HEALTH AND STRESS

The Newsletter of
The American Institute of Stress

Number 10 1997

SOCIAL SUPPORT: THE SUPREME STRESS STOPPER

KEY WORDS: social support measurements, influences on coronary heart disease, AIDS, cancer, arthritis, alcoholism, colds, Type A behavior, religion, faith, altruistic egotism

The wisdom of the ages, anecdotal observations, careful clinical case studies and trials, epidemiological data on marriage, divorce and death, as well as sophisticated psychophysiological and laboratory testing — all confirm that strong social support is a powerful stress buster. But just exactly what does strong social support mean? How can it be measured? How can it be developed or improved?

It's possible to be alone but not lonely, or conversely, be in the company of others, but still feel isolated. Some people have a large circle of "friends", but the vast majority may be merely acquaintances. Social support can also be derived from close contact with pets, a firm belief in a specific religion or doctrine, or being associated with some group of strangers that have allegiance to the same sports team, celebrity, or cause. Even tending to plants or fish might qualify.

ALSO INCLUDED IN THIS ISSUE

In an issue of *Psychosomatic Medicine* devoted to the subject of social support, Joel Dimsdale's Editorial, "Social Support - A Lifeline In Stormy Times", quoted from a paper published some 20 years earlier by Sidney Cobb. In his Presidential Address to the American Psychosomatic Society in 1976, Cobb had proposed that social support was a subjective feeling in which the individual feels: "That he is cared for and loved; That he is esteemed and valued; That he belongs to a network of communication and mutual obligation."

Dr. Dimsdale devoted the page facing his Editorial to a color reproduction of Winslow Homer's "The Lifeline". While not as impressive in black and white as shown below, this magnificent painting seems to capture the essence of Dr. Cobb's definition.

(Continued on page 2)

Health and Stress: The Newsletter of The American Institute of Stress is published monthly. Annual subscription rate $35.00 (U.S.), $45.00 (Foreign).

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(Continued from page 1)

The papers in this issue vividly illustrated the various and differing approaches that are being utilized to measure social support and its effects on health. The first was designed to determine whether lack of religious faith and poor participation in social events influenced mortality rates following open heart surgery. A careful medical, and psychosocial history was obtained on all participants, as well as precise details of their cardiovascular status. In addition, factors that might have an influence on mortality, such as depression, educational level, and financial status were evaluated. In attempting to rate social support, the various techniques required to get at different dimensions, demonstrate the complex nature of this subject.

The *Social Network Questionnaire* includes items about marriage, children, a confidant, other relatives, friends, and participation in social or community groups. *The Inventory of Socially Supportive Behaviors* inquires about the type and amount of support these sources provide (emotional, informational, financial). It also asks the respondent to rate each item's frequency of occurrence during the preceding month on a rating scale of 1 to 5. These tell us how much and what kind of social support is available, but nothing about its real significance.

This crucial information comes from the *Perceived Social Support Quiz*, which evaluates the recipient's subjective assessment of how much the support that has been received has enhanced his or her sense of satisfaction and well-being. The role of religiousness was factored in based on information about attendance at religious functions, the number of close social contacts who were readily available from religious resources, and determining the strength and comfort that were derived from religious activities. The reason for studying both social support and religion was that all of the subjects were over 65. It is generally conceded that elderly individuals have progressively less social support as they age due to the increasing loss of their friends, and also tend to rely on more religious sources to make up for this.

Of the 232 patients, 21 died within six months following surgery. On careful analysis, three biomedical variables appeared to be significant predictors of mortality; a history of previous cardiac surgery, greater impairment of presurgical basic daily life activities, and older age. When these were excluded, two other very statistically significant mortality predictors emerged; lack of participation in social or community groups, and absence of strength and comfort from religion. In other words, in this age group, poor social support, as assessed by a relative lack of group participation, as well as deriving little comfort from religion, are independent risk factors for death in the six month period following cardiac surgery. These are important findings that physicians and patients need to be aware of, since such deficiencies can often be readily corrected once they are recognized.

