

COMPUTER MEDIATED COMMUNICATION FOR HEALTH BEHAVIOR CHANGE

by

William Bruce Walker

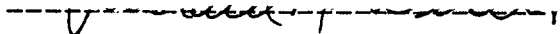
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(ABSTRACT)

A computer-mediated communication (CMC) system oriented towards changing health-related behavior was developed and evaluated. Stress management training was used to demonstrate the basic technology. Formative research and pilot-testing was conducted, to identify psychological and communication variables that are potentially critical to facilitating behavior change through the CMC medium. The resulting system was used to compare two forms of CMC training with face-to-face intervention: CMC Intensive Intervention (CII) and CMC Non-Intensive Intervention (CNI), with 9 matched subjects per treatment condition.

CII subjects used their personal computers and modems to exchange messages with a therapist (the author), as well as to interact with automated system functions. Such functions included cognitive/behavioral assessment, recording of self-monitored progress in applying specific and general coping strategies to managing stress, and instantaneous graphic and verbal feedback on such progress.

The CNI form of intervention relied primarily on message exchanges with the therapist, and presentation of general information on stress management. The face-to-face (FFI) treatment was a "traditional" stress management workshop, comprising weekly one-hour sessions over a six-week period. FFI subjects' assessment, information-presentation, self-monitoring, and feedback were analogous to their CII counterparts.

Major findings were that the CII treatment was as effective as the FFI treatment, while the CNI intervention was less effective than the other two treatments, through 3 months follow-up. This finding suggests that active involvement of subjects in practicing specific coping strategies may be critical to efficacious intervention through the CMC medium.

Other findings were that: (1) The CMC message-exchange function can establish a "client-therapist relationship", which potentially overcomes a limitation of "computerized treatment" identified by previous researchers. (2) CMC-based intervention, at least for stress management-related problems, appears to be more cost-effective than face-to-face intervention, for individual treatment but not for group treatment. Implications for extensions to other types of behavior-change intervention and research are discussed.

## DEDICATION

As I dedicated the last one to my dear and always supportive wife, , she has suggested I dedicate this one to our humble abode and its surroundings. So, this dissertation is dedicated to our house, animals, and yard, which somehow have withstood continuous neglect for the past four years. The house has settled at strange angles, the plumbing has developed annoying stoppages and leaks, our dog and cats have become pregnant continuously, the horse manure piles have become immense, and our foliage has returned to a primordial state, while I have ignored all of this as I labored before the light of the "Green Apple Screen".

## ACKNOWLEDGEMENTS

I wish first to thank Dr. Richard Winett for his supervision and continued encouragement (especially in the dark days after Study 2 was completed) throughout this project. Thanks also are due to Dr. George Clum, Dr. Joseph Germana, Dr. Robert Williges, and Dr. Stephen Zaccaro, for serving on my committee, over a long period of time. Special thanks are due to Tom Warrick, SYSOP of the Washington Apple Pi BBS, for helping me through some tough spots with the software. Finally, I am grateful to my "network clients", for their participation and for their valuable suggestions.

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## Chapter 1

### Introduction

Personal computers, or PC's (to use a popular acronym), have become pervasive in our society, in office, educational, and home environments, and a strong trend exists for their widespread application in the mental health field (Hedlund, Vieweg & Cho, 1985a; Reynolds, 1987). Computer-mediated communication (CMC), a key component of the emerging technology of PC-based networks, also is proliferating at a high rate (Edwards, 1984; Klepac, 1984a; Rice, 1984). The behavioral effects and societal impact of such communication are critical scientific topics, yet little systematic research has been done (Kiesler, Seigal, & McGuire, 1984). The research described herein was oriented towards the development, demonstration, and evaluation of CMC-based behavior-change training technology.

A series of studies was conducted to meet the following objectives: (1) Identify key communication and psychological variables that are potentially critical to facilitating behavior-change through the CMC medium, using social marketing techniques. (2) Develop and pilot-test a CMC system to train participants in behavior change strategies, in order to test these candidate variables, using stress management to demonstrate the basic technology. (3) Refine the CMC system to allow conducting a larger scale

intervention which further isolates critical variables, including reinforcement of self-monitoring and compliance with recommended coping strategies, provision of feedback on the effects of behavior change, and the influence of group interactions. (4) Compare the behavior-change efficacy and cost-effectiveness of a CMC-based system with a traditional face-to-face training approach.

In this introduction, the diffusion of personal computers and their application to CMC as innovations is reviewed, current clinical applications of this technology are described, application of psychological theory to CMC research is addressed, and the CMC research literature is surveyed. In addition, the potential use of CMC systems for health behavior change is explored, and the research hypotheses for the studies described in subsequent chapters are presented.

### PC and CMC Diffusion

During 1984, approximately 5.5 million home computers were sold, which increased the total number of computers in U.S. households to about 10.3 million (Kneale, 1984). Such sales were in addition to PC's sold for office use. According to a survey by Future Computing, Inc., 6.2 million office PC's were shipped in 1984 (Blumenthal, 1984). At that time, the consensus was that PC's were located in more than 10% of the households in the United States, and that the number of units sold would increase by at least 10% per

year over the next few years. Thus, according to diffusion of innovation theory (Rogers, 1983), the PC as an innovation was about to move past the "early-adopters" portion of the diffusion curve and "take off".

This expectation was not realized in 1985, as home PC sales actually dropped, perhaps because of hardware limitations that did not allow sufficiently useful and "user-friendly" software to be offered. These limitations were overcome during 1986, through the introduction of a new generation of PC hardware and software, and projections for the future are again optimistic. If the rate of adoption does indeed follow the theoretical diffusion curve, 60% of all U.S. households will own PC's by the year 2000 (Assael, 1984, p. 443).

CMC applications, which originated in university mainframe-based time-sharing networks, also have diffused to PC's in the home and office, as both national commercial and local "private" systems have been developed. Many PC users currently employ their computer to access "remote data bases" and "talk" to other users over telephone lines (Klepac, 1984b; Larsen, 1984). This capability is achieved through addition of a modem (essentially a two-way digital/analog conversion device that connects to a telephone jack), and a telecommunications "software package".

A large percentage of personal/home computers likely will become equipped with a modem or a more advanced

communication capability by 1990 (Crook, 1983). Currently, several national CMC "utilities" (e.g., The Source, Dow-Jones Information Service, Compuserve, General Electric's GENie, American People/Link, UNISON), with access to all major cities in the U.S. and Canada, and with hundreds of thousands of subscribers, are in operation (Klepac, 1987). Also, on-line data base services have been proliferating: Almost 2500 such data bases are available currently to lay and professional researchers. With such services in place, a trend towards greatly increased adoption of modems exists (Kneale, 1984; Larsen, 1984). The psychological implications of this very rapid introduction of a new form of communication into our society may approach those associated with the introduction of television three decades ago (Hiltz & Turoff, 1978).

One CMC system that allows people to "talk" to each other through their PC's is called a Bulletin Board System (BBS), and some computer system experts regard the advent of such systems "as the most significant result of the personal computer revolution" (Glossbrenner, 1983). Such systems are PC-based "mini CMC utilities", as they allow a subscriber to store a message directed to another user (or to all users) in the memory of the remote PC, without the "addressee" being online. When subscribers subsequently call the BBS, they can read their messages and send replies (if they wish). Alternatively, if the message is "public", any or

all subscribers can make replies.

Messages are kept on the BBS until it gets filled to capacity, at which time the person in charge (the "Sysop") deletes the older messages. Messages are labeled automatically by originator, addressee(s), date, sequential number, and subject, so that they may be selectively "scanned". In addition to this "non-real time" function, some of the latest BBSs provide a small-scale version of the CMC utility's real-time conferencing or "forum" capability, where multiple users may communicate with each other simultaneously in "Citizens Band radio" fashion. A frequent third capability is a data base of information pertinent to the interests of the users, which is contributed to by subscribers, edited by the Sysop, and made available for general access by all (Klepac, 1984b).

At the present time, hundreds of special-interest "forums" are provided by the commercial network services, and well over 10,000 BBSs are operated by private citizens (Edwards, 1984). Typically, forums and private BBSs are specifically oriented to a single topic, such as computer games, computer dating, private flying, veterinary medicine, family problems, English literature, education, cooking, the environment, music, travel, collaborative novel-writing, and "personal advice" (Larsen, 1984).

In many ways, the "social exchanges" that take place over BBSs are similar to those investigated in the past for

dyadic and group "face-to-face" interactions. However, there are differences that are of potential psychological importance: Members of the dyad or group are geographically remote from each other (sometimes they may be on opposite sides of the country), they may not necessarily interact in real-time, and the limited-bandwidth "interface" between them (computers, data store-and-forward systems, telephone lines) may impose unusual constraints on communication.

Clearly, a large number of opportunities exist for conducting research in this new field, both from sociological and psychological perspectives. To date, however, social scientists have done very little work in investigating CMC, and barely any in studying BBSs. Potential questions that could be asked include: Do BBS users prefer employing a computer network to access information rather than watching TV, or reading a newspaper, magazine, or book? Do they prefer communicating over a BBS to a face-to-face conversation, writing a letter, or making a telephone call? Has their frequency of usage of these other media decreased as their computer network usage increased? What kinds of interaction do they engage in, and what kinds of interaction do they avoid? Do these interactions substitute for more traditional social activities and relationships?

At least two sociological studies have been conducted that begin to address these questions. In a survey of 3000



PC-owning households by the Yankee Group (Davis, 1984), researchers found that 48.5% of home PC purchasers bought their machines primarily to learn about computers, to run educational programs, and to play games. Fewer than one percent initially purchased their PC for applications that require a modem. However, many purchasers soon became "hooked" on using their PC's, and expanded their applications to office work and CMC functions.

The surveyers found that the average home PC owner spent more than 8 hours per week at his or her keyboard, and spent 3.5 fewer hours per week with the family than did non-PC owners. Another survey of 282 computer club members in California's Orange County was conducted by UC Irvine's Project NOAH (National Outlook for Automation in the Home). The study found that, after acquiring a PC, respondents spent less time watching TV than previously, less time on their other hobbies, and less leisure time with their families (Carmarda, 1984).

### Clinical Applications

Within the past 20 years, computer applications for mental health information systems, psychiatric records, and medical management informations systems have become widespread (Hedlund et al., 1985a). Clinical applications involving automated psychological testing, computerized interviewing and/or diagnosis, and clinical consultation have emerged within the past 10 years (Hedlund, Viewed, &

Cho, 1985b; Reynolds, 1987). Computer applications in education have proliferated during this time frame (Gwynne, 1984; Kulik, Bangert, & Williams, 1983; Lepper, 1985; Romanczyk, 1984). Computer-aided instruction (CAI), which found its first application in industry (e.g., Ford, 1983), has begun to be applied to public health training in areas such as smoking cessation, weight control, stress management, blood pressure management, and general fitness (e.g., Ellis & Raines, 1981; Naditch, 1983).

Perhaps the last frontier to be crossed is computerized treatment, and a variety of such interventions already have been explored: Behavioral medicine applications involving computer-implemented biofeedback were developed first (e.g., Russo, 1984), and have been followed by applications which are "rather clearly in the cognitive-behavioral-educational area of the treatment spectrum" (Hedlund et al., 1985b). An especially pertinent evaluation of this approach was conducted by Selmi (1983), where a six-session computerized treatment program for simple depression was compared with equivalent treatment by a human therapist. Pre- and post-intervention measures for these two groups were compared with those of a treatment-on-demand control group. Selmi found that the first two groups improved significantly more than the control group, and the "computer therapist" did at least as well as the human therapist.

Several evaluations of automated self-management

training, involving weight reduction and obesity control, have been conducted, where results suggested the "clear superiority of online computerized goal-setting and self-monitoring with instant feedback" (Reynolds, 1987).

Reynolds concluded his extensive review by stating:

Behaviorally-oriented therapies ... appear well-suited to computer automation. ... Component analysis of multicomponent interventions and treatment tailoring strategies could be conducted with efficiency and experimental rigor. ... An apparent limitation of computer-delivered treatment ... is the absence of a relationship with a therapist or support group. This will be an important area for further study.

While Reynolds' survey (as well as the other studies cited above) did not address CMC-based treatment delivery, there is no apparent reason why the treatments described cannot be conducted equally well through this medium. Further, the CMC mode may have a particular advantage for overcoming the "therapist relationship" limitation he identified, and for testing its influence.

As behaviorally-oriented clinical interventions through the CMC medium have not been studied, the opportunities for conducting meaningful research are broad. CMC users likely have the same psychological problems as other members of the American middle class, and it would appear that at least some are willing to discuss personal problems over BBSs (as indicated, for example, by the existence of the Compuserve "family problems" and "advice" forums noted previously).

Factors such as concern about the qualifications of the "CMC

therapist" and confidence that CMC training would work, while interesting experimental questions, do not appear to present insurmountable obstacles to conducting such interventions. In fact, at least one clinical psychologist has attracted national attention by offering professional treatment over a BBS system, yet such treatment is being provided "without a shred of data examining the impact of computerizing such traditionally "human" functions" (R.K. Klepac, personal communication, February, 1985).

CMC interventions that could be examined potentially cover the gamut of non-psychotic psychological problems. In addition to those computerized treatments currently being addressed in non-CMC research, interventions oriented to addictive disorders, parenting and family therapy, marital therapy, assertiveness training, and conflict resolution through problem-solving (Gustafson, Bosworth, Chewing, & Hawkins, 1987) are candidates. A variety of therapeutic approaches could be adapted to the medium, including presentation of general instructions on self-help/self-control, behavioral contracting, computer-assisted self-monitoring and feedback on behavioral changes, and interactive discussion groups and/or group training.

To support CMC-based assessment, existing computerized assessment questionnaires could be adapted for administration to clients over the network, or new assessment instruments could be developed that exploit the

unique advantages of the medium (and that overcome its limitations). Sole reliance on self-report may be a limitation, particularly for reliable evaluation of treatment outcome. However, this problem potentially may be circumvented by obtaining confirming reports from significant others. Another aspect of CMC intervention that needs addressing is compliance with APA ethical guidelines. Issues relate to solicitation of clients, ensuring appropriate screening of client suitability for the intended interventions, maintaining professional standards, obtaining informed consent, and protecting confidentiality.

