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BY

JOHN L. MARTIN

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Abstract

THE EFFECTS OF PARTNER SUPPORT AND PEER SUPPORT ON PSYCHOLOGICAL DEMORALIZATION: A COMPARATIVE ANALYSIS OF YOUNG ADULT MEN AND THEIR VIETNAM VETERAN PEERS

by

John L. Martin

Advisor: Professor David Rindskopf

Evidence from a variety of studies has indicated that romantic partners and close friends, considered separately, are each capable of providing emctional social support having direct and/or stress-buffering effects on psychological health. However, there has been little systematic effort aimed at comparing these two sources of support in terms of their relative effectiveness in providing these salutary health effects. This issue of the relative effectiveness of partners and friends is considered in terms of whether these two sources of support may act as functional alternatives for one another, such that the lack of support from one of these sources may be compensated for by having support from the other source.

Based on a stratified sample of men (N = 910), aged 24 to 35, separate measures of partner support and peer support were derived. A measure of demoralization was used to represent psychological status. A subset of these

respondents (N = 185) were designated as having been exposed to a previous life stressor due to their involvement in combat in the Vietnam war. Thus, it was possible to test for both direct effects and stress-buffering effects of each type of social support.

When each measure of support was analyzed separately, partner support was found to have both strong direct effects and stress-buffering effects on demoralization levels, while peer support had only weak direct effects. However, in subsequent analyses, the effects of each type of support were re-examined while controlling for the level of the other type of support. These results indicated that partner support and peer support act as functional alternatives for each other in terms of buffering effects; a high level of either type of support reduces the negative impact of prior exposure to the stressor of combat. In terms of direct effects, however, the two types of support do not act as functional alternatives for one another. Partner support has strong direct effects on demoralization levels regardless of the level of peer support, while peer support has no such direct effects on demoralization levels, regardless of the level of partner support.

These results are discussed in terms of differences found between respondents previously exposed to the stressor of combat and those not so exposed. Methodological issues involving the assessment of direct and buffering effects,

and independent analyses versus simultaneous analyses of support measures, are also considered. Finally, the implication of these results for conceptualizing and measuring social support is discussed.

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INTRODUCTION

In a growing effort to specify and determine the extent to which social factors influence health status, social support has become the focus of much recent research. The results from studies which are methodologically diverse have shown that social bonds and affective ties to other individuals are important factors related to health for a variety of populations, including animals (Cassel, 1974a; Kaplan et al., 1977), young children (Bowlby, 1969, 1973), adult women (Brown, et al., 1975; Nuckolls et al., 1972), medical patients (Berle, et al., 1952; Cobb, 1976), the bereaved (Parkes, 1972), the aged (Lowenthal & Haven, 1968), and the general population (Berkman & Syme, 1979; Myers et al., 1975; Srole et al., 1962).

There is also a broad range of health outcomes which appear to be affected by, or at least related to, the support characteristics of the social environment, including hospitalization outcomes (Cobb, 1976), pregnancy outcomes (Sosa et al.,1980; Nuckolls et al., 1972), physical health (Gore, 1978; LaRocco et al., 1980), emotional health (Gore, 1978; Lin et al., 1979; Myers et al., 1975), psychiatric status (Henderson, 1980; Lowenthal & Haven, 1968) and mortality risk rates due to many different causes (Berkman & Syme, 1979).

From the sample of evidence cited above, it is not surprising that the health effects of psychosocial factors, such as social supports and life stressors, have taken an important place in the study of disease etiology. However, questions regarding the conception, measurement, and function of social support have become particularly pressing because of the current concern with illness prevention. As Kaplan and his colleagues (1977, p. 48) point out, "strengthing social supports is more immediately practical than attempting to reduce the occurrence of the stressor situations." This consideration forms the basic starting point of the present study because the focus here is on the psychological status of Vietnam veterans, in relation to their counterparts who were fortunate enough to have avoided involvement in Vietnam.

While there is no way to alter the experience of that war for Vietnam veterans, it is still possible to modify and improve the interpersonal social context in which they currently live. The impetus for doing this is to facilitate the healing of those "invisible" wounds so many of these men continue to suffer (Williams, 1980; Boulanger, 1981; Figley, 1978).

In order to make effective recommendations in this regard, it is necessary to explore the question, Who in the interpersonal environment is most responsive to, and capable of meeting, the supportive needs of these men? The

importance of this question is obviously not limited to Vietnam veterans but, in the present study, it also has implications for this broader generation of young adult men.

In addition, Vietnam veterans and other people alike, have interpersonal environments which are structured in complex ways and made up of a diverse flow of individuals. Thus, it is important that we try not only to specify particular supportive types of individuals, but also to explore the extent to which different types of people can fulfill similar social support functions. This may help provide a basis for making alternative recommendations for individuals lacking what might be considered a primary source of support, or whose primary source, (for whatever reason), fails to meet supportive needs.

Thus, the main purpose of this study is to explore and compare the effectiveness of two particular sources of social support: romantic partners and friends. There is prior evidence involving a number of theoretical issues which must be addressed in order tc develop testable hypotheses regarding each source of support and their relative importance for health.

Before discussing evidence which is directly relevant to to support sources, we first consider an issue which occupies a major place in the social support literature: the extent to which the experience of life stress influences the relationship between social supports and health outcomes.

Buffer Effects or Direct Effects

Probably the major current issue in this field is whether the relationship between social support and health exists only for individuals experiencing stressful life circumstances, or whether the support--health relationship exists for all individuals regardless of the presence or abscense of stressful conditions.

That social support is significantly helpful for persons in stressful situations seems fairly well established (Cobb, 1976; Dean & Lin, 1977). There are many studies which demonstrate that individuals experiencing specific life stressors gain healthful benefits by having other supportive individuals around. These include people involved in combat (Rose, 1956; Swank, 1949), men readjusting from war experiences (Lifton, 1973), people undergoing the stress of illness and hospitalization (Jessner, 1952; Chamber & Rieser, 1953; Mather et al., 1971), mothers entering labor and giving birth (Sosa et al., 1980), and the bereaved (Parkes, 1972).

Thus, there seems to be fairly consistent evidence showing that those with some type of social support suffer less deleterious health effects when experiencing a life stressor, compared with those who have no support. However, the main issue here is whether this relationship between social support and health is also present for subpopulations who are not experiencing stressful

circumstances. In order to evaluate this question we need to look at evidence from studies, other than those cited above, that include both "stressed" and "non-stressed" individuals.

Nuckolls and her colleagues (1972) demonstrated that the probability of having pregnancy complications was greatly elevated only for those women who had a high level of stressful life change in conjuction with having few "psychosocial assets" in their life. For women who had similarly high stressful life change scores but who also had a high level of psychosocial assets, the probability of having pregnancy complications was no greater than it was for women with a low level of stressful life change. Variation in the level of psychosocial assets made no difference for those women whc were considered to have experienced a low level of stressful life change.

A similar pattern of empirical results was reported by Brown and his colleagues (1975). This study demonstrated that the availability of a supportive intimate person at a time of high stress significantly reduced the probability of the onset of depression. For women in this sample who were not experiencing stressful circumstances, the presence of such a person had little effect on the probability of becoming depressed, which was low for this group anyway.

These two studies by Brown and his colleagues (1975) and Nuckolls and her colleagues (1972) provide strong support for what has come to be called the "buffer effects" hypothesis of social support. That is, the findings demonstrate that exposure to stressful circumstances has an impact on health outcomes only for individuals with a low level of social support. Stressors have no impact on health outcomes for those with a high level of social support, relative to the non-stressed group. In statistical terms, these studies demonstrate interaction effects between social support and exposure to stressors, while showing that neither independent predictor has a main effect of its own.

However, results from other studies are more mixed. The pattern of results from Gore's (1978) study of unemployed men support both a buffer effects interpetation and a direct effects interpretation, depending on the health outcome measure utilized. That is, social support was related to the two outcome measures of depression and a subjective sense of economic deprivation for all respondents, regardless of the degree to which they were stressed. However, support was related to serum cholesterol levels and the number of somatic complaints only for those men experiencing a relatively high level of the stressor, (i.e. a prolonged period of unemployment after job loss).

The findings reported by Lowenthal and Haven (1968) also seem to be dependent on the outcome measure employed. The results concerning depression clearly support a buffer effects hypothesis, in the manner reported by Brown and his colleagues (1975). These findings are not, however, obtained when either psychiatric judgements of mental impairment or a subjective sense of "relative deprivation" are used as dependent outcome variables. It should also be noted that Lowenthal and Haven found clear, direct correspondences between high levels of social interaction and positive values on all three measures of mental health status.

Similarly, the results presented by LaRocco and his colleagues (1980) provide evidence consistent with both a buffer effects interpretation and a direct effects interpretation. In their reanalysis of data from three previous studies, these authors found that the number of significant interactions between (job) stress and social support was greater than would be expected by chance, given the number of modified regression equations which were tested. Additionally, there was also a large number of main effects attributable to social support, regardless of the level of the stressor.

In addition to studies showing mixed results, there are others that provide no evidence to support a buffer effects interpretation at all. This evidence comes from

studies reported by Lin and his colleagues (1979), Myers and his colleagues (1975) and Andrews and his colleagues (1978). Each of these studies showed a direct relationship between at least one measure of social support and a psychological status measure which was not affected by the degree of stressful life change experienced by respondents.

From this evidence it is clear that we can reject neither the buffer hypothesis nor the direct effects hypothesis. In some instances, different results appear to be due to differences in the dependent variable used. In other instances, both a main effect and a buffer effect are found for the same dependent variable. It may be that the direct effects hypothesis and the buffer effects hypothesis are not mutually exclusive alternatives, but rather both types of effects may potentially be found.

If we consider the question in statistical terms, the complexity of the issue becomes clear. In those instances in which only a significant interaction between social support and a stressor is found, claiming support for the buffer effects hypothesis requires a demonstration that the source of the interaction is due to a very specific pattern in the data: That is, that there is no effect on the dependent variable associated with the stressor for individuals with a "high" level of social support, but that the stressor does have an effect on the dependent variable for those with a "low" level of social support.

While this pattern of results was clearly demonstrated by Brown and his colleagues (1975) and Nuckolls and her colleagues (1972), the patterns of results from other studies, (e.g. Lin et al., 1979; LaRocco et al., 1980) are less consistent by varying degrees and thus less easily interpretable in terms of either clear buffer effects or clear direct effects.

Additional complexity is introduced in those cases in which significant effects are found for both the interaction as well as for one or both of the independent predictors. Interpreting such results in terms of either a buffer effect or a direct effect becomes difficult, if not innaccurate. For example, there may be instances in which a high level of social support does in fact reduce the impact of a stressor on health, but not to the point were the effects of the stressor are undetectable, i.e. to the level of those who were not stressed. As another example, there may be instances in which social support is significantly related to health for all cases, but the effect is significantly stronger for those who have experienced a stressor compared to those who have not.

Thus, it is important to bear in mind that significant interactions may arise for a variety of reasons, (depending on the analytic strategy employed), ranging from unexpected paradoxical effects of social support, (i.e. detrimental effects), to the presence of incomplete or partial buffering

effects. In any case, the pattern of effects predicted by the buffer hypothesis is only one of a few patterns which may give rise to a significant interaction between measures of social support and stress exposure.

We should also note that detecting a significant buffering effect is often dependent upon choosing an appropriate cutting point on the social support scale score distribution, for distinguishing between those "low" and those "high" on social support. Many major studies which focus specifically on mental status outcomes begin with continuous measures of social support only to dichotomize (e.g. Gore, 1978; Nuckolls et al., 1972; Andrews et al., 1978) or trichotomize (Lin et al., 1979; LaRocco and Jones, 1978) samples based on variously derived cutting points. The requirment that there be an adequate number of cases in a given category, (in order to obtain reliable statistical results), may obscure effects which are a function of more extreme, though fewer, cases.

A complete discussion of the problems inherent in interpreting statistical interactions is beyond the scope of this paper[1]. That statistical issues are important is clear from Tennant and Bebbington's (1978) critique, reanalysis, and reinterpretation of Brown's work (1975). In that paper, Brown's data were reanalyzed using a log linear ratio model. in place of a simple additive linear model. The results of

[1] See Zedeck (1971) for a rather complete treatment of problems with the use of moderator variables.

this reanalysis provided no support for the buffer effect which Brown had claimed to have cbtained. Thus, the statistical method one chooses to use may have important consequences for the findings which are obtained.

By way of summary we may simply say that given the present state of the evidence regarding the relationship between social support and various measures of mental status, there is a reasonable basis for justifying hypotheses for both direct effects and buffer effects. In the present study, these two effects are regarded as two distinct ways in which social support may excerise a beneficial influence on health. Thus, the general hypothesis that social support will have salutary effects on mental status may be domonstrated by either a direct effect, a buffer effect, or both effects.

Defining the Population under Stress

Another problem in this area contributing to the methodological diversity and interpretive confusion involves the manner in which the populatien under stress is defined. Two usual approaches are either to measure life change using a stressful life events list (e.g. Lin et al., 1979), or to focus on some discrete event, such as job loss (e.g. Gore, 1978). The former approach is vulnerable to a serious methodological problem: confounding between the stress and support measures. Gore (1981) points out that,

> A large number of life events are indicators of a loss of potential support resources through death, mobility or role change, or through a change in content of relationships (e.g. increased fighting with a spouse). As assessments of these dimensions of relationships are also typically made in support measurement (e.g. stability, number of roles and affiliations, quality of relationships), there is an apparent operational and conceptual confounding of stress and social supports, with the latter being a simple converse of the former. (pp. 5-6 of draft)

In response to this problem, Gore recommends that specific "at risk" groups, who have experienced a particular stressful event, be studied rather than relying on stressful life change scores as a basis for defining a group which has experienced life stress.

The approach of using a stressful life events list has the advantage of defining "stress" as a continuous construct. While such a continuous measure allows for refined analyses of the relationship between stressor and health outcome, this level of refinement also introduces a degree of complexity which, given the state of the current evidence, may not be particularly desirable at this point in clarifying issues involving the <u>conditions</u> under which the support--health relationship obtains.

The present study is oriented toward examining the relationship between social support and mental status as that relationship is affected by exposure to a stressor. Although the approach of using a dichotomous variable to represent the experience of life stress is more crude compared with the use of a continuous variable, it is

expected that this approach will yield simpler and less ambiguous findings. That is, it will be possible to test for significant support--health relationships under two distinct conditions: a "stressed" condition and a "non-stressed" conditon, rather than trying to assess changes in the strength of this relationship over a continuously increasing (or decreasing) level of life stress.

There is an additional factor which must be considered regarding the relationship between the stressor and social support: the temporal relationship between the two variables. When social support is assessed within the time period during which the stressor has occurred it becomes difficult to disentangle the effects of each variable on the other. The occurrence of the stressor may alter the level of social support, or the level of social support may influence the occurrence of the stressor; either or both of these relationships are plausable.

This ambiguity is most problematic when stressful life events are used as the stressor measure since these lists include some events which can be either completely obviated by the presence of supportive others, or else may not be appraised as stressful because of coping resources available from supportive others. This causal ambiguity is reduced when stressors of interest involve things such natural (or man-made) disasters, or other fateful events, which are obviously beyond the direct control of either potential supportive others or the individual at risk.

The situation also becomes less ambiguous when the stressor has occurred either prior to, or after, the time period within which social support is assessed. In either case, if a relationship between the two variables is found a clear specification of the direction of influence can be made and taken into account when interpreting findings.

Consideration of the temporal sequence is relevant to the present study because the stressor to be examined involves exposure to combat in the Vietnam War. This stressor was experienced on the average of 10 years prior to the assessment of social support. That negative psychological effects due to this stressor continue to be manifest at this time has been documented in previous analyses of this data[2], (Kadushin, Boulanger & Martin, 1981). The important point here is that it cannot be claimed that the level of social support influenced the occurrence of combat exposure, i.e. the stressor. While it is entirely possible that exposure to this stressor itself may influence levels of social support, it will at least be possible to clearly determine the extent to which this influence has occurred.

We should also point out here that the nature of the stessor and the rather long intervening time period between its occurrence and the assessment of social support, places

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[2] See "Long term stress reactions: Some causes, consequences, and naturally occurring support systems". Volume IV in Legacies of Vietnam: Comparative Adjustment of Veterans and Their Peers. Final report of the Vietnam Era Research Project to the first session of the 97th Congress, Committee on Veterans' Affairs, March 9, 1981.

this study in a somewhat different category from most other studies in this field. The majority of research on life stress has been concerned with either the effects resulting from cumulative stressful events within a year of the time of assessment (e.g. Nuckolls et al., 1972; Lin et al., 1979; Andrews et al., 1978; Myers et al., 1975) or with specific stressors whose impact is more immediately assessed (e.g. Gore, 1978; LaRocco et al., 1980). Thus, it will be instructive to determine whether the impact of a long past stressor can be diminished by social support in the way that the impact of more immediate or recent stressors has been shown to be diminished.

Definitions and Measures of Social Support

While there has been a recent spate of work aimed at determining how stressful environmental conditions influence the relationship between social support and health, considerably less attention has been given to more clearly defining the construct of social support itself. Kaplan and his colleagues (1977, p.47) make the following critical observation regarding the current diverseness of support measures:

> Attempts at conceptualization and measurement have been inadequate, discipline bound (or study bound), and usually formulated for post hoc interpretation of unexpected but striking findings.

The situation is not totally without structure, however. One general distinction which is often made is between instrumental support and expressive support. Another similar distiction which has been made is between "tangible" and "appraisal" support (Kaplan et al, 1977, p. 52).