The question is, how does strong social support protect against cardiovascular disease? One strong possibility is that it reduces hyperactive cardiovascular reactivity to stress. While so-called "white coat" hypertension has generally been considered to be benign, as indicated in a recent Newsletter, this may not be true in all instances. Such individuals may not only be at increased risk for hypertension and stroke, but also coronary heart disease. Researchers are intensively investigating methods to identify this group.

(Continued on page 3)

(Continued from page 2)

Social Support Reduces Cardiovascular And Hormonal Responses To Stress

A variety of reports have shown that social support can reduce heightened cardiovascular responses to stress. The normal rise in blood pressure and heart rate while giving a speech is attenuated when the audience has a large sampling of close friends. In laboratory experiments, just having a friend close by can reduce the rise in heart rate and blood pressure during a stressful public speaking task. Even the presence of a stranger who showed a sympathetic attitude by supportive eye contact and nodding in agreement when the subject spoke produced similar results, compared to one whose behavior was completely neutral. Blood pressure is lowered when dogs and cats are petted lovingly, and in comatose patients, when they are stroked in a kind and compassionate manner.

The second paper in this issue was designed to examine these cardiovascular effects in female college students with normal blood pressures. Women were chosen because of prior studies suggesting that they are responsive to the short term effects of social support on cardiovascular reactivity than men. All of the participants were subjected to a simple and engaging competitive video game, which they enjoyed, and usually learned how to master fairly quickly. However, the game can be manipulated to make it progressively more difficult using a standardized protocol that has been shown to produce a concomitant rise in blood pressure and heart rate. Thus, as winning becomes more and more difficult, the stress of trying to succeed causes a further increase in blood pressure. In this experiment, a researcher created additional stress by making critical comments during the testing period. The mechanical aspects of the game itself were exactly the same during low and high stress conditions.

During the high stress period when the game was speeded up, the experimenter verbally harassed the subject by goading her to try to go faster and do better. In other instances, the researcher was replaced by a supportive roommate who encouraged the participant. Several sessions were conducted, both with the student alone, and with the critical researcher and/or friend present. Blood pressure and heart rate were monitored, and the subject was also asked to rate her feelings of stress. When the game was manipulated to make it harder to win, and therefore more stressful than enjoyable, cardiovascular responses were correspondingly greater. The presence of an observer who also goaded the individual on, augmented this increase. On the other hand, the social support provided by an encouraging roommate significantly dampened not only rises in blood pressure and pulse, but also reduced the subject's perception of how much stress they were experiencing.

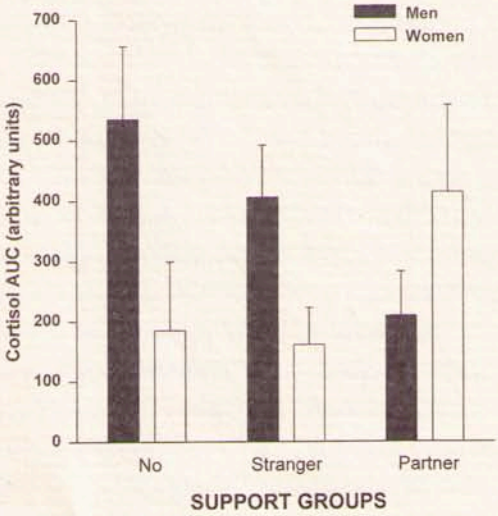
The third paper took still another approach, by examining the effect of social support on the rise in stress hormone levels associated with the *Trier Social Stress Test*. This is a provocative procedure in which the subject is escorted into a conference room to address a panel composed of both sexes, who are seated behind an expansive board room table. A sophisticated video camera similar to those used by major network TV crews is trained on the subject, who is also given a microphone attached to a tape recorder, to insure a complete and clear record of all that transpires. Participants are told to assume the role of a job applicant, and that they must convince this panel, who represent the upper echelon of a Fortune 500 corporation, why they would be the very best person to fill a highly desirable position that had just become available.