#### Application of Psychological Theory to CMC Research

The behavior of persons interacting in a communications network, whether or not they are participating in behavior change training, can be studied from several theoretical orientations. Research on "who communicates with whom" can be approached from the standpoint of interpersonal attraction within the reinforcement paradigm (e.g., Byrne, 1961) or within the field theoretical paradigm (e.g., Festinger, 1954). Study of behavior change can be approached from cognitive-behavioral or social-learning perspectives. Some theoretical aspects of CMC-oriented behavior change intervention are considered below, using stress management training as an example.

From a behavioral perspective, using a CMC system for stress management involves training in increasing the

frequency of adaptive coping responses to stress-eliciting situations, while decreasing the frequency and intensity of the stress response to these situations (Meichenbaum & Jaremko, 1983). Training in self-monitoring of stress levels, in recognizing the situational cues that elicit stress, and in new coping responses to these cues is required. Reinforcement for such training and successful use of the new coping responses should be "built-into" the CMC functions. Such reinforcement can be supplied automatically by the system in response to highly-structured client inputs, or "manually" via messages from the Sysop or other BBS member-clients.

From a cognitive perspective, an important aspect of implementing health behavior change through this medium is to convey the change-inducing information to the "network clients" in a manner that is optimally effective. A method of presenting information that is both CMC-compatible and efficient in terms of utilization of client "processing resources" is required. An effortful as opposed to an automatic process (c.f. Hasher & Zacks, 1979) will be involved in initial assimilation of information on how to manage stress. However, the ultimate aim is to facilitate client engagement in appropriate cognitive or behavioral coping responses automatically when they encounter situations that formerly led to a stress response.

In order for these coping responses to become

automatic, effortful processing of the "bundles of attributes" of the to-be-remembered items must be elaborated and encoded, and extensive practice must take place. As Hasher and Zacks noted, effortful processing is facilitated by the use of imagery, mnemonic or elaborative devices, and organization and clustering. These devices are applied to increasing intrainform relationships (Mandler, 1980) of the information stored in memory. For handling stress-eliciting situations, it is important that the cognitive coping responses be extremely well integrated with situational cues. In this regard, one may look at the problem in terms of increasing the cue validity of the coping-response categories (Rosch & Mervis, 1975).

For stress management, the objective is to substitute a new response (e.g., a relaxation image) for an old response (stress) for every situational cue (e.g., a deadline to meet) which the client formerly associated with elicitation of the stress response. Since the stress response may have become strongly associated with a variety of different situational cues over many years of practice, a major reorganization of cognitive categories may need to take place in order for successful coping to be achieved. Daily solicitation of self-monitoring data from clients, followed by immediate feedback on the effectiveness of using (or not using) an appropriate coping strategy, should facilitate such reorganization.

Within the social psychology reinforcement orientation, social exchange theory (e.g., Thibaut & Kelley, 1959) can be applied to the problem of facilitating health behavior change via Sysop-client or client-client communication. The interactions between members of a BBS could be studied in terms of a multidimensional outcome matrix, such as analysis of who engages in multiple communication transactions with whom, and of what mutual reinforcers tend to maintain the relationships. Within the field theory perspective, behavior of persons interacting in a network also can be explored from the standpoint of social influence (French, 1956). French approached investigation of the power structure of groups in terms of the connectedness of people in the group to each other (e.g., strong, weak, unilateral, disconnected).

French's theoretical approach could be applied to study of CMC-facilitated behavior change by analyzing member-to-member and Sysop-member interactions. A BBS, in a conferencing or "forum" mode is, in French's terms, a completely connected power structure, as communication channels exist between all members, and everyone can communicate with everyone else (if they wish). The Sysop has a form of direct power over the subscribers, as he sets the rules for the interactions, and may initiate and control the course of the interaction process. The influence of group cohesiveness also could be studied in this context, in



terms (for example) of member attempts to change the behavior of other members, and the circumstances under which members drop out of the BBS.

### Review of CMC Research

Although most of the questions posed above have not been researched specifically for BBSs, many have been addressed in studies of terminal networks used in business and university contexts (Hiltz & Kerr, 1981; Kiesler & McGuire, 1982; Kiesler et al., 1984; Rice, 1980; Short & Christie, 1976; Williams, 1977). The type of research performed in these studies has been primarily correlational in nature. However, these studies are of interest for the theoretical perspectives that have been developed, and for the methodology that has been employed. A field theoretical orientation characterizes many of these studies, although such an orientation generally has not been acknowledged by the researchers.

Rogers and Kincaid (1981) proposed a "convergence model" as part of a new paradigm for research in communication networks, based on the principles that information is inherently imprecise, and that communication is a dynamic process of development over time. They argued that communication cannot be understood in terms of a single one-way transmission of a message, but must be studied with reference to the purpose of the contextual social system: Communication should be viewed as a sequential convergence

process, involving the tendency for two or more individuals to move toward another, to unite in a common interest or focus, and to converge on a mutual understanding of "reality".

A communication network, according to Rogers and Kincaid, comprises interconnected individuals who are linked by patterned communication flows. They cited empirical evidence indicating that "behavior of an individual is partly a function of the communication networks in which the individual is a member". They suggested that the degree of interaction that takes place between people in a network is based on the degree of attributes that they share (homophily). They suggested as well that "multiplexy" is an important concept in network analysis: the degree to which topics of different content flow through the same network link.

Rogers and Kincaid have applied their approach to investigating non-computerized networks, using quasi-sociometric as well as more sophisticated analysis techniques (e.g., computer programs for studying very large multi-node intercommunication matrices). In such studies, the central research question is how the clique or network influences behavior change on the part of individual members. Social power, in terms of status in the community, group norms, the degree of connectedness with others in the community, and degree of unilaterality of communication

flow, were found to be powerful influences for behavior-change. They suggested that health professionals should consider these influences when intervening in a "helping network" oriented to changing behavior.

Since the networks studied by Rogers and Kincaid have involved face-to-face interactions, it is of potential interest to investigate if their constructs remain valid in the study of CMC networks. As most of their research has been based on (possibly unreliable) self-report, CMC-based research potentially can provide improved reliability: An advantage of using a CMC process to investigate networks is that the substance and timing of virtually every interaction between participants can be verified. Each message can be stored, as it is generated by the participant, on digital media for subsequent (automatic or manual) analysis and/or printout. Such an approach has been used in several CMC network analyses, as described below.

Rice and Case (1983) analyzed the usage patterns of an electronic message system employed by university administrators. They considered patterns of system use over time, the kind of tasks appropriate for a CMC system operated in this context, how use of such a system impacts and benefits the administrative work that was involved, how social communication by the users was affected, and how social distance among participants and their preferences for different communication media affected their use of the

system.

Rice and Case found that one third of their subjects believed that "getting to know someone" was a worthwhile use of the system. Inter-subject contacts through the system increased with time, while telephone contacts generally decreased. The frequency of "electronic contacts" appeared more related to task and "personality traits" than to organizational status. For example, traditional "heavy-telephoners" continued to use the telephone frequently, but augmented their communications with the electronic system. Subjects tended to use the system for tasks that were not perceived as requiring close social distance (i.e., more personal and sensitive communications). The authors concluded that personality traits, type of communication task, status, and media styles that affect how people use such technologies will be a major factor in the acceptance and consequences of CMC systems.

Hiemstra (1982), in surveying past research on teleconferencing, noted that it had generally focused on the effectiveness of this medium relative to other media for performing particular tasks, acceptance by and attitudes of users, and measuring of communication differences between teleconferencing and face-to-face interactions. Both laboratory and field studies have employed attitude questionnaires, including semantic differential measures, and have found that user attitudes on media differences load

on enjoyment, general evaluation, trust, complexity of group discussion, and confidentiality. He criticized this research for failing to focus on intersubjective processes, and suggested that "concern for face" was an important variable.

Hiemstra's pilot study involved analysis of a hierarchy of "politeness strategies" in the context of "Face-Saving Acts" during a computer-mediated teleconference. He concluded that concern for face was high in the teleconference, but that the politeness strategies chosen created an "ethos" of relative coolness and distance. "Off-Record" strategies (indirect language use that relies on the listener to draw an intended inference), while pervasive in face-to-face communication, were almost non-existent in the teleconference exchanges. The author speculated that this result may be due to a pressure exerted by the computer medium towards efficiency of exchanges, or due to a lack of non-verbal cues to facilitate interpretation of such messages.

Danowski (1982) employed a methodology involving analysis of the relationship between message pairs, in a "distance model" study of a BBS. He observed that message content is an important unit of analysis, and suggested that "leadership" is an important measure, since the functioning of a BBS requires greater coordination than face-to-face communication, arising from the asynchronous

nature of the communication, and users' reduced sensory engagement, among other factors.

In Danowski's study, the data were 161 messages entered into a Boston-area BBS during a one year period. Message-pairs (response message to prior similar message) were grouped by message "concept", using content analysis techniques. The concepts so identified created a 43 x 43 "concept matrix", which was analyzed by frequency of concept. This variable was considered to be a measure of mutual attraction (a "force" which increases as the "distance" between concepts decreases, similar to the force conceptualization in field theory). Subsequent multidimensional scaling and factor analysis indicated the most central concept in the particular BBS studied was "giving information" (e.g., user A provides information on some software he has worked with to user B).

Kiesler et al. (1984), in their survey of the social psychological aspects of CMC, stated that little systematic research has been done in the field with respect to understanding its fundamental behavioral, social, and organizational processes. They suggested that: (1) Such factors as lack of social feedback (e.g., non-verbal cues) and the unpredictable style of messages may produce difficulty in coordinating and comprehending information transmittals. (2) Because hierarchical dominance and power information tends to be hidden, social influence among

communicators may tend to be more equal than in face-to-face communication. (3) Lack of normal social feedback and the absence of norms governing social interaction over the medium will tend to direct attention away from others and towards the message itself.

Kiesler et al. explored some of these questions through three-person group conferences conducted over a university computer network, using a choice-dilemma problem. They found that group members using the computer participated more equally, showed a higher choice-shift, took longer to reach a consensus, and displayed more "uninhibited verbal behavior" than they did when talking face-to-face. Their suggestions for further research included investigating the efficacy of CMC for educational and mental health purposes, including conducting surveys and implementing social support networks.

To summarize, while a number of theoretical perspectives may be potentially applied to CMC research, apparently only social influence theory and social power theory have been applied to date. No research seems to have been done within the behavioral or cognitive paradigms, although such research appears potentially valuable. Perhaps this void exists because psychologists have not been involved in most of these studies. The CMC research to date has focused primarily on comparing the communication limitations of the medium with those of other media, on

content/structure analysis of messages exchanged, and on exploring the influence of network variables on communication behavior. However, apparently no research has been conducted on studying how CMC use affects the behavior of participants when they are not in front of their keyboards. Further, no research has been done on using CMC media to deliberately influence such behavior, although the need for such study has been suggested frequently.

### Summary and Research Hypotheses

The studies surveyed above suggest that: (1) CMC behavior-change research is needed to replicate and extend the results obtained to date from non-CMC computerized assessment and treatment studies. (2) Cognitive-behavioral treatment approaches appear well-suited to research via the CMC medium. (3) The medium potentially has advantages in facilitating self-monitoring and feedback functions, but this potential needs to be tested. (4) The influence and limitations of the CMC Sysop as a "network therapist" requires evaluation. (5) CMC variables critical to influencing behavior change need identification. (6) The "narrow-band" limitations of the CMC medium, and influence of dyadic and group processes on CMC exchanges, may be two such critical variables.

Treatment for health behavior change over the CMC medium was chosen to test these suggestions, as research results for non-CMC computerized treatment in this area have



been positive. Further, it is likely that people who spend their free time sitting in front of their personal computer keyboards tend to be sedentary, and may be concerned about their health. (Many of these people may spend their working hours in front of terminals as well, according to Rice and Case, (1983)). It is generally accepted that reduction in the incidence of diseases such as coronary heart disease requires changing health habits and lifestyle factors (Charlesworth & Nathan, 1984; Koop, 1983). Thus, interventions oriented toward reducing risks of contracting debilitating illnesses appear both appropriate and potentially attractive to CMC users.

Traditional interventions for reducing such risks focus on eliminating smoking, weight reduction, exercise, modification of Type A behavior patterns, and stress reduction (Blumenthal, Califf, Williams, & Hindman, 1983). For this study, it was decided to focus on a subset of such treatment, stress management, in the interest of minimizing the variables to be manipulated and measured, and to demonstrate the technology. Since traditional stress management programs involve presentation of information, training in several types of coping strategies, self-monitoring, and (sometimes) feedback on client progress, as well as dyadic and group processes, a CMC stress management intervention provides adequate opportunity to investigate the key questions. The intervention

conducted addressed four hypotheses, as described below.

First, it is of interest to determine which CMC and psychological variables are critical to influencing behavior change. It was predicted that such variables would include the degree of "individualization" of coping strategy information conveyed to CMC clients, facilitation of frequent and specific self-monitoring, immediacy and specificity of feedback, and the number and frequency of therapist-client and client-client message exchanges. Further, it was predicted that CMC "narrow-band" communication constraints would not limit achievement of significant behavior change.

A second question relates to the benefits of active involvement in a CMC intervention. As the CMC medium provides an interactive capability not possible with "information presentation" media such as TV, it is of interest to determine if this capability provides significant advantages in effecting behavior change. To address this issue, two different CMC groups need to be compared, where members of the first group just receive information. For the second group, individualized coping strategies would be provided to subjects, daily reporting of self-monitored progress in applying the strategies would be solicited and acknowledged, and automated immediate feedback on progress would be supplied. It was predicted that the second group would achieve greater stress reduction (e.g.,

engage in more frequent, more effective coping strategies, and report experiencing lower general and situation-specific stress levels) than the first group at intervention completion and at follow-up.

Third, it is of interest to compare CMC-based behavior change training with "traditional" face-to-face training. To do so, the same information should be presented to a group of CMC clients as is presented to a traditional stress management group, over the same period of time (which typically comprises 6-8 weekly meetings), and the stress-reduction progress of both groups should be monitored for a reasonable follow-up period, such as 3 months. These groups should be matched in terms of demographics, PC or computer terminal usage, general health, and their experience of stress. During treatment, information presentation, self-monitoring of progress in coping with stress, feedback on such progress, and therapist-client and client-client interactions, also should be matched to the degree possible, considering the two different treatment modes. For such a comparison, it was predicted that the two groups would achieve comparable reductions in situational and general stress levels.

Fourth, a cost comparison between CMC-based behavior change training and more traditional training is of interest. It was predicted that the cost-effectiveness of the CMC approach would be superior, at least for individual

treatment if not for group treatment, with respect to investment of ongoing "direct" therapist time.

