decision is a function of sensitivity (d'). The sensitivity measure d' is an indication of the extent to which the signal plus noise and noise distributions overlap. The value of d' varies directly with hit rate and inversely with false alarm rate. If hit rate and false alarm rate are equivalent, then d' is equal to zero; this indicates an observer is responding at a chance level of accuracy. Hit rates greater than the false alarm rate result in values of d' greater than zero (accuracy above chance); hit rates less than the false alarm rate result in values of d' less than zero (accuracy below chance). Values of d' for any combination of hit and false alarm rates can be obtained from a table developed by Elliott (1964).

Like the measure of sensitivity, the value of an observer's criterion (β) can be calculated from hit and false alarm rates. Values of β can be

obtained from a table developed by Gardner, Dalsing, Reyes, and Brake (1984). An observer who is maximizing hits while minimizing false alarms will have a β that is equal to 1.00. A value of β below 1.00 represents a lax criterion, such that the observer will be liberal about reporting signals; a value of β above 1.00 represents a strict criterion, such that the observer will be conservative about reporting signals.

By distinguishing between sensitivity and criterion, the theory of signal detection may clarify differences between Type As and Type Bs in the perception of central and peripheral stimuli. Given the evidence that Type As focus their attention more on the task at hand and attend less to peripheral events than Type Bs do (e.g., Matthews & Brunson, 1979), Type As should be more sensitive than Type Bs in recognizing stimuli when this task is identified as the primary task in a dual-task experiment. However, Type As should be less sensitive than Type Bs when this task is identified as the secondary task.

Differences in response bias between Type As and Type Bs have been unexplored in previous research. It may be of interest to know whether Type As and Type Bs adopt different criteria for reporting the presence of certain social stimuli. As stated earlier, as a result of their own hostility, Type As may come to believe that they live in a hostile world, and this belief may cause them to misperceive hostility in others. Type As, therefore, may be more inclined to report hostility in others on the basis of little evidence. To the degree this is so, Type As will adopt lax criteria when they are required to decide whether or not a given facial expression is angry; they will be lenient about reporting the presence of an angry expression.

Type As' lax criteria in the detection of angry expressions may be

viewed, in part, as a function of the perceived benefits of hits balanced against the costs of false alarms. It is conceivable that, for Type As, the benefit of correctly identifying a true angry expression (a hit) is given more weight than the possibility of incorrectly identifying a nonangry expression as angry (a false alarm). This may be explained by the aggressive attitude of Type As and their general belief that "to be forewarned is to be forearmed" in the competitive battle with others for valued achievements. Thus, it may be more important to Type As to correctly identify an angry foe than to misidentify a friend as a foe.

Present Study

The present study was designed to clarify the differences between Type As and Type Bs in the perception of social cues through the use of signal detection theory (Green & Swets, 1966). Levels of sensitivity and decision criteria were assessed for Type As and Type Bs on a dual-task involving discrimination between angry and neutral faces and discrimination between neutral letters. If Type As are less attentive than Type Bs to personal relationships, then Type As might be expected to show lower sensitivity to angry faces when recognizing the faces is subordinate to some other task (e.g., identifying a neutral letter). The notion that Type As are predisposed to perceive hositility in others was tested by comparing Type As' and Type Bs' decision criteria for reporting that a face was angry rather than neutral.

The present study was also designed to extend the previous findings of inadequate social support among Type As with a comprehensive assessment of social support. In addition, sensitivity to secondary angry faces was correlated with social support, based on the assumption that attention to peripheral social cues may have a positive effect on social

relationships. Finally, decision criteria for reporting angry faces were correlated with social support, based on the assumption that greater willingness to report that a face is angry reflects a predisposition to perceive hostility in others, which may have a negative effect on social relationships.

Chapter 2

HYPOTHESES

I. Perception

1. Type As will be more sensitive in discriminating between two neutral letters than Type Bs when recognition of the letters is the primary task.
2. Type As will be more sensitive in discriminating between an angry face and a neutral face than Type Bs when recognition of the faces is the primary task.

   Hypotheses 1 and 2 follow from evidence that Type As focus more attention on a primary task than Type Bs (e.g., Matthews & Brunson, 1979).
3. Type As will be less sensitive in discriminating between two neutral letters than Type Bs when recognition of the letters is the secondary task.
4. Type As will be less sensitive in discriminating between an angry face and a neutral face than Type Bs when recognition of the faces is the secondary task.

   Hypotheses 3 and 4 follow from evidence that Type As focus less attention on a secondary task than Type Bs (e.g., Matthews & Brunson, 1979).
5. Type As will not differ from Type Bs in their criteria for reporting one neutral letter rather than another neutral letter when recognition of the letters is the primary task.

6. Type As will not differ from Type Bs in their criteria for reporting one neutral letter rather than another neutral letter when recognition of the letters is the secondary task.
7. Type As will be more lenient in reporting that a face is angry rather than neutral than Type Bs when recognition of the faces is the primary task.
8. Type As will be more lenient in reporting that a face is angry rather than neutral than Type Bs when recognition of the faces is the secondary task.

   Hypotheses 7 and 8 are based on the assumption that Type As are predisposed to report anger in others on the basis of little evidence.

II. Social Support

9. Type As will report less social support than Type Bs.
10. Type As will report less unconflicted social support than Type Bs.

    Hypotheses 9 and 10 are based on research reporting that Type As have fewer social relationships (e.g., Jennings, 1983; Waldron et al., 1980).

11. Type As will report more conflicted social support than Type Bs.

    The social relationships of Type As are characterized by aggression and conflict (e.g., Orth-Gomer, 1979; Price, 1982).

12. Type As will report less satisfaction with social support than Type Bs.

    Type As report less satisfactory social relationships (e.g., Black, 1980; General, 1983; Waldron et al, 1980).

III. Perception and Social Support

13. Sensitivity in discriminating between secondary angry and neutral faces will be positively correlated with social support. Inattention to incidental social cues may impair social relationships (Berkowitz, 1972).
14. Criteria for reporting that a primary focus face is angry rather than neutral will be positively correlated with social support.
15. Criteria for reporting that a secondary focus face is angry rather than neutral will be positively correlated with social support.

Hypotheses 14 and 15 assume that greater willingness to report angry faces reflects the predisposition to "see" hostility in others, which, in turn, may impair social relationships. Note that more strict criteria will be indicated by larger values of β, hence the expected positive correlation.

Chapter 3

METHOD

Subjects

Subjects were 24 male and 24 female undergraduate students recruited from introductory psychology classes at Michigan State University. Subjects were offered either five dollars or research credit in return for their participation in this study. The 48 experimental subjects were chosen from a pool of approximately two hundred subjects who were screened for Type A behavior, using the student version of the Jenkins Activity Survey (JAS) (Krantz, Glass, & Snyder, 1974). Separate distributions of Type A behavior scores were formed for males and females, and experimental subjects were selected from the top and bottom 25% of these distributions. During screening sessions subjects also completed the Inventory of Socially Supportive Behaviors (ISSB) (Barrera, 1981; Barrera et al., 1981), and a brief health questionnaire, which included a question about vision. Only subjects reporting vision corrected to 20/20 were included in the experiment. The Arizona Social Support Interview Schedule (ASSIS) (Barrera, 1981) was administered at the end of the laboratory experiment.

Instruments

Jenkins Activity Survey. The Jenkins Activity Survey (JAS) (Jenkins et al., 1971) is a self-report measure that was used to assess degree of

Type A characteristics. This scale contains questions that are similar to those used in a standardized stress interview (Structured Interview) developed by Friedman and Rosenman to assess Type A behavior (Rosenman, 1978). Scoring of the items on the JAS is based on a series of optimal weights derived from discriminant function analyses predicting the Structured Interview classification of large groups of men enrolled in the Western Collaborative Group Study (Jenkins et al., 1971). The JAS has been shown to agree with the Structured Interview assessment 73% of the time, and with the assessment of extreme A's and B's 90% of the time (Jenkins et al., 1971). The test-retest reliability of the JAS has ranged between .60 and .70 across 1-4 year intervals (Jenkins, 1978).

Validity for the JAS as a predictor of coronary heart disease has been well-established through prospective and retrospective studies on the risk factors in the etiology of CHD (Jenkins, Rosenman, & Zyzanski, 1974; Jenkins et al., 1971; Kenigsberg, Zyzanski, Jenkins, Wardell, & Licciardello, 1974; Shekelle, Schoenberger, & Stamler, 1976).

Because the original JAS was developed for use with working adult males, it is not appropriate for male and female college students. A modified, student version of the JAS (Form T) was consequently developed by Krantz, Glass, and Snyder (1974). It is essentially the same as the original version, except that items concerning income, job involvement, and job responsibility have been deleted.

In large samples of undergraduate students the median of the JAS falls between 7 and 8 (Glass, 1977). In the present research, Type As were those who scored well above the median (19 and above), whereas Type Bs were those who scored below the median (7 and below).

Inventory of Socially Supportive Behaviors. The Inventory of Socially

Supportive Behaviors (ISSB) (Barrera, 1981; Barrera et al., 1981) is a self-report measure that was used to assess type and amount of social support. The questionnaire consists of 40 statements describing the enactment of various types of support during the preceding four weeks. Ratings are made on a 5-point Likert-type scale that ranges from "not at all" to "about every day."

The ISSB has shown a high degree of internal consistency and test-retest reliability as indicated by a coefficient alpha of .93 and a test-retest correlation of .88. The measure also showed a modest, but significant correlation with an index of perceived supportiveness (the Moos Family Environment Scale) (Barrera et al, 1981).

The large coefficient alpha reported by Barrera et al. (1981) as well as the results of a factor analysis by Stokes and Wilson (1984) suggest that it is appropriate to use the ISSB as a global measure of social support. However, four interpretable components emerged from Stokes and Wilson's (1984) analysis that are consistent with the types of social support that have been cited in the literature (e.g., Mitchell & Trickett, 1980). Stokes and Wilson (1984) describe the four principle components as follows: emotional support or intimate interaction; tangible assistance and material aid; cognitive information, feedback, and clarification; guidance with a parental or directive quality. Coefficient alphas computed for each component were .85, .71, .83, and .77, respectively. The variance accounted for by each of the four components in Stokes and Wilson's (1984) study is as follows: emotional support, 18.46%; tangible assistance, 12.30%; cognitive information, 18.65%; guidance, 14.29%. In the present study, scores pertaining to these four principle components along with total ISSB scores were derived for each subject.

Arizona Social Support Interview Schedule. The Arizona Social Support Interview Schedule (ASSIS) (Barrera, 1981) is a structured interview designed to measure support satisfaction, type of support, and source of support. Six different types of social support are assessed: intimate interaction, material aid, guidance, positive feedback, physical assistance, and social participation. These categories appear to capture the range of activities that a number of social support researchers (e.g., Caplan, 1976; Hirsch, 1980) have described in their discussions of social support. The ASSIS assesses actual utilization of support resources in addition to availability of support. It is particularly well-suited for this study as it distinguishes between strictly supportive network members and those who are sources of conflict or unpleasant interactions. Thus, differences between conflicted and unconflicted network size may be assessed. The ASSIS is also unique in that it measures satisfaction with social support.

Barrera (1981) reported that the test-retest reliability for total network size was .88. Seventy-four percent of the sources named appeared on both administrations of the interview. Conflicted network size had a significant but much lower test-retest correlation coefficient of .54. The support satisfaction measure was positively skewed toward high satisfaction scores. The test-retest reliability for support satisfaction was fairly low (correlation coefficient = .69), while the internal consistency was much lower (coefficient alpha = .33), indicating that this measure varies considerably internally but is more stable over time at the aggregate level.

When the ASSIS was administered with the ISSB, the ISSB showed a modest, but significant correlation with total network size. In addition,

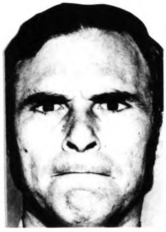
the support satisfaction measure of the ASSIS did not correlate significantly with the ISSB. Thus, the ISSB and the ASSIS appear to be measuring unique features of social support (Barrera, 1981).