They were allowed 10 minutes to prepare their presentation, and this was viewed as a period of anticipatory stress. Immediately after delivering their 5 minute pitch, they had to start serially subtracting out loud the number 17 from 2013, as quickly and accurately as possible. Questionnaires were completed before and after the experiment to measure subjective well-being, perceived stress levels, and sense of social support. Salivary cortisol levels were utilized to rate hormonal responses to stress, and were obtained before, following the anticipatory stress period, at the conclusion of the mental arithmetic stress test, and 10, 20, and 30 minutes after that. Prior studies had shown that cortisol concentrations rise during the stressful period tend to peak 10 to 20 minutes after it is over, and

(Continued on page 4)

(Continued from page 3)

return to normal 40-60 minutes later. In some instances, social support was provided during the 10 minute anticipatory stress period either by an opposite sex close friend, or by specially trained post graduate psychology students of the opposite sex. They explained they were there to help the subject make a good impression, by coaching them on what to say, how to be most effective in their delivery, and assist in any other way possible.



As shown above, analysis of the data revealed an unexpected and surprising gender difference, with males showing much greater cortisol responses to stress. There was a significant reduction in hormone elevations in men when they had support from a girlfriend, but not a strange female. Women also showed no change in response when a male stranger was present. However, in sharp contrast to men, their cortisol rises actually increased when support was provided by their boyfriends. Despite these hormonal findings, women reported that they were under less stress when either a stranger or boyfriend was present. Men perceived no significant difference in their stress levels, regardless of the presence or absence of either friends or strangers. Nevertheless, the greatest reductions in cortisol occurred when their girlfriends were with them, confirming previous research indicating that males tend to depend more exclusively on spousal support than females. The study also demonstrated that subjective assessments of stress do not necessarily correlate with cortisol levels.

Social Support And AIDS

Another paper from Sweden examined the effect of social support on immune system function in HIV-positive patients. It has been well established that depression and stress can inhibit immune system resistance to infection, and some studies have suggested that this may be an important factor in increasing susceptibility to the HIV virus, as well as accelerating the downhill course of clinical AIDS. Conversely, there is anecdotal evidence and at least one report that stress busters, like having an upbeat and optimistic attitude, have favorable effects. Several factors appear to provide positive benefits for healthy gay men who are HIV-positive, and most of these relate to their perception of having strong social support, such as:

- having someone readily available to talk with who can provide emotional help, or assist with financial needs, or transportation, if necessary
- a sense of societal integration, and feeling loved and belonging, rather than isolated
- a minimum of conflicts with others due to being misunderstood, or being viewed as a leper who must be avoided

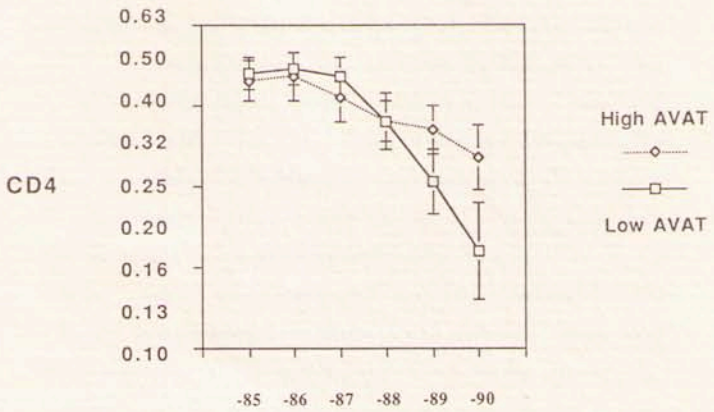
For example, gay men who conceal their homosexuality, obviously have fewer sources of social support, and they seem to get sicker and die faster than those who come out of the closet, according to one study of 80 gay men in Los Angeles. All were HIV-positive, with no evidence of AIDS or cancer, and had normal immune system function, including CD4 "helper" T cell counts. These were measured periodically for 8-9 years during which these patients were carefully followed for evidence of illness and psychosocial status. At the end of this time period, the fall in CD4 levels, the emergence of signs and symptoms of clinical AIDS, and deaths due to AIDS, were all significantly higher in those gays who reported being at least "half in the closet". This held true even when all other factors such as smoking, drug use, nutrition, exercise, frequency of sexual activity, etc. were taken into consideration. The development of strong social support groups is now considered to be a crucial component of comprehensive AIDS treatment programs.