## Chapter 2

### Study 1: Formative Research and Social Marketing

In order to develop a CMC system oriented to behavior-change training, with a stress management orientation, it was first necessary to: (1) Explore the functioning of typical BBS's, with regard both to general operation and to the nature of typical available "self-help" or "counseling" services provided; (2) Examine the characteristics of typical BBS subscribers; (3) Determine if such subscribers are willing to admit having stress problems and to address them through a CMC process; and (4) Define the specific attributes and potential benefits of such a CMC system. Formative research utilizing needs assessment (e.g., Warheit, Bell, & Schwab, 1977) and social marketing (e.g., Fine, 1981) techniques was used to address these topics in Study 1, as described below.

#### Typical CMC "Counseling" Characteristics

At the time of this initial study (1985), few if any private BBS's were "psychologically-oriented", but national commercial information services such as The Source or CompuServe offered some "psychological advice" features. The author subscribed to one of these services to gain some familiarity with the types of people who use such services, as well as to examine the nature of typical "counseling" message exchanges. An analysis of the transactions

that took place over a 47-day period on one of Comuserve's "forums" (Parenting and Family Life) was conducted, employing some of the procedures described by Danowski (1983).

During the period studied, 141 "public" and 122 "private" (personal exchanges accessible only by the two correspondants) transactions occurred, involving 39 different people. Approximately half of these correspondants were "Helping Professionals" (e.g., psychologists, pastoral counselors) who exchanged messages concerning treatment of their (non-Comuserve member) clients. The remaining correspondants were lay people who exchanged messages (for a fee) with the forum's professional staff on various life problems.

The mean number of exchanges per correspondant during the period studied was 3.6 ( $\underline{S} = 5.8$ ). Content analysis of the message topics (and message detail, where accessible) indicated they spanned 19 different categories, including child molestation, domestic violence, alcoholism, adoption, managing young children, and relocation stress. The number of messages per topic ranged from 2 to 26 ( $\underline{M} = 7.5$ ,  $\underline{S} = 6.1$ ), while the number of 32-character lines per message ranged from 2 to 13 ( $\underline{M} = 5.7$ ,  $\underline{S} = 3.2$ ). The number of correspondants who exchanged messages on each topic ranged from one to 12 ( $\underline{M} = 4.4$ ,  $\underline{S} = 2.9$ ). The length of the "chain" of messages exchanged per topic ranged from one to

12 ( $M = 3.6$ ,  $S = 3.0$ ).

It was concluded from this analysis that: (1) At least some CMC users were willing to seek professional advice in the handling of their personal problems through this medium, and that they were willing to pay a fee for such services; (2) Explication of member problems and responses on suggested approaches to resolving such problems could be conveyed in a relatively small number of relatively short message exchanges; (3) These subscribers apparently perceived some benefit in discussing their problems with other subscribers; (4) Initial assessment of problems was informal and imprecise; and (5) Apparently assessment of "treatment outcome" also was informal and imprecise. Based on these conclusions, it was considered feasible to explore the possibility of creating a private BBS dedicated to behavior-change training.

#### Stress Management BBS Needs Assessment

Four local (non-commercial) BBS's were in operation at the time of this initial study, and the author communicated with each to explore their characteristics. Two were operated by PC users groups, and two were operated by individuals. The number of subscribers per BBS ranged from 20 to 100 (approximately), of which about 60% were "active" at the time of the survey (i.e., had "logged-on" at least three times per month during the previous two months). One of the user group-operated BBS's was selected to conduct a

needs assessment relative to positioning a "Stress Management BBS product". It was of interest to assess subscriber demographics and members' perceived need to better manage their stress, their attitude towards dealing with their stress problems through a BBS, and perceived consumer benefits of such a BBS.

To conduct this assessment, a 37-item multiple-choice questionnaire was developed, using items developed in previous PC user surveys (e.g., Carmarda, 1984; Davis; 1984), and items suggested from the stress management literature (e.g., Meichenbaum & Jaremko, 1983; Woolfolk & Lehrer, 1984). The questionnaire was designed to be administered through the auspices of the BBS in order to engage member interest, and to facilitate convenient collection of responses. The questionnaire was "downloadable" to the member's PC, so that he or she could study the questions "off-line" and then prepare specific responses, as well as any general comments, in the form of a file to be "uploaded" back to the BBS.

Through a series of message exchanges with the BBS Sysop, the questionnaire was added to the BBS computer's data base, and a special "bulletin" was created notifying members of the existence of the questionnaire, and requesting that they respond to it. Instructions for downloading the questionnaire and uploading responses were included in a preamble to the questionnaire itself. Ten



such questionnaires were downloaded by members of the BBS, and 7 responses were uploaded, yielding a response rate of 14% of the BBS's active users. Five additional (non BBS-administered) responses were obtained from other local PC/modem users. The total number of responses obtained represented an estimated 2.5% of CMC users in the local area.

From the standpoint of demographics, the typical respondent was male, married, in the 30-39 age range, and had no children. He had a (non-computer business) professional occupation (40%) or was a student (40%), but worked with computers daily (50%) or at least once per week (40%). He owned an IBM or IBM-compatible PC, a 1200 baud modem, and a printer. Half of the respondents reported finding out about BBSs from a personal computer magazine, while another 30% heard about them via word-of-mouth. The typical respondent reported spending an average of 20 hours per week using his PC, of which less than 10% of this time was spent communicating with private BBSs or commercial information services. (Forty per cent of the respondents were subscribers to such commercial services).

The typical respondent regularly communicated with one BBS to perform public domain software downloading or uploading (70%), transmission/reception of electronic mail (60%), communication with others about hardware or software problems and challenges (40%), and data base/reference

library searches (30%). On the average, he spent another 15% of his PC time communicating with a business or university mainframe computer. He lived with one other person, and 60% of these other persons also used his PC (typically for electronic mail).

As compared to communicating with others face-to-face, 60% of the respondents found using their PC and modem adequate for personal communication, while 30% considered this medium poor for personal communication. Thirty percent of the respondents surprisingly considered such communication as useful as the face-to-face form, and even as "warm and personal". As a source for learning new information, 40% considered this medium better than either TV or newspapers, while 20% considered it worse. Respondants were about evenly divided on whether magazines, books, or the telephone were better than this medium for such learning.

When not telecommunicating, the typical respondent used his PC primarily for word processing (90%), business/financial or scientific applications (80%), data base management (70%), games and entertainment (50%), and home management (40%). Since acquiring a PC, the typical respondent reported watching less TV (70%), spending less time on (non-PC) hobbies (80%), and spending more time alone (50%). After acquiring a PC, 40% of the respondents also reported spending less time on exercise, recreation, and

sports, while 30% reported reading less and sleeping less.

Regarding stress-related questions, 80% stated they experienced moderate to much stress, and half of these respondents reported they would like to reduce their stress level. When asked how they currently reduce their stress, the most popular coping strategies were to eat or drink something (50%), to get some exercise (40%), to take a break (40%), or to relax oneself (30%). Perceived benefits of stress reduction were: more enjoyment of home life (60%), better work/study performance (50%), better health (50%), better able to relax (40%), and more time to spend doing enjoyable things (40%).

Interest in participating in a special stress management BBS was encouragingly high. No respondent rejected the idea, 20% said they would definitely use such a service, 50% stated they would try it out and then decide on whether to use it, and 30% said they would use it depending on the services provided. Endorsed product attributes were: Identification of coping strategies for the client's specific stress situations (50%), learning how to relax (40%), identifying client's specific stress situations (40%), communicating with a stress management professional on specific stress situations (40%), and learning about stress in general and how to deal with it (30%).

Respondees also endorsed the following topics (which they only indirectly associated with stress management) as

being potentially useful to them: Goal-setting (70%), problem-solving training (60%), time management (50%), assertiveness training (40%), and dealing with depression (30%).

The most popular perceived product benefits of a Stress Management BBS were: Time availability at the client's convenience (80%), no need to leave home (80%), no need to make appointments (70%), free cost (70%), customization to individual client's needs (40%), no need to talk to other people (40%), and confidentiality (40%). Reservations about the product primarily related to qualifications of the operator (70%), followed by a lack of opportunity for face-to-face communication (30%). Half the respondents indicated willingness to spend one hour per week on stress management, while 20% reported willingness to spend 3-5 hours per week, and 20% were willing to spend less than one hour per week.

### Discussion

Although the respondees were self-selected, the number of responses to the needs assessment was small, and the attitudes expressed consequently may not have been representative of the entire local population of CMC users, the results obtained were encouraging: At least some PC/modem owners admit to experiencing moderate to much stress in their lives, and use of the PC telecommunications medium to implement a personalized stress management program

appeals to them. A sufficiently large market segment appeared to exist in the local area to make feasible the piloting of a Stress Management BBS. Sufficient information was obtained to position a prototype BBS product targeted to meet these stress management needs, to provide the identified major perceived potential benefits, and to overcome the identified reservations. Based on this information, a prototype system was developed and pilot-tested, as described in Study 2.

## Chapter 3

### Study 2: Pilot BBS Development and Evaluation

In Study 2, a prototype BBS system for stress management was developed, based on the formative research conducted in Study 1. The system was demonstrated, and pilot testing was conducted to identify key psychological and communication variables, with the objective of refining system features prior to conducting a larger-scale experimental intervention in Study 3. Candidate major variables considered to be critical were a thorough initial assessment, initial and ongoing self-monitoring, providing both general and specific information to subscribers on methods for effecting change in problematic behaviors, providing immediate feedback on progress in use of the selected coping strategies, and providing ongoing "expert consultation" to deal with any difficulties encountered in effectively applying these strategies. Pilot BBS system functions were created to examine these variables, and they were then tested as described below.

#### Method

##### Subjects

Subjects were recruited from the local telephone calling area through a series of promotional efforts oriented to PC/modem users, inviting participation in an experimental Stress Management BBS. Presentations were made

to the members of the local PC Users Group surveyed in Study 1 and a large undergraduate introductory computer science class, and a notice was placed on Virginia Tech's mainframe computer inviting university faculty, staff, and students to try-out the system. Twenty-four people responded to these invitations and were issued user identification numbers and passwords (to protect the confidentiality of messages they would send to or receive from the author over the system). The pilot test was conducted from mid-July of 1985 through April of 1986. During these 9 months, 21 subjects called the BBS at least once, and messages were exchanged with 10 of them (8 males and 2 females). Of these 10 subjects, 6 were married and 4 were single, ages ranged from 21 to 53 years, and the length of time during which these subjects reported experiencing difficulty with stress ranged from the past month to the past 3 years.

#### Initial Assessment

Subjects were requested to first complete a prototype "Stress Questionnaire", which was developed specifically for the pilot intervention. The questionnaire assessed (1) basic demographic information, (2) duration of stress difficulty (e.g., "past 6 months"), (3) life changes prior to stress onset, (4) subject identification of 4 situations in which they currently experienced stress, and, for each of these situations, (5) frequency, intensity, and duration of their stress.

The questionnaire next assessed information that was common to all 4 situations: (6) typical physical symptoms experienced when stressed, (7) typical dysphoric thoughts and feelings experienced when stressed, (8) typical antecedents to the stress situations, (9) current coping strategies used to deal with stress, and (10) typical consequences of using these strategies. Finally, the questionnaire assessed the following: (11) general physical condition, (12) current physical exercise, (13) desired additional exercise, (14) current drug and substance use, (15) current sleep habits, (16) current general nutritional habits, (17) number of close friends, (18) supportiveness of family, (19) current self-esteem, (20) current satisfaction with life accomplishments, and (21) three post stress-reduction goals.

To facilitate response specificity and brevity (vital requirements for computer-based assessment), a multiple-choice format was employed for most questions (e.g, situational stress frequency could be rated from 1: "Less than once per month" to 6: "All the time"; stress duration could be rated from 1: "Less than 5 minutes" to 6: "All day long"; up to 18 different physical symptoms could be endorsed, such as "Rapid heart beat" or "Headache"; up to 7 dysphoric thoughts or feelings could be endorsed, such as "I feel helpless" or "I feel angry" or "I want to escape"). The questionnaire was administered in a manner similar to



that used for the BBS subscriber survey in Study 1: It comprised a text file that could be either read while on-line to the BBS or downloaded for off-line study.

Users were instructed to respond either by preparing a file to upload to the BBS, or by providing answers in the form of multiple BBS messages to the Sysop (the author). (Multiple messages were required due to large number of questions asked and a message-length limitation of the BBS to 10 lines of 40 characters each.) Subjects additionally performed baseline self-monitoring of their daily average overall stress level (SUDS, on a scale of 0-10) for 7 days in a row, prior to starting intervention, using an automated "Daily Reporting" feature developed for the pilot intervention.

### Treatment Procedures

All BBS participants were offered the opportunity to read a "Bulletin" each time they logged onto the system. The Bulletin was a text file that provided an overview of the BBS features and indexed other available files on the system, such as instructions on how to take the Stress Questionnaire or how to access the general information files for reading or downloading. The following files were made available:

- (1) Detailed Operating Instructions: A description of all system commands and how to use them (e.g., "How to enter a message").

(2) **Stress Management BBS General Information:** An "informed consent" description of the purpose and nature of the research being conducted, qualifications of the operator and his supervisor, protection of confidentiality, its free cost (except for long distance telephone charges), and information on matters such as hours of operation.

(3) **"About Stress":** An overview of the nature of stress, and of stress-reduction techniques that have received empirical support for their efficacy.

(4) **"Exercise and Stress":** Information on the benefits of exercise as a general coping strategy for stress management, and instructions for establishing an exercise program, including selection of a type of exercise and degree of strenuousness to minimize chances of injury and maximize long-term benefits (derived from information in Thompson & Martin, 1984).

(5) **"Relaxation Training":** Information on the benefits of regular relaxation practice as a general coping strategy plus step-by-step instructions for progressively relaxing major muscle groups. Additionally, use of the relaxation response for coping with situational stress was addressed (derived from Bernstein & Given, 1984).

(6) **"Stress Management Training":** General information on cognitive strategies for situational stress

reduction, plus instructions on identifying problematic self-statements and substituting more effective self-statements (derived from Meichenbaum & Jaremko, 1983).

In addition to information file access, subjects were offered the opportunity to exchange messages with the author regarding application of the techniques covered in the files, as well as to confer with him (via "on-line chatting") during times when he was monitoring the system. Use of the "chat mode" overcame the BBS's standard message system limitation by being non-restrictive on message length, and allowed communication in a "real-time, conversational" mode.