Experimental Stimuli

The experimental stimuli were two different sets of 35 mm slides. One set contained four photographs of the faces of two models (one male and one female). Each model projected an angry and neutral closed mouth facial expression (see Figure 2). The emotional expressions were chosen from a set of photographs developed and tested by Ekman and Friesen (1976). The photographs were modified to achieve greater uniformity. Modifications included removing identifying numbers and matching hairlines within male and female subsets. The faces were 12.6 cm in width and 18.2 cm in height, corresponding to 3.0 degrees and 4.3 degrees of horizontal and vertical subtense, respectively, when projected onto a screen 240 cm from the subject. Each face was presented in the center of an illuminated pre-exposure field 58.9 cm in width and 38.9 cm in height. A black dot, positioned in the center of the pre-exposure field, served as a fixation target. The second set of slides contained two letters (P and R). The letters were 2.2 cm in height and subtended an angle of 0.5 degrees. The near- and far-points from fixation equalled 3.7 degrees and 4.2 degrees, respectively.

Stimuli were presented by means of a three field projection tachistoscope focused on a white screen. One projector presented faces and a second projector presented letters. A face and a letter were presented together during each trial. In half of the trials the letters were below the faces, and on the other half of the trials the letters were above the faces. There were an equal number of upper and lower Ps and Rs, as

STIMULUS FACES



ANGRY

NEUTRAL

ANGRY

NEUTRAL

Figure 2. Selected Ekman & Friesen (1976) faces as adapted for use in experiment, labeled according to intended affect.

well as an equal number of angry and neutral and male and female faces. Sixteen different combinations of the four faces and two letters were possible when letter position was introduced as a factor.

Experimental Procedure

After being introduced to the experimental situation, subjects were read general instructions describing the experimental procedure. Following this, subjects previewed the experimental stimuli. Sixteen slides were presented for 3 seconds each. Subjects were instructed to identify the facial expression and the letter presented in each of the slides. Immediate feedback was given following the preview of each of the sixteen slides. Mean accuracy levels were assessed for each expression and each letter.

There were four experimental conditions as follows: (a) social cue detection task alone; (b) letter detection task alone; (c) dual-task condition with the social cue detection task as the primary task and the letter detection task as the secondary task; and (d) dual-task condition with the letter detection task as the primary task and the social cue detection task as the secondary task. The order of presentation of experimental conditions was counterbalanced by randomly assigning subjects to one of four task sequences: abcd, abdc, bacd, or badc.

Prior to each condition, subjects read a set of instructions detailing the procedure for that condition. Subjects were instructed to fixate a central point when the experimenter gave a verbal "ready" signal. Throughout the experiment subjects were reminded to fixate the central point when given this "ready" signal. Following the "ready" signal a slide containing a face and a slide containing a letter were presented simultaneously. Onset of the stimuli was triggered manually by the experimenter. Intertrial intervals were approximately 5 seconds in each of

the four conditions.

The tasks in conditions (a) and (b) were forced-choice tasks, while the tasks in conditions (c) and (d) were yes-no tasks. In the two forced-choice conditions each trial consisted of two stimulus intervals, separated by approximately 2 seconds. Subjects were instructed to identify the interval (first or second) in which the target stimulus was presented. The target stimulus was either an angry face or the letter R, depending on the task. Subjects were told to ignore the letters during the social cue detection task and to ignore the faces during the letter detection task. In the two yes-no (i.e., dual-task) conditions each trial consisted of a single stimulus interval, during which a target face and a target letter were presented. Subjects were told to do their very best on the primary task, while also trying to do as well as they could on the secondary task. They were instructed to first report the primary task stimulus, followed by the secondary task stimulus. For example, if the social cue recognition task was primary and the letter recognition task was secondary, the response might have been "neutral, P."

According to McNicol (1972), the forced-choice task in signal detection theory provides a relatively pure measure of sensitivity that corresponds closely to the measure of sensitivity estimated by the yes-no task. Therefore, stimulus durations for each task in the dual-task conditions were individually determined for each subject, based on their performance on the corresponding forced-choice tasks. Different stimulus durations were generally used for the two tasks in the dual-task conditions; this was possible since faces and letters were presented by means of separate slide projectors.

Stimulus durations for the dual-task conditions corresponded to

approximately 79% correct responses for each task in the forced-choice condition. These durations were determined by means of a transformed up-down procedure described by Levitt (1971). According to this procedure, a stimulus having a high probability of a positive response is presented to the subject. Three consecutive correct responses are followed by a step decrease on the next trial. A single wrong response is followed by a step increase on the next trial. This up-down procedure is repeated for several runs in each direction. Levitt (1971) recommends using mid-run averages to analyze the data obtained with this procedure. The peaks and valleys of several runs are averaged to obtain a robust estimate of the stimulus duration corresponding to 79% correct responses for each task.

In the present experiment, each forced-choice staircase involved 17 runs. Only the last 10 runs were used to compute a reliable stimulus duration for each subject. Since the length of each run varied between subjects, the number of trials also varied between subjects. Levitt (1970) recommends starting with a large step size which is gradually decreased during the course of the experiment in order to maximize efficiency of estimation. The initial value in the forced-choice staircase was 290 msec, with subsequent exposures being x/1.2, where x was the previous exposure. Steps decreased or increased by increments of one exposure level, except in the first and second runs, where every third exposure level was presented, and in the third run, where every other exposure level was presented.

Each dual-task condition consisted of 216 trials. Out of 16 possible dual-task combinations of faces and letters, 12 combinations were presented 12 times and 4 combinations were presented 18 times. There was a one minute break after each block of 72 trials in all four conditions.

There also was a five minute break between conditions, during which instructions for the upcoming set of trials were given to subjects. Following the experiment, subjects were administered the ASSIS. Before leaving, subjects were told how they scored on the JAS, along with a verbal explanation of their score. Subjects also were debriefed about the nature of the study. The total time required to complete the experiment, including the ASSIS, was approximately 3 hours.

Analysis

Using d' and β as dependent measures, 2 (Type A-Type B) X 2 (Male-Female) X 2 (Task Order) X 2 (Attentional Focus) analyses of variance were performed to test the hypotheses pertaining to sensitivity and decision criteria in the perception of angry faces and neutral letters. For each of the dual-task conditions, hit and false alarm rates were assessed for each subject in order to obtain d' and β (McNicol, 1972). Values of d' corresponding to obtained hit and false alarm rates were determined by using a table developed by Elliot (1964). A similar table developed by Gardner, Dalsing, Reyes, and Brake (1984) was used to determine values of β based on obtained hit and false alarm rates. Two (Type A-Type B) X 2 (Male-Female) analyses of variance were performed to test the hypotheses pertaining to social support. Correlation coefficients were computed to determine the relationship between sensitivity to social cues in the dual-task experiment and measures of social support. Correlation coefficients were also computed to assess the relationship between recognition criteria and measures of social support.

Chapter 3

RESULTS

A significant Stimulus effect on sensitivity was found when the male angry face, female angry face, and neutral letter were compared in the dual-task experiment, $F(2,80) = 63.86$, $p < .001$. Figure 3 shows that the male face was easier to discriminate than the letter, which, in turn, was easier to discriminate than the female face. The mean d' for the male angry face was 1.50, the mean d' for the female angry face was .70, and the mean d' for the neutral letter was .95. Post-hoc comparisons using the Tukey method revealed that each mean was significantly different from the others ($p < .01$). In addition, a comparison of recognition criteria for the male face and the female face revealed an overall significant difference, $F(1,40) = 4.70$, $p = .036$. Figure 4 shows that subjects were more conservative in reporting that the male face was angry (the larger the value, the more conservative the criterion). The mean β for the male angry face was 1.29 and the mean β for the female angry face was 1.08. In view of the differences in overall sensitivity and recognition criteria, the male and female faces were treated separately in the following analyses. Because there were no significant effects for sex of subject or task order in any of the analyses, only analyses by type are reported.

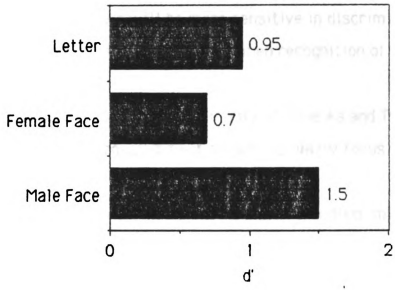


Figure 3. Mean sensitivity (d') for all subjects.

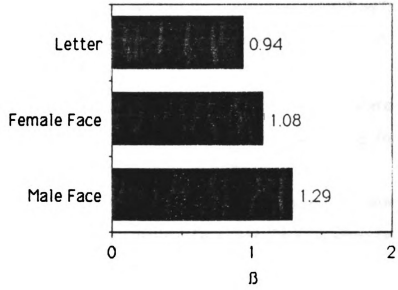


Figure 4. Mean recognition criteria (ß) for all subjects.

Tests of Hypotheses

Perception

Hypothesis 1: Type As will be more sensitive in discriminating between two neutral letters than Type Bs when recognition of the letters is the primary task.

Results: Figure 5 shows the sensitivity of Type As and Type Bs to the neutral letter. The two groups did not differ in primary focus sensitivity to the letter, $F(1,40) < 1$.

Hypothesis 2: Type As will be more sensitive in discriminating between an angry face and a neutral face than Type Bs when recognition of the faces is the primary task.

Results: Figures 6 and 7 show the sensitivity of Type As and Type Bs to the male and female angry faces, respectively. The two groups did not differ in primary focus sensitivity to either face, $F(1,40) < 1$ for both faces.

Hypothesis 3: Type As will be less sensitive in discriminating between two neutral letters than Type Bs when recognition of the letters is the secondary task.

Results: As shown in Figure 5, Type As and Type Bs were about equal in sensitivity to the neutral letter, $F(1,40) < 1$. The mean d' for Type As was .67 and the mean d' for Type Bs was .70.

Hypothesis 4: Type As will be less sensitive in discriminating between an angry face and a neutral face than Type Bs when recognition of the faces is the secondary task.

Results: As Figure 6 shows, when the angry face was male, Type As were less sensitive than Type Bs on the secondary task, $F(1,40) = 3.08$, $p = .044$. The mean d' for Type As was .96 and the mean for Type Bs was 1.26.

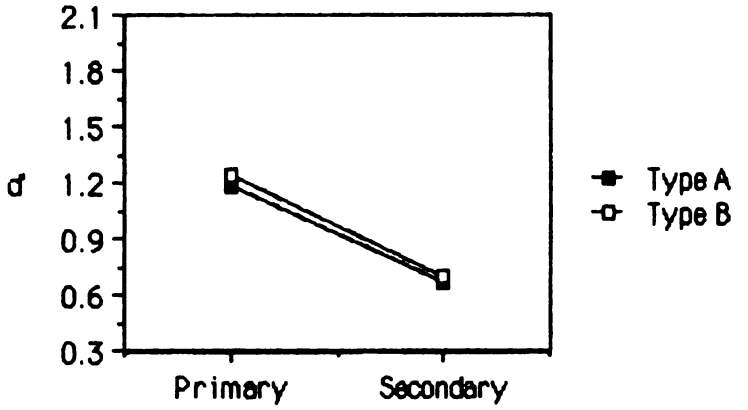


Figure 5. Difference between Type As and Type Bs in sensitivity (d') to the neutral letter.

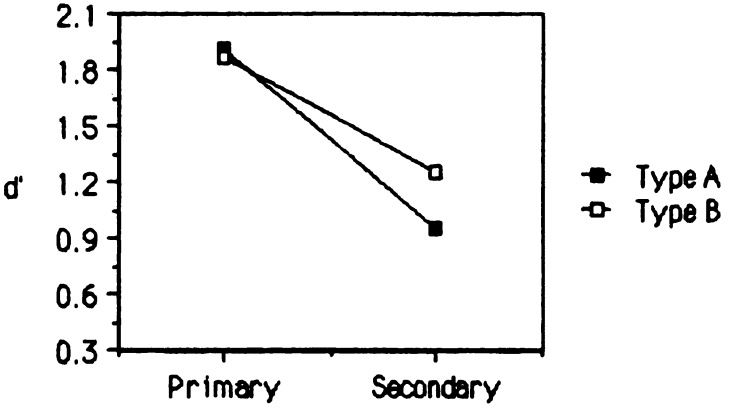


Figure 6. Difference between Type As and Type Bs in sensitivity (d') to the male face.