Instrumental support generally refers to the provision of concrete resources which aid in sclving some problem (Lin et al., 1978). This category of support can include many specific things. For instance, in their work on mutual help organizations, Caplan and Killilea (1976) describe at least nine different functions of support which would fall into this general category: as a collector and disseminator of information, a feedback and guidance center, a source providing beliefs, values and behavior codes, a place for problem solving, a provider of concrete aid, a context for rest and recuperation, a reference group, an aid to mastering emotions, and a source of self validation.

In contrast, the second general category, expressive support, refers more to non-instrumental, affective characteristics of social relations. The concern here is not so much with identifying and measuring actual exchanges of concrete resources but rather with determining the extent to which meaningful affectional bonds are available. Such bonds presumably provide an outlet for working out the emotional responses which may accompany stressful

life circumstances. Thus, we may also call this type of support "emotional support". This is the type of support we are concerned with in the present study.

There have been a few attempts to provide formal definitions of emotional support. For instance Cobb (1976, p. 300) states that

> Social support is conceived to be <u>information</u> belonging to one or more of the following three classes:
>
> 1. Information leading the subject to believe that he is cared for and loved.
> 2. Information leading the subject to believe that he is esteemed and valued.
> 3. Information leading the subject to believe that he belongs to a network of communication and mutual obligation.

Dean and Lin (1977) focus on similar characteristics when they speak of intimacy, affection, and mutual identification as being indicative of supportive relationships. And again, Moss (1973, p 237) defines support as "the subjective feeling of belonging, of being accepted, of being loved, of being needed all for oneself and not for what one can do".

Kaplan and his colleagues (1977, p. 50) focus more explicitly on the "metness or gratification of a person's basic social needs," which can be satisfied only through social interactions with others. These authors provide the following list of psycho-emotional needs which must be socially gratified: security, affection, trust, intimacy, nurturance-succorance, belongingness, and approval (p. 58).

In an effort to measure the supportive qualities of the interpersonal environment, a wide variety of social relations and social situations have been studied, sometimes by themselves, but more often in combination with other relations and situations. That is, many support measures differ in terms of the number and type of social relations which are included as potential support sources. Some measures involve only a single person (e.g. Lowenthal and Haven, 1968; Brown et al., 1975; Sousa et al. 1980), while other measures include many persons crosscutting numerous levels of social interaction, ranging from intimate partners, friends, and relatives (e.g. Gore, 1978; Nuckolls et al., 1972) to involvement in formal organizations, leadership activities, community involvement, and employment satisfaction (e.g. Lin et al., 1979; Myers et al, 1975).

One problem which has developed as a result of utilizing such diverse measures is a conceptual "blurring" between measures of social support and measures more closely related to, what may be considered, social integration or sociability.

Social Integration versus Social Support. The approach of combining numerous diverse sources of potential support in a single index is especially problematic. The social support scale constructed by Lin and his colleagues (1979) is a prime example of this approach. That scale included

sources such as friends, neighbors, relatives, organizations, and work satisfaction. The authors took a psychometric scaling approach such that responses regarding presumably supportive associations with each of these sources were summed together for an overall index of support.

The diversity of social contacts and the additive nature of the scale suggest that "sociabilty" or social integration is being measured. While this type of measure may be predictive of social support, whether or not the level of social support can accurately be inferred from such a measure remains an empirical question. As Kaplan and his colleagues (1977, see footnote, p. 47) have pointed out, this is the classic sociological question of, What is the link between "social integration" and social support?

The work of Myers and his colleagues (1975) reflects a similar orientation. As a substitute for a direct measure of social support, these investigators utilized a set of variables involving the extensiveness of social contacts, hospitalization history, social integration, and role satisfaction, in order to examine the role of (inferred) social support in reducing psychological symptoms generated by stressful life events.

On methodological grounds alone, a major problem with both Myers' study and Lin's study is that the measures which purportedly indicated the level of support,

may very likely be confounded with other variables, such as social class and marital status, which are themselves important predictors of mental health (Dohrenwend & Dohrenwend, 1969, p.138; Bachrach, 1975). In fact, Eaton (1978) criticized Myers' work on these grounds, and found a very different set of results when he controlled for social class. In this reanalysis, Eaton found two specific conditions associated with vulnerability to the impact of life stressors: being unmarried and living alone.

In addition, we should also note that Myers' use of indicators such as hospitalization history and role satisfaction, and Lin's use of items such as leadership activities and work satisfaction, may easily confound the support measure with the dependent measure of mental health.

Thus, not only are the constructs of social integration and social support mixed together in these measures, but also their confounding with other predictors of health, as well their confounding with measures of health outcomes themselves, indicates that we should avoid using such broad indices as measures of social support.

But there are also conceptual problems with these types of measures. On the one hand, a broad and inclusive list of social contacts is a reasonable approach to determining the amount of support a person may have; the more extensive one's social contacts the more opportunity one

has for developing supportive bonds. However, simply having extensive social contacts does not necessarily assure the provision of support. As one moves further towards the periphery of the social field, into more formal areas involving group activities and role bound interactions, the personal or emotional component of support becomes progressively less important (Henderson, 1980, p. 63), and the ability to specify what type of support is involved becomes difficult. In fact, as the list of social contacts becomes more encompassing, the likelihood that a number of different types of support are being tapped also increases. Thus, there is no way of determining which source of support, or what type of support is responsible for the observed salutary health effects.

A major issue involved here concerns the possibility that one partiular source or individual may be especially important and sufficient as a source of emotional support. This idea is based on evidence that a single supportive, confidant-type, relationship is sufficient to buffer the impact of life stressors on health (Lowenthal & Haven, 1968; Brown et al., 1975). This possibility is made especially clear in Lowenthal and Haven's study, in which having such a confidant reduced the probability of becoming depressed at the same time that social involvement was declining and social roles decreasing. That is, social support effects due to a single individual were observed in the face of

(what may be considered) a declining level of social integration.

This evidence suggests that to the extent that supportive needs are met by any one of the sources included in a composite measure, information regarding other potentially supportive sources may become irrelevant, in terms of producing health-beneficial effects. In fact, it is possible that meaningful variance in the support measure may be masked by including information about social contacts other than those who meet health-relavant needs. Many measures of social support, however, do not included extremely diverse social contacts. Instead, they focus on the individual's "primary group".

The Primary Group

For the present discussion, we may consider the primary group as consisting of the nuclear family, friends, extended kin, and neighbors, (Broom and Selznick, 1973). Dean and Lin (1977, p. 407) expicitly state that the primary group is the major source from which emotional support should come. This is not surpising given the basic qualities which underly and define, (in egocentric terms), primary group relationships: (1) face-to-face interaction, (2) relative permanance, (3) affective and non-instumental exchanges, and (4) possible geographic diffuseness (Cooley, 1955).

We can see that the primary group, (or some portion of it), is treated as a unit or single supportive source in a number of support indices constructed by various researchers. For instance, Gore's (1978) index of support included two equally weighted components: spouse support and support through social contacts with friends and relatives (see Cobb & Kasl, 1977). LaRocco and his colleagues (1980) included perceived support from spouse, family, and friends in their index of family support. Nuckolls and her colleagues (1972) included relations with the spouse and support from family in their measure of psychosocial assets.

However, there is some recent speculation that an even more refined approach involving the examination of specific types of individuals within the primary group may be useful for more clearly defining the concept and understanding the function of social support. For example, the idea of exploring in greater detail the support capabilities of particular individuals or segments of the primary group is hinted at by Gore (1981) when she proposes "dissaggregating" measures of stress and measures of support:

> In the measurement of support, however, most recent large scale investigations have relied upon indices which include a hodge-podge of objective and subjective social relational variables. The term disaggregation refers not only to the problems posed by these indices, but also to the use of more limited sets of social characteristics or features of social roles as social support indicators. (p. 19 of draft)

In a somewhat more direct statement, Henderson (1980) also proposes "systematically examining and quantifying the elements within an individual's primary group" (p. 66), in order to explore various hypotheses regarding the importance of social bonds in psychiatric disorders.

Another recent indication that a more specific level of measuring social support should be employed comes from LaRocco and his colleagues (1980, p. 214). In discussing their findings these authors note that "different sources of support have differential effects with respect to different variables and relationships".

Given these considerations we may ask: On what support-relevant dimensions might these various sources differ from, and be similar to, one another? Findings reported by network theorists provide a useful basis for beginning to outline the kinds of support-relevant dimensions which are particularly characteristic of, or salient to, various segments of the primary group. The work of Fischer and his colleagues (1975), Rosow (1967), and Wellman (1979) have all indicated rather clear functional differentiation among members of the primary group. An example of this kind of work which is particulary applicable to the present discussion is that of Litwack and Szelenyi (1969).

These investigators outlined not only functional differences between members of the primary group, but also functional similarities. In their analysis, it was shown

that the most important providers of affection were friends and members of the nuclear family (p. 471). This was in constrast to extended kin and neighbcrs who were shown to be more important for help in emergencies and other tasks involving day-to-day contact. (Also see Wellman (1979) for similar conclusions based on his Toronto sample).

If we consider the phenomenon of social support from the individual's viewpoint, and conceptualize support in terms of metness of needs such as affection, intimacy, trust, etc. (Kaplan et al., 1977), this functional similarity between family members and close friends suggests that both of these sources are able to fulfill a similar type of support need. That is, there may be a significant overlap between these two sources in terms of the needs each is capable of meeting; that area of common overlap being affection and intimacy.

If it is the case that both of these sources, (the nuclear family and friends), do in fact fulfill similar support needs, it would follow that having support from either one of these sources would result in the same beneficial health effects. In other words, so long as support was available from at least one of these sources, the salutary effects of social support would be present, even though support from the other scurce was lacking. This is the basic logic underlying, what from this point on will be refered to as, the "functional alternative" hypothesis.

Testing this functional alternative hypothesis is one of the major goals of this analysis. The interest here is not, however, in comparing the nuclear family as a unit, with friends. Instead, the interest here is to compare a very unique member of the nuclear family, i.e. the spouse or romantic partner, with friends, as functional alternatives for one another.

Before fully developing the functional alternative hypothesis, some of the current evidence regarding the effectiveness of, (a) spouses or romantic partners and (b) close friends, will be examined.

Partners and Friendships

We begin with some observations regarding marriage. In discussing the importance of being married for psychological well-being, Campbell (1981) makes the following statement:

> It is hard to imagine an individual who is immersed in an unhappy marriage living a pleasant and satisfying life. It is difficult to believe that people whose marriages are disolved by death or divorce do not suffer damage to their feelings of well-being. One may doubt that the minority of women and men who never marry find the quality of their lives as fulfiling as those who do. (p. 73.)

Evidence from epidemiological studies would also suggest that having a spouse plays a particularly significant and unique role in a person's life in terms of health status. That is, for unmarried men, (and less consistently for unmarried women), there has been shown to be a consistently

higher rate of emotional problems (Gove, 1972), physical problems (Bachrach, 1975), and mortality risk due to many different causes (Kraus & Lilinfield, 1959; Berkman & Syme, 1979; Gove, 1973), compared with those who are married. The married also report feeling happier and have a higher sense of psychological well-being compared with the unmarried (Gurin, Veroff, & Feld, 1960; Bradburn, 1969; Campbell, 1981).

In the context of the present discussion these findings on marital status must be interpreted with caution. It is not clear that emotional support from the spouse is a major factor contributing to the superior health status of married people compared with other factors associated with the state of being married, itself. While a number of investigators have indirectly suggested spouse support as a possible explanation, (Berkman, 1977; Gove, 1973) there are other possible explanations for which there is substantiating empirical evidence.

For instance, some investigators have argued that a selection process is involved such that poorly functioning individuals have a reduced chance of becoming married (Rushing, 1979; Turner et al., 1970). Others have taken an opposing veiw, arguing that health differences are due to the fact that the married tend to be exposed to fewer stressful experiences compared with the unmarried (Bachrach, 1975).

One recent study which seems to bear on this issue is reported by Kessler and Essex (1980). One purpose of this complex analysis was to examine the extent to which various resources altered the strength of the relationship between various stressors (referred to as strains) and psychological status. Two of these resources were intimacy and social integration.

The measure of intimacy for married respondents was designed to assess the quality of the marital relationship in terms of feeling loved and cared for. The integration measure was similar in content to that used by Lin and his colleagues (1979). In discussing their results Kessler and Essex (1980) state:

> The most powerful resource found in our analysis is associated with a confiding, intimate relationship. ... We were somewhat surprised to find that embededdness in social networks of various sorts, something we called integration and earlier work has referred to as social support, has as minimal a modifying role as it does (pp. 25-26 of draft).

In examining the results of this analysis one can clearly see that a supportive relationship with a spouse is a strong determinant of psychological status. In contrast, more distal types of support are almost uniformily unimportant, except in the case of household strain, and even here the important effect was isolated to the employment component of the integration index.

The work of Brown and his colleagues (1975) is also relevant here. These investigators found that having

a confiding relationship with a boyfriend or spouse was the only source of supportive contact that significantly reduced the probability of a highly stressed woman becoming depressed. That is, being married was not necessary, but having a romantic intimate relationship was necessary. In addition, the relationship had to be a supportive one in the sense that problems could be discussed openly. Brown also reports that having a confiding relationship with a sister, parent, or friend failed to alter the risk of depression in that sample. Thus, these results suggest rather strongly that health effects associated with emotional support are confined to support from a partner, (regardless of marital status), and that support from other close individuals is comparatively ineffective, even if these individuals are part of one's primary group.

However, there is other evidence suggesting that the level of intimacy described by Brown is not crucial. In contrast to Brown's findings, Lowenthal and Haven (1968) found that having a single person, such as a friend, who was considered a confidant and who could be contacted regularly, effectively reduced the probability of becoming depressed among a sample of elderly respondents. Like Brown, Lowenthal and Haven were concerned with the importance of intimacy. However, in their work, intimacy was simply a function of having a "confidant" relationship

in which personal problems and pressing concerns could be openly discussed; there was no requirement that the relationship be romantic, sexual, or "family oriented", in the manner described by Brown.

While recognizing the unique importance of the romantic relationship, Lowenthal and Haven also note that

> it seems clear that there are other viable forms of intimacy which are not necessarily experienced as substitutes for, or supplements to, a stable heterosexual relationship. (p. 21)

This point was most clearly demonstrated for the group of widowed respondents in this sample. It was found that, given a confident such as a friend or adult child, widowhood "makes a rather undramatic impact on morale" (p. 27). These findings suggest that in the face of lost support from the primary relationship, other individuals can supply the kind of intimacy resources relevant to depression outcomes.

The findings presented by Berkman and Syme (1979) also suggest that health effects of social support are not limited to the partner relationship. For males in their sample, these investigators not only found the expected mortality risk rate differentials for marital status, but they also found similar risk differentials for individuals who engaged in frequent social contact with friends and relatives. Henderson (1980) reports on a study by Miller and Ingham (1976) in which higher morbidity rates were found to be associated with a lack of friends, but were not associated with the lack of a partner.

There is also evidence which may be taken to indicate that the situation regarding the support roles of partners and friends is changing. Antonucci and his colleagues (1978) report on a study comparing changes over time in the utilization of informal sources of support between the years of 1957 to 1976. These investigators found a general decrease in the percentage of people who turn exclusively to their spouses for support during times of worry, (56% compared with 41% in 1957 and 1976, respectively). In addition, there was a sizable increase in the percentage of people who reported utilizing friends as a source of informal support during times of worry. Although both of these trends were clear for all respondents, the differences were most clearly pronounced for the youngest age group (aged 21 to 34), with the increased reliance on friends being especially strong for males in the younger age group (9% compared with 25% in 1957 and 1976, respectively).

The evidence reveiwed above suggests that a confiding relationship with a spouse (or boyfriend or girlfriend) is an especially powerful source of emotional support. In addition, the evidence also indicates that having close friends around to talk with about problems is also an important source of emotional social support. At this point it is difficult to decide whether one or the other of these types of support is more important with respect to maintaining a healthy psycholcgical state. Thus, an

explicit comparison of these two types of support would help to clarify the situation regarding the relative importance of each.

Partners and Friends as Functional Alternatives

Based on the evidence discussed above it has been established that partners and friends, as separate sources of support, are each capable of producing beneficial health effects. Given separate (i.e. dissaggregated) support measures corresponding to each of these sources, a straightfoward approach would lead us to hypothesize an emperical relationship between each measure of support and a given health outcome, indicative of salutary health effects[3].

However, we have also established that each of these sources have elements of affection and intimacy in common, and therefore they may potentially satisfy a similary set of health-relevant support needs. In other words, partner support and friend support may be functionally alternative sources of intimate or affectional social support. This may be particularly true in the face of lost or declining support from a primary source.

This functional similarity leads to an hypothesis which is more complex than the one previously stated, for the following reason. To the extent that partners and friends fulfill a similar set of support needs, having support from

[3] In the present discussion, the two separate measures of support are assumed to be independent, i.e. uncorrelated.

one of these sources would correspond to a reduction in the importance of having support from the other, alternative, source. That is, if one's needs for affection and intimacy are fulfilled by one's partner, such intimacy or affection from friends should be relatively unimportant, in terms of observable health benefits. On the other hand, if one's needs for affection and intimacy are not satisfied by one's partner, such intimacy or affection from friends should take on greater importance in determining health outcomes.