Also, subjects were allowed to exchange private messages with other users, or to send "public" messages to all other users. The BBS allowed user access to a file of all user names, to facilitate such communication. Subscribers were given the opportunity to designate pseudonyms for use in this file if they wished, to protect their confidentiality. Subject assessments, designated coping strategies, self-monitoring and feedback data, as well as all other data on subjects' personal stress situations, was accessible only by the author.

While every message entry by subscribers was acknowledged by the author in order to promote participation, communication with subjects about their stress problems commenced only after they responded to the Stress

Questionnaire and completed recording their 7-day baseline stress level. Based on these responses, as clarified through subsequent message exchanges, the author sent subjects messages identifying specific recommended coping strategies for their "Top-2" stress situations (Situations "A and B"), as well as a "general coping strategy" (e.g., daily relaxation practice, daily aerobic exercise).

A treatment contract was then negotiated with the subject through additional message exchanges. The agreed-upon stress situations and coping strategies were recorded in separate files for each subscriber. Subjects were requested to call-in daily to record their self-monitored stress and coping strategy usage for the day, and to receive feedback on their progress. This automated BBS feature first presented Situation A and asked if it occurred that day. If the subject replied affirmatively, he or she was asked if they used their coping strategy in the situation, and to estimate their stress level during the situation (on a scale of 0-10). This process was repeated for the Situation B, and then the subject was asked if they used their general coping strategy that day, and to estimate their average overall stress level for the day.

Next, the subject was presented with a graphical display of his or her progress over the last week, compared to the previous week, in managing their stress in Situations A and B. Then, a similar display was presented on their

progress since baseline in managing their overall stress level (daily for the past week, weekly for the previous 3 weeks, and monthly for the previous 1-3 months, as applicable). Finally, these subjects were provided with verbal feedback on their progress (or lack thereof) through automated selection of appropriate pre-programmed statements. Examples of this feedback are presented in Figures 1 and 2. Two sets of 15 statements each were stored in the system, to cover all possibilities of positive, negative, or no progress as a function of subject coping frequency. The second set used different, but equivalent, wording of feedback statements, and the system randomly selected from each set for each "feedback session" in an attempt to reduce potential subject boredom.

Intensive treatment was defined as starting upon subject acceptance of the negotiated treatment contract, and the subject's initiation of daily reporting of self-monitored progress in using the agreed-upon coping strategies. Length of treatment was defined as 6 weeks minimum to 3 months maximum, and the subject files were accordingly sized to hold 3 months worth of data. End-of-treatment was defined as that time when both the subject and the author agreed that the subject had become competent at using his or her coping strategies, that the strategies were being applied appropriately and with a high frequency, and that the subject's situational and general

\*\*\*\*\*  
 SIT A: EXPERIENCING JOB PRESSURE  
 (COPE: RELAX/TIME MGT/ASSERTIVENESS)

-----  
 DAYS/ SITUATIONAL STRESS LEVEL  
 0 1 2 3 4 5 6 7 8 9 10  
 -----

PRE]: ^^^^^^^^^^^^^^^^^  
 T-6]: ++++++++  
 T-5]:  
 T-4]:  
 T-3]: ++++++++  
 T-2]: ++++++++  
 T-1]: ++++++++  
 T-0]: ++++++

-----  
 BLNK: DAYS SITA DID NOT OCCUR  
 +: DAYS WHEN COPING STGY USED  
 -: DAYS WHEN COPING STGY NOT USED

\*\*\*\*\*

FEEDBACK, SIT A:

SIT A: EXPERIENCING JOB PRESSURE  
 CP/SY: RELAX/TIME MGT/ASSERTIVENESS

AVG STRESS % OF TIME COPEd  
 -----

SO FAR THIS WK: 3.6 100%

JOHN, SO FAR THIS WEEK, YOU HAVE  
 USED YOUR SIT A COPING STRATEGY  
 EVERY TIME THE SITUATION HAS OCCURRED,  
 AND YOUR AVERAGE STRESS  
 LEVEL IS 3.6. CONGRATULATIONS ON  
 COPING SO CONSISTENTLY.

Fig. 1. Example of Situational Graphic and Verbal Feedback

-----  
 JOHN, ARE YOU READY TO SEE HOW USE OF  
 YOUR GENERAL COPING STGY (BICYCLING 30  
 MIN/RELAXATION 20 MIN, ALT. DAYS) HAS  
 HELPED YOU REDUCE YOUR OVERALL STRESS  
 SINCE STARTING THIS PROGRAM?

\*\*\*\*\*  
 DAYS/ OVERALL STRESS LEVEL  
 0 1 2 3 4 5 6 7 8 9 10  
 -----

B/LJ: ^^^^^^^^^^^^^^^  
 PREJ: ^^^^^^^^^^^  
 LMOJ: ^^^^^^^^^^^  
 LWKJ: ^^^^^^^  
 T-6J: +++++++  
 T-5J: +++++++  
 T-4J: +++++++  
 T-3J: +++++  
 T-2J: +++++++  
 T-1J: -----  
 T-0J: +++++++

-----  
 CURRENT 7-DAY AVG STRESS LEVEL: 2.3  
 BASELINE AVG STRESS LEVEL: 4.6

+: DAYS WHEN GEN COPING STGY USED  
 -: DAYS WHEN GEN COPING STGY NOT USED  
 \*\*\*\*\*

FEEDBACK, GENERAL:

GENERAL: OVERALL STRESS MGT  
 CP/SY: BICYCLING 30 MIN/RELAXATION 20 MIN

	STRESS LVL	COPEd?
	---	---
TODAY:	2	YES
PREV 7 DAYS:	1.8	71.4%

JOHN, YOUR GENERAL STRESS LEVEL TODAY  
 WAS 2, WHICH IS HIGHER THAN LAST WEEK'S  
 AVERAGE LEVEL, EVEN THOUGH YOU USED  
 YOUR GENERAL COPING STRATEGY. ARE YOU  
 HAVING A PROBLEM USING THE STRATEGY  
 EFFECTIVELY? IF SO, PLEASE SEND ME A  
 MESSAGE ABOUT IT.  
 -----

Fig. 2. Example of Feedback on Overall Progress

average stress levels had been reduced appreciably, or at the end 3 months, depending on which criterion was met first.

#### Follow-Up

Subjects were contacted by telephone for their comments on their experience with the BBS, and for their suggestions for improving BBS features, after they had ceased calling the BBS for at least a one month period. Feedback from 8 such subjects was obtained through this process.

#### Equipment and Software

Equipment used comprised an Apple II Plus personal computer equipped with 64K of memory, 3 disk drives, a 300 baud modem, a real-time clock, and a printer. Software comprised a 'public domain' Apple BBS program (WAPABBS 1.1), as modified by the author, plus special software developed by the author for implementing the questionnaires, self-monitoring data entry and feedback, and system management support functions.

#### Results and Discussion

During the 9-month pilot test, 49 log-ons to the BBS were recorded, messages were sent to the 21 people who logged on, but reply messages were received from only 10 of these. Subsequently, 92 messages were exchanged with 10 subjects, 10 on-line "chats" with the author occurred, and



no subject-to-subject exchanges occurred. Three of the 10 subjects who exchanged messages completed initial assessment and started baseline stress recording, and two of them completed the baseline phase and received individualized coping strategy recommendations over the BBS. Of these two subjects, both started the daily reporting process, but one dropped-out after one week, and the other dropped-out after 6 weeks.

While these results were disappointing, feedback from subjects obtained from messages recorded on the BBS, on-line "chats", and at follow-up via telephone conversations, was of high value in refining the system prior to initiating the (larger-scale) Study 3 intervention. Subjects indicated one or both of the following reasons for dropping out: (1) They did not consider their stress problems sufficiently serious to devote time to using the system. (2) They had difficulty using their computer, modem, and communications software to interact with the BBS, which they attributed to their own lack of sophistication in CMC operations.

Additionally, subjects stated that the on-line instructions on how to use the BBS were difficult to follow, the initial assessment process (involving downloading and uploading of files) was difficult to complete, the requirement to access the system daily during intervention was bothersome, and (with one exception) the BBS in general was not "fun" to use. The exception was that subjects

regarded the "chat mode" as not only "fun" but very useful with regard to clarifying BBS operating instructions and dealing with stress problems.

Regarding the variables targeted for examination in Study 2, data on initial assessment were insufficient to draw major conclusions, but subjects that completed the Stress Questionnaire suggested it needed to be even more thorough (e.g. physical symptoms, dysphoric cognitions, antecedents, current coping strategies, and consequences should be assessed individually for each of the four stress situations). Increasing its specificity likely also would result in better identification of the two "worst" stress situations, and better specification of appropriate coping strategies for these situation.

Data on efficacy of self-monitoring and feedback also were miniscule, except that the subjects who used this function objected to accessing it daily. The availability of "expert consultation" was well received, and increasing its availability for the Study 3 system appeared appropriate. Insufficient outcome data were obtained to draw any major conclusions, except that: (1) Reduction of the dropout rate was critical to conducting further research; (2) The value of CMC-based automated self-monitoring recording and feedback remained to be tested; and (3) Rapid, formalized post-treatment assessment appeared to be desirable.

As a result of the user feedback obtained and the observations made above, the following changes and refinements were identified for the system (and its promotion) prior to initiation of Study 3: (1) System operating instructions would be made more explicit yet simplified. (2) The Stress Questionnaire would be made more explicit and automated so that subjects could respond on-line and in real-time. (3) No downloading or uploading would be required to perform any system function, but these features would be made available for accessing general information files at the user's option. (4) Additional general information files would be created to cover a broader range of stress management topics, drawing further on the needs assessment results of Study 1, with the intent of capturing the interest of more subjects. (5) An automated on-line Life Events Questionnaire would be added as a "fun" feature to engage initial user interest.

Other identified changes were: (6) Automated feedback on questionnaire results would be added to further engage user interest. (7) The Bulletin would be changed frequently to highlight special BBS features to sustain user interest. (8) A regular time for "Chat mode" on-line conferencing with the author would be scheduled once per week. (10) The self-monitoring/ feedback function would be modified to allow accessing it less frequently than once per day, at the user's option. (11) An automated, on-line Post

Questionnaire would be created to allow rapid yet thorough end-of-treatment assessment. (12) Subsequent promotional efforts would be directed to "sophisticated" CMC users who perceived themselves as having moderate to serious difficulties with stress. (13) Promotional efforts would be expanded to capture the interest not only of more local CMC users, but also of remote CMC users, as it was not apparent that sufficient local subjects could be recruited to conduct a larger-scale intervention.

## Chapter 4

### Study 3: Comparison of CMC and Face-to-Face Interventions

For Study 3, two forms of CMC-based intervention for stress management were compared with each other, and with face-to-face behavior change training. The first CMC form utilized automated recording of subjects' self-monitored progress in applying specific and general coping strategies to managing their stress, together with automated feedback on such progress. The second CMC form relied primarily on providing general information on stress management to subjects to effect stress reduction. Two experimental groups were used to compare these two forms: a CMC Intensive Intervention (CII) group, and a CMC Non-Intensive Intervention (CNI) group. Results for these two groups were compared with those of a Face-to-Face Intervention (FFI) experimental group, as described below.

#### Method

##### Subjects

Subjects were recruited both within the local telephone calling area and nationally by conducting a publicity campaign. A flyer which briefly described the project and solicited participation by PC/modem users with stress problems was addressed individually to approximately 3400 Virginia Tech faculty and staff members. Forty-five addressees called the author to express potential interest.

Press releases were distributed to local and national print media, and these were followed by release of a video and radio interview on the project. Subsequently, several national computer and telecommunications-oriented magazines published articles on the BBS. In addition, several BBS's located in other cities listed bulletins publicizing the system. These latter efforts resulted in queries from 107 additional respondees.

Of the 126 respondees who were provided user identification numbers and passwords, 27 were "local" and 99 were "remote". Of these, 74 called the BBS at least once, messages were exchanged with 62, and 42 of these completed initial assessment (13 local and 29 remote subjects). Half were assigned to the CII condition and the remainder were assigned to the CNI condition. Of the CII group, 20 started baseline stress recording, and 14 of these completed baseline and received individualized coping strategy recommendations over the BBS. Nine of these 14 completed the intervention through 3 months follow-up.

Members of the CNI group were not offered the opportunity to perform baseline recording, and individualized recommended coping strategies were not provided to them. However, messages were exchanged with these subjects, and they were allowed access to the system's general information files on stress management. Post-questionnaires at 3 months follow-up were mailed to all

members of this group, and 13 responded. Of these 13, data from 4 members were eliminated from consideration because their interaction with the BBS was minimal (i.e., less than 2 message exchanges, and/or no recorded access to any of the stress management general information files).

Subjects for the FFI group were recruited locally to participate in Stress Management Workshops conducted by the author. These workshops comprised 6 weekly 1 1/2 hour group sessions with subjects who either owned PC's or who used computer terminals at least weekly in their work.

Assessment, self-monitoring, recommendation of individualized coping strategies, presentation of general information on stress management, and follow-up assessments all were made analogous to those of their CII counterparts. One such workshop was conducted for graduate students at Virginia Tech's Psychological Services Center, and two similar workshops were conducted for staff members at the Salem Veterans Administration Medical Center, Salem, VA. Of the 15 subjects who registered for these workshops, 9 completed the intervention and were followed through 3 months.

#### Initial Assessment

All subjects first completed a Life Events Questionnaire (adapted from Holmes & Rahe, 1967) and were provided with feedback on a total "stress score" and a probability of becoming ill within the next 2 years,

computed from the total number of stressful events they endorsed as having occurred in their lives in the past year. This assessment was automated and administered on-line to CII and CNI subjects, while a paper-and-pencil version was provided to FFI subjects.

Next, all subjects completed the Stress Questionnaire used in Study 2, which was modified to assess the following additional items: (A) Solicitation of the following for each of the four subject-identified individual stress situations: (1) physical symptoms experienced, (2) dysphoric thoughts and feelings experienced, (3) antecedents, (4) current coping strategies and subject rating of the effectiveness of these strategies, and (5) consequences of using these strategies; (B) past experience with psychotherapy or counseling (presenting problem and outcome). Addition of the latter item was considered desirable to aid in screening-out subjects from the intervention who had serious psychological problems unrelated to stress management. (However, no such subjects were identified in Study 3, and no referrals to other professionals were required.) Appendices B and C list the Study 3 questionnaires.