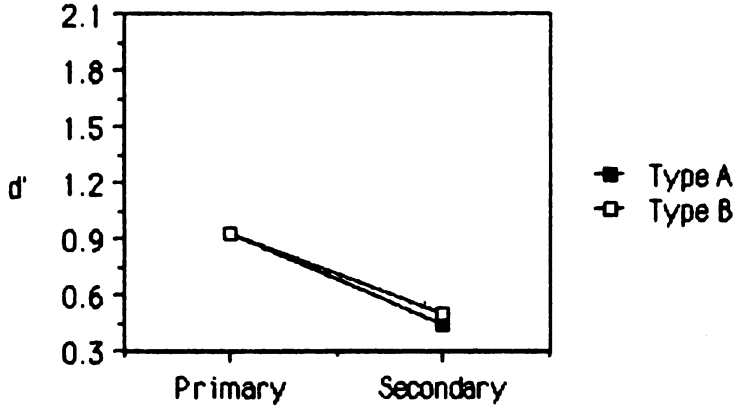


Figure 7. Difference between Type As and Type Bs in sensitivity (d') to the female face.

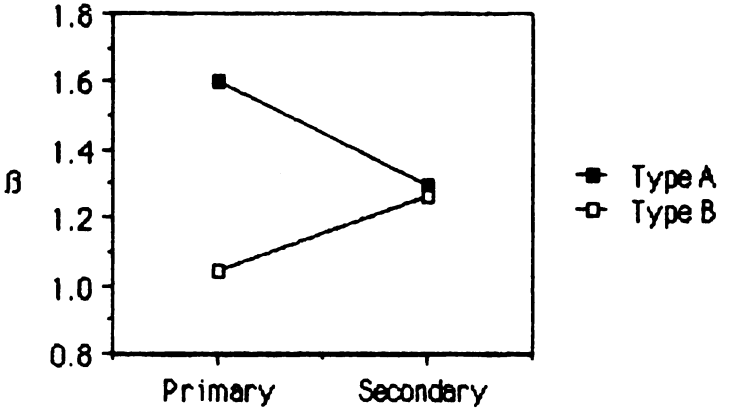


Figure 8. Difference between Type As and Type Bs in recognition criteria (ß) for the male face.

However, as Figure 7 shows, when the angry face was female, Type As performed about the same as Type Bs on the secondary task, $F(1,40) < 1$. The mean d' for Type As was .44 and the mean d' for Type Bs was .50.

Hypothesis 5: Type As will not differ from Type Bs in their criteria for reporting one neutral letter rather than another neutral letter when recognition of the letters is the primary task.

Results: Type As and Type Bs did not differ in recognition criteria for the neutral letter, $F(1,40) = 1.98$, $p = .084$.

Hypothesis 6: Type As will not differ from Type Bs in their criteria for reporting one neutral letter rather than another neutral letter when recognition of the letters is the secondary task.

Results: Type As and Type Bs did not differ in recognition criteria for the neutral letter, $F(1,40) < 1$.

Hypothesis 7: Type As will be more lenient in reporting that a face is angry rather than neutral than Type Bs when recognition of the faces is the primary task.

Results: As shown in Figure 8, Type As were more conservative in reporting the male angry face than Type Bs when recognition of the faces was the primary task, $F(1,40) = 5.78$, $p = .011$. The mean β values were 1.59 for Type As and 1.05 for Type Bs. Type As and Type Bs did not differ in recognition criteria for the female face, $F(1,40) < 1$.

Hypothesis 8: Type As will be more lenient in reporting that a face is angry rather than neutral than Type Bs when recognition of the faces is the secondary task.

Results: Type As and Type Bs did not differ in recognition criteria for either the male angry face or the female angry face, both $F(1,40) < 1$.

Social Support

Hypothesis 9: Type As will report less social support than Type Bs.

Results: Figure 9 shows the amount of social support received by Type As and Type Bs. Contrary to prediction, Type As reported receiving a greater total amount of social support in the previous four weeks than Type Bs, $F(1,44) = 4.76$, $p = .018$. Type As also reported receiving a greater amount of Direct Guidance than Type Bs, $F(1,44) = 8.98$, $p = .003$. In addition, the difference between Type As and Type Bs on Emotional Support and Cognitive Information was significant, again in the opposite direction as predicted, $F(1,44) = 3.38$, $p = .037$, and $F(1,44) = 2.90$, $p = .048$, respectively. Type As and Type Bs did not differ in Tangible Assistance, $F(1,44) = 1.21$, $p = .138$.

Hypothesis 10: Type As will report less unconflicted social support than Type Bs.

Results: Figures 10 and 11 show the mean Available and Enacted ASSIS scores for Type As and Bs. Type As and Type Bs differed in Total Available Support, albeit in the opposite direction as predicted, $F(1,44) = 2.84$, $p = .049$. The difference between Type As and Type Bs in Total Enacted Support approached significance, also in the unexpected direction, $F(1,44) = 2.03$, $p = .081$. The two groups did not differ significantly on any other ASSIS variables.

Hypothesis 11: Type As will report more conflicted social support than Type Bs.

Results: As shown in Figure 10 and 11, Type As did not differ from Type Bs in reported Available or Enacted Conflicted Support, both $F(1,44) < 1$.

Hypothesis 12: Type As will report less satisfaction with social

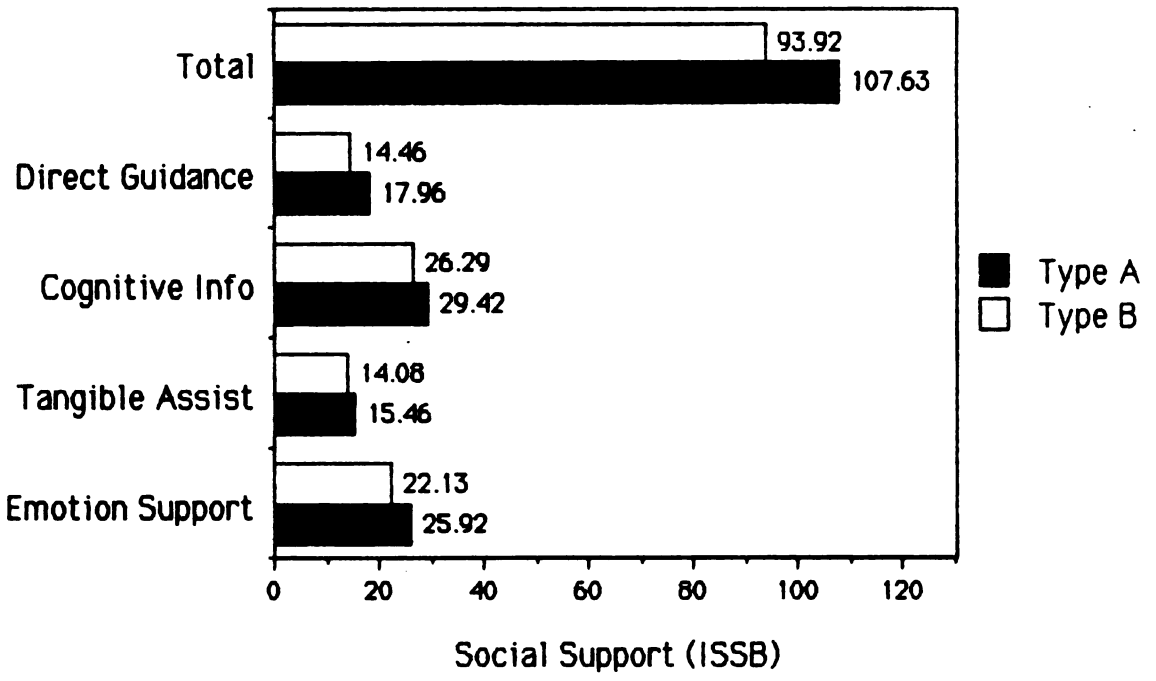


Figure 9. Amount of social support received by Type As and Type Bs.

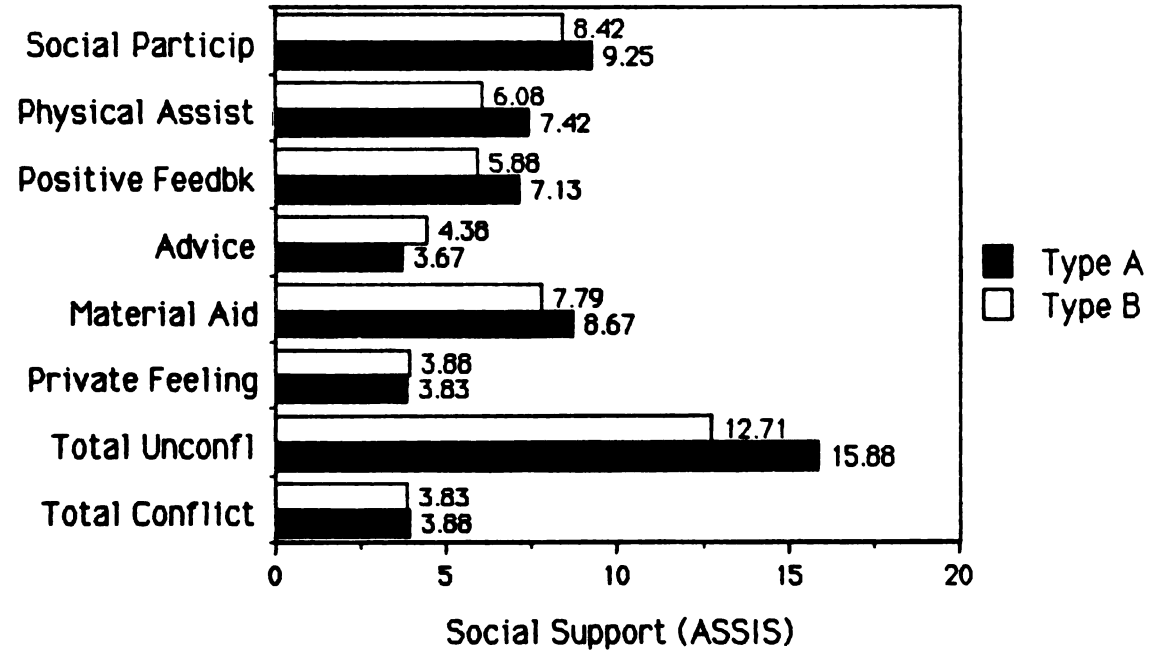


Figure 10. Available social network size for Type As and Type Bs.