(Continued on page 5)

(Continued from page 4)

Most of the research on the influence of stress on the progression of AIDS has been conducted in homosexual men and/or drug addicts. Their lifestyles are not likely to engender feelings of compassion or sympathy, especially from strangers. In contrast, this Swedish study focused on a population comprised entirely of male hemophiliacs, whose problem was due to an inherited condition over which they had no control. It is relatively easy to empathize with these unfortunate victims, and to want to be of assistance. There was no stigma, since it is well known that hemophilia occurs in royal families, and has nothing to do with behaviors that many consider to be degenerate or depraved. All had contracted the infection through blood transfusions between 1980-1984, and were first informed about this in 1985, when serologic testing became more available. Following this, they underwent extensive psychological evaluation, which included relevant psychosocial parameters, such as their feeling of support from others.

Approximately 50 subjects responded to questions regarding social and emotional support in difficult situations. Based on these, an "availability of attachment" (AVAT) score was calculated. CD4 counts were followed, and showed a progressive decline over the years. However, this was more marked in those with low AVAT, and as illustrated below, by 1990, the correlation between AVAT scores and CD4 levels clearly separated these two groups. Those with high AVAT scores had the very best CD4 counts, and those with low scores had the worst. The average count for the high social support group was about double that for those at the lower end of the AVAT rating scale.



Cancer, Alcoholism, And Colds

Close social ties have been associated with a reduction in all cause mortality in numerous reports. Conversely, the loss of a spouse results in 3 to 13 times higher death rates for survivors over the next 18 months for all the ten leading causes of death. Lowered immune system resistance due to loneliness and social isolation has also been demonstrated in other settings. The biggest decline during stressful examination periods occurred in those medical students who reported feeling lonely. Another study showed that social isolation contributed to illness and death just as much as smoking.

Breast cancer and melanoma patients involved in counseling and group activities survive much longer than those without this degree of social support. Heart attack victims who participate in group therapy live longer, and the success of Alcoholics Anonymous, athritis, "ostomy", and clubs that convene people with common problems, also demonstrates the wide range of benefits from group activities that provide strong emotional support.

Evidence of the ability of stress to reduce resistance to infection comes from anecdotal reports of morbidity and mortality in plague and tuberculosis epidemics, as well as case histories of patients with AIDS and recurrent herpes. While we tend to think of infectious diseases as being highly contagious, clinical trials have shown that it is relatively difficult to contract hepatitis, or to "catch" a cold, even when volunteers are confined to fairly close quarters with infected individuals. Over the past two decades, advances in our understanding of how the mind can influence the immune system have helped to explain this. What seems to be the determining factor is not the severity of exposure, but rather the integrity of host defenses.

Human studies involving potentially lethal microscopic organisms can no longer be conducted. However, it has been shown that antibody responses to Hepatitis B vaccinations, and even smallpox inoculation, are suppressed in individuals under stress. Probably the most elegant evidence demonstrating the ability of stress to increase the incidence and severity of infections has come from research on its relationship to the common cold.

(Continued on page 6)

(Continued from page 5)

In a landmark 1991 report, healthy young volunteers were subjected to various degrees of stress, and then received nasal sprays containing one of several rhinoviruses that can cause upper respiratory infections. The results were astounding. Serologic tests indicating that infection had taken place mirrored the degree of perceived stress. More importantly, the frequency of developing a cold, as well as the severity and duration of the infection also showed a precise, progressive correlation with increasing levels of stress.

These same researchers recently reported on the effects of social support in an article in *The Journal Of The American Medical Association* entitled, "Social Ties and Susceptibility to the Common Cold." They quarantined 276 health volunteers and gave them nasal drops containing one of two rhinoviruses that cause the common cold. All subjects had been carefully screened to evaluate their level of participation in a dozen types of social ties with a spouse, significant other, parent, sibling, close friend, fellow worker, member of a social group, etc. The diagnosis of a cold was made based on clinical symptoms that were also accompanied by a rise in specific viral antibody titers.