For the CII and CNI groups, the Stress Questionnaire was modified for on-line automated administration by the BBS, and responses were summarized and fed back to subjects, in a functional analysis format, immediately after their answering all test questions. For the FFI group, a



paper-and-pencil version of this questionnaire was administered, and a functional analysis was provided verbally to subjects by the author. Subjects in the CII and FFI groups additionally performed baseline self-monitoring of their daily average stress level for 7 days in a row, prior to starting intervention. The CII group used the automated BBS Daily Reporting function developed in Study 2, while the FFI group used a paper-and-pencil analog.

Subject characteristics for the 3 groups of 9 subjects each are summarized in Table 1. Subjects comprised 19 males and 8 females, of whom 16 were married and 11 were single, and 11 had previous experience with counseling (all of which had outcomes acceptable to the subjects), while 16 had not. Subject ages range from 21 to 65 years, and subjects reported experiencing stress over a range of the past 3 months to 6 years. On most measures, the groups did not differ significantly (at  $p < .05$ ) in demographic or other pre-treatment measures.

Analyses of Variance indicated no group differences in age, the reported length of time of difficulty with stress, Life Events Questionnaire total score and probability of illness, or (with one exception) the reported frequency, intensity, and duration of Stress Situations 1-4. The exception was that the FFI group's reported Situation 1 frequency of occurrence (5.7, or nearly "All the Time") was

Table 1

## Subject Characteristics (Totals/Means)

MEASURE/GROUP	CII	CNI	FFI	TTL/M	Sig
Male/Female	8/1*	7/2	4/5*	19/8	*
Married/Single	6/3	6/3	4/5	16/11	-
Prev. Counseling (Yes/No)	4/5	4/5	3/6	11/16	-
Local/Remote	6/3	4/5*	9/0*	19/8	*
Age	36.2	35.8	32.6	34.9	-
Years Stressed	1.8	1.7	1.9	1.8	-
Lfe Evnts Score	244.3	346.4	261.7	279.2	-
Lfe Evnts P(Ill)	52.9	64.3	58.0	57.9	-
Sit 1 Pre-Interv					
Freq (1-6)	3.9*	4.8	5.7*	4.8	*
Int (0-10)	7.1	7.6	8.7	7.8	-
Dur (1-6)	5.4	4.1	4.0	4.5	-
FxIxD/10	16.4	16.9	19.9	17.7	-
Sit 2 Pre-Interv					
Freq (1-6)	4.3	4.3	4.4	4.4	-
Int (0-10)	5.4	5.9	6.6	6.0	-
Dur (1-6)	3.2	3.4	3.4	3.4	-
FxIxD/10	8.0	10.6	9.5	9.4	-
Sit 3 Pre-Interv					
Freq (1-6)	4.4	4.6	4.6	4.5	-
Int (0-10)	5.6	6.1	6.6	6.1	-
Dur (1-6)	3.8	3.4	3.8	3.6	-
FxIxD/10	9.3	11.4	9.4	10.1	-
Sit 4 Pre-Interv					
Freq (1-6)	3.4	3.1	3.0	3.2	-
Int (0-10)	3.8	5.5	5.4	4.9	-
Dur (1-6)	3.4	3.3	3.0	3.2	-
FxIxD/10	4.6	7.8	5.4	6.0	-
Sit 1-4 Average					
Freq (1-6)	4.2	4.4	4.6	4.4	-
Int (0-10)	5.8	6.3	7.0	6.3	-
Dur (1-6)	4.0	3.6	3.6	3.7	-
FxIxD/10	12.6	11.8	11.0	11.8	-

\*  $p < .05$

significantly higher than that reported by the CII group (3.9, or "Several Times per Week"),  $F(2,24) = 4.2, p < .05$ . However, the groups did not differ significantly in the product of reported frequency, intensity, and duration ( $F \times I \times D / 10$ ), which can be considered to reflect the overall severity of the reported stress, on Situation 1 nor on Situations 2-4.

$\chi^2$  tests indicated the CII group (8 males, 1 female) and FFI group (4 males, 5 females) differed significantly in terms of sex distribution ( $\chi^2(1, N=18) = 4.0, p < .05$ ). The 3 groups did not differ significantly with respect to marital status or previous experience with counseling. Of necessity, all 9 of the FFI subjects were local, and this group differed significantly from the CNI group in distribution of local/remote membership, ( $\chi^2(1, N=18) = 6.9, p < .01$ ). Local/remote distribution for the CII and CNI groups was not significantly different, however.

### Treatment Procedures

As in Study 2, all BBS participants were offered the opportunity to read a "Bulletin" each time they logged onto the system. For Study 3, however, the Bulletin was updated approximately monthly to highlight various BBS features such as new messages to "All" created by the author. In addition, it was modified to provide directions to new users for accessing a "New Member Instructions" file. This file provided an overview of all of the BBS features, and

instructions on how to take the Life Events and Stress Questionnaires, as well as on how to access the general information files for reading or downloading. In addition to the files available in Study 2, the following new files were created:

(1) "Self-Statements": The "Stress Management Training" file of Study 2 was rewritten and simplified with the intent of better explicating the nature and application of cognitive coping strategies for stress reduction.

(2) "Problem-Solving": An overview of the problem-solving process for resolving recurring situations that are experienced as stressful was provided (derived from information in Kanfer & Goldstein, 1975).

(3) "Assertiveness Training": An overview of the nature of aggressive, passive, and assertive behavior, and techniques (with examples) for using assertiveness to reduce stress in interpersonal relations was included (derived from information in Jakubowski & Lange, 1978).

(4) "Goal-Setting": An overview was provided of the steps involved in establishing prioritized short-term and long-term goals for subjects who experience stress involving lack of goal attainment (derived from information in Bliss, 1978).

(5) "Time Management": A basic time management overview was provided, with step-by-step instructions for using

these techniques to meet goals, for subjects who experience "meeting deadlines" stress (derived from information in Charlesworth & Nathan, 1984).

(6) "Child Behavior": A basic presentation of the use of contingency management techniques for reducing the frequency of problematic behaviors in young children was included (derived from information in Gordon & Davidson, 1981).

(7) "Other Stress Management Techniques": A brief presentation was included on techniques such as attention-diversion and perspective-taking (derived from information in Charlesworth & Nathan, 1984).

Additionally, all files were made readable in either a 40-column or 80-column format, to better match the BBS information presentation process with users' display capabilities. These text files are listed in Appendix A.

As in Study 2, all BBS users were offered the opportunity to exchange messages with the author regarding application of the techniques covered in the files, as well as to confer with the author (via "on-line chatting"). However, a 2-hour period dedicated explicitly to "chatting" was scheduled for one night of each week. Also, all BBS users were allowed to exchange messages with other users, and (unlike Study 2) the author sent messages to users with similar stress problems in order to encourage such communication.

Members of the CII group received the same treatment that was developed for Study 2 subjects: They used the Daily Reporting function to record their self-monitored baseline stress, and their intervention situation-specific and general coping strategy usage, together with associated stress levels, and they received automated graphical and verbal feedback on their progress. To reduce further the Daily Reporting "boredom factor" identified in Study 2, CII subjects were offered the opportunity to bypass the feedback presentation, except on every 7th day. Additionally, in order to minimize telephone charges for remote subjects, subjects were allowed to call-in less frequently than once per day: A feature was included to allow them to "fill-in" data for "missing days" when they next called the BBS. Data reported by CII subjects were stored automatically in individual files, and a progress report was produced once per week for each subject for the author's review. Based on this review, messages were sent to each subject weekly commenting on progress, and making suggestions where appropriate for modifying application of coping strategies.

Members of the CNI group received messages from the author over the BBS with comments on their initial assessment, and identification of one or more general information files as potentially beneficial to dealing with their individual stress problems. Subjects who responded to these messages were sent additional messages that answered

their questions and/or encouraged their application of the techniques described in the file(s) in managing their stress. Message exchanges were continued as long as these subjects continued to enter messages on the BBS.

Members of the FFI group received the face-to-face equivalent of the CII treatment. Subjects hand-recorded baseline data on paper-and-pencil forms. Progressive muscle relaxation training was provided to all FFI subjects, as was instruction on establishing an exercise program, assertiveness training, and cognitive strategies for situational stress reduction.

Printed material was provided to subjects that contained the same information as was in the BBS's general information files. They also self-monitored daily and hand-recorded their progress on forms which solicited the same information as the automated daily reporting of the CII group. These forms were collected at the weekly meetings, and the author provided appropriate verbal feedback to subjects based on their recorded progress as well as the progress observed during the meeting. While interaction between group members was facilitated, the bulk of the group time was spent in presenting information, reviewing individual progress, and suggesting appropriate modifications in coping strategy application.

#### Follow-Up

All subjects were requested to respond to

post-intervention questionnaires at 3 months follow-up. A Post-Questionnaire was administered to assess changes in all of the stress-correlate items of the pre-intervention Stress Questionnaire, plus any additional comments the subject wished to make. As with the initial questionnaire, it was administered on-line automatically over the BBS for the CII group. A paper-and-pencil version was administered to FFI subjects and mailed to the CNI subjects (in order to maximize the response rate, as many CNI subjects had stopped communicating with the BBS at follow-up time). For the CII and FFI subjects, the Post-Questionnaire also assessed the subject's rating (on a scale of 0-10) of the effectiveness of the situational and general coping strategies they practiced during treatment.

At the start of intervention, members of the CII group were requested to designate a "Significant Other" (SO) who would be willing to verify their progress. Seven of the 9 members of this group did so, and the persons so designated were mailed a SO Post Questionnaire at 3 months follow-up. This questionnaire asked the SO to rate independently (1) the current frequency, intensity, and duration of the 4 stress situations previously identified by the subject; (2) the frequency of usage and effectiveness of the coping strategies previously recommended to the subject; and (3) the other outcome variables comprising the subject's Post-Questionnaire. All seven SO's completed this



assessment.

Finally, subjects in the CII and CNI groups were mailed a "Supplemental Post Questionnaire" to assess their ratings of the major features of the BBS (e.g., usefulness of each general information file, helpfulness of on-line consulting with the author, degree of satisfaction or dissatisfaction with various technical aspects of the BBS). This questionnaire also employed a multiple choice format which allowed respondees to endorse a number of 'positive' and 'negative' descriptors for responding to each question asked. All CII and CNI subjects completed this assessment as well.

#### Equipment and Software

Study 3 equipment was identical to that used in Study 2. The software used in Study 2 was expanded and modified by the author to implement the additional Study 3 functions (e.g., Daily Reporting modifications, additional automated questionnaires, and additional associated system management support functions). Listings are presented in Appendix C.

#### Results

The BBS (CII and CNI) intervention, as well as the FFI intervention, was conducted over a 40-week period, from May 1986 through early February 1987. During this time, of the 126 BBS respondees who were provided user identification numbers, 52 called the BBS only once, while 74 called more than once. The total number of calls received during the 40

weeks was 1086, of which 793 were from members of the CII and CNI groups. The total number of messages exchanged during this period was 1461, of which 1190 were from or to CII and CNI subjects.

The remaining 293 calls were from people who started using the BBS (e.g., took the Life Events Questionnaire and participated in 0-3 message exchanges with the author) and then dropped out. The results described below are based on the data collected from the 27 CII, CNI, and FFI subjects who completed the intervention through 3 months follow-up.

#### Summary of Major Results

As shown in Table 2, the average CII subject spent 13.6 weeks in treatment, during which time he or she called the BBS 63.9 times and exchanged messages 25.8 times with the author and 1.3 times with other subjects. The average CNI subject spent 3.8 weeks in the intervention, called 16.3 times, and exchanged messages 5.6 times with the author and 0.4 times with others. FFI subjects averaged 8.2 weekly sessions, and 78% of their exchanges were with the author and 22% were with other group members.

Group differences, as well as post-hoc specific comparisons, were determined using Analyses of Variance. Intervention length differed significantly between all three groups,  $F(2,24)=16.8$ ,  $p<.001$ , and the CII group participated in significantly more message exchanges than did the other two groups,  $F(2,24)=18.2$ ,  $p<.001$ . Also, CII members

Table 2

## Intervention Variables and Follow-Up Rating Summary (Means)

MEASURE/GROUP	CII	CNI	FFI	MEAN	Sig
# Weeks Interv	13.6***	3.8***	8.2***	8.5	***
# Phone Calls	63.9	16.3	-	40.1	***
# Messages	104.9	21.7	-	63.3	**
# Msg Exchanges	25.8***	5.6	8.1	13.1	***
# Exch w/Others	1.3	0.4	1.8	1.2	-
# Online Consults	2.7	0.8	-	1.8	**
<b>Weekly Averages</b>					
Phone Calls	5.0	5.3	-	5.2	-
Messages	8.5	4.4	-	6.5	-
Msg Exchanges	2.0	1.6	-	1.8	-
Online Consults	0.2	0.2	-	0.2	-
# Files Read	6.8	4.6	4.0	5.1	-
% Files Used	83.7%**	41.4%**	77.9%	67.7%	**
<b>FxIxD Decrease</b>					
Sit 1	84.8%	40.2%	76.9%	67.3%	-
Sit 2	76.3%	+4.7%**	49.5%	40.4%	**
Sit 3	73.1%	70.2%	79.8%	74.4%	-
Sit 4	71.7%	60.0%	68.5%	66.7%	-
Average	76.5%	41.4%*	68.7%	62.3%	*
<b>Cpg Effect. Rtg (0-10)</b>					
Sit A Stgy	8.1	-	6.7	7.4	-
Sit B Stgy	6.7	-	6.9	6.8	-
Gen Cpg Stgy	7.2	-	6.8	7.0	-
Avg of Above	7.3	-	6.8	7.0	-
Pst Exercise Freq (0-7)	3.8	1.7*	4.0	3.1	*
Goal Attainment (0-2)	1.0	0.5*	1.2	0.9	*
<b>Change Ratings (1-3)</b>					
Physical Symp	2.8	2.1*	2.9	2.6	*
Thts/Feelings	3.0	2.1**	2.7	2.6	**
Self-Esteem	2.8	2.3	2.8	2.6	-
Gen Phys Cond	2.3	2.0	2.2	2.2	-
Substance Use	2.1	2.2	2.0	2.1	-
Lfe Acmp Satis	2.8	2.4	2.7	2.6	-

\* p&lt;.05

\*\* p&lt;.01

\*\*\* p&lt;.001

made significantly more phone calls than did the CNI group,  $F(1,16)=18.8$ ,  $p<.001$ , and the total number of messages logged for CII members was significantly greater than those logged for CNI members,  $F(1,16)=9.3$ ,  $p<.01$ . The CII group also averaged significantly more on-line consults with the author than did the CNI group (2.7 vs. 0.8,  $F(1,16)=10.1$ ,  $p<.01$ . However, if the number of calls, messages, message exchanges, and online consults are converted to weekly averages, the CII and CNI groups did not differ significantly on these variables.