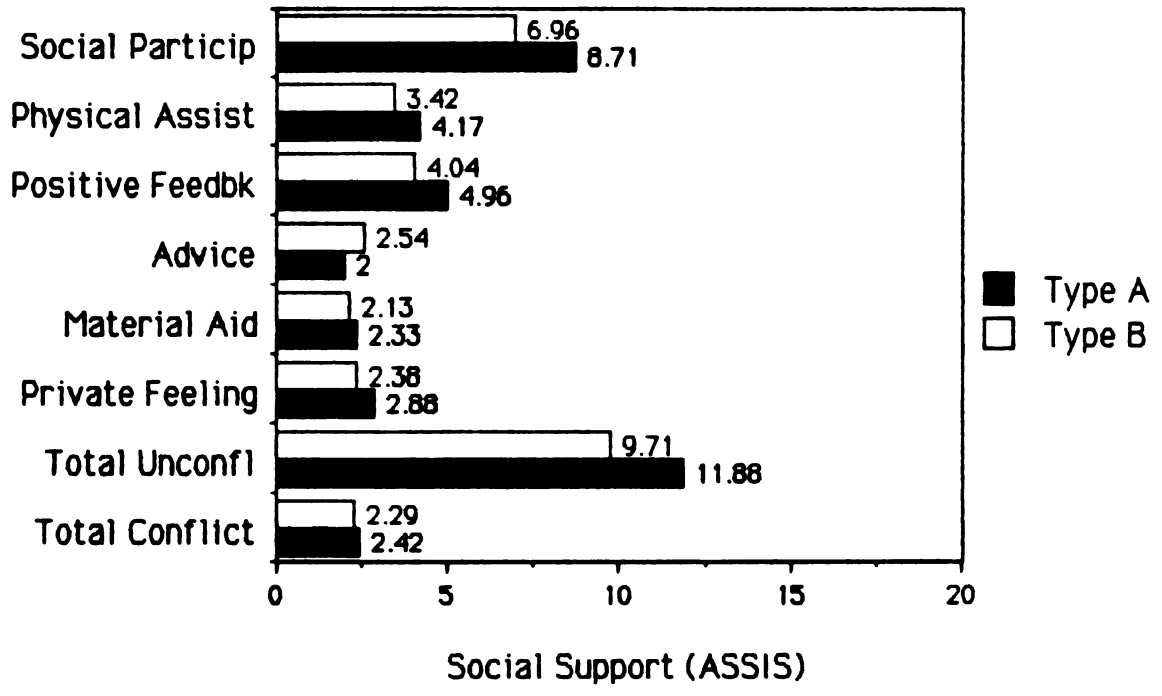


Figure 11. Enacted social network size for Type As and Type Bs.

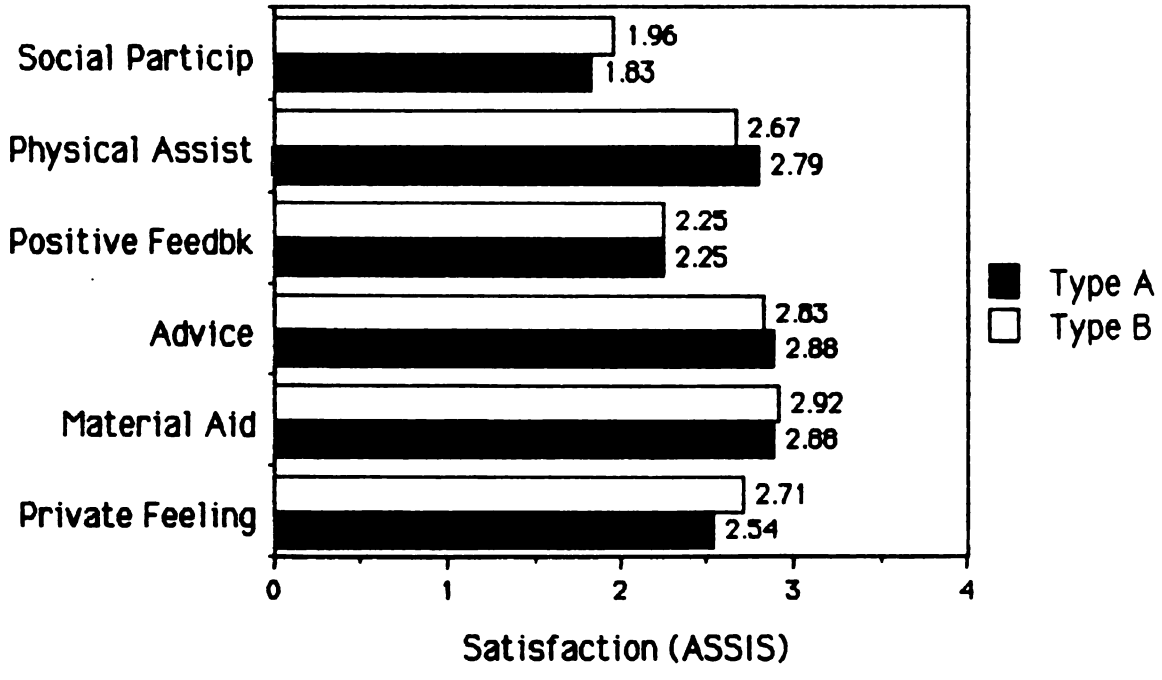


Figure 12. Satisfaction with social support for Type As and Type Bs.

support than Type Bs.

Results: Mean ASSIS Satisfaction scores for Type As and Type Bs are presented in Figure 12. Type As and Type Bs did not differ significantly in reported level of satisfaction for any of the ASSIS categories of social support, all $F(1,44) < 1$.

Perception and Social Support

Hypothesis 13: Sensitivity in discriminating between secondary angry and neutral faces will be positively correlated with social support.

Results: The correlation between secondary focus sensitivity to the male angry face and Total ISSB was significant, albeit in the opposite direction as predicted, $r = -.29$, $p = .022$. The same correlation for the female angry face approached significance, again in the unexpected direction, $r = -.22$, $p = .060$. The correlations between secondary focus sensitivity to the male angry face, and ASSIS Total Available and Total Enacted Support were not significant, $r = -.06$, $p = .335$ and $r = -.14$, $p = .168$, respectively. The correlations between secondary focus sensitivity to the female angry face and ASSIS Total Available Support and Total Enacted Support also failed to reach significance, $r = -.08$, $p = .294$ and $r = -.13$, $p = .189$, respectively.

Hypothesis 14: Criteria for reporting that a primary focus face is angry rather than neutral will be positively correlated with social support.

Results: The correlations between primary focus criteria for the male and female angry faces and Total ISSB failed to reach significance, $r = .04$, $p = .388$ and $r = -.21$, $p = .074$, respectively. The correlations between primary focus criteria for the male angry face and ASSIS Total Available Support and Total Enacted Support were not significant, $r = .17$, $p = .124$ and $r = .07$, $p = 326$, respectively. The same correlations for the female

angry face also failed to reach significance, $r = -.17$, $p = .122$ and $r = -.12$, $p = .210$, respectively.

Hypothesis 15: Criteria for reporting that a secondary focus face is angry rather than neutral will be positively correlated with social support.

Results: The correlations between secondary focus criteria for the male and female angry faces and Total ISSB failed to reach significance, $r = -.17$, $p = .127$ and $r = -.15$, $p = .162$, respectively. The correlations between secondary focus criteria for the male angry face and ASSIS Total Available Support and Total Enacted Support were not signficant, $r = -.06$, $p = .337$ and $r = -.16$, $p = .147$, respectively. The same correlations for the female angry face also did not reach significance, $r = -.04$, $p = .392$ and $r = -.18$, $p = .114$, respectively.

Additional Findings

Although they were not predicted, a number of additional results were examined to provide more detailed information on responses to angry faces. Comparisons were made to determine whether Type As and Type Bs were more or less sensitive to angry faces relative to a neutral letter. Comparisons were also made to determine whether Type As and Type Bs set different criterion levels when responding to angry faces relative to a neutral letter. Finally, in view of the unexpected failure to find the same pattern of results as Matthews and Brunson (1979) reported, the dual-task results were analyzed by the method used in their study. Analyses of variances were computed to determine whether Type As and Type Bs differed in percent correct (hit rate) on each of the dual-tasks.

Sensitivity: Angry faces and neutral letter

The interaction between Stimulus and Type was not signficant for the

comparison of the male angry face and the letter, $F(1,40) < 1$. However, there was a significant Stimulus X Type X Attentional Focus interaction, $F(1,40) = 4.60$, $p = .038$. A graph of this interaction is presented in Figure 13. The decrease in sensitivity from the primary to secondary focus conditions for the male angry face was greater for Type As than Type Bs, $F(1,40) = 3.34$, $p = .075$, while the decrease in sensitivity for the letter was only slightly less for Type As than Type Bs, $F(1,40) < 1$. The difference in sensitivity between the primary and secondary focus conditions for the male angry face was largely due to the greater decrease in sensitivity for the secondary focus condition for Type As compared to Type Bs. That is, Type As showed a greater decrease in sensitivity to the male angry face than the letter when the tasks were the secondary focus of attention.

Neither the Stimulus X Type interaction nor the Stimulus X Type X Attentional Focus interaction was significant for the comparison of the female angry face and the letter, both $F(1,40) < 1$.

Recognition criteria: Angry faces and neutral letter

As shown in Figure 14, Type As were more conservative than Type Bs in identifying a male face as angry rather than neutral, while Type As were slightly less conservative than Type Bs in identifying a neutral letter. The Stimulus X Type interaction approached significance, $F(1,40) = 3.71$, $p = .061$. The interaction between Stimulus, Type, and Attentional Focus for the comparison of the male angry face and the letter was significant, $F(1,40) = 4.60$, $p = .038$. Figure 15 shows that the interaction between Stimulus and Type was mainly due to the difference in criteria for Type As and Type Bs within the primary focus condition; within the secondary focus condition, Type As and Type Bs adopted similar criteria in response to the male face and the letter.

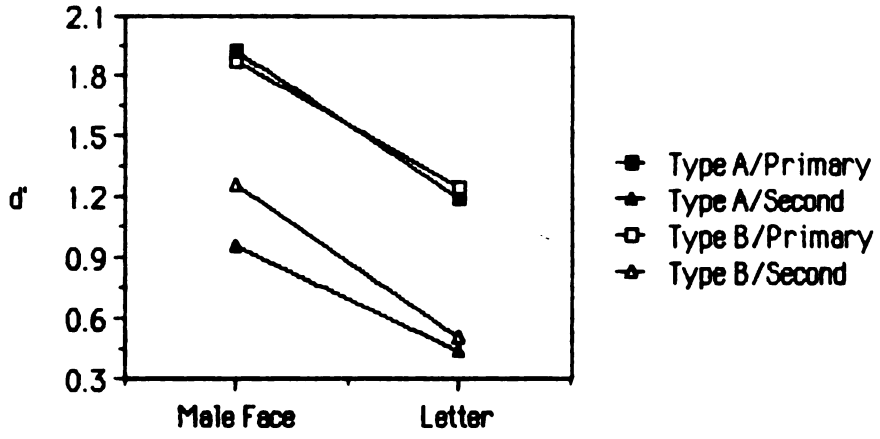


Figure 13. Difference in sensitivity (d') between male face and letter as a function of behavior type and attentional focus.

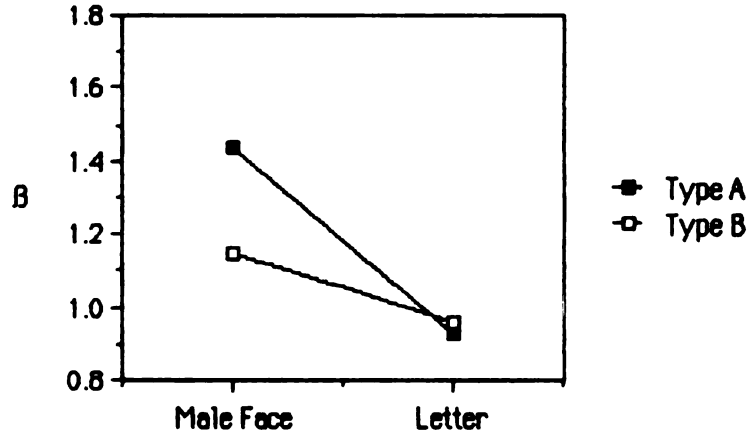


Figure 14. Difference in recognition criteria (β) between male face and letter as a function of behavior type.

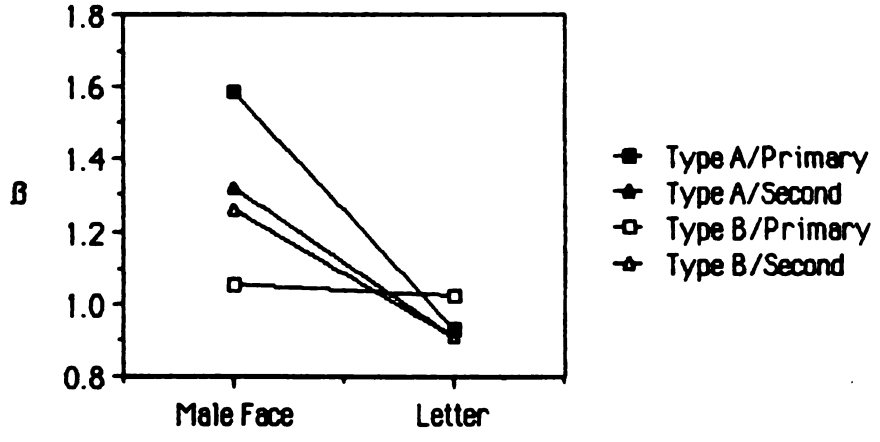


Figure 15. Difference in recognition criteria (β) between male face and letter as a function of behavior type and attentional focus.