Those with more types of social ties were least susceptible to both viruses, produced less mucus and had less evidence of viral replication in their nasal secretions. Susceptibility to colds declined in a linear fashion as evidence of social support increased. Smoking, poor sleep habits, low vitamin C intake, being introverted, and, surprisingly, abstinence from alcohol, were all associated with a greater incidence of upper respiratory infection. However, this still did not diminish the influence of strong social support. Of those with three or less relationships, 62 percent came down with a cold. In contrast, only 43 percent of those with four or five, and 35 percent with six or more types, became ill. This proof of the importance of social ties is hardly new. As Adelaide complained in *Guys and Dolls* over 50 years ago:

"In other words,
just from waiting around for
that plain little band of gold,
A person can develop a cold."

Social Support And Type A Behavior

Thus far, we have looked at different types of social support, and their ability to reduce the potentially harmful effects of stress on cardiovascular reactivity, hormonal responses, immune system function, as well as susceptibility to disease or acceleration or aggravation of its clinical course. Stress can also contribute to a variety of emotional, as well as physical complaints and disorders. Sources of stress obviously differ for each of us, and there is often the tacit assumption that if you can identify and get rid of whatever it is that is bugging you, everything will be fine.

Unfortunately, it's not that simple. Things like having to do work you detest, not having enough money to take care of basic needs or satisfy strong desires, and poor health, would likely prove stressful for everyone. Yet, people who are extremely wealthy, never have to work and can do whatever they please, and are perfect physical specimens, are not exempt, nor are they necessarily happy. In many instances, they seem to be suffering from more stress than people without these advantages, judging from the media reports of celebrities, entertainment, and rock stars, with marital, sexual, and substance abuse problems.

What does appear to be a common underlying source of stress for such individuals, is a lack of meaningful personal, as opposed to professional, support. This may stem from being torn away from your roots, disturbed or discontinued relationships with family and former bosom buddies, not having any close friends or people you can really confide in and trust, as well as other disruptions in social support that are often the price of fame. Despite the external trappings of great wealth, notoriety, and success, many individuals are emotionally impoverished, and do not have rich inner lives.

We tend to see this in people with Type A behavior, who are at increased risk for heart attacks. Dr. Ray Rosenman, Vice President of The American Institute of Stress, is the co-inventor of the term "Type A". He was the recipient of the Hans Selye Award at our annual International Congress on Stress in Switzerland several years ago, for his continuing contributions to our understanding of

(Continued on page 7)

(Continued from page 6)
the role of emotions and personality in coronary heart disease. Ray is undoubtedly the world's leading authority on this subject, and was recently quoted as follows:

> "After 40 years of observing and treating thousands of patients, and doing all of the studies, I believe that what's underneath the inappropriate competitiveness of Type As is a deep-seated insecurity. I never would have said that before, but I keep coming back to it. It's different from anxiety in the usual sense, because Type As are not people who retreat. They constantly compete because it helps them suppress the insecurity they're afraid others will sense. 'If I felt this way, how would I cover it up? I'd distract myself, go faster and faster, and win over everybody else. I'd look at everyone as a threat, because they might expose me'."

Type As may not be aware that this is what is really driving them, and such entrenched inner feelings would obviously make it more difficult for them to develop really close relationships. They are likely to have tons of people in their Rolodex that they refer to as "friends", but a more appropriate description would be acquaintances or associates. The point is that very few could qualify as a confidant or close companion, particularly for those Type As who are hostile and don't trust people. Such individuals are emotionally as well as socially isolated, and deep down, may feel just as lonely in a crowd, as when they are alone.

Margaret Chesney, a protégé of Dr. Rosenman's, believes that their social interactions may seem normal and appropriate on the surface, but often have a different motivation. Thus, when they meet someone new, they may ask, "What do you do? Where did you go to school?". While others who ask such questions may be searching for common bonds, Type As are more likely not to be seeking connections, but rather trying to evaluate whether this stranger might represent a potential threat. Conversely, in responding to similar inquiries, they are more apt to emphasize their accomplishments, or any connections or affiliations that would imply superiority to a possible competitor.