According to most measures, the intervention succeeded in producing equivalent reductions in stress for CII and FFI subjects, and reductions of a smaller magnitude for CNI subjects. From initial assessment to 3 months follow-up, CII members reported a 76.5% reduction in the product of frequency, intensity, and duration (F $\times$ I $\times$ D) as averaged across their four stress situations, FII members reported a 68.7% reduction, and CNI members reported a 41.4% reduction, which was significantly less than that for the other two groups,  $F(2,23)=5.8$ ,  $p<.01$ . While F $\times$ I $\times$ D reduction did not differ significantly between groups for Situations 1, 3, and 4, the CNI group reported negative improvement on Situation 2 (a 4.7% increase), which differed significantly from improvements reported by the CII (73.3%) and FFI (49.5%) groups,  $F(2,23)=5.9$ ,  $p<.01$ .

At 3 months follow-up, CII and FII subjects reported

exercising 3.9 and 4 times per week, while CNI subjects exercised significantly less (1.7 times per week),  $F(2,24)=3.3$ ,  $p<.05$ . During initial assessment, subjects were requested to list up to three activities they would like to engage in if they were not bothered by stress (post-intervention goals). At follow-up, subjects were queried about their achievement of these goals, in terms of current frequency of performance (0: Never, 1: Sometimes, 2: Frequently). Average reported frequency for CII and FFI members was 1.0 and 1.2, respectively, and did not differ significantly, while CNI frequency was significantly less (0.5),  $F(2,24)=5.5$ ,  $p<.01$ .

Subjects also were asked at follow-up to rate changes in the other correlates of stress they endorsed in the initial Stress Questionnaire. (For purposes of analysis, responses were coded as 1: Deterioration, 2: No Change, and 3: Improvement.) While CII and FFI subjects reported reduced stress-related physical symptoms (2.8 and 2.9, respectively), CNI subjects reported essentially no change (2.1), which was a significant difference,  $F(2,24)=4.1$ ,  $p<.05$ .

The CII and FFI groups also reported a reduction in experiencing stress-related dysphoric thoughts and feelings (3.0 and 2.7, respectively), and CNI subjects again reported essentially no change (2.1), which was significantly different from the other two groups,  $F(2,24)=6.3$ ,  $p<.01$ .

All three groups reported improved self-esteem and increased satisfaction with their life accomplishments, and moderate to no improvement in their general physical condition or their substance usage, and the groups did not differ significantly on these measures.

#### General Information File Usage

Of the twelve general information files on stress management made available for study to members of all groups, the average subject read 5.1, and reported he or she actually applied 67.7% of the files they read in subsequently managing their stress. The number of files read did not differ significantly between the three groups, but CII subjects utilized a greater percentage of the information read than did CNI subjects (83.7% vs. 41.4%),  $F(2,24)=6.3$ ,  $p<.01$ . Percent utilization for FFI subjects (77.9%) did not differ significantly from that of CII subjects.

Detailed CII and CNI subject ratings on use of these files, obtained at follow-up, are presented in Table 3. CII subjects tended to read, as well as to download, a higher percentage of the files, but CII and CNI subjects who read the files did not differ on their rating of file usefulness, on the average (88.3% vs. 86.8%). However, the CII group tended to report more utilization of the information in their stress management, on the average (78% vs. 64.6%).

Table 3

## Follow-Up Feedback on BBS General Information File Utilization

File/Group	Read File		Downloaded File		Information Found Useful		Info. Used in Str Mgt	
	CII	CNI	CII	CNI	CII	CNI	CII	CNI
New Member Instructions	100%	100%	56%	43%	100%	100%	86%	45%
About Stress	100%	86%	78%	36%	100%	76%	100%	50%
General Info on SMBBS	77%	86%	56%	36%	86%	93%	88%	50%
Exercise and Stress	89%	43%	67%	7%	78%	63%	100%	58%
Relaxation Training	78%	43%	67%	29%	100%	84%	100%	50%
Self-Statements	56%	43%	56%	29%	100%	75%	80%	84%
Time Management	67%	29%	44%	21%	86%	75%	67%	25%
Assertiveness Training	56%	29%	56%	21%	84%	75%	100%	79%
Child Behavior	44%	21%	44%	21%	75%	100%	20%	67%
Goal-Setting	33%	14%	33%	14%	75%	100%	20%	67%
Problem-Solving	33%	21%	33%	14%	75%	100%	75%	100%
Other Stress Mgt Techniques	33%	21%	33%	7%	100%	100%	100%	100%
Means:	63.8%	44.7%	51.9%	23.2%	88.3%	86.8%	78.0%	64.6%

All members of both groups read the New Member Instructions file and found the information useful. All CII members also read the About Stress file and found it useful, while 86% of the CNI group read this file and 76% of these found it useful. Of the files that contained specific instructions on stress management coping strategies, those that addressed exercise and relaxation training were used the most, while the files on modifying problematic child behavior, problem-solving, goal-setting, and other stress management techniques were used the least. The information on modifying self-statements, time management, and assertiveness training formed a "middle group" in terms of utilization.

#### Specific Situational Stress Changes

Pre-to-post intervention reported frequency, intensity, duration, and FxIxD/10, for stress situations 1-4, as well as their averages across all four situations, were compared for the three groups, where the 'post' data are that reported at 3 months follow-up. Means of these measures are presented in Table 4.

In terms of averages across all four situations, all three groups significantly reduced the frequency, intensity, duration, and FxIxD/10 of their stress. As shown in the table, subjects reduced the frequency of their stress situations from an average of 4.4 (almost daily) to 3.1 (about once per week), average stress intensity from 6.3 to



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Table 4

Intervention Start/Follow-Up Stress and Coping Change (Means)										
MEASURE/GROUP	CII		CNI		FFI		MEAN		Sig	
	Beg	F/U	Beg	F/U	Beg	F/U	Beg	F/U		
Situation 1										
Freq (1-6)	3.9	2.7	4.8	4.2	5.7	3.2	4.8	3.4	-	
Int (0-10)	7.1	2.8	7.6	5.6*	8.7	4.2	7.8	4.2	*	
Dur (1-6)	5.4	2.3	4.1	2.9	4.0	2.4	4.5	2.6	-	
FxIxD/10	16.4	2.5	16.9	10.1	19.9	4.6	17.7	5.7	-	
Situation 2										
Freq (1-6)	4.3	2.2	4.3	4.2**	4.4	3.8	4.4	3.4	**	
Int (0-10)	5.4	2.9	5.9	5.2	6.6	4.8	6.0	4.3	-	
Dur (1-6)	3.2	2.6	3.4	3.4*	3.4	2.3	3.4	2.8	*	
FxIxD/10	8.0	1.9	10.6	11.1**	9.5	4.8	9.4	5.9	**	
Situation 3										
Freq (1-6)	4.4	2.3	4.6	3.1	4.6	3.5	4.5	3.0	-	
Int (0-10)	5.6	3.1	6.1	4.2	6.6	4.0	6.1	3.8	-	
Dur (1-6)	3.8	2.5	3.4	2.0	3.8	1.8	3.6	2.1	-	
FxIxD/10	9.3	2.5	11.4	3.4	9.4	1.9	10.1	2.6	-	
Situation 4										
Freq (1-6)	3.4	2.1	3.1	2.1	3.0	2.4	3.2	2.2	-	
Int (0-10)	3.8	2.4	5.5	2.1	5.4	3.9	4.9	2.7	-	
Dur (1-6)	3.4	2.6	3.3	2.5	3.0	1.6	3.2	2.3	-	
FxIxD/10	4.6	1.3	7.8	3.1	5.4	1.7	6.0	2.0	-	
Sit 1-4 Average										
Freq (1-6)	4.2	2.4*	4.4	3.5	4.6	3.4	4.4	3.1	*	
Int (0-10)	5.8	2.9	6.3	4.4	7.0	4.4	6.3	3.9	-	
Dur (1-6)	4.0	2.5	3.6	2.4	3.6	2.2	3.7	2.4	-	
FxIxD/10	12.6	2.1	11.8	7.8*	11.0	3.8	11.8	4.6	*	
SitA I (0-10)	3.9	2.3	-	-	7.8	4.5	5.8	3.4	-	
SitA Cpg Frq	69.0	94.1	-	-	17.9	70.8	43.5	82.5	-	
SitB I (0-10)	3.7	1.9	-	-	6.4	4.0	5.1	3.0	-	
SitB Cpg Frq	77.8	95.0	-	-	9.8	69.1	43.8	82.1	-	
SitA/B Av I	3.8	2.1	-	-	7.1	4.2	6.0	3.4	-	
A/B Av Cp Frq	73.3	94.6	-	-	13.8	69.8	43.6	83.1	-	
Gen Str/Cpg Stgy										
Int (0-10)	3.9	1.4	-	-	7.3	4.3	5.6	2.9	-	
Cpg Freq	46.0	70.0	-	-	13.8	62.0	29.9	66.0	-	

\* p<.05

\*\* p<.01

.9, and average stress duration from 3.7 (less than 5 hours) to 2.4 (about 3/4 hour). Average FxIxD/10 was reduced by more than 60% (from 11.8 to 4.6). The overall frequency, intensity, duration, and FxIxD/10 improvement was greater for the CII and FFI groups ( $\underline{t}(8) > 4.1$ ,  $p < .01$ ) than it was for the CNI group ( $\underline{t}(8) > 2.5$ ,  $p < .05$ ).

For Situation 1, the CII and FFI groups improved significantly on all four measures, but the CNI group improved significantly only in reduced stress intensity ( $\underline{t}(8) > 2.6$ ,  $p < .05$ ). For Situation 2, the CNI group did not improve significantly on any measure, while CII subjects improved on all measures ( $\underline{t}(8) > 2.8$ ,  $p < .05$ ) except duration, and FFI subjects improved on all measures ( $\underline{t}(8) > 2.6$ ,  $p < .05$ ) except frequency.

Regarding Situation 3, CII subjects again improved significantly on all measures ( $\underline{t}(8) > 3.0$ ,  $p < .05$ ) except duration, while CNI subjects improved on all measures ( $\underline{t}(8) > 2.9$ ,  $p < .05$ ) except intensity, and FFI subjects improved on intensity and duration ( $\underline{t}(8) > 3.7$ ,  $p < .01$ ). For Situation 4, again the CII group improved significantly on all measures ( $\underline{t}(8) > 2.4$ ,  $p < .05$ ) but duration, the CNI subjects improved on frequency and intensity ( $\underline{t}(8) > 2.4$ ,  $p < .05$ ), and FFI subjects improved on all measures ( $\underline{t}(8) > 2.4$ ,  $p < .05$ ) but FxIxD/10.

Because there was considerable variation in the magnitude of initially-reported stress measures across individual subjects, Analyses of Covariance were employed to compare group differences at follow-up, where the covariate was the corresponding pre-intervention measure. Significant differences according to these analyses are indicated in Table 4. For Situation 1, the three groups differed only in intensity, where the CNI group reported significantly less intensity reduction than did the CII and FFI groups,  $F(2,23)=3.8, p<.05$ .

For Situation 2, CNI subjects reported less reduction in frequency, duration, and  $FxIx D/10$  than did CII and FII subjects,  $F(2,23)>3.7, p<.05$ . The three groups did not differ significantly on Situations 3 and 4. However, averages across the four situations differed significantly in frequency and  $FxIx D/10$ : The CII group's frequency reduction was greater than that of the other two groups ( $F(2,23)=3.4, p<.05$ ), while the CNI group's  $FxIx D/10$  reduction was less than that of the CII and FFI groups ( $F(2,23)=4.8, p<.05$ ).

#### Coping Strategy Utilization

Changes from beginning to end-of-treatment in CII and FII subjects' self-monitored stress intensity and coping strategy usage frequency for their top-two situations targeted for intervention (Situations A and B) also are presented in Table 4, as are changes in overall general

stress level and usage of their general coping strategies. The figures presented are for the first and last weeks of intervention. The CII group reported significantly lower situational and general stress levels after one week than did the FFI group (3.8 and 3.9 vs. 7.1 and 7.3, respectively,  $F(1,16) > 6.1$ ,  $p < .05$ ), as well as at end-of-treatment (2.1 and 1.4 vs. 4.2 and 4.3, respectively,  $F(1,16) > 5.4$ ,  $p < .05$ ). However, when the first-week data are used as covariates in Analyses of Covariance, stress intensity reduction through treatment did not differ significantly between the two groups.

Results tended to be similar for changes in coping strategy usage frequency: Differences between The CII and FFI groups in Week 1 situation-specific and general coping strategy utilization approached significance (73.3% and 46% vs. 13.8% and 13.8%, respectively,  $F(1,16) > 2.7$ ,  $p < .1$ ), but end-of-treatment percentages did not differ significantly (94.6% and 70% vs. 69.8% and 62%).

In essence, at end-of-treatment, CII and FFI subjects were using their specific coping strategies to deal with their primary stress situations about 70% of the time that these situations occurred, and were regularly using their general coping strategy as a daily preventive tactic 4-5 times per week. Subject ratings at 3 months follow-up on the effectiveness of these coping strategies were quite high (averaging 7.3 for CII subjects and 6.8 for FFI subjects, on

a scale of 10), and did not differ significantly.

### Significant-Other Verification

Comparisons of follow-up data reported by the CII group's designated seven Significant-Others (SO's) with the Post-Questionnaire data reported by the seven corresponding CII group members are presented in Table 5. As a group, SO's agreed that CII subjects had improved on all measures for which the CII group reported improvement, but they tended to estimate a smaller magnitude of improvement. However, of the 35 measures that were compared, group means differed significantly only on 4 measures: SO's estimated less reduction in Situation 1 stress intensity (5.5 vs. 3.2,  $F(1,12)=6.6$ ,  $p<.05$ ) and duration (3.7 vs. 2.7,  $F(1,12)=6.2$ ,  $p<.05$ ). They estimated a lower Situation A coping frequency (74.8% vs. 97.7%,  $F(1,12)=10.0$ ,  $p<.01$ ), and less improvement in CII subjects' experience of dysphoric stress-related thoughts and feelings (2.6 vs. 3.0,  $F(1,12)=7.3$ ,  $p<.05$ ).