The Stimulus X Type interaction for the comparison of the female angry face and the letter failed to reach significance, $F(1,40) < 1$. In addition, the Stimulus X Type X Attentional Focus interaction was not significant, $F(1,40) < 1$.

Hit rates: Angry faces and neutral letter

Type As and Type Bs did not differ in primary focus hit rate for the female angry face, $F(1,40) = 1.03$, $p = .318$. The same comparison for the male angry face approached significance, $F(1,40) = 3.64$, $p = .064$. The mean hit rate for Type As was 74.9 percent and the mean hit rate for Type Bs was 80.3 percent. Matthews and Brunson (1979) reported that Type As correctly completed significantly more primary task Stroop problems than Type Bs; Type As completed 165.0 problems compared to 106.7 problems for Type Bs.

Type As had fewer hits on secondary focus male angry faces than Type Bs, $F(1,40) = 4.71$, $p = .036$. The mean hit rate for Type As was 59.2 percent and the mean hit rate for Type Bs was 67.7 percent. However, Type As and Type Bs did not differ in secondary focus hit rate for the female angry face, $F(1,40) < 1$. Matthews and Brunson (1979) reported that the number of peripheral lights noticed was significantly different for Type As and Type Bs; Type As noticed 10.3 lights and Type Bs noticed 11.8 lights.

No difference between Type As and Type Bs was found in primary or secondary focus hit rate for the neutral letter, $F(1,40) < 1$.

Chapter 4
DISCUSSION

Perception

Contrary to expectation, Type As and Type Bs did not differ in sensitivity to a nonsocial stimulus when it was either the primary or secondary focus of attention in a dual-task experiment. This finding is contrary to Matthews and Brunson's (1979) conclusion that Type As, relative to Type Bs, allocate more attention to a primary task and less attention to a secondary task. Matthews and Brunson (1979) did not distinguish between sensitivity and response bias, and therefore their assessment of attention allocation confounds these two factors. However, even when the data were analyzed according to the more conventional method of computing percent correct, employed by Matthews and Brunson (1979), Type As did not differ from Type Bs in either of the dual-task conditions for the nonsocial stimulus. Thus, the present results suggest that Type As and Type Bs allocate the same amount of attention to a nonsocial stimulus, regardless of the focus of attention, when attention is assessed by perceptual sensitivity as well as by the measure percent correct.

In addition to applying the methodology of signal detection theory to a dual-task experiment similar to the one conducted by Matthews and Brunson (1979), the present experiment aimed to extend their findings to

include social stimuli. The results of the experiment gave partial support to the proposition that Type As and Type Bs differ in the amount of attention allocated to social stimuli. Type As and Type Bs did not differ in sensitivity to primary focus male or female angry faces. However, Type As showed less sensitivity than Type Bs to the male angry face when the faces were the secondary focus of attention. This suggests that Type As and Type Bs differ in allocation of attention to secondary stimuli depending on the nature of the stimuli. Type As, compared to Type Bs, appear to allocate less attention to secondary social stimuli such as angry faces, when the angry face is male.

Based on a limited capacity model of attention (Kahneman, 1973), one might expect Type As, compared to Type Bs, to be more sensitive to the primary neutral letter in view of the fact that Type As were less sensitive to the secondary male angry face. Type As should have had more attentional resources available to identify the neutral letter, since they apparently allocated less attention to discriminating the male angry face than Type Bs. In spite of the fact that Type As and Type Bs did not differ in sensitivity to the primary neutral letter, Type As nevertheless may have allocated more attention to this task than Type Bs. This is possible since equal levels of task performance do not necessarily imply equal amounts of attention allocation. When a task involves the detection of a weak signal in a noisy environment, performance is limited primarily by the quality of the data or the signal-to-noise ratio. Up to a certain point, increases in the amount of available attentional resources can result in improved performance. Beyond that point, however, increases in the allocation of attention have no added effect on detection of the signal, and the task is said to be data-limited (Norman & Bobrow, 1975).

Type As may have been so intent upon performing well on the primary task that they allocated more attention to this task than was necessary. Beyond a certain point, the quality of the primary signal may have prevented any increases in attention allocation from having a beneficial effect on performance. The additional amount of attention allocated to the primary task would necessarily diminish the attentional resources available for the secondary task and result in a decrease in secondary task performance. The chronic, aggressive struggle of Type As to achieve and to constantly push themselves to higher levels of performance (Matthews & Brunson, 1979) makes this interpretation plausible.

Whereas Type A subjects were less sensitive than Type B subjects in detecting secondary male stimuli, the two groups did not adopt different criteria for recognizing secondary social stimuli. Type As and Type Bs adopted similar criteria in deciding whether or not a secondary task facial expression was angry. However, Type As and Type Bs differed in recognition criteria for male angry faces when the faces were the primary focus of attention. Type As were more cautious than Type Bs in reporting expressions of anger in others when the social stimulus was the central focus of attention.

The signal strength of the female angry face may have been too weak to reveal individual differences in perceptual behavior. Perhaps this is why Type As and Type Bs differed in secondary focus sensitivity to the male angry face but not to the female angry face, and Type As and Type Bs differed in recognition criteria for the primary male angry face but not to the female angry face.

A key component of the Type A behavior pattern is "free-floating hostility" (Friedman & Rosenman, 1974). It has been suggested that Type

As are hyperalert to signs of hostility in others (Price, 1982). Consistent with this notion, Williams et al. (1980) report that Type As are more likely to characterize others as bad, selfish, and exploitative. Assuming that Type As, compared to Type Bs, are more sensitive to hostility in others, Type As should be more accurate in detecting an angry face. The results failed to support this expectation. Type As were actually less accurate in reporting an angry male face when detection of the face was the secondary task.

The results suggest that Type As and Type Bs exercise a different strategy when detecting an angry face. More so than Type Bs, Type As appear to reduce their sensitivity to secondary task expressions of anger in order to not interfere with their ability to perform the primary task. On the primary task, they maintain a level of sensitivity to angry faces comparable to Type Bs but exercise more caution in labeling the face as angry. Compared to Type Bs, Type As were less sensitive to off-task anger stimuli and more cautious in labeling an expression anger when doing so accurately was the primary goal. This may make Type As more competent than Type Bs in situations in which anger is present but it is not necessary to recognize it or manage it in order to reach the immediate goal. It may make Type As less competent than Type Bs whenever correctly identifying anger is the goal itself or is essential to reaching the primary goal.

Social Support

The results of the study do not provide support for the proposition that Type A behavior is related to inadequate social support. Instead, there was evidence that the total amount of social support received by Type As is greater than that received by Type Bs. Thus, despite previous observations that Type As devote less time to social activities (Becker & Byrne, 1984)

and devalue interpersonal relationships (Suls, Becker, & Mullen, 1981), it appears that, within a college population, Type As receive more support from others, compared to Type Bs.

Contrary to research describing Type As as being less satisfied with social support (e.g., Burke, Weir, & DuWors, 1979), there were no differences between Type As and Type Bs in reported satisfaction with support received. It appears that Type As derive as much satisfaction from social relationships as Type Bs. However, amount of support satisfaction for Type As and Type Bs may not be adequately assessed with the ASSIS. There was very little variability in the scores obtained from the 3-point scale designed to measure satisfaction. A scale with more choices might have uncovered greater variability between Type As and Type Bs in degree of satisfaction with social support.

No difference was found between Type As and Type Bs in the size of their conflicted social networks. This finding seems to refute Price's (1982) assertion that the hostile, competitive nature of Type As may lead to conflict within their social relationships. Although Type As are described as aggressive, it appears that the extent of their reported negative interactions with others is similar to that of Type Bs. Herman, Blumenthal, Black and Chesney (1981) report that Type As tend to deny their aggressive attributes such as hostility and irritability. Type As may have more negative interactions than they admit, but their denial may preclude access to this information. A self-report instrument such as the ASSIS may not be capable of detecting differences between Type As and Type Bs in the size of their conflicted social networks.

Despite previous observations that Type As have fewer social relationships than Type Bs (e.g., Waldron et al., 1980), Type As in the

present study reported larger unconflicted social support networks than Type Bs. It appears that college-aged Type As are more gregarious than Type Bs. This finding is consistent with a recent study by Chin (1986), who reported that pre-adolescent Type As had larger social networks than Type Bs. The conflicting results between Waldron et al. (1980), on the one hand, and Chin (1986) and the present study, on the other hand, may be due to different conceptualizations of social support. Waldron et al. (1980) reported a single index of social support, which included network size as one component. This one-dimensional approach to assessing social support has been criticized by Tardy (1985), who urged researchers to keep the different aspects of social support conceptually and empirically separate. Thus, differences between Type As and Type Bs in social support may be dependent upon the way social support is conceptualized and measured.

The discrepancy between the the present findings and those of previous Type A studies may also have to do with the populations studied. The majority of the studies that have reported lower levels of social support for Type As (e.g., Becker & Byrne, 1984; Suls, Becker, & Mullen, 1981) have used adults as subjects. The maintenance of large social networks may be characteristic of adolescent Type As. Price (1982) points out that Type As tend to accumulate money and material possessions as signs of success and self-worth. Adolescent Type As may act similary but popularity with peers is the measure of self-worth instead of tangible property. Thus, social support may be a symbol of achievement for adolescent Type As.

Social Support and Perception

There was unexpected evidence that attention to secondary social cues is inversely related to social support. Greater sensitivity to the male

angry face was associated with lesser total amount of support received. This finding suggests two possible interpretations. One is that attention to secondary cues of hostility has a negative impact on social relationships. It may be that attention to incidental hostility cues interferes with the maintenance of adequate relationships. Being "hypersensitive" to others' anger may make them uncomfortable and disrupt social relationships. Social sensitivity beyond a certain point, therefore, may be harmful to social support. Alternatively, lack of social support may lead to low self-esteem and resentment, which, in turn, may result in greater sensitivity to incidental cues of rejection or anger in others. Thus, "hypersensitivity" to anger may be seen as the cause as well as the effect of low social support.

Recognition criterion levels were unrelated to social support. It appears that willingness to report an angry face is not associated with amount of social support received or size of social support networks. This finding suggests that willingness to report an angry face is not related to a predisposition to perceive hostility in others. Alternatively, if willingness to report an angry face is related to such a predisposition, then the effect on social support was not measured by the method used in this experiment. It may be that recognition criteria have an effect on social relationships, but this effect may apply to social stimuli other than angry faces.

Recommendations

The initial speculation about the attentional style of Type As was derived from observations that Type As tend to be hypervigilant and inattentive to task-irrelevant stimuli. The present research suggests that the nature of the stimulus is a factor influencing sensitivity and response bias. However, the number of experimental stimuli presented to subjects

limits this finding to a restricted range of social cues. The disparate findings for the male face and female face point to the need for future research to use a greater number of faces as experimental stimuli. In addition, the stimuli should be equated for difficulty of detection prior to looking at possible differences between Type As and Type Bs. This step might eliminate some of the ambiguity in interpreting the difference in sensitivity to the male face and the lack of difference in sensitivity to the female face for Type As and Type Bs. The use of additional male and female faces that have been matched for detectability would allow possible differences related to the gender of the social stimulus to emerge.

The application of the theory of signal detection to study the attentional styles of Type As and Type Bs appears to be advantageous in view of the potential criterion as well as sensitivity differences between Type As and Type Bs. Future research might explore the extent to which Type As and Type Bs differ in response bias as a function of the value of hits and false alarms and of the nature of the social stimulus. Different facial expressions, for example happy, sad and angry, may elicit different patterns of response bias and sensitivity for Type As and Type Bs. Of particular importance would be studies of attention to these social cues in the natural environment.