For flaming Type As, it is what other people think of them that is most important. Those with less Type A traits don't depend on the approval of others. Ambitious people who are always focusing on their achievements, and whose constant competitive nature causes them to be inappropriately aggressive, are not likely to develop meaningful personal friendships. They feel they don't have the time to invest in this, and even if they did, would not be inclined to encourage a relationship based on affection, cooperation, and the sharing of feelings that is so essential to healthy social support. They may have good communication skills with regard to media performances and public relations. However, these are superficial, and do not foster the development of strong interpersonal bonds.

As Virginia Price, another Type A researcher who has participated in our Montreux Congress has explained:

> "Most of the social relationships of Type A individuals seem to be characterized by mutual respect for accomplishments, by competition, or by obligation. Affection and intimacy appear to be rare features in Type A men. What friendships do exist often revolve around competitive sports (e.g. tennis, golf) and are generally characterized by *things* (e.g. work, sports, news, events, and weather), rather than about feelings, hopes, and dreams."

In my opinion, that's what sturdy and salubrious social support is really all about — feelings, hopes and dreams that cannot be quantified, rather than *things* that can be measured.

Like all other higher forms of life, humans are social animals. While our individual personalities and emotional requirements may appear to be quite different, we all have common basic needs. Some, like food, water and air are necessary to sustain life. Others are necessary to maintain its quality. People need people. The song that Barbra Streisand made famous suggests that people who desperately need people are "the luckiest people in the world". She got it all wrong. They are really the loneliest people in the world.

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Book Review

The Psychology of Religion and Coping: Theory, Research, Practice, Pargament, K.I., Guilford Publications, New York, NY, 1997, 520 pgs., $50.00

Scientists are beginning to rediscover and verify what has long been common folk wisdom concerning the ability of spirituality, religion, and faith, to promote healing. In one famous double-blind study, almost 400 patients in a coronary care unit were divided into a group that was prayed for, and another that was not. The volunteers in the prayer groups were simply given the patients' first names, along with a brief description of their medical problems, and were asked to pray for them several times each day until the patient was discharged from the hospital. They were given no instructions on how to do this or what to say, and neither the patient nor hospital staff knew who was being prayed for. After the 10 month study was over, analysis of the data revealed that the prayed for group was five times less likely than the unremembered group to require antibiotics, two and a half times less likely to suffer congestive heart failure, and had significantly fewer episodes of cardiac arrest. These and other well documented observations about faith healers, and the salubrious rewards of religiosity and a strong will, are difficult to explain in terms of our present concept of how communication takes place in the body.

This very recent book is a comprehensive compendium of the complex relationships between religion, illness, mortality, and quality of life. The author is not only a Professor of Psychology with a special interest in the psychology of religion, but a practicing clinical psychologist who has worked with clergy from diverse religious communities, as well as members of their congregations. This combination academic and clinical background is apparent in this work, which includes close to 1,000 references to scientific studies, the comments of great philosophers, and numerous case histories and anecdotes. Particularly valuable is the 50 page Appendix divided into five sections, containing annotated bibliographies dealing with the demographics of religious and coping activities, and one entitled, "Summaries of studies of religion as a moderator and/or determinant of the relationship between stressors and adjustment."

Religiosity, faith, and nurturing social support are difficult to define, much less measure. Going to church every week and participating in numerous social functions, or knowing plenty of people, doesn't necessarily mean you will have more of these attributes. Others who rarely participate in group gatherings may have a much more meaningful and spiritual relationship with their personal God, as well as truly close friends. One characteristic appears to be an emphasis on cooperation, rather than competition, and what Selye called "altruistic egotism" — doing something for others because you want to, not because you have to.

How do religion, spirituality, faith, and social support promote health? We have seen that there can be effects on endocrine, immune, and central nervous system activities that might explain various benefits. But how these are inaugurated and integrated is not clear, and in many instances, no relevant changes can be demonstrated. Different pathways and mechanisms appear to be involved, as indicated in previous Newsletters discussing William Tiller's theories, Björn Nordenström's concept of an "electrical circulatory system", and other manifestations of subtle energy medicine.

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ISSN # 1089-148X

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The American Institute of Stress
124 Park Ave., Yonkers, New York 10703

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