The average correlation between the data reported by CII members and their SO's, across the 35 measures, was .56, but only 12 of these correlations were significant: At follow-up, agreement was significantly high on the Situation 1 frequency (.88,  $p<.05$ ) and FxIxD decrease (.83,  $p<.05$ ), Situation 2 intensity (.72,  $p<.05$ ), duration (.74,  $p<.05$ ), and FxIxD decrease (.85,  $p<.001$ ), Situation 4 frequency (.75,  $p<.05$ ) and FxIxD decrease (.89,  $p<.05$ ), and the Situation 1-4 average frequency (.72,  $p<.05$ ). Additionally,

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Table 5

CII Group Significant-Other Follow-Up Comparisons

MEASURE/GROUP	CII M	SO M	Sig	Corr	Sig
<b>Sit 1 Post-Interv</b>					
Freq (1-6)	2.7	3.2	-	.88	*
Int (0-10)	3.2	5.5	*	.36	-
Dur (1-6)	2.7	3.7	*	.06	-
FxIxD Decrease	92.4%	66.5%	-	.83	*
<b>Sit 2 Post-Interv</b>					
Freq (1-6)	2.3	3.0	-	.20	-
Int (0-10)	2.9	4.3	-	.72	*
Dur (1-6)	2.7	2.1	-	.74	*
FxIxD Decrease	86.3%	77.5%	-	.99	***
<b>Sit 3 Post-Interv</b>					
Freq (1-6)	2.4	2.4	-	.36	-
Int (0-10)	3.0	3.8	-	.40	-
Dur (1-6)	2.8	2.4	-	.09	-
FxIxD Decrease	88.2%	97.0%	-	.85	-
<b>Sit 4 Post-Interv</b>					
Freq (1-6)	2.0	2.0	-	.75	*
Int (0-10)	2.5	3.3	-	.63	-
Dur (1-6)	1.7	2.0	-	.09	-
FxIxD Decrease	78.3%	90.2%	-	.89	*
<b>Sit 1-4 Average</b>					
Freq (1-6)	2.5	2.8	-	.72	*
Int (0-10)	2.9	4.5	-	.46	-
Dur (1-6)	2.7	2.5	-	.43	-
FxIxD Decrease	83.1%	71.7%	-	.48	-
Sit A Cpg Freq	97.7%	74.8%	**	.60	-
Sit B Cpg Freq	97.1%	80.7%	-	.35	-
Gen Cpg Stgy Freq	71.6%	65.4%	-	.61	-
Sit A Cpg Stgy Eff	8.7	7.3	-	.53	-
Sit B Cpg Stgy Eff	7.1	7.0	-	.39	-
Gen Cpg Stgy Eff	7.3	7.6	-	.46	-
<b>Change Ratings (1-3)</b>					
Physical Symp	2.7	2.5	-	.68	-
Thts/Feelings	3.0	2.6	*	.97	**
Self-Esteem	2.7	2.6	-	.09	-
Gen Phys Cond	2.4	2.3	-	.78	*
Substance Use	2.0	2.0	-	1.00	***
Lfe Acmp Satis	2.9	2.9	-	.17	-
Exercise Freq (X/Wk)	3.6	3.0	-	.69	-
Goal Attainment	1.1	0.6	-	.87	**
Ttl Interv Rtg (0-10)	7.0	6.4	-	.54	-

\* p<.05

\*\* p<.01

\*\*\* p<.001

SO agreement was significantly high on reduced thoughts and feelings (.97,  $p < .01$ ), improved general physical condition (.78,  $p < .05$ ), no change in substance usage (1.00,  $p < .001$ ), and goal attainment (.87,  $p < .01$ ).

#### Summary of Follow-Up Feedback on BBS Features

Feedback from the CII and CNI subjects on various psychological and technical aspects of the BBS is described below, in terms of the percentage of respondees who endorsed each descriptor listed in the Supplemental Post-Questionnaire. It should be noted that the individual percentages reported for each category do not necessarily sum to 100%, as not all subjects chose to respond to all categories.

When queried about prior BBS usage, 71% of the respondees stated they had used other BBS's, and 60% of these found this BBS to be easier to use than others, while 40% considered it more difficult to use than others. Regarding the detailed operating instructions provided, 100% found these helpful, but 14% described them as too lengthy. The 300 baud speed (as opposed to a 1200 baud or higher speed) was described as an annoyance by 50% of the respondees, as not bothersome by 14%, as adequate by 71%, as inadequate by 21%, and as necessary by 29% (as they only had a 300 baud modem).

The 40-column standard display format (switchable to 80 columns for some functions) was identified as an annoyance

yet adequate by 71%, not bothersome by 21%, and inadequate by 0%. Regarding reading and entry of messages, 94% described the process as easy, 6% described it as difficult, 57% found it straightforward, and less than 14% stated it was tedious or frustrating. On the message format itself, 64% found it restrictive regarding the 40-column limitation and 93% found it restrictive regarding the 10-line limitation, yet 64% described it as adequate.

Long-distance telephone charges were described as a problem for 27% of the remote respondees, while 73% described telephone costs as no problem. (Obviously, local users did not have a problem with such costs.) Regarding their overall experience with the BBS, 78% of all respondees described it as beneficial, 44% considered it educational, 30% described it as interesting, and 9% described it as entertaining. Conversely, 8% considered the experience boring, 4% described it as not beneficial, and 4% rated it as frustrating, but 0% rated it as trivial. When asked if they would be willing to pay a reasonable fee to use an improved version of the BBS that effectively incorporated the desirable changes they had identified, 86% replied affirmatively, while 14% stated they would not use an improved version even if were offered free-of-charge.

Comments on the Life Events Questionnaire were as follows: 43% reported responding to it was easy, 43% found this assessment to be informative, and 10% described it as



"fun". Conversely, 10% found this assessment process to be difficult, and 13% described it as tedious. Regarding the automated feedback provided (scores, probability of illness within the next two years), 43% described the feedback as interesting, 35% found the information useful, 22% described it as educational, and 30% considered it motivational in terms of their need to start a stress management program. Less than 9% of the respondees described the feedback as trivial, boring, or not useful.

For the Stress Questionnaire, 30% reported responding to it was easy, 43% described this assessment process as informative, and 13% found it educational. However, 26% described the process as tedious, no one described it as fun, and 9% found it difficult. Concerning the questions posed, 52% described them as relevant, 26% found them provocative, and 26% considered the range of questions to be thorough. Conversely, 12% described the questions as not thorough, and 9% considered them irrelevant. Regarding the automated feedback provided (re-casting of subject responses in a functional analysis format), 30% described it as useful, 26% found it interesting, and 17% described it as motivating, and 9% found it valuable or educational. Less than 13% described this feedback as not useful, trivial, or boring.

Of the 70% of the respondees who commented on their experience with on-line consulting with the author (the

"chat mode"), 62% considered that they had received useful stress management advice, and 20% reported they had received useful technical advice (e.g., directions on how to use system features). Using this function was considered easy by 56% of the respondees, and "fun" by 44%. No one described the process as difficult or frustrating. Regarding the exchange of messages with other BBS members, of the 26% of the respondees who reported they engaged in such exchanges, none endorsed negative descriptors of their experience, 50% described the process as beneficial to the management of their own stress, and 25% considered it stimulating.

The nine CII subjects were queried about the automated daily reporting and feedback feature of the BBS: Regarding this overall process, 78% described it as easy to use, 56% considered it informative, and 33% found it educational. Conversely, 56% also described the process as tedious. On the automated (graphical and verbal) feedback, 22% stated that they always bypassed it, 44% said they usually bypassed it, and 44% stated they sometimes bypassed it. Half of the users considered the graphic feedback useful, and half did not. This feedback also was described as motivational by 33% of the users, educational by 22%, and trivial by 11%. The automated verbal feedback was considered useful by 33% of the users, and not useful by 11%. This feedback was described as adequate by 33%, and as interesting or valuable

by 11%. However, 33% described it as too simplistic, 33% as "not varied enough", and 9% as "obvious".

#### Discussion

The major findings supported the hypothesis that intensive CMC training is as effective as analogous face-to-face intervention, at least for the class of stress management-related presenting problems addressed. As the range of such problems was fairly broad (e.g., stress arising from general anxiety, mild depression, marital and relationship difficulties, lack of assertiveness, anger control, poor time management), the results confirm and extend previous research findings (e.g., Selmi, 1983) that computerized treatment delivery is efficacious.

The hypothesis that non-intensive CMC intervention would be less effective than intervention that actively involves subjects in practicing specific coping strategies, also was supported. This finding not only supports Reynold's (1987) conclusion that computer-implemented tailoring of individualized treatment strategies, self-monitoring, and instant feedback are among the strengths of this treatment mode, but also suggests that such components may be critical to effective treatment through this medium.

Other CMC variables that were hypothesized to be critical were the number and frequency of therapist-client and client-client message exchanges. As the CII group

exchanged significantly more messages with the author during the intervention than did CNI subjects, this variable may indeed be critical to sustaining client interest and reinforcing learning of effective coping strategies, as predicted. In essence, the CMC message-exchange mode provided the means for establishing a client-therapist relationship, overcoming the apparent limitation of computerized treatment postulated by Reynolds (1987), as well as possibly overcoming the social feedback limitations of the CMC medium postulated by Kiesler et al. (1984).

By supplementing the general information offered by the BBS with personalized communication, client and therapist "converged" on a mutual understanding of the client's problems, and on understanding how to apply appropriate strategies for dealing with them (cf. Rogers & Kincaid, 1981). Client-to-client message exchanges were few in number for the CII and CNI groups, despite the author's attempts to facilitate such exchanges. Thus, no conclusions about CMC group process effects can be drawn from this study, except that such effects were not vital to achieving successful outcomes for the class of presenting problems addressed.

The hypothesis that the "narrow-bandwidth" inherent in computerized telecommunication would not limit achievement of significant behavior-change also was supported, as the CII and FFI groups had equivalent treatment outcomes

(although length of treatment was longer for CII subjects): The lack of non-verbal cues identified as CMC limitations by Heimstra (1982) and Keisler et al. (1984) apparently did not adversely constrain effective therapist-client communication. Finally, the hypothesis that CMC-based training would be more cost-effective than face-to-face training was supported in this research, for individual treatment but not for group treatment. These conclusions are addressed in more detail below.

#### Client Involvement in Treatment

The CII treatment can be viewed as a very "active" and structured learning experience, which contrasts markedly from the relatively "passive" and unstructured CNI treatment. The overall Study 3 results indicate that the CII treatment was considerably more successful than the CNI treatment, not only in reducing clients' situational stress, but also in effecting beneficial life style changes (e.g., significantly increased exercise frequency and attainment of goals). In further support of this conclusion, CII subjects (as well as FFI subjects) reported improvement in physiological and cognitive correlates of their stress, while CNI subjects (significantly) did not. Additionally, there was a (non-significant) tendency for CII (and FFI) group members to report improved self-esteem and satisfaction with life accomplishments, and for the CNI group to report no improvement on these measures.

Although CII subjects communicated more with the BBS than did CNI subjects, in terms of the number of telephone calls, message exchanges, and online consults, the average weekly communication for the two groups was not significantly different. Thus, these two groups were equivalent not only in pre-intervention demographic and stress measures, but also were roughly equivalent in their "BBS behavior" through approximately the first 4 weeks of BBS interaction. During this time, both CII and CNI subjects read those stress management general-information files suggested to them by the author, which he identified as most relevant to their presenting problems. After these 4 weeks, however, CNI members tended to terminate their interaction with the BBS, not because they reported dissatisfaction with the services provided, but apparently because they perceived that they were "finished".

At follow-up, CII members reported they used 84% of the information they read in the BBS files for managing their stress, while CNI members reported using only 41% of the information they read. The significant difference in file utilization between these two CMC groups suggests strongly that intensive intervention in the promotion of effective coping strategy usage is necessary to facilitate behavior change. The average CII subject continued interacting with the BBS for 10 more weeks than did the average CNI subject, a significantly longer period, before he or she reached

joint agreement with the author that they had completed the intervention. During this time, baseline monitoring was completed, coping strategies were identified explicitly, and then progress in their application was followed approximately daily by the client as he or she reported to, and received feedback from, the BBS.

The automated daily reporting/feedback BBS functions provided to the CII subjects apparently were not only instrumental in facilitating continued interaction with the BBS, but also were successful in helping subjects learn efficiently their new coping strategies and convert them to "automatic" responses to situational stress, possibly in accordance with the cognitive theory of Hasher & Zacks (1979). Comparing the CII and FFI groups' Intervention Week 1 coping frequencies and associated situational and general stress levels lends additional support to the efficacy of CMC-based intervention in the facilitation of learning: Week 1 coping frequencies for the CII group tended to be significantly higher than those of the FFI group, and CII stress levels in Week 1 were significantly lower than corresponding FFI stress levels.

This difference likely was due to the CII subjects' reporting (and receiving feedback on) their coping daily, and the FFI subjects' reporting weekly. Even at the last week of intervention, CII subjects tended to report higher coping frequencies (and less stress) than did FFI subjects.

Daily reporting (and feedback), although objected to as a nuisance by some CII subjects, appears to be very efficacious in learning new coping strategies, and appears to be a unique advantage of the CMC mode of treatment delivery.

#### Response Generalization

Another interesting outcome of this study is that response generalization occurred in all three groups: Although only the "top-two" stress situations identified by CII and FFI subjects were addressed specifically, these subjects also reported significant pre-to-post intervention improvement in their third and fourth most-problematic stress situations. While the CNI group reported less (although not significantly less) improvement on Situation 1 than did the other two groups, and actual deterioration on Situation 2 (a significant difference from the CII and FFI groups), they reported improvement on Situations 3 and 4. It would appear that the intervention "raised the stress consciousness" of subjects generally, and they tended to start coping actively with all situations in which they experienced stress.

A report at follow-up by one of the CII subjects is relevant to this observation:

What has the BEB experience done for me? It has made me aware of stress ... and that I could actually monitor my stress, (as well as ... ) which situations are most stressful for me. It has also made me aware that general action (swimming and other exercise, in



my case) could help relieve stress in a general way... (Additionally) it made me aware of strategies I could and typically do use to relieve stress in given situations. I learned something about myself in the process: I guess the bottom line of the experience is that I have come to recognize the phenomenon of stress in my life, and I know how to deal with aspects of it.

#### Influence of CMC Variables on Dyadic and Group Processes

One limitation of the CMC treatment mode may be that, while the "narrow bandwidth" of the medium does not prevent successful communication, such communication takes longer to complete than in face-to-face treatment. CII subjects required a significantly longer time period to complete their intervention than did FFI subjects (roughly 14 vs. 8 weeks), which supports the finding of Keisler et al. (1984) that CMC participants took longer to reach a consensus than did face-to-face conferees.