Further research needs to be done to reconcile the social support findings of the present research with the results of previous studies. Using the ASSIS and the ISSB to examine the social support variables of an older population of Type A and Type B subjects may be helpful in identifying the source of variability between studies. The use of these instruments to study a population of Type As with coronary disease may also reveal a different pattern of social support than that of the

nonclinical population in the present research.

The social support results were correlational in nature, and thus, the findings reveal trends rather than causal relationships. Therefore, caution should be taken in assuming on the basis of the above results that Type A behavior leads to greater social support or that lack of sensitivity to peripheral social cues leads to less social support. Further research using factorial designs is warranted to explore the relationships found in this study. The obtained correlations between social support and perception are relatively small, and are based on the responses of undergraduate students. Additional research is needed to determine whether the same magnitude of correlations is found in the adult population.

Type A behavior was assessed by the JAS in the present study, and while it has been the instrument of choice of the majority of the studies previously cited, the JAS is generally thought to be a less effective method of assessment than the Structure Interview (SI). In particular, the SI is more effective at measuring the hostile component of the Type A behavior pattern. The relationship between Type A behavior and perception of facial expressions of anger may become clearer if Type A behavior is measured by the SI. Further research using the both SI and the JAS may resolve this issue.

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APPENDICES

APPENDIX A

PERSONAL HEALTH INFORMATION

PERSONAL HEALTH INFORMATION

1. Do you have normal vision?
   ____ Yes
   ____ No
   If No, is your vision correctable to 20/20 by wearing glasses or contact lens?
   ____ Yes
   ____ No

2. Do you have any hearing impairment?
   ____ Yes
   ____ No

3. Are you in generally good health?
   ____ Yes
   ____ No
   If No, please indicate health problem:

4. Is there any history of heart disease (e.g., heart attack, chest pain, or high blood pressure) in a parent or sibling in your family?
   ____ Yes
   ____ No
   If Yes, please designate by the appropriate letter (F for Father; M for Mother; B for Brother; S for Sister) next to what they have had.
   ____ Heart attack
   ____ Chest pain
   ____ High blood pressure (BP greater than 140/90)

5. Do you smoke cigarettes?
   ____ Yes
   ____ No
   If Yes, please indicate how much you smoke each day:

6. Do you drink caffeine beverages (e.g., coffee, tea, soft drinks)?
   ____ Yes
   ____ No
   If Yes, please indicate how much you drink each day:

APPENDIX B

JENKINS ACTIVITY SURVERY

JENKINS ACTIVITY SURVEY

Form T

Please answer the questions on the following pages by marking the answers that are true for you. Each person is different, so there are no "right" or "wrong" answers. Of course, all you tell us is strictly confidential--to be seen only by the research team. Do not ask anyone else about how to reply to the items. It is your personal opinion that we want.

For each of the following items, please circle the number of the ONE best answer:

1. Do you ever have trouble finding time to get your hair cut or styled?
   (1) Never (2) Occasionally (3) Almost never

2. Does college stir you into action?
   (1) Less often than most college students
   (2) About average
   (3) More often than most college students

3. Is your everyday life filled mostly by
   (1) Problems needing solution
   (2) Challenges needing to be met
   (3) A rather predictable routine of events
   (4) Not enough things to keep me interested or busy

4. Some people live a calm, predictable life. Others find themselves often facing unexpected changes, frequent interruptions, inconveniences or "things going wrong." How often are you faced with these minor (or major) annoyances or frustrations?
   (1) Several times a day (2) About once a day
   (3) A few times a week (4) Once a week
   (5) Once a month or less

5. When you are under pressure or stress, do you usually
   (1) Do something about it immediately
   (2) Plan carefully before taking any action

6. Ordinarily, how rapidly do you eat?
   (1) I'm usually the first one finished
   (2) I eat a little faster than average
   (3) I eat at about the same speed as most people
   (4) I eat more slowly than most people

7. Has your spouse or some friend ever told you that you eat too fast?
   (1) Yes, often (2) Yes, once or twice
   (3) No, no one has told me this

8. How often do you find yourself doing more than one thing at a time, such as working while eating, reading while dressing, figuring out problems while driving?
   (1) I do two things at once whenever practical
   (2) I do this only when I'm short of time
   (3) I rarely or never do more than one thing at a time

9. When you listen to someone talking, and this person takes too long to come to the point, do you feel like hurrying him along?
   (1) Frequently (2) Occasionally (3) Almost never

10. How often do you actually "put words in someone's mouth" in order to speed things up?
   (1) Frequently (2) Occasionally (3) Almost never

11. If you tell your spouse or a friend that you will meet them somewhere at a definite time, how often do you arrive late?
   (1) Once in a while (2) Rarely (3) I am never late

12. Do you find yourself hurrying to get to places even when there is plenty of time?
   (1) Often (2) Occasionally (3) Rarely or never

13. Suppose you are to meet someone at a public place (street corner, building lobby, restaurant) and the other person is already ten minutes late. Will you
   (1) Sit and wait? (2) Walk about while waiting?
   (3) Usually carry some reading matter or writing paper so you can get something done while waiting?

14. When you have to "wait in line," such as at a restaurant, a store, or the post office, do you
    (1) Accept it calmly?
    (2) Feel impatient but do not show it?
    (3) Feel so impatient that someone watching could tell you were restless?
    (4) Refuse to wait in line, and find ways to avoid such delays?

15. When you play games with young children about ten years old, how often do you purposely let them win?
    (1) Most of the time (2) Half the time
    (3) Only occasionally (4) Never

16. Do most people consider you to be
    (1) Definitely hard-driving and competitive?
    (2) Probably hard-driving and competitive?
    (3) Probably more relaxed and easy-going?
    (4) Definitely more relaxed and easy-going?

17. Nowadays, do you consider yourself to be
    (1) Definitely hard-driving and competitive?
    (2) Probably hard-driving and competitive?
    (3) Probably more relaxed and easy-going?
    (4) Definitely more relaxed and easy-going?

18. How would your spouse or best friend rate you?
    (1) Definitely hard-driving and competitive
    (2) Probably hard-driving and competitive
    (3) Probably more relaxed and easy-going
    (4) Definitely more relaxed and easy-going

19. How would your spouse or best friend rate your general level of activity?
    (1) Too slow. Should be more active
    (2) About average. Is busy much of the time
    (3) Too active. Needs to slow down

20. Would people who know you well agree that you take work too seriously?

(1) Definitely yes (2) Probably yes
(3) Probably no (4) Definitely no

21. Would people who know you well agree that you have less energy than most people?
(1) Definitely yes (2) Probably yes
(3) Probably no (4) Definitely no

22. Would people who know you well agree that you tend to get irritated easily?
(1) Definitely yes (2) Probably yes
(3) Probably no (4) Definitely no

23. Would people who know you well agree that you tend to do things in a hurry?
(1) Definitely yes (2) Probably yes
(3) Probably no (4) Definitely no

24. Would people who know you well agree that you enjoy "a contest" (competition) and try hard to win?
(1) Definitely yes (2) Probably yes
(3) Probably no (4) Definitely no

25. Would people who know you well agree that you get a lot of fun out of your life?
(1) Definitely yes (2) Probably yes
(3) Probably no (4) Definitely no

26. How was your "temper" when you were younger?
(1) Fiery and hard to control (2) Strong, but controllable
(3) No problem (4) I almost never got angry

27. How is your "temper" nowadays?
(1) Fiery and hard to control (2) Strong, but controllable
(3) No problem (4) I almost never get angry

28. When you are in the midst of studying and someone interrupts you, how do you usually feel inside?
(1) I feel OK because I work better after an occasional break
(2) I feel only mildly annoyed

(3) I really feel irritated because most such interruptions are unnecessary

29. How often are there deadlines in your courses? (If deadlines occur irregularly, please circle the closest answer below.)
    (1) Daily or more often (2) Weekly
    (3) Monthly (4) Never

30. Do these deadlines usually
    (1) Carry minor pressure because of their routine nature?
    (2) Carry considerable pressure, since delay would upset things a great deal?

31. Do you ever set deadlines or quotas for yourself in courses or other things?
    (1) No (2) Yes, but only occasionally
    (3) Yes, once per week or more

32. When you have to work against a deadline, is the quality of your work
    (1) Better (2) Worse
    (3) The same (pressure makes no difference

33. In school do you ever keep two projects moving forward at the same time by shifting back and forth rapidly from one to the other?
    (1) No, never (2) Yes, but only in emergencies
    (3) Yes, regularly

34. Do you maintain a regular study schedule during vacations such as Thanksgiving, Christmas, or Easter?
    (1) Yes (2) No (3) Sometimes

35. How often do you bring your work home with you at night or study materials relative to your courses?
    (1) Rarely or never (2) Once a week or less often
    (3) More than once a week

36. How often do you go to the University when it is officially closed (such as nights or weekends)?
    (1) Rarely or never (2) Less than once week

(3) Once or more a week

37. When you find yourself getting tired while studying, do you usually
    (1) Slow down for a while until your strength comes back
    (2) Keep pushing yourself at the same pace in spite of the tiredness

38. When you are in a group, do the other people tend to look to you to provide leadership?
    (1) Rarely (2) About as often as they look to others
    (3) More often than they look to others

39. Do you make yourself written lists of "things to do" to help you remember what needs to be done?
    (1) Never (2) Occasionally (3) Frequently

For each of the <u>following</u> questions, please compare yourself with the <u>average student</u> at the university.

40. In amount of effort put forth, I give
    (1) Much more effort (2) A little more effort
    (3) A little less effort (4) Much less effort

41. In sense of responsibility, I am
    (1) Much more responsible (2) A little more responsible
    (3) A little less responsible (4) Much less responsible

42. I find it necessary to hurry
    (1) Much more of the time (2) A little more of the time
    (3) A little less of the time (4) Much less of the time

43. In being precise (careful about detail), I am
    (1) Much more precise (2) A little more precise
    (3) A little less precise (4) Much less precise

44. I approach life in general
    (1) Much more seriously (2) A little more seriously
    (3) A little less seriously (4) Much less seriously

Thank you for your cooperation.

APPENDIX C

INVENTORY OF SOCIALLY SUPPORTIVE BEHAVIORS (ISSB)

INVENTORY OF SOCIALLY SUPPORTIVE BEHAVIORS (ISSB)

We are interested in learning about some of the ways that you feel people have helped you or tried to make life more pleasant for you over the past four weeks. Below you will find a list of activities that other people might have done for you, to you, or with you in recent weeks. Please read each item carefully and indicate how often these activities happened to you during the past four weeks.

Use the following scale to make your ratings:

A. Not at all
B. Once or twice
C. About once a week
D. Several times a week
E. About every day

Please read each item carefully and select the rating that you think is the most accurate.

During the past four weeks, how often did other people do these activities for you, to you, or with you:

_____ 1. Looked after a family member when you were away.
_____ 2. Was right there with you (physically) in a stressful situation.
_____ 3. Provided you with a place where you could get away for awhile.
_____ 4. Watched after your possessions when you were away (pets, plants, home, apartment, etc.).
_____ 5. Told you what he/she did in a situation that was similar to yours.
_____ 6. Did some activity together to help you get your mind off things.
_____ 7. Talked with you about some interests of yours.
_____ 8. Let you know that you did something well.
_____ 9. Went with you to someone who could take action.
_____ 10. Told you that you are OK just the way you are.
_____ 11. Told you that he/she would keep things that you talk about private--just between the two of you.
_____ 12. Assisted you in setting a goal for yourself.
_____ 13. Made it clear what was expected of you.