If this is a valid description of an underlying dynamic of support utilization, the straight-foward empirical relationship between each separate measure of support and health, initially described in the present section, would not necessarily be expected. Instead, we would expect to find that the strength of the relationship between a given measure of support and health outcome would be contingent on the level of support available from the other, alternative, source. (For example, friend support would be related to health outcome only for those lacking an adequate level of partner support.) This more complex set of relationships would reflect the fact that having support needs met by one source would reduce the importance of the alternative source in determining a given health outcome.

The alternative to this formulation is that different sources of support do not fulfill similar support functions, even though these sources share a common underlying element

of intimacy or affection. In this case, the level of one type of support should have no effect on the relationship between the other type of support and a given health outcome.

This alternative formulation further implys that the two types of support would be additive; i.e. having a high level of both types of support would result in stronger beneficial health effects, compared with having a high level of only one type of support.

To the extent that the same set of health-relevant social resources are provided by each source of support, the functional alternative formulation would not predict such additivity, since support from the two sources would be redundant. However, to the extent that one of the sources of support provides more extensive support resources which are relevant to the health outcome of interest, additivity effects due to that source, over and above the other source, would be expected.

There appears to have been little effort aimed at exploring or testing this "functional alternative" hypothesis. Studies which have employed multiple support measures provide results based only on separate analyses of each such measure without taking into account the level of support on other support measures (cf. LaRocco et al., 1980; Berkman & Syme, 1979; Andrews et al., 1978). However, testing the functional alternative hypothesis requires

examining the effects of both support measures simultaneously in order to demonstrate the predicted interdependence, i.e. interaction, between the two measures.

Before formally describing the hypotheses to be tested, the way in which a given support measure may relate to a given health measure must be considered. From the previous discussion of direct and buffer effects, it will be recalled that beneficial support effects may be found as (1) simple direct effects, (2) as buffer effects against the impact of a stressor, or (3) as both simple effects and buffer effects. These different types of effects provide a basis for describing functional similarities and differences between support measures.

For instance, two types of support may be functionally similar to one another in terms of their direct relationships with a health outcome. Thus, as the level of one type of support decreases, the strength of the relationship between the other type of support and the health measure becomes stronger. Alternatively, two types of support may be similar to one another in terms of their stress-buffering effects. In this case, the strength of the buffering effect of one type of support would become stronger as the level of the other type of support decreases.

In attempting to determine whether two types of support are functional alternatives for one another, specifying the form of the beneficial effects is essential. Two types of support may be complete alternatives for one another to the extent that they share the same function(s). They may be partial alternatives for one another to the extent that they share only one such function. They may not be considered alternatives at all to the extent that they have neither a direct function nor a buffering function in common.

Hypotheses

The present study is designed as a comparative analysis, the purpose of which is to try to determine the extent to which support from friends, (i.e. peers) and support from partners provide similar beneficial effects on psychological status. In addition, the extent to which previous exposure to a stressor effects these support--health relationships will be considered[4].

Two separate sets of hypotheses will be tested. The first set of hypotheses involves direct and buffer effects. The second set of hypothese involves the question of the extent to which the two sources of support act as functional alternatives for one another.

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[4] For the purpose of clarity in this discussion we should note that the measures to be used in this analysis are scored such that an inverse relationship between a given measure of social support and the dependent measure indicates a positive effect of social support on mental status.

The first step of the analysis involves testing the direct and buffer hypotheses within each of the two sources, separately. Thus, for partner support and peer support, each of the following two hypotheses will be tested, neither of which is mutually exclusive.

1. Social support will be inversely related to psychological status indicating beneficial effects for all respondents regardless of past experience with a life stressor. This is the direct effects hypothesis.
2. Social support will reduce the deleterious effects of a stressor such that as social support increases, psychological status scores for those who have experienced the stressor will not differ from those who have not experienced the stressor. This hypothesis is the buffer effects hypothesis and requires a significant interaction between social support and stress exposure.

The results derived from this step of the analysis will allow us to compare each measure of support in terms of the confirmation or lack of confirmation of each of the two hypotheses. To the extent that each type of support has similar beneficial effects we would expect to find that whatever hypotheses are confirmed for one support measure will also be confirmed for the other support measure.

On the other hand, to the extent that particular hypotheses are confirmed for one support measure but not confirmed for the other support measure we would have to conclude that the two types of support are not equivalent in terms of their effects on psychological status. For instance, it may be that one type of support exerts a simple influence on the outcome measure (hypothesis 1) while the other support measure exerts only a buffer effect on the outcome measure (hypothesis 2). At this point there is no basis for predicting which of the two hypotheses will be confirmed or disconfirmed for both measures of support. The question is an empirical one.

Given these known direct and/or buffering effects, we will then procede to test the relative effectiveness of each source of support, in order to demonstrate functional similarities and differences between them. This involves examining the effects of both types of support simultaneously, rather than independently. In this second step of the analysis the following hypotheses will be tested:

1. As the level of partner support decreases, the beneficial effects of peer support will increase.
2. As the level of peer support decreases, the beneficial effects of partner support will increase.

These hypotheses may be stated in terms which are more specific to the form of the support effect. To the extent

that each source of support is a functional alternative for the direct effects of the other, we would expect to find evidence of a first-order interaction between the two measures of support. The evidence should indicate that a high level of either type of support will result in similar beneficial effects on psychological status. Only those respondents with low levels of both types of support should show evidence of deterimental effects directly associated the lack of social support.

Confirming the functional alternative hypothesis for buffering effects is more complex, since comfirmation of the buffer effect itself involves the interaction between a measure of support and a measure of life stress. To the extent that each source of support is a functional alternative for the buffering effects of the other, we would expect to find evidence of a second-order interaction involving both support measures and the measure of life stress. This evidence should indicate that a high level of either type of support will eliminate the deleterious effects of a stressor on psychological status. Only those respondents with low levels of both types of support will show evidence of the negative impact of the stressor.

METHOD

Respondents

The data come from a larger study designed to explore the impact of the Vietnam war on Vietnam veterans and their peers. The sample design for this study is quite complex and has been reported in detail elsewhere[5]. For the present analysis, a few main points regarding the sample and the sampling procedures will suffice.

Since Vietnam veterans are relatively rare in the population, ordinary probability sampling cannot yield a sufficient number of men to achieve stable results within a reasonable amount of time. Sampling from lists of veterans and former servicemen, even lists provided by the U.S. Department of Defense, is inadequate and prone to race and class biases. Thus, the Project elected to screen potential respondents via telephone, and then to interview in person those so located.

The brief screening interview asked if a male between 24 and 35 years of age lived in the household or received mail or telephone calls there. Additional demographic details

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[5] See Legacies of Vietnam: Comparative Adjustment of Veterans and Their Peers. Final report of the Vietnam Era Research Project to the first session of the 97th Congress, Committee on Veterans' Affairs, March 9, 1981.

were collected in case such a person was found. If the potential respondent was needed to fill a qucta in the sampling design, an appointment was made for an interview. If a male meeting the criteria was not home, a method of contacting the man was obtained from the person who answered. Interviewed respondents were paid $20.

The basic sampling design was contextual, rather than national. Ten sites overall were sampled: Bridgeport, Connecticut; Westchester County, New York; and Brooklyn, New York, were sampled in 1977, (Wave 1). Atlanta and rural Georgia; Georgia, Alabama; Chicago, Illinois; South Bend and rural Indiana; and Los Angeles, California, were sampled in 1979, (Wave 2).

Due to the difficulty of locating certain types of respondents which were required by pre-specified sampling quotas in Wave 1, a form of multiplicity sampling (Sirken, 1970) was employed to find black veterans. That is, persons who answered telephones in areas which were known to be predominately black were asked if any of their relatives or friends were Vietnam veterans. If so, information on how to contact this person was obtained.

This procedure of multiplicity sampling was formalized and carefully controlled in Wave 2 data collection, to include only "sons and brothers living in this area". This procedure was employed for all households called which did not contain a Vietnam veteran. A total of 242 Vietnam

veterans were located by this method in Wave 2. (See Fine, Rothbart, and Sudman, 1979, for full details).

Interviews were completed with a total of 1381 men, 380 in Wave 1 and 1001 in Wave 2. The total all-site refusal rate at the time of telephone screening was 7.8 percent. An additional 15 percent of eligible respondents refused the interview itself.

For the main analysis, only married respondents[6] will be used. Although there are 919 married respondents in the total sample, only 910 of these men have valid scores on all variables of interest. Thus, percentages and N's which follow are based on these 910 cases.

Three categories of military involvment are represented here: Vietnam veterans (N = 265, 29%), "Era Veterans" who served somewhere other than Vietnam at the time of the war (N = 251, 28%), and non-veterans (N = 394, 43%).

Respondents range in age from 24 to 35 years. The sample is split such that 321 (35%) of the respondents are between 24 and 30 years of age, and 589 (65%) of the respondents are between 31 and 35 years of age.

For racial distribution, 612 (67%) respondents are white, and 298 (33%) respondents are non-white. Non-whites include both blacks and chicanos, the later group having been

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[6] Where necessary, comparisons of married respondents with unmarried respondents will be made. The group of unmarried respondents consists of a total of 394 men, including 108 divorced, 41 separated, and 245 men who have never been married.

sampled in Los Angeles, only. In both waves of data collection non-whites were oversamled, relative to their actual representation in the population, so that statistically reliable inferences could be drawn concerning the effects of race. In addition, higher class (i.e. college educated) non-veterans were oversampled in Wave 1 data collection for similar analytic reasons.

Because of the class and race bias in the Wave 1 sample, and the race bias in Wave 2, (which was due to the multiplicity sampling procedures for that wave of data collection), the present sample is not representative of the general population of young adult men. However, since no attempt will be made here to make estimates regarding population characteristics, the non-representative nature of the sample is not problematic.

The Interview Instrument

The instrument was designed to elicit information regarding a wide range of aspects of the respondents' lives. These included family history, experience with the draft, military experience (veterans only), political activity, employment history, educational history, arrest history, current social class, job satisfaction, medical and psychiatric problems, help seeking, drug and alcohol use, friendship patterns, friends' characteristics, and psychological status. Specific sections of the interview

were borrowed from sources relevant to their content. These sources are cited, were applicable, in the description of the measures which follows.

The interview took from four to six hours to administer and included both structured and open ended questions, resulting in both qualitative and quantitative data. For the present analysis only quantitative data from structured questions will be used.

Measures

Social Support Measures

Partner Support. The partner support scale was designed to measure the following characteristics of the marital relationship: affection, caring, satisfaction, and concordance in decision making. It was also important to avoid including behaviors such as sexual problems and overt physical violence, which may be indicative of a psychological problem. The eight items which make up the scale are presented in Appendix 1. These items were asked of all married respondents.

Responses to each item were scored from one to five in the direction of support. The scores were summed to form a composite scale with a potential range of eight (Low Support) to forty (High Support). The resulting scale was found to have an acceptable level of internal consistancy[7], (alpha = .77, N = 877). (See Table 2 at the end of this chapter for a summary of the statistical characteristics of the partner support scale.)

The partner support scale contains five items which are also contained in the marital role functioning scale of the Psychiatric Epidemiology Research Instrument, (PERI), (see

[7] The alpha is based on the total number of married respondents having no missing scores on any of the eight items. Allowing for up to three missing scores out of the total eight, 910 respondents have a valid partner support scale score.

B. S. Dohrenwend et al., 1981). This scale has been shown to be highly reliable across various subsamples of the general population, although it has not itself been used as a measure of emotional support from a partner.

The conceptual similarity between partner support and marital role functioning is fairly straightforward. While there are clearly many different responsibilities which may be included in the realm of adequate role fulfillment as a spouse, being emotionally supportive is part of what would commonly be considered appropriate spouse behavior. Thus, by encouraging emotional security, mutual exhanges of affection, and support in decision making, a person is not only fulfilling one of their major roles as a spouse, but they are also providing a source of emotional social support. This is the basic assumption underlying the partner support measure used in this analysis.

It should also be pointed out that this partner support scale is characteristic of "perceptual" or "subjective" measures of social support, rather than being "objective" or "structural" in nature. While none of the items explicitly asked how supported the respondent felt he was, responses to these items are nevertheless based on respondents' subjective perceptions and judgements regarding various aspects of the relationship.

Peer Support. The measure of peer support is quite different from the measure of partner support, both in terms of its construction and content. A brief description of the way data concerning respondents' friends were collected is required here.

From the outset, the Vietnam Era Project had as a major concern characteristics of the social networks of respondents. Thus, respondents were explicitly asked to name friends and provide information about these friends at three different point in the interview[8]. Each of these points coincided with a specific point in time: Time 1 around the age of 18; Time 2 during the period of military duty (for veterans), or the period of greatest concern about the war (for non-veterans); Time 3 at the time of the interview, i.e. currently.

The number of friends who could be named at each point in time was fixed: Three at the first two points in time and four at the third point in time[9]. In addition to these four friends named at Time 3, respondents were asked to provide the names of the person(s) with whom they lived, (if

[8] The basic method used is described by McCallister and Fischer (1978), following a method developed by Schulman (1972).

[9] If less than three out of the possible four spontaneously named friends were Vietnam veterans, respondents were asked if they "Happen to see anyone these days who is a Vietnam veteran". Three additional Vietnam veteran friends could be named. Since these friends had to be probed for, they are not considered in this analysis, for reasons which will become apparent further along in the description of this measure.

anycne), and the person who told them about their current jcb, (if anyone).

The first step in creating the peer support scale was to define the set of current friends for each respondent. A given friend who was named at either Time 1 or Time 2 was included only if the respondent replied "yes" to the question of whether or not he was still in touch with that friend. All individuals spontaneously named as friends at Time 3 were included. (The only Time 3 "friends" excluded here are spouses and female cohabitants.) The highest possible number of current friends resulting from this selection procedure is 12. In fact, the actual number of current friends ranged from zero to 11. Both the mean and the median number of friends is five, and the modal number of friends is four.

Respondents were systematically asked many questions about each of the friends they named, including such things as the context of their meeting, drug and alcohol use, and which friends were known by which otner friends. The one piece of information utilized in the peer support scale concerned the frequency of contact the respondent had with each friend. For each friend, the respondent was asked whether he saw this person (1) once a week or more, (2) once every two to three weeks, (3) once a month, (4) three to four times per year, (5) one to two times per year, or (6) less than once a year.

The peer support scale was designed to measure the actual number of contacts a respondent had with his friends within a two to three week period. In order to determine this number, each friend was assigned one of the following weights: 2.5 if he was seen once a week or more; 1 if he was seen once every two to three weeks; and 0 if he was seen less than once every two to three weeks. These weighted values were then summed across the total set of current friends for each respondent.

Thus, if a man had a total of three friends, each of whom he saw once every two to three weeks, his contact score would be three. Or, if a man had three friends each of whom he saw once per week, each friend received a weight of 2.5, (reflecting the approximate number of contacts in a two to three week period), and the respondent's contact score was 7.5.

Although a continous distribution of scores was produced by this method, ranging from zero to 18.5, there were obvious clusters in the overall distribution. In addition, this distribution was too heavily dependent on the actual number of friends a man named, which was undesirable. (In preliminary analyses, it was found that the sheer number of current friends had no relationship with the dependent measure. Also, see Berkman and Syme (1979) for a discussion of a similar lack of findings based on the simple number of friends). Thus, the decision was made to collapse values

into four categories based on clear distributional breaks. This four point ordinal measure will be treated as a continuous variable. Table 1 shows the ranges of contact scores asscciated with each of the four points in the scale[10]. (See Table 2 for a summary of the peer support scale characteristics).

TABLE 1

Ranges of contact scores and the number of friends included in each of four levels of the final peer support scale.

Scale Value	Number of Contacts	Number of Friends	Number of Cases
1	< 1	0 - 8	92
2	1 - 5.5	2 - 11	333
3	6 - 10	3 - 11	413
4	10.5 - 19	5 - 11	72

[10] One exception was made in assigning scale scores. A small group of respondents (N = 22) reported having only one or zero current friends. Based on this information alone, these respondents were assigned, a priori, to the lowest scale value of peer support. On later inspection, this decision actually effected only 8 respondents differently from what would have happened if they were simply assigned a scale score based on actual contacts. This is because all but these 8 men had zero contacts with friends in a two to three week period; the remaining 8 had only one contact.

The basis for calling this scale a "support" scale rather than simply a social contact scale is that respondents were specifically asked to name their "close" or "good" friends. In Granovetter's (1975) terms, these interpersonal connections may be considered "strong" ties, in which time spent, emotional intensity, mutual confiding, and reciprocal services, are all salient, relative to more casual or superficial aquaintances. It is for this reason that only spontaneously named friends were included in the measure, since presumably, friends who must be probed for are not as close or immediate as friends who are freely mentioned. The obvious assmption here is that close friends, i.e. strong ties, provide "emctional social support", and that the more contact one has with close friends, the more emotionally supported one is.

While this assumption is lacking in appreciation for the complexities and dynamics of interpersonal relations, it has the one advantage of being an unambiguous measure which is independent of perceptions regarding how supported a person "feels". As a social support measure, it is about as objective or behavioral a measure as can be constructed and still preserve some meaning regarding emotionally relavant characteristics of the primary social environment. In this respect, the peer support measure is very different from the partner support measure which, as previously noted, is much more subjective and perceptual in its nature.

Psychological Status

The dependent variable to be used in this analysis is a measure of psychological demoralization. Demoralization is a term used by Jerome Frank (1973) to describe the psychological state of persons seeking psychotherapy. Frank states that

> a person becomes demoralized when he finds that he cannot meet the demands placed on him by the environment, and cannot extricate himself from his predicament. (p. 316)

A great deal of work aimed at more precisely defining and measuring this construct has been done by B.P. Dohrenwend and his collegues, (Dohrenwend et al., 1981; Dohrenwend et al., 1980), and the reader is referred to these sources for a complete description of the theoretical basis and development of the measure. A few main points taken from this literature regarding the nature of the scale are included here.