_____ 14. Expressed esteem or respect for a competency or personal quality of yours.
_____ 15. Gave you some information on how to do something.
_____ 16. Suggested some action that you should take.
_____ 17. Gave you over $25.
_____ 18. Comforted you by showing you some physical affection.
_____ 19. Gave you some information to help you understand a situation you were in.
_____ 20. Provided you with some transportation.
_____ 21. Checked back with to see if you followed the advice you were given.
_____ 22. Gave you under $25.
_____ 23. Helped you understand why you didn't do something well.
_____ 24. Listened to you talk about your private feelings.
_____ 25. Loaned you or gave you something (a physical object other than money) that you needed.
_____ 26. Agreed that what you wanted to do was right.
_____ 27. Said things that made your situation clearer and easier to understand.
_____ 28. Told you how he/she felt in a situation that was similar to yours.
_____ 29. Let you know that he/she will always be around if you need assistance.
_____ 30. Expressed interest and concern in your well-being.
_____ 31. Told you that he/she feels very close to you.
_____ 32. Told you who you should see for assistance.
_____ 33. Told you what to expect in a situation that was about to happen.
_____ 34. Loaned you over $25.
_____ 35. Taught you how to do something.
_____ 36. Gave you feedback on how you were doing without saying it was for good or bad.
_____ 37. Joked and kidded to try to cheer you up.
_____ 38. Provided you with a place to stay.
_____ 39. Pitched in to help you do something that needed to get done.
_____ 40. Loaned you under $25.

APPENDIX D

ARIZONA SOCIAL SUPPORT INTERVIEW SCHEDULE (ASSIS)

ARIZONA SOCIAL SUPPORT INTERVIEW SCHEDULE (ASSIS)

I would like to get an idea of the people who are important to you in a number of different ways. I will be reading descriptions of ways that people are often important to us. After I read each description I will be asking you to give me the first names, initials, or nicknames of the people who fit the description. These people might be friends, family members, teachers, ministers, doctors, or other people you might know.

If you have any questions about the descriptions after I read each one, please ask me to try and make it clearer.

A. PRIVATE FEELINGS

1. If you wanted to talk to someone about things that are very personal and private, who would you talk to? Give me the first names, initials, or nicknames of the people that you would talk to about things that are very personal and private.

PROBE: Is there anyone else that you can think of?

2. During the past month, which of these people did you actually talk to about things that were personal and private?

PROBE: Ask specifically about people who were listed in response to #1 but not listed in response to #2.

3. During the past month, would you have liked:
   - 1 = a lot more opportunities to talk to people about your personal and private feelings
   - 2 = a few more opportunities
   - 3 = or was this about right?

4. During the past month, how much do you think you needed people to talk to you about things that were very personal and private?
   1 = not at all
   2 = a little bit
   3 = quite a bit

B. MATERIAL AID

1. Who are the people you know that would lend or give you $25 or more if you needed it, or would lend or give you something (a physical object) that was valuable? You can name some of the same people that you named before if they fit this description, too, or you can name some other people.

PROBE: Is there anyone else that you can think of?

2. During the past month, which of these people actually loaned or gave you some money over $25 or gave or loaned you some valuable object that you needed.

PROBE: Ask about people named in response to #1 that were not named in response to #2.

3. During the past month, would you have liked people to have loaned you or to have given you:
   1 = a lot more
   2 = a little more
   3 = or was it about right?

4. During the past month, how much do you think you needed people who could give or lend you things that you needed?
   1 = not at all
   2 = a little bit
   3 = quite a bit

C. ADVICE

1. Who would you go to if a situation came up when you needed some advice? Remember, you can name some of the same people that you mentioned before, or you can name some new people.

PROBE: Anyone else?

2. During the past month, which of these people actually gave you some important advice?

PROBE: Inquire about people who were listed for #1 but not for #2.

3. During the past month, would you have liked:
   1 = a lot more advice
   2 = a little more advice
   3 = or was it about right?

4. During the past month, how much do you think you needed to get advice?
   1 = not at all
   2 = a little bit
   3 = quite a bit

D. POSITIVE FEEDBACK

1. Who are the people that you could expect to let you know when they like your ideas or the things that you do? These might be people you mentioned before or new people.

PROBE: Anyone else?

2. During the past month, which of these people actually let you know that they liked your ideas or liked the things that you did?

PROBE: Ask about individuals who were listed for #1 but not for #2.

3. During the past month, would you have liked people to tell you that they liked your ideas or things that you did:
   1 = a lot more often
   2 = a little more often
   3 = or was it about right?

4. During the past month, how much do you think you needed to have people let you know when they liked your ideas or things that you did?
   1 = not at all
   2 = a little bit
   3 = quite a bit

E. PHYSICAL ASSISTANCE

1. Who are the people that you could call on to give up some of their time and energy to help you take care of something that you needed to do--things like driving you someplace you needed to go, helping you do some work, going to the store for you, and things like that? Remember, you might have listed these people before or they could be new people.

PROBE: Anyone else you can think of?

2. During the past month, which of these people actually pitched in to help you do things that you needed some help with?

PROBE: Ask about people who were named in response to #1 but who were not named in response to #2.

3. During the past month, would you have liked:
   1 = a lot more help with things that you needed to do.
   2 = a little more help
   3 = or was this about right?

4. During the past month, how much do you feel you needed people who would pitch in to help you do things?
   1 = not at all
   2 = a little bit
   3 = quite a bit

F. SOCIAL PARTICIPATION

1. Who are the people that you get together with to have fun or to relax? These could be new names or ones you listed before.

PROBE: Anyone else?

2. During the past month, which of these people did you actually get together with to have fun or to relax?

PROBE: Ask about people who were named in #1 but not in #2.

3. During the past month, would you have liked:
   1 = a lot more opportunities to get together with people for fun and relaxation
   2 = a few more
   3 = or was it about right?

4. How much do you think that you needed to get together with other people for fun and relaxation during the past month?
   1 = not at all
   2 = a little bit
   3 = quite a bit

G. NEGATIVE INTERACTIONS

1. Who are the people that you can expect to have some unpleasant disagreements with or people that you can expect to make you angry and upset? These could be new names or names you listed before.

PROBE: Anyone else?

2. During the past month, which of these people have you actually had some unpleasant disagreements with or have actually made you angry and upset?

PROBE: Ask about people listed for #1 but not for #2.

H. PERSONAL CHARACTERISTICS OF NETWORK MEMBERS

Now I would like to get some information about the people you have just listed. For each person on the list, could you tell me what this person's relationship is to you? For family members, specify the relationship (mother, father, brother, sister, grandmother, etc.). For professional people, also specify the exact profession (teacher, minister, doctor, counselor, etc.). (If sex of the person is unclear, ask for clarification).

APPENDIX E

EXPERIMENTAL INSTRUCTIONS

EXPERIMENTAL INSTRUCTIONS

The experiment you are participating in is designed to study individual differences on a test of perception. A series of faces and letters will be projected on the screen in front of you. The faces are of two models, one male and one female, portraying two different closed mouth expressions: angry and neutral (indifferent). The faces will always be presented in the center of the screen.

A letter (P or R) will be presented at the same time that a face is presented. The position of the letters may be different from one slide to the next. In half of the slides the letters will be above the faces, and in the remainder of the slides the letters will be below the faces. There are an equal number of Ps and Rs, as well as an equal number of angry and neutral and male and female faces.

There will be 4 parts to the test. Before beginning Part 1 of the test you will be shown 2 sets of 8 slides. You will be asked to identify the facial expressions in the first set and the letters in the second set. Each slide will be presented for 3 seconds during this preview period. Following this preview we will commence with Part 1 of the test.

EXPERIMENTAL INSTRUCTIONS: PART 1

In Part 1, your attention should be directed to the faces that will be projected on the screen. You are to ignore the letters in this part of the test. Pairs of slides will be presented with a 2 second interval between them. One of the slides will show an angry face and the other slide will show a neutral face. The sex of the model will be the same within each pair of slides. Your task is to identify which one of the pair of slides (i.e., first or second) shows the angry face.

Each face will be presented in the center of the screen. Your best strategy will be to focus your attention on the black dot (central point) in the center of the screen. As the slides will be presented for a very brief period of time, it will be necessary for you to pay close attention. You will be given a "ready" signal just before each trial. Be sure to focus your attention on the central point as soon as you hear this "ready" signal. Following the "ready" signal the first slide will be flashed on the screen. The second slide will be presented 2 seconds later. Please wait until both slides have been presented before responding. Call out either "first" or "second" to identify which of the two slides contains the angry face.

In the beginning, the test will probably seem fairly easy to you. Gradually, the amount of time you are allowed to see the faces will be reduced and it will become rather difficult to identify the expressions. Do your very best to accurately identify which slide shows the angry face. If you are not sure of the correct response, please give an answer anyway, even if it means guessing. It is important that you respond quickly, as a different pair of slides will be presented every few seconds.

EXPERIMENTAL INSTRUCTIONS: PART 2

In the Part 2 of the test your attention should be directed to the letters that will be projected on the screen. You are to ignore the faces in this part of the test. Again, pairs of slides will be presented with a 2 second interval between them. One of the slides will show a letter R and the other slide will show a letter P. Your task is to identify which one of the pair of slides (i.e., first or second) shows the letter R.

The position of the letter will be random, so that for any particular slide, the letter may be above the face or below the face. Your best strategy will be to focus your attention on the central point in the center of the screen. A "ready" signal will be given to alert you that a trial is about to begin. Be sure to focus your attention on the central point as soon as you hear the "ready" signal. The first slide will be flashed on the screen soon after the "ready" signal. The second slide will be presented 2 seconds later. Please wait until both slides have been presented before responding. Call out either "first" or "second" to identify which of the two slides contains the letter R.

As was the case in Part 1, this part of the test will probably seem rather easy in the beginning. Again, however, the amount of time you are allowed to view the letters will be gradually reduced, making the task more difficult. Do your very best to correctly identify which slide shows the letter R. If you are not sure of the correct response, please give an answer anyway, even if it means guessing. And please do respond quickly. A different pair of slides will be flashed on the screen every few seconds.

EXPERIMENTAL INSTRUCTIONS: PART 3

In Part 3 of the test your task will be to do two things at the same time. Your primary and most important task will be to identify the expression (angry or neutral) of each face that is projected on the screen. It is important that you do your very best to correctly identify each facial expression. In addition to identifying the expression of each face, you are to identify the letter (R or P) that will randomly appear above or below the face. Do as well as you can to identify the letters, knowing that your most important task is to get as many of the expressions correct as you can.

The procedure in Part 3 will be essentially the same as it was in Part 1 and Part 2. A "ready" signal will alert you that a trial is about to begin. Be sure to focus your attention on the central point as soon as you hear the "ready" signal. A face and a letter will be flashed on the screen soon after the "ready" signal. First report the expression, then report the letter. Call out either "angry," or "neutral," followed by "P" or "R."

Before beginning the test trials, you will be given 16 practice trials. The first few practice trials will probably seem fairly easy to you. However, the amount of time you are allowed to see the practice slides will be gradually reduced, and it will become increasingly difficult to see the stimuli.

Following the practice trials, we will begin the test trials. Do your very best to correctly identify each expression. At the same time, try to identify the letters. If you are not sure of the correct response, please give an answer anyway, even if means guessing. You must respond quickly, as a different slide will be presented every few seconds.

EXPERIMENTAL INSTRUCTIONS: PART 4

In Part 4 of the test your task again will be to do two things at the same time. However, now your primary and most important task will be to identify the letter (R or P) that is projected on the screen. It is important that you do your very best to correctly identify each letter. Again, the letters will be randomly presented above or below the faces on each trial.

In addition to identifying each letter, you are to report the expression (angry or neutral) of the face that will appear with the letter. Do as well as you can to identify the facial expressions, knowing that your most important task is to get as many of the letters correct as you can.

The procedure in Part 4 will be essentially the same as it was in the other 3 parts of the test. A "ready" signal will alert you that a trial is about to begin. Be sure to focus your attention on the central point as soon as you hear the "ready" signal. A letter and a face will be flashed on the screen soon after the "ready" signal. First report the letter, then report the expression. Call out either "P," or "R," followed by "angry" or "neutral."

Before beginning the test trials, you will be given 16 practice trials. As was the case in Part 3, the first few practice trials will probably seem fairly easy to you.

Following the practice trials, we will begin the test trials. Do your very best to accurately identify each letter. At the same time, try to identify the expressions. If you are not sure of the correct response, please give an answer anyway, even if means guessing. Again, you must respond quickly, as a different slide will be presented every few seconds.

APPENDIX F

CONSENT FORM

RESEARCH CONSENT FORM

Michigan State University
Department of Psychology

I have freely consented to take part in a scientific study entitled "Social support and perception" being conducted by Lance Schumacher under the supervision of Dr. Norman Abeles, Professor of Psychology.

The study has been explained to me and I understand the explanation that has been given and what my participation will involve.

I understand that I am free to discontinue my participation in the study at any time without penalty.

I understand that the results of the study will be treated in strict confidence and that I will remain anonymous. Within these restrictions, results of the study will be made available to me at my request.

I understand that my participation in the study does not guarantee any beneficial results to me.

I understand that, at my request, I will receive additional explanation of the study after my participation is completed.

Signed: _____

Date: _____

APPENDIX G

TABLES I-XI

TABLE I

FORCED-CHOICE MEANS, STANDARD DEVIATIONS, AND F SCORES

Stimulus	Type A Mean (msec)	Type A SD	Type B Mean (msec)	Type B SD	F
Faces	43.54	19.90	41.25	16.71	.18
Letters	42.79	22.53	36.54	12.92	1.64

Note: All tests are two-tailed, with df = 1, 46.

TABLE II

DUAL-TASK d' MEANS, STANDARD DEVIATIONS, AND F SCORES

Stimulus	Type A Mean	Type A SD	Type B Mean	Type B SD	F
Female Face					
Primary Focus	.93	.45	.92	.45	.00
Secondary Focus	.44	.24	.50	.25	.56
Male Face					
Primary Focus	1.92	.68	1.87	.46	.07
Secondary Focus	.96	.60	1.26	.56	3.08*
Letter					
Primary Focus	1.18	.30	1.24	.36	.30
Secondary Focus	.67	.24	.70	.25	.26

Note: All tests are one-tailed, with df = 1,40.

*p < .05

TABLE III

DUAL-TASK β MEANS, STANDARD DEVIATIONS, AND E SCORES

Stimulus	Type A Mean	Type A SD	Type B Mean	Type B SD	F
Female Face					
Primary Focus	1.02	1.35	1.12	1.23	1.54
Secondary Focus	1.07	1.12	1.10	1.20	.40
Male Face					
Primary Focus	1.59	1.91	1.05	1.70	5.78*
Secondary Focus	1.32	1.66	1.26	1.70	.05
Letter					
Primary Focus	.93	1.18	1.02	1.29	2.00
Secondary Focus	.91	1.12	.91	1.12	.04

Note: All tests are one-tailed, with df = 1,40.

*$p < .05$

TABLE IV

ISSB MEANS, STANDARD DEVIATIONS, AND F SCORES

Measure	Type A Mean	Type A SD	Type B Mean	Type B SD	F
Emotional support	25.92	7.41	22.13	6.77	3.38
Tangible assistance	15.46	5.04	14.08	3.46	1.23
Cognitive information	29.42	6.99	26.29	5.43	2.90
Direct Guidance	17.96	5.13	14.46	2.75	8.98**
Total	107.63	25.88	93.92	15.50	4.76*

Note: All tests are one-tailed, with df = 1,46.

*$p < .05$

**$p < .01$

TABLE V

ASSIS MEANS, STANDARD DEVIATIONS, AND F SCORES

Measure	Type A Mean	Type A SD	Type B Mean	Type B SD	F
Private feelings					
Available	3.83	2.51	3.88	1.54	.01
Enacted	2.88	2.31	2.38	1.35	.85
Satisfaction	2.54	.72	2.71	.55	.81
Material Aid					
Available	8.67	5.28	7.79	3.31	.46
Enacted	2.33	2.08	2.13	1.54	.15
Satisfaction	2.88	.34	2.92	.28	.22
Advice					
Available	3.67	2.58	4.38	2.92	.80
Enacted	2.00	1.79	2.54	1.62	1.18
Satisfaction	2.88	.34	2.83	.38	.17
Positive feedback					
Available	7.13	4.81	5.88	3.07	1.15
Enacted	4.96	2.97	4.04	2.53	1.27
Satisfaction	2.25	.94	2.25	.74	.00
Physical assistance					
Available	7.42	4.10	6.08	3.26	1.53
Enacted	4.17	2.41	3.42	2.34	1.16
Satisfaction	2.79	.51	2.67	.57	.62
Social participation					
Available	9.25	5.68	8.42	4.47	.33
Enacted	8.71	5.68	6.96	3.74	1.63
Satisfaction	1.83	.82	1.96	.69	.34
Total Unconflicted					
Available	15.88	7.27	12.71	5.40	2.84
Enacted	11.88	6.07	9.71	4.37	2.03

TABLE V (Continued)

Total Conflicted					
Available	3.88	2.72	3.83	1.74	.01
Enacted	2.42	1.89	2.29	1.49	.06

Note: All tests are one-tailed, with df = 1,46.

TABLE VI

CORRELATIONS BETWEEN ISSB AND SECONDARY d'

	Female Face		Male Face		Letter	
Measure	Type A	Type B	Type A	Type B	Type A	Type B
Emotional Support	-.28	-.09	-.07	-.41*	.19	-.19
Tangible Assistance	-.04	.27	.01	-.21	.01	.16
Cognitive Information	-.13	-.36	.02	-.45*	.26	-.14
Direct Guidance	-.04	-.28	-.12	-.21	.09	-.01
Total	-.16	-.28	-.06	-.55**	.15	-.05

*p < .05

**p < .01

TABLE VII

CORRELATIONS BETWEEN ASSIS AND SECONDARY d'

	Female Face		Male Face		Letter	
Measure	Type A	Type B	Type A	Type B	Type A	Type B
Private Feelings						
Available	-.22	.29	-.27	.16	.49*	-.03
Enacted	-.23	.16	-.27	.13	.51*	.17
Satisfaction	-.17	.09	.03	-.16	-.08	-.10

TABLE VII (Continued)

Material Aid						
Available	-.12	-.08	.20	-.19	.20	.18
Enacted	-.22	-.13	.05	-.47*	.35	.27
Satisfaction	.12	-.56**	.07	-.31	.26	.09
Advice						
Available	-.33	-.06	-.20	-.18	.49*	-.02
Enacted	-.34	.01	-.37	.11	.46*	-.08
Satisfaction	.17	.19	.27	.33	.19	.17
Positive Feedback						
Available	-.26	.11	.18	-.04	.31	-.28
Enacted	-.45*	.06	.06	.21	.25	-.45*
Satisfaction	.07	.19	-.06	.10	.02	-.30
Physical Assistance						
Available	-.15	-.19	.17	-.13	.07	.07
Enacted	-.23	-.09	-.18	-.07	.05	.00
Satisfaction	.19	.14	.24	.16	.28	-.21
Social Participation						
Available	-.31	-.04	.07	-.07	.20	.05
Enacted	-.40	-.10	.03	-.03	.22	-.16
Satisfaction	.17	.34	.18	.11	-.07	-.11
Total Unconflicted						
Available	-.33	-.06	.11	-.16	.22	.07
Enacted	-.46*	-.11	-.01	-.22	.28	-.10
Total Conflicted						
Available	-.18	-.07	.15	-.10	.39	-.11
Enacted	-.27	-.03	-.12	-.19	.36	.00

*$p < .05$

**$p < .01$

TABLE VIII

CORRELATIONS BETWEEN ISSB AND PRIMARY β

	Female Face		Male Face		Letter	
Measure	Type A	Type B	Type A	Type B	Type A	Type B
Emotional Support	-.46*	.43*	.01	-.35	-.08	.35
Tangible Assistance	-.16	-.10	-.09	-.13	.14	.13
Cognitive Information	.26	.04	.16	-.40	.09	-.14
Direct Guidance	-.12	.16	-.02	-.30	-.19	.03
Total	-.31	.19	.09	-.41*	.00	.01

*p < .05

TABLE IX

CORRELATIONS BETWEEN ASSIS AND PRIMARY β

	Female Face		Male Face		Letter	
Measure	Type A	Type B	Type A	Type B	Type A	Type B
Private Feelings						
Available	-.30	.04	.05	-.01	-.27	.19
Enacted	-.30	.39	-.04	-.23	-.30	.01
Satisfaction	.14	-.02	-.18	-.04	.29	.07
Material Aid						
Available	.07	.23	.20	-.24	.07	-.18
Enacted	-.25	.56**	-.02	-.31	.14	-.07
Satisfaction	.17	-.11	-.22	-.07	-.18	-.05
Advice						
Available	-.13	-.21	.06	.09	-.17	-.24
Enacted	-.33	-.19	.22	.11	-.29	.01
Satisfaction	-.04	-.08	-.12	.30	.32	.22

TABLE IX (Continued)

Positive Feedback						
Available	-.34	.03	.05	.00	.41*	-.18
Enacted	-.43*	-.13	.05	-.01	.38	-.12
Satisfaction	.28	-.16	-.01	.29	-.33	-.09
Physical Assistance						
Available	.12	-.02	.12	.17	.36	-.17
Enacted	-.15	.10	-.05	.15	.38	-.07
Satisfaction	.09	.23	.00	-.04	-.16	-.12
Social Participation						
Available	-.21	-.23	.14	.12	.34	-.04
Enacted	-.35	-.15	.17	-.03	.32	-.02
Satisfaction	.27	-.06	.00	-.02	-.28	.09
Total Unconflicted						
Available	-.09	-.22	.11	.06	.29	-.18
Enacted	-.33	-.19	.02	-.05	.35	-.21
Total Conflicted						
Available	-.28	-.28	-.11	-.04	.41*	-.08
Enacted	-.46*	-.07	-.08	.02	.24	-.04

*p < .05

**p < .01

TABLE X

CORRELATIONS BETWEEN ISSB AND SECONDARY β

	Female Face		Male Face		Letter	
Measure	Type A	Type B	Type A	Type B	Type A	Type B
Emotional Support	-.36	.07	-.06	-.25	.14	.10
Tangible Assistance	.02	.16	-.23	-.33	-.06	-.28
Cognitive Information	-.04	-.22	.06	-.37	.21	-.13
Direct Guidance	.03	-.28	-.14	-.20	-.06	-.15
Total	-.10	-.18	-.08	-.38	.10	-.17

TABLE XI

CORRELATIONS BETWEEN ASSIS AND SECONDARY β

	Female Face		Male Face		Letter	
Measure	Type A	Type B	Type A	Type B	Type A	Type B
Private Feelings						
Available	-.14	.32	-.22	.29	-.06	.18
Enacted	-.11	.46*	-.17	.14	-.08	.24
Satisfaction	.18	.07	-.15	-.07	-.02	-.11
Material Aid						
Available	.21	.05	-.10	.08	-.14	.13
Enacted	-.03	.10	.01	-.15	.14	-.37
Satisfaction	.07	-.29	.21	.15	-.03	-.18
Advice						
Available	-.07	-.33	-.08	.00	.12	-.13
Enacted	-.12	-.19	.02	-.06	.19	.16
Satisfaction	.07	.30	22	.02	.10	.29
Positive Feedback						
Available	.00	-.15	-.24	.07	-.02	.21
Enacted	-.17	-.22	-.33	.29	.03	.38
Satisfaction	.11	-.05	-.04	-.18	-.04	.14
Physical Assistance						
Available	46*	-.27	-.12	.15	-.06	-.10
Enacted	.11	-.15	-.24	.31	.25	-.03
Satisfaction	.08	-.03	.10	.13	-.13	.12
Social Participation						
Available	.17	-.21	-.22	.13	-.01	-.09
Enacted	-.01	-.32	-.22	.04	.04	.12
Satisfaction	.17	.09	.20	.15	-.11	.06
Total Unconflicted						
Available	.19	-.22	-.22	.12	-.06	-.08
Enacted	.01	-.36	-.28	-.02	.01	.03

TABLE XI (Continued)

Total Conflicted						
Available	.12	-.24	-.19	-.05	-.05	-.02
Enacted	-.08	-.15	-.16	-.04	.06	-.02

*p < .05