Dohrenwend and his collegues (1981) have used the analogy of elevated body temperature to describe the demoralized state: It usefully indicates the existence of a problem but is non-specific regarding what the actual problem may be. It is therefore not to be taken as a measure of some specific type of disorder. It is also not intended to be used as an indicator of "caseness" (Leighton et al., 1963), "impairment" level (Srole et al, 1962), or overall mental health. While demoralization may at times be related to psychiatric disorder, it is, thecretically, related to such

things as extreme environmental stress, physical illness or existential dispair. Precipitating factors of demoralization may arise from environmental sources or from sources within the individual.

The kinds of symptoms included in the measure of demcralization are represented in a number of highly intercorrelated subscales. Specifically, these include poor self-esteem, feelings of hopelessness and helplessness, a sense of dread, sadness, anxiety, confused thinking, psychophysiological symptcms, and perceptions of poor health.

The published method employed to construct the scale involves summing together eight standardized subscale scores corresponding to each of the above mentioned domains; i.e. treating each subscale as an item. This method was used in order to equate the contribution of each subscale score to the resulting total, since the subscales themselves varied in terms of the number of items contained in each.

The method used to construct the demoralization composite for the present analysis differs from the method just described, in that items, rather than subscales, were used as the basic components of the scale. In addition, not only were fewer items used, but items associated with other problem domains were included on the basis that they came from scales which were found to be strongly related to the original eight-subscale composite. The reason for these differences requires a brief digression.

The interview used for data collection in 1977, (Wave 1), contained almost all of the items from the symptom section of the PERI. The few items which were not included, but that are part of demoralization, involved the two items making up the perceived physical health subscale, and four other items from various other subscales. It was thus possible to construct seven of the eight subscales in the Wave 1 data, all of which had acceptable levels of internal reliability, (i.e. alpha coefficients greater than .65), except for Dread, (alpha = .36). The internal consistancy of this version of demoralization was considered high enough to be acceptable, (alpha = .80), based on the seven subscales as items.

In the time interval between waves of data collection, the interview instrument was modified and a number of symptom items related to demoralization were either eliminated or moved to a different section of the interview. It was not possible to utilize the items which were moved as part of the demoralization scale because their format of administration and time reference were altered. Since it was important to be able to use data from both waves in the present analysis, the decision was made to create an alternative version of demoralization based on relevant items which were common to the mental status section of both versions of the interview.

The criteria used for including an item in this scale was that it must either have been included in one of the eight subscales of demoralization, or it must have been included in one of the sets of scales which were reported to be strongly related to these eight (Dohrenwend et al, 1981). The final version of this scale is made up of 23 items, which were asked of all respondents in the same section of the interview. Appendix 2 lists these items.

This scale proved to be highly reliable for the total sample, (alpha = .91). As a check to determine how closely this 23 item scale related to the seven-subscale version of demoralization, the two scales were correlated in Wave 1. The resulting correlation is high, (r = .90), and it thus seems safe to say that the scale used in this analysis does in fact measure the construct of demoralization as it has been described.

The resulting distribution of scores on demoraliztion was highly positively skewed (skewness = 1.408). In order to normalize this distribution, demoralization scores were transformed by taking their natural logarithms, which reduced this skewness considerably (skewness = .428). Table 2 provides a summary of the final demoralization scale characteristics, along with information regarding the partner support scale and the peer support scale.

TABLE 2

Summary of scale characteristics for the three major continuous measures, (N = 910).

Scale	Mean	Standard Deviation	Minimum Value	Maximum Value	Alpha
Demoralization	3.695	.263	3.136	4.682	.91
Partner Support	32.855	4.855	12.00	40.00	.77
Peer Support	2.511	.782	1.00	4.00	---

The Stressor

The stressor of interest in this analysis is exposure to combat in the Vietnam War[11]. During the interview, all Vietnam veterans were asked a series of questions concerning 12 specific combat activities. These 12 activities are listed in Appendix 3. An affirmative response to a given item was scored one and a negative response to a given item was scored zero. For each activity engaged in, respondents were asked whether they had these experiences rarely, sometimes, often, or very often. Each of these frequencies were assigned a value of one (rarely) through four (very often). The actual combat scale was formed by multiplying

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[11] The description of the combat scale provided here is taken from G. Boulanger (1981), who did all of the item analysis and scale construction of the index. The reader is referred to this source, as well as the Vietnam Era Project Report (1981) for a complete description of the index and its relationship to post traumatic stress disorder. (I am indebted to Dr. Boulanger for this work.)

the original score on each item, (0 or 1), by the frequency value, (1 through 4). These weighted values were then summed, resulting in a continuous scale ranging from zero to 41.

For the purposes of the present analysis, the finer distinctions between heavy and light combat made by this continuous scale are not of interest. Instead, it was desirable to simply isolate a group of respondents who had clearly experienced the stressors of combat involvement in Vietnam. It was not possible to simply utilize the entire group of Vietnam veterans for this purpose, since, in working out the Combat scale, it became clear that a number of Vietnam veterans never saw combat, or saw it so rarely that they could not be legitimately considered exposed to the stresses of war.

Following the work of Boulanger (1981), Vietnam veterans who scored less than three on the combat index were not considered to have been exposed to the stressor of war, since this was the point on the index at which no detectable symptoms associated with her measure of Post Traumatic Stress Disorder were found. This small group of Vietnam veterans were combined with Era Veterans and non-veterans to form the group designated as "Not Exposed" to the stressor, (N = 725, 80%). Vietnam veterans scoring three or greater on the combat index were considered "Exposed" to the stressor of war, (N = 185, 20%), and form the contrasting

group of "stressed" respondents. Throughout the entire analysis, combat exposure will be used as a dichotomous varible which defines two populations: one exposed to the stress of combat, the other not so exposed.

Social Status Variables

In order to determine whether social status differences influence the present findings, three relevant indicators were examined: Race, age, and social class. Race and age distributions have been previously provided in the description of the sample characteristcs. These two status indicators were used as dichotomous variables.

The third social status variable, social class, is an additive index constructed from three separate variables: (1) income level, (2) occupation level, and (3) education level. Appendix 4 lists the five categories associated with each of these variables.

Each item was scored from one to five in the direction of higher social class. Summing the scores of these three variables resulted in a continuous scale ranging from three (lowest class) to 15 (highest class). As a scale, this social class index is not as reliable as would be desired, (alpha = .57, N = 847 cases with valid scores on all three variables). Nevertheless, the internal consistency is above .50 and thus, the continuous composite scale was used. Allowing for up to one missing item in the index, 910

respondents have valid social class scores. The social class scale mean is 9.50, (SD = 2.70).

RESULTS

Associations among the Three Main Predictors

As a point of departure it would be useful to demonstrate that exposure to combat has no influence on levels of either partner support or peer support. Evidence to establish this independence was derived from a simple comparison of support means as a function of combat exposure.

Comparing the mean level of partner support for those exposed to combat (M = 32.82, N = 185) with the mean level for those not exposed to combat (M = 32.86, N = 725) indicates that combat exposure has no significant influence on partner support levels. (F = 0.01, df = 1,908, p = N.S.).

Comparing the mean level of peer support for those exposed to combat (M = 2.55, N = 185) with the mean level for those not exposed to combat (M = 2.50, N = 725) also indicates that exposure to combat has no significant influence on peer support levels (F = 0.49, df = 1,908, p = N.S.).

In addition to showing that combat exposure is unrelated to either measure of social support it would also be useful to establish that the two measures of support are unrelated. This can be seen from the non-significant zero-order

correlation between peer support and partner support ($r = .055$, $N = 910$, $p < .10$).

Based on these results it cannot be claimed that any of the three main independent variables are confounded with one another in this analysis. We are now in a position to proceed with analyses concerning the hypotheses of interest. As previously described the first part of this section involves a separate comparison of each measure of social support as it relates to demoralization.

Independent Effects of Partner and Peer Support

Partner Support. Although the hypotheses of interest here explicitly involve only the two variables of partner support and combat exposure, and their interaction, (i.e. three predictor terms), the multiple regression approach employed here makes it possible to simultaneously take into account (for the purpose of ruling out) the main effects and interactive effects of three social status variables: Social class, race, and age. The underlying principle here is to insure that a given variable's contribution, (or the contribution of an interaction term), to the overall prediction equation is significant over and above variance accounted for by other variables.

The analysis of partner support was initiated by testing a model containing the following 18 predictor terms: Five terms representing the main effects of combat exposure,

partner support, social class, race, and age; ten resultant first order interaction terms; three second order interaction terms. Only those second order interaction terms involving both combat exposure and partner support, (i.e. with each of the three social status variables), were included at this level. In addition, no third- or fourth-order interaction terms were included. A total of 910 respondents having valid scores on all variables were included in this partner support regression equation.

The strategy employed here is to progressively reduce the model based on eliminating non-significant terms. Each effect was tested to determine whether its unique contribution to the model was significant, i.e. after adjusting for all other effects in the model. Appendix 5 provides a summary of the progressive reductions as non-significant terms were eliminated and the model re-tested. Appendix 5 also provides F-tests for the change in R-square associated with a given set of terms, as a whole. This procedure was employed to ensure that the set of predictor terms which were removed from the model at each reduction did not, as a group, account for a significant increment in R-square. Elimination of non-significant main effects was postponed until all non-significant interactions were removed.

The terms which were retained in the final partner support model, F-tests of their unique contribution to the

overall model, and associated non-standardized regression coefficients (B) are presented in Table 3.

TABLE 3

Effects of terms retained in the final version of the partner support model.

Source of Variance	df	F	p	B
Partner Support	1	143.20	< .0001	-.022
Exposure	1	5.38	< .02	.282
Social Class	1	3.75	< .05	-.006
Partner Support by Exposure	1	4.36	< .04	-.008
Total Model	4	60.07	< .0001	
Error	905			

By controlling for the effects of specific social status variables, the results presented above indicate that one of these variables, social class, is inversely related to demoralizaion. That is, as social class rises, demoralization levels are reduced. This is consistent with previous well-established findings (Dohrenwend & Dohrenwend, 1969) that lower levels of social class are associated with higher levels psychological problems.

Over and above this social class effect, the results presented in Table 3 indicate that both partner support and combat exposure have unique significant main effects on demoralization. The relationship between partner support and demoralization is in the predicted inverse direction, such that higher levels of demoralization are associated with lower partner support scores. For combat exposure, the relationship to demoralization is direct, such that those who were exposed to the stressor of combat have a significantly higher demoralization mean, (M = 3.723, N = 185), compared with those who were not exposed to combat, (M = 3.686, N = 725).

The partner support by exposure interaction indicates that the slope of the regression line between demoralization and partner support is different for those exposed to combat compared with those not exposed to combat. Based on this evidence of unequal slopes, it must be concluded that exposure to combat alters the relationship between demoralization and partner support. We now proceed with more specific within-group analyses in order to determine whether there is a basis for confirming the direct effects hypothesis, the buffer effects hypothesis, or both hypotheses.

A simple model, in which demoralization scores were predicted from partner support scores, was tested for each of the exposure groups separately. The F-test results, and

the non-standardized regression coefficients, (B), for each test are presented in Table 4.

TABLE 4

Effect of partner support (P1) on demoralization for exposed and unexposed groups tested separately.

Combat Exposure	F(P1)	df	p	B
No	147.39	1,723	< .0001	-.022
Yes	80.96	1,183	< .0001	-.030

As unambiguous confirmation of the strong main effect of partner support which was shown in Table 3, the results in Table 4 indicate that the relationship between demoralization and partner support is significant and in the predicted inverse direction for both the exposed and the unexposed groups.

From these results it is clear that there is a simple, inverse relationship between partner support and demoralization for all respondents regardless of whether or not they were exposed to the stressor of combat. However, for those who were exposed, that relationship is significantly stronger. Thus, while there is a significant interaction between partner support and exposure, the evidence in Table 4 confirms the direct effects hypothesis. This situation is graphically presented in Figure 1.

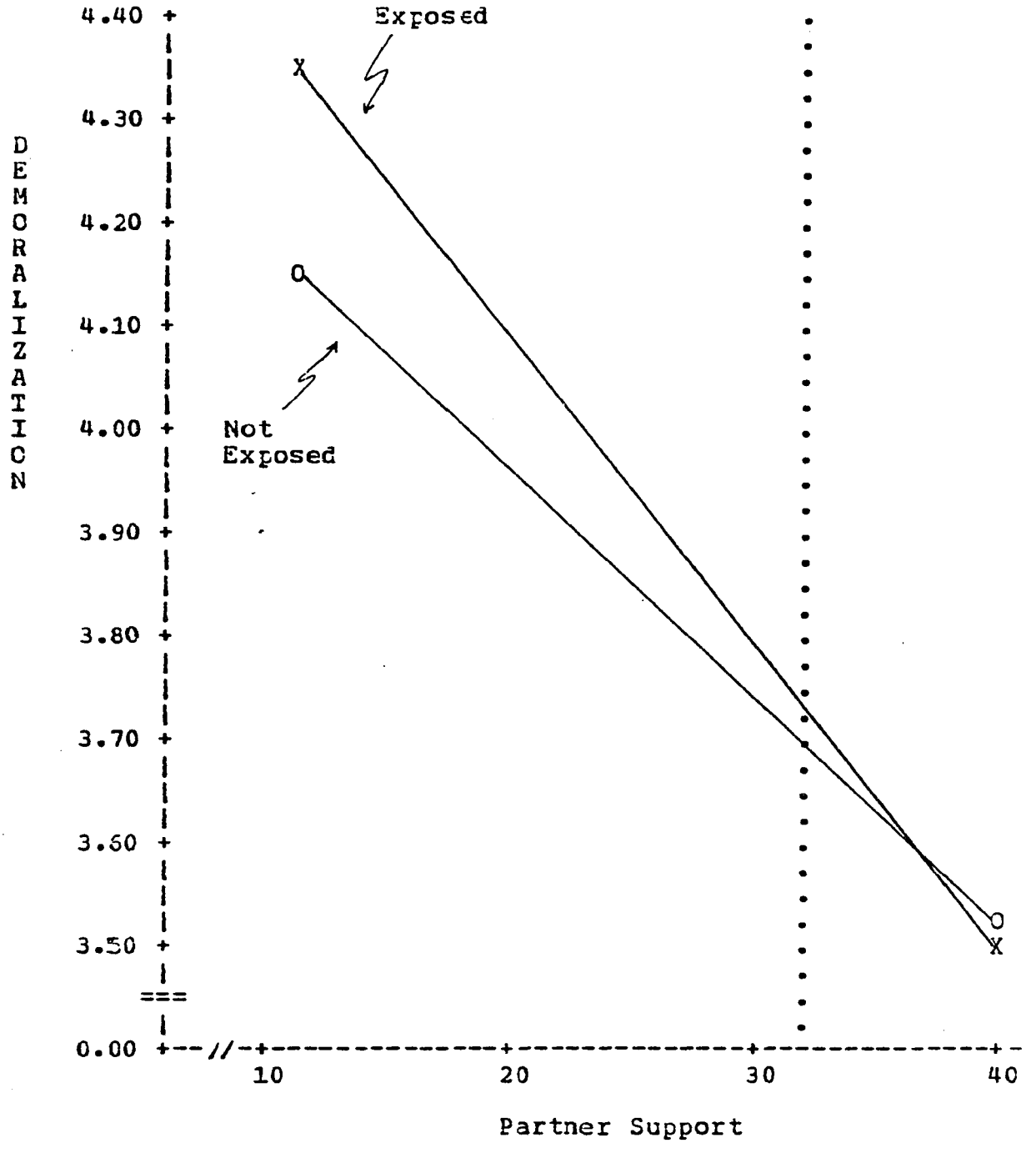

Figure 1: Demoralization regressed on partner support, for each exposure group separately.

Turning now to the question of buffer effects, it is clear from Figure 1 that demoralization scores of the two exposure groups converge as the level of partner support increases. Within the range of observed scores, the two regression lines meet at a partner support value of 37.05. Although exposure to combat was found to have a significant main effect on demoralization, it is clear from Figure 1 that there is a portion of this sample for whom this stressor does not have such an impact.

In order to determine the point on the partner support scale score distribution at which the distance between the two regression lines becomes non-significant, (i.e. where combat exposure has no impact on demoralization levels,) the Johnson-Neyman Method (Walker & Lev, 1953, pp 398-404) of defining a region of non-significance in analysis of covariance was applied to the data[12].

The result of this analysis indicates that the region of non-significance falls at or above the partner support value of 32.03. The vertical line, in Figure 1, at the partner support value of 32.03, divides the regression space into the region of significance and the region of non-significance. At or above this value of partner support

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[12] The upper and lower boundaries of the region of non-significance were calculated by hand, based on information required by the formulas given in Walker and Lev (1953, p. 401). Calculations were carried out to eight decimal places to insure an accurracy level similar to that of SPSS, (i.e. single precision).

scores, the distance between the two regression lines associated with each exposure group is non-significant, i.e. combat exposure has no impact on demoralization. Below the level of 32.03 on partner support the distance between the two regression lines is significant, i.e. combat does in fact have a significant impact on demoralization scores.

By examining the frequency distribution of partner support scores, we find that 57 percent (N = 523) of the total sample of married men have partner support scores greater than or equal to 32.03; 43 percent (N = 387) have scores less than 32.03. Thus, exposure to combat has a significant impact on demoralization only for respondents in the lowest 43 percent of the partner support distribution. Exposure to combat has no such impact for respondents in the top 57 percent of the partner support distribution. These results can be taken as evidence supporting the hypothesis that partner support acts as a buffer against the impact of combat exposure on demoralization.

The findings obtained in this analysis provide support for both the direct effects hypothesis and the buffer effects hypothesis: Partner support is significantly related to demoralization for all respondents and even more strongly so for those exposed to combat. Combat exposure has a negative impact on demoralization only for respondents in the lowest fourty-three percent of the partner support distribution.

Peer Support. In this section of the analysis, we will repeat the previous analysis utilizing peer support, in place of partner support, as the continuous measure of social support. As in the previous analysis of partner support, the analysis of peer support begins with a model including the same set of social status variables, and interaction effects. A total of 910 respondents with valid scores on all variables were use in this analysis.

Again, the model was progressively reduced by eliminating non-significant terms. A summary of these progressively reduced models is presented in Appendix 6. The terms in the final model for peer support resulting from this procedure, along with their F-statistics and associated non-standardized regression coefficients are shown in Table 5.

TABLE 5

Effects of terms retained in the final version of the peer support model.

Source of Variance	df	F	p	B
Social Class	1	3.72	< .05	-.006
Age	1	3.93	< .04	-.036
Peer Support	1	4.81	< .03	-.025
Exposure	1	2.56	< .11	.038
Total Model	4	3.67	< .006	
Error	905			

By replacing partner support with peer support a somewhat different set of findings emerge in Table 5. An additional social status variable has emerged as being significant: respondents' age. The direction of this relationship indicates that respondents aged 30 years and younger have a higher level of demoralization (M = 3.72, N = 321) compared with respondents aged 31 years and older (M = 3.68, N = 589).

As in the previous analysis of partner support, the effect of social class is significant here. As social class levels rise demoralization levels go down.

Combat exposure is not significant in this peer support model. While it is obvious that the values of the means

being compared here do not differ from those compared in the partner support analysis, the F-ratio is simply not large enough here to push this effect to a significant level.

As for peer support, the results presented above indicate that the effect of peer support is significant and inverse, such that as the level of peer support increases, demoralization levels decrease. This significant main effect of peer support indicates that over and above the effects of age, social class and combat exposure, peer support has a significant and inverse effect on the level of demoralization. This finding provides support for the direct effects hypothesis for peer support.

The interaction between peer support and combat exposure was not included in the final model because it was not significant, i.e. it did not explain a significant amount of variation in demoralization scores over and above the main effects presented in Table 5 (see Appendix 6). Thus, it cannot be concluded that the relationship between peer support and demoralization is altered by previous exposure to the stressor of combat. At this point, there is no basis for exploring the potential buffering effects of peer support for the total sample.

Comparison of Independent Effects. Turning now to the comparison of the effects of the two types of social support, the results from each of the foregoing prediction models indicate that both partner support and peer support

have beneficial effects on demoralization. Table 6 provides a summary of these results in terms of which of the two hypotheses regarding the beneficial effects of social support were confirmed or not confirmed for each support measure.

TABLE 6

Comparison of the hypotheses confirmed for each of the social support measures in independent analyses.

	Support Measure	
Hypothesis	Partner Support	Peer Support
Direct Effects	Yes	Yes
Buffer Effects	Yes	No

While peer support has only direct effects, partner support has both direct effects and buffering effects. We should note at this point that while the direct effects hypothesis was confirmed for peer support, the strength of the peer support effect is very much weaker in comparison with the strength of the partner support effect. This difference is clearly demonstrated if we compare the change in R-squares associated with the main effect of each support measure, when partner support and peer support are removed from their respective models.

The main effect of partner support accounts for 12.49 percent of the variance in demoralization scores while peer support account for only .53 percent of the variance in demoralization scores. While both of these increments in R-square are significant beyond the .05 level, it is obvious that partner support is a much stronger predictor of demoralization levels compared with peer support.

There are at least two explanations for this apparent difference. The first is simply that peer contact may serve only a weak supportive function, in terms of maintaining a healthy psychological state, for men who are married. The second possible explanation is that peer support may serve a supportive function only for a particular portion of the married population, i.e. the portion lacking an adequate level of support from their partners. The next section of the analysis is designed to explore this possibility.

Peer Support Controlling for Partner Support

This section of the analysis is concerned with the question of compensatory support: Can peer support provide the kind of beneficial effects which were found to be associated with relatively high levels of partner support, in the situation in which partner support is low or lacking?

If peer support is a significant source of support only for men with a low level of partner support, it is expected that significant beneficial effects associated with peer

support will be found only for respondents with low partner support. Such beneficial effects may be demonstrated as either direct effects, buffer effects, or both. If this hypothesis is accurate, we should also find that peer support has no detectable influence on demoralization levels for respondents with a high level of partner support.

On the other hand, if the effects of peer support are simply very weak for the entire sample, and the previously found significant effect of peer support is due only to the large N employed here, (i.e. simply the power of the test), we would expect to find no significant effect due to peer support for either those low or those high on partner support, when we reduce the power of the tests by conducting within group analyses.

In order to explore this possibility, the sample was dichotomized into two groups based on previous findings: Those with a score of 32.03 or greater on partner support were designated as having a "High" level of partner support; Those with a partner support score of less than 32.03 were designated as having a "Low" level of partner support. The same testing procedure and model previously employed for exploring peer support was applied separately to each of these two groups. The results for those with a high level of partner support are presented first.

Peer Support when Partner Support is High. Appendix 7 summarizes the progressive reductions of the original 18 term model of peer support for respondents with a high level of partner support (N = 523). The terms in the final version of the model, their associated F-statistics and non-standardized regression coefficients are presented in Table 7.

TABLE 7

Effects of terms retained in the final version of the peer support model, for those with a high level of partner support.

Source of Variance	df	F	p	B
Peer Support	1	1.96	N.S.	-.021
Exposure	1	1.87	N.S.	-.121
Peer Support by Exposure	1	2.42	N.S.	.053
Total Model	3	1.08	N.S.	
Error	519			

These results indicate that peer support, combat exposure and their interaction are all non-significantly related to demoralization for this group of respondents with a high level of partner support. In addition, the previously found age and social class effects are also non-significant for this group.

The lack of a significant effect for exposure is as would be expected from previous results based on applying the Johnson-Neyman method to the data, which indicated that this group of respondents was protected from the negative effects associated with combat.

The lack of a significant peer support effect makes is clear that peer support has nc importance, in terms of demcralization, for this group of respondents. In addition, peer support does not interact with combat exposure for this group. Thus, the initial part of the prediction -- that peer support will be unrelated to demoralization for respondents with an adequate level of partner support -- is confimed. We turn now to examine the effects of peer support for respondents with a lcw level of partner support.

Peer Support when Partner Support is Low. Appendix 8 summarizes the progressive reduction of the original 18 term peer support model for respondents with a low level of partner support (N = 387). The terms retained in the final version of the model, their associated F-statistics and non-stantardized regression coefficients are presented in Table 8.

TABLE 8

Effects of terms retained in the final version of the peer support model, for those with a low level of partner support.

Source of Variance	df	F	p	B
Peer Support	1	0.27	N.S.	-.009
Exposure	1	10.18	< .002	.370
Social Class	1	6.47	< .01	-.013
Peer Support by Exposure	1	6.34	< .01	-.109
Total Model	4	5.63	< .0002	
Error	382			

In spite of the reduced power of this test, (N = 387), relative to the power of the previous test for respondents with a high level of partner support (N = 523), the results presented here indicate that the effects of both combat exposure and social class are entirely due to the group of respondents in the lowest fourty-three percent of the partner support distribution, i.e. respondents with a level of partner support too low to buffer the impact of combat exposure on demoralization.

The relationship between social class and demoralization is in the expected inverse direction. As social class levels rise, demoralization levels decrease. From these

results is is alsc clear that the previously found effect of age is not strong enough to reach an acceptable level of statistical significance when within group analyses are conducted.

Over and above the effect of social class, combat exposure has a significant main effect: The mean level of demoralization for those exposed to combat is higher (M = 3.875, N = 72), compared with those not exposed to combat (M = 3.782, N = 315).

Although the main effect of peer support is non-significant its effect is represented in the significant first-order interaction with combat exposure. At this point it appears that there is no basis for confirming the direct effects hypothesis for peer support for this group. However, the evidence of unequal slopes indicated by the significant peer support by exposure interaction term indicates that exposure to combat alters the strength of the relationship between demoralization and peer support for respondents with a low level of partner support. Thus, peer support may have buffering effects on demoralization for this group.

A simple model in which demoralization scores were predicted from peer support scores was tested for each of the exposure groups separately. The results of the F-tests, and the regression coefficients associated with each simple model, are presented in Table 9.

TABLE 9

Effect of peer support (P2) on demoralization for each exposure level tested separately, (Partner Support = Low).

Combat Exposure	F(P2)	df	p	B
No	0.05	1,313	N.S	-.004
Yes	6.16	1,70	< .02	-.111

In spite of the small number of respondents in the exposed group (N = 72), the relationship between peer support and demoralization is significant and in the predicted inverse direction for these men. There is no relationship between peer support and demoralization for respondents who were not exposed to combat. These results are graphically illustrated in Figure 2.

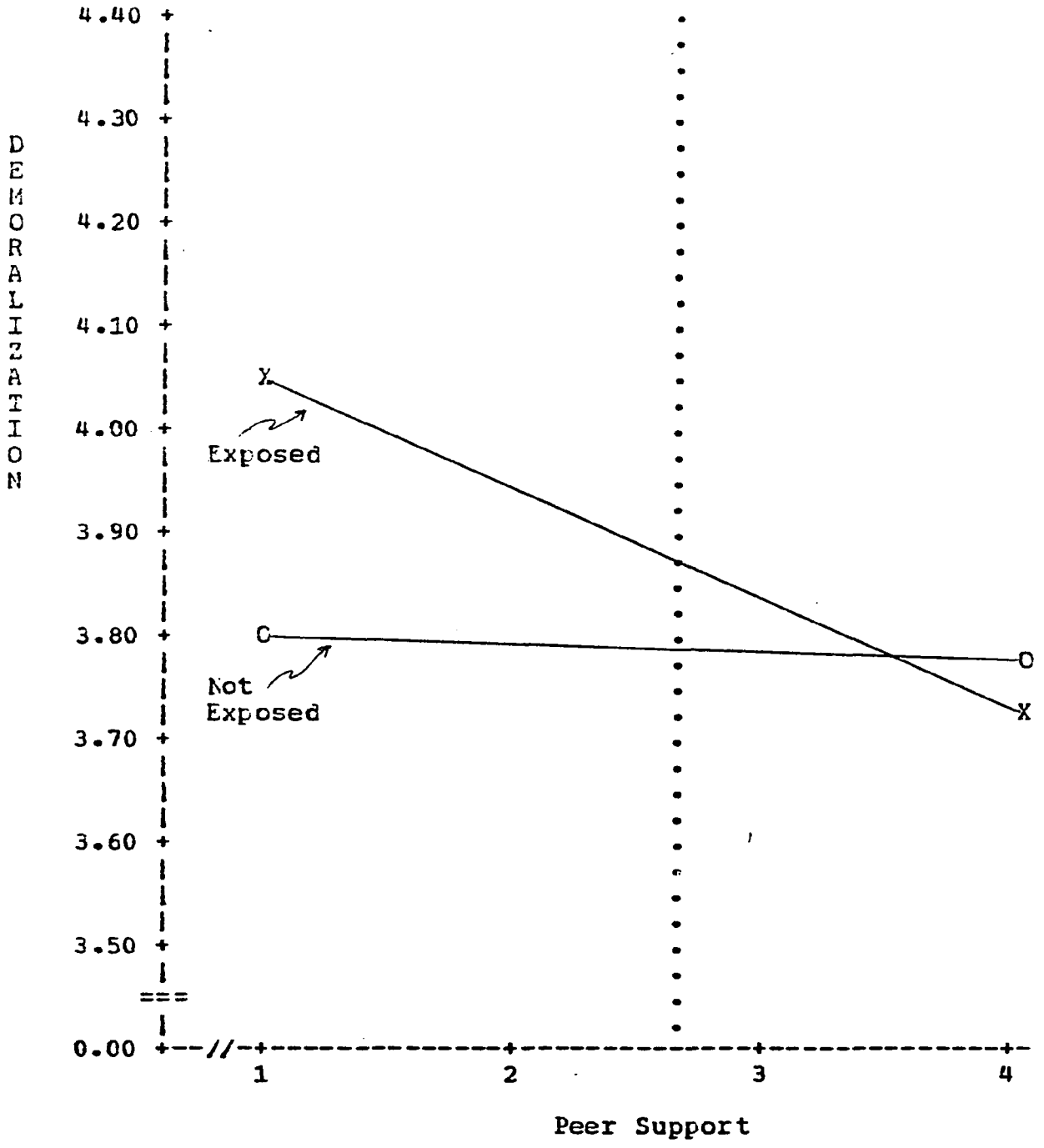

Figure 2: Demoralization regressed on peer support, for each exposure group separately, (Partner Support = Low).

Turning now to the question of buffer effects, it is clear from Figure 2 that demoralization scores for each exposure group converge as the level of peer support increases. Within the range of observed scores, the regression lines meet at a peer support score of approximately 3.48. Although exposure was found to have a significant main effect on demoralization for this group of respondents as a whole, it is clear that there is a portion of the group for whom this stressor does not have an impact.

In order to determine the boundaries of peer support within which the distance between the two regression lines representing each exposure group is non-significant, we again apply the Johnson-Neyman Method of defining a region of non-significance. The results of this analysis indicate that the region of non-significance lies within the peer support values of 2.84 and 4.00, (the upper limit of observed peer support scores). In Figure 2, the vertical line at a value of 2.84 on peer support divides the regression space into regions of significance and non-significance. We can thus conclude that the region within which exposure has no effect on demoralization, falls at or above the value of 2.84. Below the value of 2.84 on peer support, the distance between the two regression lines is significant, and thus below this level, combat has a significant impact on demoralization.

Examining the frequency distribution of peer support scores, we find that 50 percent (N = 193) of the total subsample of respondents with a low level of partner support have peer support scores greater that or equal to 2.84; 50 percent (N = 194) of this group have peer support scores which are less than 2.84. Thus, within the group of respondents with a low level of partner support, exposure to the stressor of combat has a significant impact on demoralization only for those in the lowest 50 percent of the peer support distribution. For respondents in the top 50 percent of the peer support distribution, combat exposure has no impact on demoralization.

These results confirm the prediction that the beneficial effect of peer support is isolated to the group of respondents having a relatively low level of partner support. The form of this effect is protective, i.e. peer support buffers the impact of combat exposure on demoralization, rather than excerising direct effects for the total subgroup. Table 10 provides a contrast of the hypotheses which were confimed and not confirmed for peer support for respondents at each level of partner support.

TABLE 10

Summary of peer support hypotheses confirmed for each of the two partner support groups.

	Partner Support Level	
Hypothesis	High	Low
Direct Effects	No	No
Buffer Effects	No	Yes

From the comparison presented in Table 10 it can be seen that peer support provides protective buffering effects against the impact of combat exposure for respondents lacking an adequate level of partner support. No such protective effects associated with peer support were found for respondents with a high level of partner support, i.e. a level of partner support adequate to buffer the negative impact of combat exposure on demoralization. Although no direct effects of peer support were found for respondents with a low level of partner support, this pattern of results still conforms to the predicted pattern of results required to confirm the compensatory support hypothesis: that is, the demonstration of at least one type of beneficial effect associated with peer support when partner support is low.

An additional analysis was conducted in order to determine whether this compensatory function of peer support

would also be found for unmarried respondents. Given the findings just presented, one would expect to find that peer support would be beneficially related to demoralization for respondents who are entirely lacking in partner support due to the fact that they have no partner.

The method for exploring this question was identical to the method used in all previous analyses. An original model containing 18 terms representing combat exposure, peer support, social status variables, and their interactions, was progressively reduced by eliminating non-significant terms. A total of 394 unmarried respondents were included in this analysis. These progressive reductions are presented in Appendix 9. The larger model reduced to a final model containing only two predictor terms; combat exposure and peer support. These results are presented below in Table 11.

TABLE 11

Effects of terms retained in the final peer support model for unmarried respondents.

Source of Variance	df	F	p	B
Peer Support	1	1.23	N.S.	.015
Exposure	1	0.17	N.S.	-.019
Total Model	2	0.71	N.S.	
Error	391			

From these results it can be seen that combat exposure has no significant impact on demoralization levels for this group of unmarried men. Even more surprising, however, is the fact that peer support also has no effect on demoralization levels for this group; not even for those who were exposed to combat. The reason for this complete lack of effect for peer support is unclear. These men have no partner and therefore one would expect that peer contact would be a rather important source of social support for this group. Nevertheless, the findings do not support this conclusion. It appears then that the compensatory function of peer support is very specific to married men who have relatively low levels of support from their spouses.

Summary of Social Status Effects

The foregoing results form a rather complex picture of the effects of the two type of social support, combat exposure, and status characteristics on demoralization levels. Considering just the effects of social status, one relatively consistent finding emerged. In separate analyses of each type of social support, social class level was found to have a significant relationship with demoralization over and above the effects of either type of support and combat exposure. When the dichotomous control for partner support was introduced this effect of social class was found to be limited to respondents having low levels of partner support.

While this finding is important in the broader context, it does not alter conclusions regarding the relationships between social support measures and demoralization which are of major interest here; conclusions based on relationships which were found to be significant after the effects of social class were controlled for.

Respondents' age was the second social status variable which was found to be significantly related to demoralization. This effect, however, was not consistent. In the independent analysis of partner support the age effect did not emerge at all. Apparently, partner support accounted for whatever variance was also associated with age, in demoralization scores. Only when partner support was replaced with peer support did a significant age effect emerge. This significant effect, however, was again found to be unstable. When the power of the peer support test was reduced by employing within group analyses, the age effect failed to reach an acceptable level of statistical significance in either subgroup analysis.

It should be kept in mind that the purpose of including social status variables and their interactions in the analyses was to determine whether these status characteristics would account for relationships between the measures of support and demoralization: this was not found to be true. Although, both social class and (less consistently) age have their own, independent influence on demoralization levels in various particular models

considered, there was no evidence to indicate that social status variables, or their interactions, significantly influenced the relationships which were found between measures of social support, combat exposure, and demoralization. Thus, we may conclude that the present findings are not significantly affected by the level of social class, respondents' age group, or respondents' race.

Symmetrical Buffer Effects

At this point we have concluded the analyses specifically required to test the hypotheses of interest. Considering just the main effect on demoralization for each support measure, partner support is clearly more important compared with peer support. The relationship between partner support and demoralization is strong and consistant for both the exposed and unexposed groups. In contrast, the effects of peer support appear weak. Although a direct effect of peer support was found for the total sample, it was not strong enough to remain significant when within group analyses were conducted. Peer support was not found as a significant main effect for respondents with either a high or low level of partner support.

Based on the weak association between peer support and demoralization for the total sample, in conjunction with our interest in the extent to which peer support compensates for low partner support, the effects of peer support were

reanalyzed within levels of partner support. From these analyses, peer support was found to have significant buffering effects against the impact of combat exposure for respondents lacking an adequate level of partner support to fulfill this buffering function.

The hypothesis derived from this finding is that peer support might be similar to partner support in terms of its ability to provide a buffer against the negative impact of combat exposure on demoralization. It is in this way that peer support may compensate for, or act as a functional alternative for partner support. Confirmation of the functional alternative hypothesis means that either a high level of partner support or a high level of peer support will have the effect of reducing the deleterious impact of combat exposure on demoralization. When the level of either type of support is high, the effects of combat exposure is eliminated and no buffer effect for the other type of support should be obtained.

This consideration may call into question the validity of the previously found interaction between partner support and combat exposure for the total sample. That is, if the above conclusion is accurate -- that a high level of either peer support or partner support can buffer the impact of combat exposure -- we should find that only when peer support is low does partner support have a significant buffer effect, i.e. a significant interaction with combat exposure. As a

corollary, when peer support is high, the previously found interaction between partner support and combat exposure should not be significant, since a high level of peer support would fulfill the buffering function, and thus eliminate the effects of combat exposure.

In order to test explicitly for this peer support function, one final set of within group analyses was conducted. The total sample was dichotomized based on the peer support cutting point provided by the Johnson-Neyman method which was calculated on the subgroup of respondents with a low level of partner support (see Figure 2). Applying this cutting point to the total sample results in almost identical proportions of respondents who may be considered high (N = 485, 53%) and low (N = 425, 47%) on peer support. Based on these two groups we will examine the main effects and interactive effects of partner support and combat exposure within levels of peer support.

Partner Support when Peer Support is High. A regression equation containing three predictor terms, (i.e. combat exposure, partner support and their interation), was tested for the group of respondents with a high level of peer support. The results of this test are presented below in Table 12.

TABLE 12

Effects of partner support and combat exposure on demoralization when peer support is high.

Source of Variance	df	F	p	B
Exposure	1	0.17	N.S.	-.078
Partner Support	1	85.82	< .0001	-.024
Partner Support by Exposure	1	0.30	N.S.	.003
Total Model	3	34.60	< .0001	
Error	481			

From these results it can be seen that combat exposure has no significant impact on demoralization levels for respondents with a high level of peer support. In addition, there is no significant interaction, i.e. buffer effect, between partner support and combat exposure for these respondents. The only significant effect is the strong main effect of partner support.

These findings are in clear constrast with the following set of results.

Partner Support when Peer Support is Low. The same regression equation for partner support was tested for respondents with a low level of peer support. These results are presented below in Table 13.

TABLE 13

Effects of partner support and combat exposure on demoralization when peer support is low.

Source of Variance	df	F	p	B
Exposure	1	10.40	< .001	.525
Partner Support	1	58.57	< .0001	-.021
Partner Support by Exposure	1	8.86	< .003	-.015
Total Model	3	44.78	< .0001	
Error	421			

This set of results indicates that combat exposure has a signficant deleterious effect on demoralization levels for respondents with a low level of peer support. In addition, for this subgroup, the significant interaction between partner support and exposure indicates that partner support is an effective buffer against these deleterious combat effects. And consistent with previous results, the strong main effect of partner support continues to emerge.

Summary of Buffer Effects. This final set of analyses of partner support within levels of peer support, in conjuction with the analyses of peer support within levels of partner support, unambiguously confirm that peer support and partner support have similar buffering effects against the impact of combat exposure. When peer support is low, partner support

protects against the impact of prior combat exposure; when partner support is low, peer support protects against the impact of prior combat exposure.

This conclusion may be stated in another way which emphasizes the importance of controlling for the levels of other types of social support. That is, when partner support is high, no interaction between peer support and combat exposure should be found. When peer support is high, no interaction between partner support and combat exposure should be found.

At this point we have completed the analysis of each support measure while controlling for the level of the other. In the simplest terms, these results explicitly show that a high level of either type of social support is sufficient to buffer the negative impact of combat exposure on demoralization. The buffer effect of each of these measures of social support may be considered "symmetrical" because each support measure exerts a similar influence on the interactive effect of the other.

A Final Model

As a final means of describing this rather complex set of results we turn now to a final equation in which all of the effects which we examined using within group analysis may be directly demonstrated, using both support variables as continuous measures. We will be able to use the results of

this equation as a means of illustrating the total set of effects which have been found in previous analyses. In addition, we will be able to examine the relative importance of each type of support while controlling for the other in a single model.

The most appropriate starting point for modelling the foregoing findings is with a fully saturated model containing the three main effects of combat exposure, partner support, and peer support; the three first order interactions resulting from these three terms; and the one second order interaction involving all three terms.

A linear regression equation containing these seven terms was constructed, and the unique contribution of each term to the total model was tested. As in all previous analyses, the testing procedure employed here assesses the increment in R-square due to a given term over and above the R-square resulting from the combination of all other terms in the model[13]. The results of this analysis are presented below in Table 14.

Based on the intercept estimate provided by the regression solution, along with the non-standardized regression weights shown above in Table 14, the following linear equation may be defined:

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[13] The variance-covariance matrix and the means for all terms in this final model are presented in Appendix 10.

TABLE 14

Results of significance tests for the unique effects of seven terms in the complete model.

Source of Variance	df	F	p	B
Exposure (E)	1	7.90	< .005	1.1620
Partner Support (P1)	1	9.55	< .002	-.0185
Peer Support (P2)	1	0.22	N.S.	.0354
E x P1	1	7.56	< .006	-.0340
E x P2	1	4.95	< .03	-.3672
P1 x P2	1	0.39	N.S.	-.0014
P1 x P2 x E	1	5.02	< .03	.0110
Total Model	7	34.74	< .0001	
Error	902			

$$Y = 4.3240 + (E)(1.162) + (P1)(-.0185) + (P2)(.0354) + (E)(P1)(-.0340) + (E)(P2)(-.3672) + (P1)(P2)(-.0014) + (P1)(P2)(E)(.0110)$$

Using this equation we can derive a set of predicted demoralization values for a set of idealized independent variable values. The values for (E), (P1), and (P2) were chosen so as to represent the full range of observed scores: two levels for exposure (0,1); six levels for partner support (15,20,25,30,35,40); and four levels for peer

support (1,2,3,4). Combining these values in all possible ways results in 48 "observations". A predicted demoralization value was then obtained for each observation using the linear equation described above. Half of the data points (N = 24) were used to plot a regression surface for those exposed to combat and the remaining half were used to plot a regression surface for those not exposed to combat. These regression surfaces are presented in Figure 3.

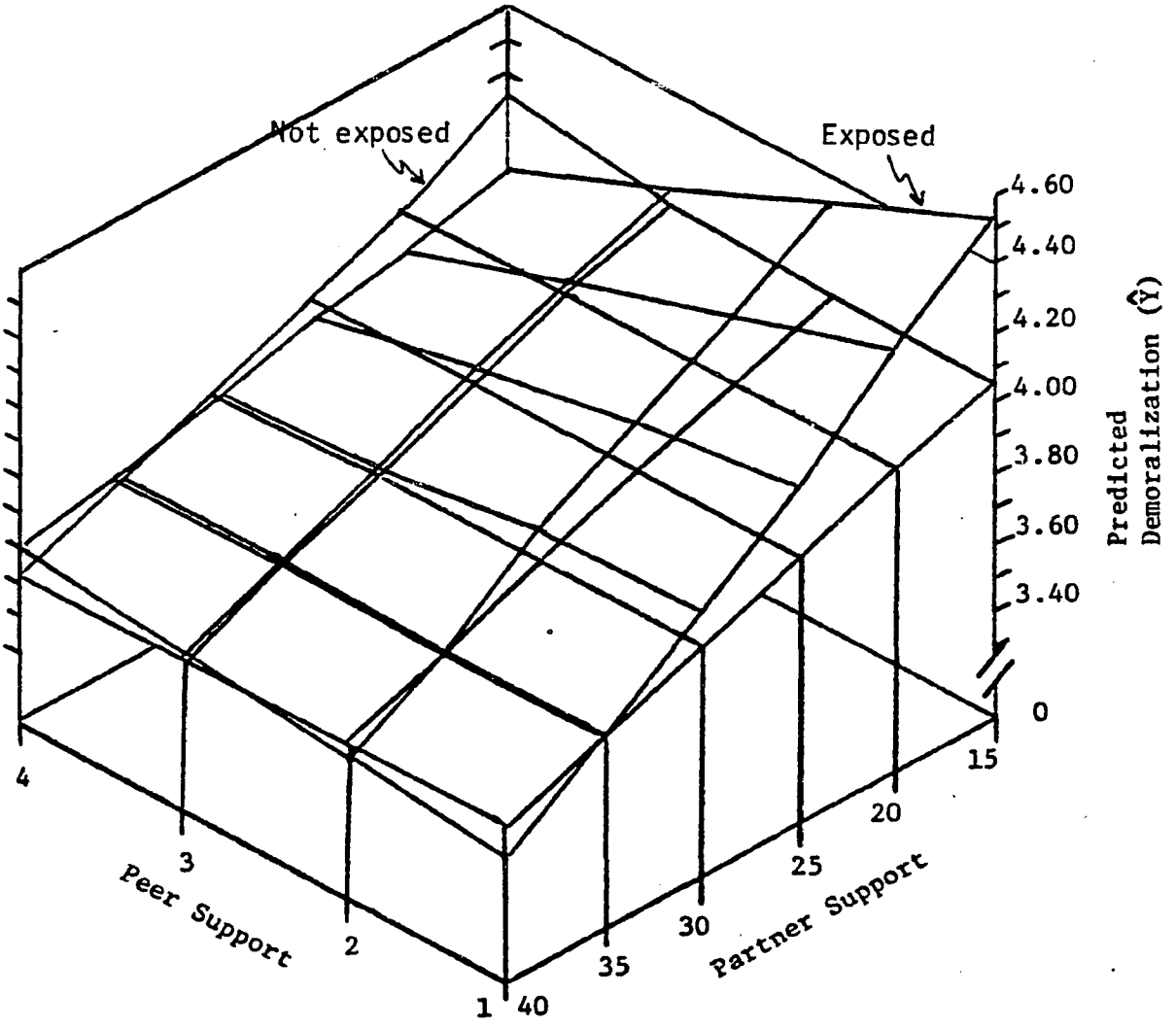

Figure 3: Three dimensional graph of predicted demoralization scores based on exposure, peer support and partner support levels.

Figure 3 neatly summarizes the complete set of results reported in the foregoing analyses. Considering first the main effects of each of the support measures, the strong effect of partner support is the clearest feature of Figure 3. In all regions of the regression surfaces demoralization levels decrease as partner support increases. This is not so for peer support. The beneficial effects of peer support are limited to the exposed regression surface within the lower ranges of partner support.

Considering now the buffering effect of each support measure, the clearest way of seeing the interdependence of each buffer effect is to examine progressive cross-sections of the Figure 3 along either social support axis. For peer support the clearest interaction, (as indicated by the size of the angle between the two regression surfaces), may be seen at the lowest level of partner support. At each progressively higher interval of partner support, the interaction between the two regression surfaces becomes progressively weaker. At a partner support value of 35 the two regression surfaces intersect, and beyond this point there is essentially no real distance between them.

For partner support, a similar reduction in the strength of its buffering effect may be seen at progressive cross-sections of peer support. When peer support is lowest, partner support has its strongest buffer effect. At a value of two on peer support this buffer effect is weaker, and at

a value of three on peer support there is essentially no interaction and no distance between the two regression surfaces. At a value of four on peer support, there is even a slight reversal, indicating that exposed respondents have a lower level of demoralization compared with unexposed respondents, when peer support is highest and partner support is less that 30. From previous analyses, this slight reversal was found to be non-significant (see Table 12).

Figure 3 demonstrates that each of the two measures of support are symetrical in terms of the manner in which each effects the other's interaction with combat exposure. Only in the lower ranges of partner support is there an interaction between peer support and combat exposure; only in the lower ranges of peer support is there an interaction between partner support and combat exposure.

Clearly, when a single model is employed to test the effects of both support measures a more complete picture emerges regarding (1) the specific interactive effect of each measure and (2) the interdependence between the two measures.

There is an additional feature illustrated in Figure 3 which should be noted. That is, the addition of high peer support to a high level of partner support does not increase the beneficial effects by decreasing demoralization levels, for this sample. In fact, Figure 3 indicates that

demoralization scores are somewhat elevated when both types of support are highest, compared to the point were partner support is highest and peer support is lowest. This finding is counterintuitive since the guiding idea underlying the concept of social support is that the more one has the better off one will be. This is the basic assumption underlying additive component scales of social support.

What do these results mean with respect to the effects of combat exposure? By plotting the difference in predicted demoralization scores at corresponding points on the exposed and non-exposed regression surfaces, it can be seen that the largest difference between the two surfaces corresponds to the area in which both partner support and peer support are lowest. This plot of the regression surface differences is shown in Figure 4.

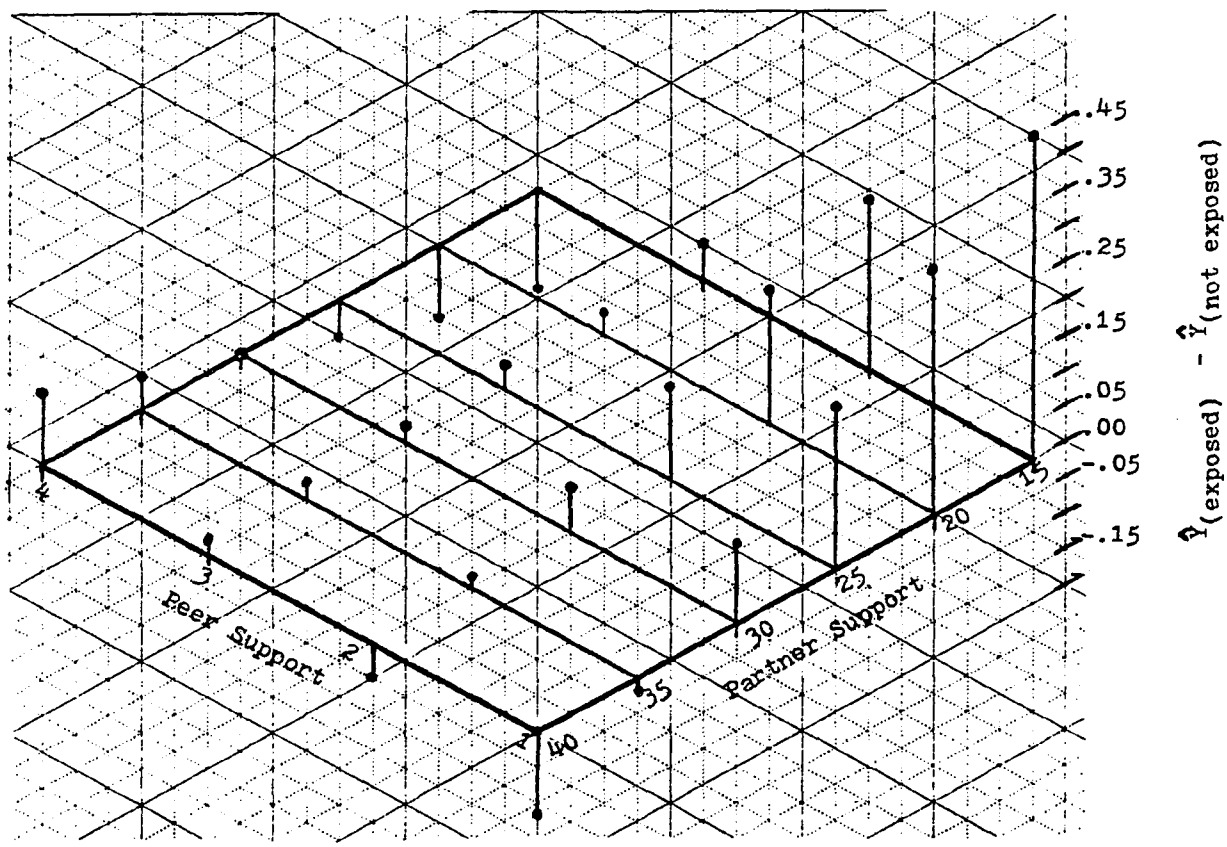

Figure 4: Schematic representation of the distance between the two regression surfaces of Figure 3.

From this illustration it can be seen that so long as one has either a partner support score greater then approximately 33, or a peer support score of at least 3, the effect of combat exposure is almost undetectable. These points correspond to the cutting points provided by the Johnson-Neyman method, and indicate that this technique is very robust for determining the point on a continuum at which two populations differ significantly.

While the foregoing analyses are rather complex, a final summary of the direct and buffer effects of each support measure is simply described below in Table 15.

TABLE 15

Comparison of direct and buffer effects for each support measure based on results from the final analysis.

	Support Measure	
Hypothesis	Partner Support	Peer Support
Direct Effects	Yes	No
Buffer Effects	Yes	Yes

Contrasting this set of comparisons with the comparisons based on separate, independent analyses of each support measure, (see Table 6), it can be seen that conclusions regarding peer support are reversed when the effects of

partner support are controlled for. In addition, what is not reflected in Table 15 is that fact that the buffer effects for both of the support measures are contingent on the level of the other type of support measure. These contingent effects were found only after a complete analysis of each type of support within levels of the other type of support. A concise and direct demonstration of these contingent effects was finally provided in a single model involving both measures of support, combat exposure and the interactions generated by these three terms.

DISCUSSION

An Overview of Results and Analyses

There were two main objectives of this study. The first was to independently examine the influence of a measure of partner support and a measure of peer support on levels of psychological demoralization. These two types of support were chosen because they represent two common conceptions of emotional social support which have not previously been separately examined, within the same study, in terms of their influence on psychological health. The notion of "disaggregating" (Gore, 1981) support measures was the theoretical basis for constructing the measures separately and keeping them separate throughout the analysis.

The population on which these data were based allowed not only an examination of the direct beneficial effects of each measure, but also allowed for an examination of the extent to which the experience of a previous, naturally occurring, stressor affected each of these support--health relationships. Thus, it was possible to incorporate in this analysis a long standing issue regarding the role of life stress in determining the importance of social supports for psychological status.

This naturally occurring stressor was combat involvement in the Vietnam War. As an indicator of life stress this measure is unusual in this field of inquiry because the average amount of time elapsed between its occurrance and the point of data collection was 10 years. While previous research has documented the serious and lingering psychological effects of combat involvement in Vietnam (Figley, 1978a & 1978b; Horowitz & Solomon, 1975; Boulanger, 1981) little is known about the role of social supports in reducing negative psychological effects of this stressor, in particular, and long past stressors, in general.

From the results of the initial independent analysis of each support measure, (see Table 6), it was found that partner support was important both in terms of its direct effect of reducing demoralization levels for all respondents, as well as being a protective agent against the negative effects of combat exposure. In contrast, peer support was found to have only a weak, direct effect for all respondents.

The second objective of this study was to explore the importance of the two support sources in a more dynamic way. In recognition of the centrality of a spouse for married respondents, the second part of this analysis was oriented towards determining whether contact with friends became a more significant factor in determining psychological status

as the level of intimate spouse support decreased. Thus, the focus was shifted towards examining the effects of peer support under changing conditions of partner support. The question of concern, at this point, was the extent to which friends could be utilized as functionally alterntive sources of support in the abscence of adequate support from the primary relationship.

By examining both direct and buffer effects of peer support under differing spouse support conditions, it was found that peer support was capable of buffering the negative impact of combat exposure for respondents whose level of partner support was inadequate to fulfill this function. This finding lead to the conclusion that either a high level of peer support or a high level of partner support, could fulfill this protective function.

This conclusion, however, made it difficult to understand why a significant partner support-by-exposure interaction was found for the total sample, while it was necessary to control for partner support in order to observe this exposure interaction for peer support. Thus, direct and buffer effects of partner support were re-examined within levels of peer support. The results of these analyses indicated that in fact, only for respondents with a low level of peer support was there a significant partner support-by-exposure interaction.

From this set of within group analyses, in addition to the confirmatory results of a final model including all variables, it was possible to conclude that support from either one of these sources was sufficient to eliminate the deleterious psychological impact of combat exposure (see Table 15). Whether or not the mechanism by which this impact was reduced is similar across the two sources remains an unanswered question.

Combat Vets versus Others. In discussing these findings we have talked exclusively in terms of direct and buffer effects. It would thus be useful at this point to breifly discuss the two support measures in terms of each of the two populations which were studied.

For respondents who were exposed to combat, the results illustrated in Figure 3 indicate that both partner support and peer support are important determinants of demoralization levels. In a separate analysis of this group (N = 185) we did in fact find a significant main effect for peer support ($F = 4.76$, 1,183, $p < .03$) and a significant main effect for partner support ($F = 21.90$, 1,183, $p < .0001$). What was also found, however, was the interactive effect between the two support measures; Over and above the main effects for the two support measures, the interaction between peer and partner support was found to be significant ($F = 4.49$, 1,183, $p < .04$).

Thus, for a population exposed to a previous stressor, demoralization levels are dependent on both intimate support and support through contacts with friends; Each type of support becoming progressively more important as the level of the other decreases.

This, however, is not the case for respondents not exposed to combat. For this group, (N = 725), only partner support is a significant determinant of demoralization levels ($F = 9.74$, 1,723, $p < .002$). Neither peer support ($F = 0.22$) nor the interaction between the two support measures ($F = 0.40$) is significant.

This comparison indicates that the effects of a long past stressor continue to be manifest, (over a decade, on the average, since its occurrance), in terms of greater responsiveness to the interpersonal environment. Whether this greater responsiveness is due to emotional problems generated by the Vietnam experience itself, or is due to an increased vulnerability (as a result of this experience) to the impact of daily stresses and strains, is unclear. This question, however, should be explored.

It must be noted that while we have shown that previous combat exposure does <u>not</u> effect the level of either type of social support, it is not possible to determine the causal direction between the levels of support and demoralization levels; these variables were assessed within the same time frame, and thus reciprocal effects may well have been

functioning. For reasons outlined below, it is likely that the partner support measure is more problematic in this regard compared with the peer support measure. Nevertheless, the effects of demoralization on levels of either type of support can be neither ruled out nor assessed. This is a problem not uncommon in this field.

The Analytic Approach

The analytic approach which was taken here reflects the fact that the major concern of this anlysis was to examine support--health relationships under varying conditions. Maintaining the support measures as continuous variables, (whenever this relationship was assessed), allowed us to utilize all the (linear) information contained in these measures in assessing their effects on demoralization. For the purpose of clarity, a dichotomous measument approach was applied only to the indicator of prior exposure to combat stress.

Representing the variables in this manner allowed us to employ conventional correlational techniques to assess the support--health relationships under two specfic stressor conditions; stressed and non-stressed. This resulted in relatively unambiguous findings regarding the extent to which the stress of combat exposure influenced the relationship between each specific measure of support and demoralization. While it would have been possible to employ

a continuous measure of the stressor, (i.e. a continuous combat involvement scale), this seemed to involve a level of complexity which was undesirable at this point.

Another reason for taking this approach was that the qualitative distinction between having been exposed to combat versus having not been so exposed was a rational and justifiable distinction applicable to the total sample. It was thus possible to implement the research recommendation (Gore, 1981) of studying an "at risk" population, in comparison to a population which was unambiguously not at risk, at least in terms of exposure to the particular stressor. In constrast, grouping procedures based on relatively arbitrary cutting points on social support did not seem either justifiable or necessary.

By taking this approach it was possible to employ a statistical method, the Johnson-Neyman technique, to emperically determine the point at which the level of social support was high enough to significantly reduce the impact of combat exposure. Thus, each support measure was tested to determine just how protective its effects actually were, in terms of the proportion of respondents protected from the negative effects of combat exposure. At the point when within group analyses based on the level of either partner support or peer support were required, we had a clear and rational basis for defining individuals as either "high" or "low" on partner support.

The Johnson-Neyman method does not appear to have been previously employed for this purpose. However, given that many studies in this field begin with continuous support variables, employing this technique provides investigators with the opportunity to directly test their support measures for buffering capabilities. This not only avoids the need to experiment with various cutting points but also defines the exact point above and below which differences associated with the stressor will be found[14]. In instances in which only the very extreme cases are either protected from the stressor, or affected by the stressor, this method may be the only way of detecting these limited effects of either the stressor or the support variable.

Direct and Buffer Effects. Rather than defining the direct effects hypothesis and the buffer effects hypothesis as mutually exclusive alternatives, the present analysis was designed to allow for the confimation of both of these hypotheses for each measure of support. We were able to adopt this orientation by conceptualizing these two effects as functional manifestations of the more general beneficial effects which have come to be associated with the construct of social support.

This orientation proved to be a useful way of comparing two different measures of social support; i.e. in terms of their functional similarities and differences. This seemed

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[14] The upper and lower confidence limits for this point may also be defined.

to be a more constructive way of approaching discrepant findings resulting from different measures of social support; discrepencies which, in light of the current state of the evidence, should simply be expected, rather than being explained away or viewed as conflicting.

Independent versus Contingent Analyses. Most social support studies utilize a single support measure to represent social support. Other studies employing multiple support measures (e.g. LaRocco et al., 1980; Kessler & Essex, 1980; Berkman & Syme, 1979) report results of analyses based on separate assessments of the effects of each support indicator. In either case, it is the independent effects of a given support measure which is assessed at any one time. The main reason for conducting the independent analyses of each support measure, here, was to begin this study using an approach which is similar to most other studies concerned with social support.

Contrasting the findings reported in this first section with those of the latter section of the analysis raises an important methodological issue which may be useful to follow up in future research to determine its validity: i.e. the importance of controlling for other sources of social support. Conclusions regarding both direct and interactive effects were either completely reversed or modified by introducing controls for the level of another, uncorrelated, type of support.

In exploring the effects of peer support it was necessary to introduce a control for the level of partner support in order to document the specific buffering role played by peer support. In doing so, the previously found (weak) direct effect of peer support was eliminated. Thus, the conclusions regarding the specific type of effect for peer support was completely reversed when we moved from an independent analysis of peer support to a "contingent" analysis of peer support.

For partner support, both direct and buffering effects emerged without controlling for peer support. While the direct effects of partner support remained strong in all within group analyses, the buffer effect of partner support was altered by controlling for the level of peer support. That is, only when peer support was low did the interaction between partner support and combat exposure remain significant.

These results indicate that, for this sample, a reliable interaction between each support measure and combat exposure exists only when the level of support on one of them is low. When we examined these interdependent interactive effects in a single model, (see Table 14), we found not only signficant first-order interactions between each support measure and combat exposure, but we also found a significant second-order interaction between peer support, partner support, and combat exposure. Thus, while it becomes complicated to

explore the conditions underwhich interactions obtain, the pattern of findings which finally emerged formed a thecretically more meaningful picture in comparison to more simply derived findings.

In addition, these findings provide a relatively more complete picture of the support characteristics of the interpersonal environment. Rather than providing an essentially static picture of support interactions, these results conform tc the idea that there may be a hierarchical ordering in terms of significance of support from a given source, as well as a certain degree of overlap between sources in this respect.

The Support Measures

Neither the partner support measure nor the peer support measure used in this study represent new concepts of social support. Examples of both of these types of measures can be found in a number of other studies, either as specific support indicators or as components of more broadly defined support measures.

As previously noted, Gore's (1978) measure of support included two equally weighted components: spouse support and support through social contacts with family, friends and relatives. Examing the five items which made up the spouse support component of the index (see Cobb and Kasl, 1977), it seems safe to say that the underlying construct is very

similar to the construct which underlies the present spouse support index. Similarly, the three items used by Kessler and Essex (1980) to assess "feelings of oneness and openness that characterize an intimate relationship" also tap a construct similar to the construct measured by the present spouse support scale.

With respect to peer support, the approach of including questions regarding contact with (presumably) meaningful social relations such as friends, is characteristic of many composite measures of social support (e.g. Gore, 1976; Nuckolls et al., 1972; Lin et al., 1979; Kessler and Essex, 1980; Andrews et al., 1978). However, there are few instances in which the simple frequency of contact with close friends is employed as a measure of support by itself. The closest example of this may by found in Berkman's (1977) study of mortality risk rates. But even this measure is quite complex and, on close inspection, resembles more a typology rather than an ordinal scale. Thus, using a simple and non-reactive measure of the frequency of contact with close friends is, in operational terms, a new approach to defining a measure of social support, though the underlying idea is ubiquitous.

Contrasting Peer Support with Partner Support. One of the main strengths of this analysis was that by implementing the recommendation to "disaggregate" (Gore, 1981) measures of support, we were able to separately assess each of these

widely used concepts of social support. Keeping these measures separate, rather than combining them into a single index of overall support, it was possible to contrast intimate support and peer support in terms of their relative importance for demoralization levels. From this constrast we found that both measures had detectable beneficial effects, but that intimate support was, on the whole, more important for this group of married men.

When we compared the relative strength of the association between each support measure and demoralization we found that partner support accounted for about twenty-four times as much variance in demoralization scores (12 percent) compared with peer support (0.53 percent). The most immediate response to this difference is that the importance of peer support is essentially trivial in comparison to partner support.

While the difference in importance of each of these types of support is consistant with intuitive notions regarding the central role played by a spouse, compared with the more peripheral role played by friends, in the lives of married men, the magnitude of the difference reported in this analysis is most likely an artifact. This is because the information used to construct each measure comes from different modes of assessment.

The partner support measure is essentially a subjective measure based on respondents' perceptions of their marital

relationship. At least three of the items in this scale focus specifically on the affective component of the relationship. In considering the strength of the relationship between partner support and demoralization we should keep in mind a point recently made by Gore (1981, p. 14 of draft):

> If the socio-emotional quality of support is measured through subjective reports of this affective quality, the correlations between support, subjective stress, and outcome (mental health) variables are likely to be spuriously high, with each variable measuring a portion of the same variance, such as variance in well-being.

Thus, the method by which partner support was measured may well have inflated the strength of an already strong relationship in what we may call a "contaminating" way.

In contrast, peer support was based on very objective information regarding the frequency of contact respondents reported having with close friends in a two to three week period. The affective component of this measure was entirely inferred, based on the assumption that the more contact one has with (spontaneously named) close friends, the more supported one is apt to feel. While this assumption is probably accurate, there is also probably a good deal of meaningful variance regarding the emotional supportiveness of friends which is unmeasured here. On the one hand, the simplicity of the measure is attractive, but on the other hand, the relationship between the construct it proports to measure and the dependent variable is most likely attenuated.

Taking into consideration the contaminating and attenuating effects of the partner support and peer support measures, respectively, it seems that we should be cautious about overinterpreting the magnitude of the difference found between these two types of support. On methodological grounds alone, we would expect to find stronger effects associated with partner support compared with peer support. It thus becomes difficult to accurately constrast the support potential of the sources, per se, (i.e. spouses versus with friends), based on these measures. Such a constrast will require measures of these two sources which have common metrics and involved similar levels of subjective and objective input.

Implications for Measuring Support. The approach to measuring social support in this analysis follows Gore's (1981) disaggregating recommendation. This method of measuring support is in constrast to the approach of constructing composite indices which include diverse support sources. There are a number of advantages to the present approach which should be noted.

In conceptual terms, the approach taken here allows for a more dynamic approach to questions regarding the function and utilization of social support. It is an attractive approach because it fosters the viewpoint that the interpersonal environment is a system of distinct but interdependent elements, each of which may have unique as

well as overlapping support functions. In light of previously discussed evidence indicating specificity within the primary group, as well as other evidence indicating potential similarity of support functions, e.g. between spouses and friends, measures which allow one to explore functional differences and similarites between support scurces seem desirable at this point. Composite support indices do not make distictions between support sources, and therefore do not allow exploration of these potential similarities and differences.

This approach also seems useful because it allows for defining social supports as a function of social roles. The concept of roles seems important here because a person's role may define or limit the amount or type of support they can provide. The importance of this consideration is quite obvious when contrasting spouses or romantic partners with friends. However, there are other social roles that may not be so obviously different, in terms of the type of extensiveness of support they may provide, such as family members compared with friends. Again, the use of composite measures does not allow for examining potential differences (and similarities) which may be associated with particular social roles.

In contrasting a disaggregating approach with a composite approach it should be noted that employing the former does not mean abandoning the latter. The converse, however, is

not true. By starting out with assessments of supportive elements in the interpersonal environment it is always possible to combine them in order to explore their composite effect. This can be done after a careful examination of not only the effects of each support element on the dependent measures, but also their interdependent effects.

In this analysis we were able to examine not only the effects of spouse support and peer support separately, but we also examined their joint effects. In discussing Figure 3 it was pointed out that the combination of a high level of peer support and a high level of partner support did not reduce demoralization to a level below that associated with a high level of partner support alone. This finding indicates that the effect of having supportive contacts with friends in addition to having a supportive romantic relationship, does not result in additive beneficial effects. Thus, in this study, there was no useful purpose for combining these two types of support in an additive measure. To do so would only have obscured the functional differences which were found between the two types of support.

While there is clearly much more work which needs to be done in order to clarify this issue, proceding along the lines of using composite measures, such as the one recently published by Lin and his coworkers (1981) seems less effective. These types of measures are based on the

assumption that social support can be measured as a unidimensional construct of the larger social environment; an assumption for which there is little emperical justification. To the extent that different functions are served by different support sources, as indicated by the present limited findings, a unidimensional model of support is less informative.

The distinction between measures of social support and measures of social integration may be usefully applied here, with the latter concept corresponding to composite, broadly defined measures. This distinction has been suggested by others in this field (Kessler & Essex, 1980, p. 26 of draft). While social integration may be a difficult construct to define it represents the kind of measure which has been usefully employed in the past to define individuals who are of "marginal" status within the larger community (Berle et al., 1952).

Not only did Berle and his colleagues find that such marginal individuals have a poor prognosis once they become physically ill, but they also are at greater risk for developing conditions such as tuberculosis (Holmes, 1956; Holmes, Joffe, Ketcham & Sheehy, 1961), alcoholism (Jackson, 1954), and schizophrenia (Dunham, 1961; Mishler & Scotch, 1963).

However one wishes to regard the concept of social integration, it is important to begin to distinguish it from

the concept of social support. For both practical and thecretical reasons it seems that social support should be studied in terms of questions such as: Who can effectivly provide social support? Are these effective sources generalizable acrcss populations? How are various types of social support similar and different from one another? Are different health outcomes responsive to different types of social supporrt? None of these questions can be addressed by using ccmposite, or in Gore's terms "nodge-podge" support measures. These are just a few of the questions to which answers are needed in order to define and understand the concept of social support. These are also some of the basic questions for which systematic evidence is lacking.

Appendix 1

The Partner Support scale consists of the following eight items. All items were scored one through five in the direction of high support. For items 2, 7, and 8, numeric responses were assigned values from one through five based on the best resulting alpha coefficient.

1. When it comes to making important decisions, do you and your spouse (5) almost always agree, (4) occasionally disagree, (2) frequently disagree, (1) almost always disagree, or (3) does one of you make the important decisions without discussing them with the other?
2. About how many disagreements did you and your spouse have during the last week, even minor ones?
3. How often do you feel uncomfortable with your wife would you say (1) very often, (2) fairly often, (3) sometimes, (4) almost never, or (5) never?
4. Sometimes husbands and wives have differences of opinion about showing love. Has this been a problem for you in your relationship would you say (1) very often, (2) fairly often, (3) sometimes, (4) almost never, or (5) never?

5. Do you feel affectionate towards your wife would you say (5) very often, (4) fairly often, (3) sometimes, (2) almost never, or (1) never?
6. How often does the thought come into your mind that your wife doesn't really love you, would you say (1) very often, (2) fairly often, (3) sometimes, (4) almost never, or (5) never?
7. Have you ever thought about breaking up with your wife? (1) yes, (5) no.
8. Using the numerical scale on this card, (1 - 7), all things considered, how satisfied are you with your marriage?

Appendix 2

Listed below are the 23 PERI items from the mental status section of the interview which were used to construct the demoralization scale used in this analysis. All items were scored in the direction of high demoralization. Unless otherwise indicated, response choices for each item are: (5) Very often, (4) Fairly often (3) Sometimes (2) Almost never, or (1) Never.

1. In the last 12 months, how often have you had personal worries that get you down physically, that is, make you physically ill, would you say --
2. How often in the last 12 months has your appetite been poor, would you say --
3. How often in the last 12 months have you felt angry, would you say --
4. How often in the last 12 months have you feared something terrible would happen to you, would you say --
5. How often in the last 12 months have you felt you just didn't care what happened to you, would you say --
6. How often in the last 12 months have you feared getting physically sick, would you say --

7. How often in the last 12 months have you feared going crazy; losing your mind, would your say --
8. How often in the last 12 months have you felt like crying, would you say --
9. In the last 12 months, how often have you felt you had nobody to tell your troubles to, would you say --
10. How often in the last 12 months have you felt anxious or tense, would you say --
11. How often in the last 12 months have you felt lonely, would you say --
12. Did you ever think of taking your own life? (No = 1, Yes = 5).
13. Have you thought about it in the last 12 months? (No = 1, Yes = 5).
14. Think of a person who is the worrying type - you know, a worrier. Is this person (5) very much like you, (4) much like you, (3) somewhat like you, (2) very little like you, (1) not like you at all?
15. How often in the last 12 months have you been in very low or low spirits, would you say --
16. How often in the last 12 months have you felt guilty about things you do or don't do, would you say --
17. How often in the last 12 months have you gotten easily irritated, would you say --
18. How often in the last 12 months have you felt completely helpless, would you say --

19. How often in the last 12 months have you been bothered by feelings of restlessness, would you say --

20. How often in the last 12 months have you blamed yourself for everything that went wrong, would you say --

21. How often in the last 12 months have you felt that difficulties were piling up so high that you could not overcome them, would you say --

22. How often in the last 12 months have you felt completely hopeless about everything, would you say --

23. How often in the last 12 months have you wished you were dead, would you say --

Appendix 3

The activites which make up the Combat index are listed below.

1. Was part of a land or naval artillery unit which fired on the enemy.
2. Flew in aircraft over South or North Vietnam.
3. Stationed at a forward observation post.
4. Received incoming fire from enemy artillery, rockets or mortors.
5. Unit patrols encountered mines and booby traps.
6. Unit received sniper or sapper fire.
7. Unit patrol was ambushed.
8. Unit patrol engaged the Vietcong (or guerilla troops) in a firefight.
9. Unit patrol engaged the NVA (organized military forces) in a firefight.
10. Saw Americans killed or injured.
11. Saw Vietnamese killed or injured.
12. Killed anyone or thought you killed someone.

Appendix 4

The three items listed below were used to construct the respondents' social class scale. Below each item is listed five categories and the item score associated with each. The social class index is the sum of these three items, scored in the direction of higher social class.

1. Current Occupation (Edward's Index)

   a) Professionals and technicians (5)

   b) Managers in corporations, schools, stores, self employed persons owning own business, retail salespersons (4)

   c) Wholesale salespersons and other representatives, clerical staff both in office and public service, craftsmen and repairmen (3)

   d) Operators of machinery, transportation (2)

   e) Service workers in restaurants, homes, stores, protective services, military, unemployed, students, farm laborers (1)

2. Current Education

   a) Attending graduate school, advanced degree (5)

   b) Graduated college (4)

   c) Vocational school, some college (3)

   d) Completed high school or have a high school equivalency diploma (2)

   e) Did not graduate high school (1)

3. Current Yearly Income

   a) Above $25,000 (5)

   b) $20,000 to $24,999 (4)

   c) $14,000 to $19,999 (3)

   d) $9,000 to $13,999 (2)

   e) Less than $8,999 (1)

Appendix 5

On the following page are shown the progressive reductions from a model containing 18 predictor terms to the final model for partner support presented in Table 3. The values provided here are probability estimates indicating the level of significance for each term, over and above all other terms in a given model. The F-test of signficance for the increment in R-square associated with entering blocks of terms over and above those of the final model is presented below other descriptive information provided for each model. In addition, the variance-covariance matrix and the means for each term in the final model are also provided.

Model Number

Effect	1	2	3	4	5
Class (C)	.22	.21	.15	.04	.03
Age (A)	.76	.51	.14	.13	--
Race (R)	.28	.52	.13	.12	--
Exposure (E)	.003	.003	.01	.02	.02
Support (S)	.76	.70	.0001	.0001	.0001
S x E	.005	.006	.03	.03	.04
S x C	.07	.14	--	--	--
S x A	.43	.39	--	--	--
S x R	.11	.43	--	--	--
E x C	.01	.02	.06	--	--
E x A	.61	.90	--	--	--
E x R	.06	.30	--	--	--
C x A	.85	--	--	--	--
C x R	.81	--	--	--	--
A x R	.71	--	--	--	--
S x E x C	.02	.02	.08	--	--
S x E x A	.64	--	--	--	--
S x E x R	.08	--	--	--	--
Total F	14.30	19.59	31.32	40.94	60.07
df	18,891	13,896	8,901	6,903	4,905
Y-intercept	3.729	3.926	4.538	4.552	4.469
Error M.S.	.055	.054	.054	.055	.055
R-square	.224	.221	.218	.214	.211
p. <	.0001	.0001	.0001	.0001	.0001
F for R-square increment	1.07 (N.S.)	1.28 (N.S.)	2.02 (N.S.)	1.72 (N.S.)	
	14,891	9,896	4,901	2,903	

Variance-Covariance Matrix

	Demoral.	Sup. (S)	Expose (E)	Class	S x E
Demoral.	.069				
Sup.	-.560	23.569			
Expose	.006	-.0061	0.162		
Class	-.048	0.226	-.095	7.303	
S x E	.009	5.822	5.322	-3.150	180.731
Means	3.695	32.855	0.203	9.501	6.673

Appendix 6

On the following page are shown the progressive reductions from a model containing 18 predictor terms to the final model for peer support presented in Table 5. The values provided here are probability estimates indicating the level of significance for each term, over and above all other terms in a given model. The F-test of signficance for the increment in R-square associated with entering blocks of terms over and above those of the final model is presented below other descriptive information provided for each model. In addition, the variance-covariance matrix and the means for each term in the final model are also provided.

Model Number

Effect	1	2	3	4
Class (C)	.93	.86	.04	.05
Age (A)	.87	.59	.05	.05
Race (R)	.98	.80	.57	--
Exposure (E)	.39	.42	.82	.11
Support (S)	.81	.91	.04	.03
S x E	.55	.78	.81	--
S x C	.52	.78	--	--
S x A	.46	.21	--	--
S x R	.70	.32	--	--
E x C	.10	.27	--	--
E x A	.17	.40	--	--
E x R	.16	.15	--	--
C x A	.94	.93	--	--
C x R	.95	.97	--	--
A x R	.75	.65	--	--
S x E x C	.18	--	--	--
S x E x A	.24	--	--	--
S x E x R	.31	--	--	--
Total F	1.39	1.43	2.50	3.67
df	18,891	15,894	6,903	4,904
Y-intercept	3.727	3.769	3.892	3.869
Error M.S.	.068	.068	.068	.068
R-square	.027	.024	.016	.0159
p. <	.13	.12	.02	.006
F for R-square increment	0.72 (N.S.)	0.67 11,894 (N.S.)	0.05 2,903 (N.S.)	

Variance-Covariance Matrix

	Demoral.	Class	Age	Sup.	Expose
Demoral.	.069				
Class	-.048	7.303			
Age	-.008	.180	.229		
Sup.	-.012	-.306	-.031	.611	
Expose	.006	-.095	.008	.007	.162
Means	3.695	9.501	1.647	2.511	0.203

Appendix 7

On the following page are shown the progressive reductions from a model containing 18 predictor terms to the final model for peer support presented in Table 7. (Only respondents with a high level of partner support are included). The values provided here are probability estimates indicating the level of significance for each term, over and above all other terms in a given model. The F-test of signficance for the increment in R-square associated with entering blocks of terms over and above those of the final model is presented below other descriptive information provided for each model. In addition, the variance-covariance matrix and the means for the terms in the final model are also provided.

	Model Number			
Effect	1	2	3	4
Class (C)	.43	.54	.35	--
Age (A)	.26	.67	.08	--
Race (R)	.23	.74	.25	--
Exposure (E)	.49	.66	.17	.17
Support (S)	.47	.55	.11	.16
S x E	.48	.12	.12	.12
S x C	.19	.35	--	--
S x A	.96	.95	--	--
S x R	.63	.53	--	--
E x C	.15	.96	--	--
E x A	.92	.89	--	--
E x R	.86	.60	--	--
C x A	.35	--	--	--
C x R	.11	--	--	--
A x R	.38	--	--	--
S x E x C	.12	--	--	--
S x E x A	.94	--	--	--
S x E x R	.97	--	--	--
Total F	0.91	0.82	1.44	1.08
df	18,504	12,510	6,516	3,519
Y-intercept	3.982	3.618	3.812	3.642
Error M.S.	.057	.057	.057	.057
R-square	.032	.019	.016	.007
p. <	.56	.63	.20	.37
F for R-square increment	0.90 15,504 (N.S.)	0.75 9,510 (N.S.)	1.75 3,516 (N.S.)	

Variance-Covariance Matrix

	Demorel.	Sup. (S)	Expose (E)	S x E
Demorel.	.057			
Sup.	-.007	.605		
Expose	.002	-.008	.170	
S x E	.009	.099	.425	1.184
Means	3.617	2.541	0.216	0.541

Appendix 8

On the following page are shown the progressive reductions from a model containing 18 predictor terms to the final model for peer support presented in Table 8. (Only respondents with a low level of partner support are included). The values provided here are probability estimates indicating the level of significance for each term, over and above all other terms in a given model. The F-test of signficance for the increment in R-square associated with entering blocks of terms over and above those of the final model is presented below other descriptive information provided for each model. In addition, the variance-covariance matrix and the means for terms in the final model are also provided.

Effect	1	2	3	4	5
Class (C)	.10	.45	.12	.02	.01
Age (A)	.23	.74	.62	.62	--
Race (R)	.27	.63	.79	.76	--
Exposure (E)	.12	.005	.0007	.002	.002
Support (S)	.99	.59	.64	.56	.60
S x E	.28	.01	.005	.01	.01
S x C	.65	.89	--	--	--
S x A	.62	.56	--	--	--
S x R	.36	.16	--	--	--
E x C	.08	.04	.07	--	--
E x A	.61	.99	--	--	--
E x R	.47	.29	--	--	--
C x A	.21	--	--	--	--
C x R	.04	.07	--	--	--
A x R	.44	--	--	--	--
S x E x C	.22	--	--	--	--
S x E x A	.57	--	--	--	--
S x E x R	.64	--	--	--	--
Total F	2.10	2.60	3.75	3.79	5.63
df	18,368	13,373	7,379	6,380	4,382
Y-intercept	3.295	3.762	3.920	3.963	3.927
Error M.S.	.063	.063	.063	.063	.063
R-square	.093	.083	.065	.056	.055
p. <	.006	.002	.0007	.001	.0002
F for R-square increment	1.10 14,368 (N.S.)	1.27 9,373 (N.S.)	1.35 4,379 (N.S.)	0.20 2,380 (N.S.)	

Variance-Covariance Matrix

	Demoral.	Sup. (S)	Expose (E)	Class	S x E
Demoral.	.066				
Sup.	-.011	.618			
Expose	.014	.026	.152		
Class	-.084	-.294	-.090	6.677	
S x E	.025	.175	.396	-.294	1.142
Means	3.799	2.470	0.186	9.488	0.486

Appendix 9

On the follcwing page are shown the progressive reductions from a model containing 18 predictor terms to the final model for peer support presented in Table 11. Only respondents who have no intimate partner are included here. The values provided here are probability estimates indicating the level of significance for each term, over and above all other terms in a given model. The F-test of signficance for the increment in R-square associated with entering blocks of terms over and above those of the final model is presented below other descriptive information provided fcr each model. In addition, the variance-ccvariance matrix and means associated with each term in the final model are also provided.

Model Number

Effect	1	2	3	4	5
Class (C)	.62	.80	.22	--	--
Age (A)	.93	.84	.25	--	--
Race (R)	.18	.44	.27	--	--
Exposure (E)	.13	.97	.99	.80	.68
Support (S)	.48	.88	.27	.27	.21
S x E	.10	.82	.90	.87	--
S x C	.76	.90	--	--	--
S x A	.97	.63	--	--	--
S x R	.10	.24	--	--	--
E x C	.81	.68	--	--	--
E x A	.25	.60	--	--	--
E x R	.13	.95	--	--	--
C x A	.35	--	--	--	--
C x R	.89	--	--	--	--
A x R	.31	--	--	--	--
S x E x C	.85	--	--	--	--
S x E x A	.17	--	--	--	--
S x E x R	.11	--	--	--	--
Total F	0.77	0.58	0.80	0.48	0.71
df	18,375	12,381	6,387	3,390	2,391
Y-intercept	3.658	3.797	3.870	3.826	3.824
Error M.S.	.066	.066	.066	.066	.066
R-square	.036	.018	.012	.004	.0036
p. <	N.S.	N.S.	N.S.	N.S.	N.S.
F for R-square increment	0.79 16,375 (N.S.)	0.56 10,381 (N.S.)	0.82 4,387 (N.S.)	0.03 1,390 (N.S.)	

Variance-covariance Matrix

	Demoral.	Sup.	Expose
Demoral.	.067		
Sup	-.011	.588	
Expose	-.002	.005	.133
Means	3.774	2.587	0.158

Appendix 10

Shown below is the variance-covariance matrix for the final complete model, in which demoralization scores are predicted from partner support, peer support, and combat exposure, and the four interaction terms generated by these three main effects, (N = 910).

	Demoral.	Part. Sup. (P1)	Peer Sup. (P2)	Expose (E)	P1 x E
Demoral.	.0688853				
P1	-.569859	23.569			
P2	-.011727	0.209918	0.61099		
E	.0057433	-.006129	.0071144	0.162145	
P1xE	.0092032	5.82167	0.234644	5.32242	180.731
P2xE	.0130476	-0.01449	0.13237	0.412813	13.5517
P1xP2	-1.77022	64.8399	20.6408	0.17658	20.0886
P1xP2xE	.0337496	13.7802	4.38318	13.5515	459.119
Means	3.695	32.855	2.511	0.203	6.673

(cont.)

	P2xE	P1xP2	P1xP2xE
P2xE	1.16526		
P1xP2	4.23814	853.924	
P1xP2xE	38.2899	177.283	1295.1
Means	0.518	82.708	16.991

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