While group processes were initially identified as a focus of investigation in this research, sufficient group message traffic to warrant such study did not occur. Successful CII treatment outcome was achieved without social support from other BBS members. This is not necessarily a surprising result, as other stress management research results have indicated group processes are not critical for such interventions. For example, King, Winett, and Lovett (1986), in a study of group time-management training, found that facilitation of group support enhanced subject's reported enjoyment of the training, but had no effect on

actual behavior change.

Compared to BBSs and teleconferences studied previously (e.g., Danowski, 1983; Keisler et al., 1984), the BBS implemented for this study produced markedly different results in terms of the frequency of member-to-member exchanges. Therapist-client dyadic exchanges dominated the BBS message traffic, compared to client-client exchanges. While a few CII subjects exchanged messages with each other, and reported the process to be enjoyable, these exchanges did not relate to their primary presenting problems. Rather, they confined communication on their major stress problems to exchanges with the therapist, perhaps because of concern for confidentiality or "concern for face" (cf. Heimstra, 1982), or because the BBS was organized in a manner that tended to identify the author as the only credible source of help.

As the therapist initiated message exchanges with the clients, identified coping strategies, and was a major source of social reinforcement for behavior change, he likely exhibited more power over and "connectedness" with clients (cf. French, 1956) than did clients with each other. While the influence of the noted social factors on the paucity of messages exchanges between clients is speculative, their manipulation in future CMC research warrants study. As the stress management BBS created for this study was markedly different than non-therapeutically-

oriented BBSs such as the one studied by Danowski, it is possible that a "more-traditional" BBS structure needs to be used for facilitation and study of group processes.

#### Significant-Other Verification

While SO's agreed with CII subjects on their reported direction of improvement on almost all measures, they estimated a smaller amount of improvement, and SO agreement was best on the frequency of situational stress. These results likely occurred because measures such as stress intensity and duration are more subjective than is stress frequency: An SO could more readily observe how often a subject's stress situations occurred than they could observe, say, a decrease in the intensity of the subject's dysphoric feelings during the situations, or how long these feelings lasted (except, of course, when the subject voiced his or her feelings).

Similarly, SO's likely estimated a lower Situation A coping frequency than did CII subjects because (1) Some of the situation-specific coping strategies were cognitive in nature, and (2) SO's were not always able to observe subjects' coping (even if the strategy was behavioral), as many of the identified stress situations occurred only at the subject's workplace. SO's were offered the option of responding "No opportunity to observe" on each of the questions posed in the SO Post Questionnaire, and all SO's provided this response for some assessment items.

### Cost-Effectiveness

This research also shed some light on the cost-effectiveness of CMC-based treatment". As the creation of the specialized software for this research involved hundreds of hours of the author's time, the comparison should emphasize on-going rather than development cost. While stress management training is usually offered in a group setting (as it was for the FFI condition of this study), an individual-treatment comparison may be justified for two reasons: (1) As noted previously, the problems presented by CII subjects in this study were not narrowly limited to stress management, and are frequently addressed in individual treatment. (2) Group processes were found not to play a major role in the CMC interventions studied. If CMC training is viewed as an individual treatment modality, then its cost can be compared to the cost of individual face-to-face therapy as follows:

For the typical 14-week CII intervention of this study, initial, ongoing, and post-assessment involved essentially no "therapist time", as the assessments were administered automatically, and assessment reports were printed-out automatically. For the typical CII client, the author spent approximately 1/2 hour in reviewing the initial assessment and creating messages to the client containing suggested coping strategies, and about 1/4 hour per week for 10 weeks in reviewing the client's progress and in preparing messages

commenting on that progress.

In addition, the author engaged in approximately 14 other message exchanges with the typical client, averaging 4 messages per exchange, as well as about 3 online "consults" of about 1/2 hour each, during the intervention. As the typical message exchange involved about 1/3 hour of the author's time, these latter efforts averaged about 6.2 hours per client. The total "therapist time" per individual intervention, therefore, was 9.2 hours, or an average of 39 minutes per week. As individual face-to-face interventions typically involve perhaps 3 hours for interviewing the client and administering, scoring, and evaluating paper-and-pencil assessments, the CMC modality offers substantial initial time savings for the therapist. Formalized ongoing and post-assessment (if it is done at all) also requires considerably more "traditional therapist" time.

As traditional treatment typically involves one hour per week of time with the client, and at least another 1/2 hour per week for preparation and charting, a 14-week face-to-face behavioral intervention may consume about 25 hours of therapist time, or 2.7 times that required for its CMC equivalent. This time savings would allow a "CMC therapist" to handle almost three times as many clients per week as a traditional therapist. Viewed from the client's perspective, if both therapists charge the same rate for

their time, and if therapist time is worth about \$65 per hour, then the CMC intervention saves the client over \$400.

If the total therapist time expended for treating all CII subjects (83 hours) is compared with that expended for the FFI group treatment (approximately 24 hours) then the cost-effectiveness comparison reverses itself. However, as noted previously, the CII treatment was not "group therapy", and conduct of computerized treatment analogous to traditional group therapy over the CMC medium remains an interesting (and likely important) research topic to address.

#### Future Directions

The follow-up feedback on BBS features was generally quite positive. The majority of subjects found the BBS as easy to use as other BBS's, but they found some of the assessment processes tedious to execute. Among the suggestions provided by CMC clients were the following: (1) Make all of the assessments accessible on demand from random-access memory, rather than requiring they first be loaded from disk to memory. (This limitation occurred due to memory-size restrictions of the BBS hardware.) (2) Provide client-controlled "paging" rather than automatic "scrolling" to facilitate ease of reading the assessment items, as well as for reading the general information files. (3) Replace "yes/no" response solicitations with some form of "multiple-choice" process to speed-up the assessment process (and to

make it less tedious). (4) Provide "automatic scaling" of the stress range typically reported from individual client's self-monitoring, so that the graphical feedback display of the Daily Reporting feature is more sensitive to small changes. (5) Provide an easy way for client's to correct their self-monitoring data entries.

As implied by the above, CMC clients also expressed a preference for some "technological upgrades": Since this research was started, the standard data rate for telecommunication has increased from 300 to 1200 baud (and may soon reach 2400 baud or higher), and the standard format for displays has changed from 40 columns (or less) to 80 columns. Also, the memory capacity of PC's has increased dramatically (both in terms of random-access storage and disk storage), which provides the means for increasing the standard sizing of BBS messages, and to providing online more (and larger) information files, as well as more BBS functions in general. A future BBS oriented to behavior-change training might operate at 1200/2400 baud, use a standard message format of 20 lines of 80 characters each, and provide at least a ten-fold increase in the sizing of online general information files.

Incorporating more "artificial intelligence" into future BBS's oriented to behavior-change training is possible and probably desirable (cf. Gustafson et al., 1987): More specific conclusions could be drawn from the

initial and ongoing assessments, and more specific suggestions could be fed back immediately to clients, on an automated basis. (e.g., If several Stress Questionnaire item responses from an individual indicated a problem with assertiveness, the system might select a pre-stored feedback statement such as "You appear to have a problem in asserting yourself, and likely you could benefit from studying the Assertiveness Training file." Similarly, a larger variety of more fine-grained verbal feedback statements could be selected automatically and provided to clients after entry of their Daily Reporting data, to facilitate maintained interest and to motivate improved coping.

Future BBS's of this type also may employ multi-user, multi-tasking operating system software, to allow multiple clients to access the system simultaneously, where each may perform different functions without interfering with (or even having knowledge of) other clients' system interactions. This capability also would allow clients to interact with the therapist and each other in a real-time "forum" or "group therapy" mode (although, as noted previously, it remains to be shown whether CMC group interactions are "therapeutic"). Such capabilities already are in use in national commercial CMC "utilities", and the requisite hardware and software functions for these features are starting to become available in the latest generation of



personal computers.

### Limitations and Extensions

In addition to the BBS organizational and technological limitations noted previously, the methodology employed in this study had several limitations which should be addressed in additional CMC research: Only one therapist was involved, subjects were self-selected, the number of subjects per group was small, and only one group per treatment type was employed for the CII and CNI conditions. More fine-grained investigation of those CMC variables found to be critical in this study is needed, particularly regarding the optimum frequency for reporting of self-monitoring data and for providing feedback on such data, and for optimizing the format and content of the feedback. Also, investigation of the efficacy of the CMC medium for researching other types of treatment is desirable.

As was noted by Reynolds (1987), this mode of intervention offers unique capabilities for conducting clinical research rigorously and efficiently. Possible extensions include research on applying optimally a variety of computer-aided instruction topics to the CMC medium, CMC-based delivery of other forms of cognitive-behavioral and behavioral medicine therapies, and (with further technological advances) incorporation of biofeedback treatment modalities in such interventions.

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## Appendix A

### BBS Instructions and General Information Text Files

The following operating-instructions text files and stress management general-information text files were included in the BBS for on-line reading and/or downloading by subscribers.

#### NEW MEMBER INSTRUCTIONS File

Welcome to the Stress Management BBS, an experimental Bulletin Board System designed to help you cope effectively with the stresses you experience in your daily life.

If you are not getting line-feeds, enter a Control-J at the COMMAND? Prompt. Then use the U Command to "permanently" set up line-feeds, 80-columns, upper/lower case, etc. (Takes effect the next time you log-on). You sign-off with a G Command (for Goodbye).

To get the most out of this BBS, do the following:

1. If this is your first "visit" with us, please first read the General Information file (B command: enter B in response to the COMMAND? prompt) to find out what we are about, stress-wise. Use the M command for definition of/information on stress.
2. Respond to the Life Events Questionnaire (use the cmd: enter an exclamation mark at the COMMAND? prompt). It's automatic (and maybe even fun): Engage your shift lock key: All questionnaires need upper-case answers. Do not hang up

during this (or any other) questionnaire; let the BBS hang up on you. Otherwise, you will "hang up" the BBS for the next user.

3. Also, read the Pre-Assessment file (via R Command) and then respond to the Stress Questionnaire (using the % Cmd: Enter a percentage mark at the COMMAND? prompt) to provide me (and you) with a preliminary assessment of your stress problems. It's also automatic (and long, but also maybe fun?)

4. If you then decide to begin a stress mgt program with us, send me a message providing the data requested in the Membership Information file (accessed via the R cmd).

5. I will then send you one or more message(s) asking you to start recording your baseline stress level. (First read the Stress & Coping Self-Monitoring file, via the R cmd, and then use the "\$" cmd).

6. The ID numbers for messages to you are displayed when you logon. To read a message, just enter its number at the COMMAND? prompt.

7. We will work out a "stress management contract" individualized for you, via subsequent message exchanges.

8. Follow the contract. This may involve your daily or weekly reporting of your overall and situation-specific stress (also via the \$ cmd) for 6 or more weeks.

9. You may consult individually with me in real time on Monday evenings from 7 to 9 PM by using the "Chat" mode.



Just log-on, use the C command, and I will start talking with you. To leave a message for me at other times, use the E command.

10. You may exchange messages with others as well. (It's fun.) To find out the user ID's of other members, use the Who (W) cmd, specifying the first 2 letters of their last name. If you would prefer not to have your name identified, send me a msg and I will substitute a "handle" for your real name.

11. You can read detailed instructions on how to use this BBS via the I cmd (or a summary of the instructions via the H (for HELP) cmd)).

That's all there is to it. This BBS is continuously refined based on the experience of the people that use it. SO, I really need your COMMENTS. You can supply them by leaving a message for me, using the E cmd. I am the system operator (Sysop), and I will attempt to answer all messages, and give you any help I can.

\*\*If these words were going by too fast for you to read them, next time hit Control-S (hold down the CONTROL key while pushing the S key) to stop this (or any other) display, and any other key to re-start the display. To re-read these instructions, enter R at the COMMAND? prompt.\*\*

Bruce Walker, SYSOP

MEMBERSHIP INFORMATION File

We are glad you are interested in the Stress Management BBS. If you feel that you are having difficulty handling the stress involved in a major life change, or feel that coping with the stress you experience in your everyday job or in your family interactions is adversely influencing your life, physically and/or mentally, we likely can help you. You may find out more about the nature of stress, its unhealthy (as well as sometimes healthy) effects, and about our unique program to provide you with professional, scientifically-validated help for your own specific stress problems, by accessing the General Information portion of our BBS ("B" Command).

If you have already reviewed this information, and would like to become a member of our program, please send us a message (to SYSOP, Subject: NEW MEMBER) telling us so, in the following format:

Your Street Address, City, State, and Zip Code;

Your Phone No.

We also need the name, address, and telephone number of a "significant other" (for example, your spouse, or a close friend) whom you are willing to have us contact regarding your progress in this program, so that we have an additional source of information on your rate of improvement. So, please also include the following in your message to the SYSOP:

Sig Other Name: Sig Other Street Address, City,  
State, and Zip Code: Sig Other Telephone Number.

PRELIMINARY ASSESSMENT File

Now that you have chosen to actively work on dealing effectively with the stress you experience in your life, it is necessary for us to work together in specifying exactly what the nature of your stress-related problems are. To accomplish this, you are requested to respond to a questionnaire by using the % (percent) command. This questionnaire asks a number of questions about your life-style as well as about the circumstances under which you feel stressed, because it has been found that life-style strongly influences the experience of debilitating stress. We therefore ask you to respond to the questionnaire honestly and completely. Be assured that your answers will be kept in total confidence.

The questionnaire operates automatically and, as such, may not assess all of the information needed to design an appropriate stress management program for you. If you wish to supply additional data, please do so in the form of private messages addressed to SYSOP. In addition, I may send you one or more confidential messages requesting further detail, to ensure my understanding.

Once we (you and I) have established the exact nature of your stress-related problems, I will formulate a plan for explicitly dealing with them, and will transmit it to you.

You will be given the opportunity of negotiating this plan, or "treatment contract", prior to your agreeing to comply with it. Congratulations on choosing to seriously address your stress problems, as this first step is the most important one to take. I will be looking for your response to the questionnaire.

#### STRESS AND COPING SELF-MONITORING File

This BBS provides an automatic capability for daily or weekly reporting on your top two stress situations, and on your use of a general coping strategy, for qualified members. Called DAILY REPORTING, it is accessed by using the "\$" Command.

This program asks you if each of two specific stress situations ("Situation A" and "Situation B") occurred that day, whether or not you used your coping strategy especially designed for that situation (worked out previously between you and the SYSOP), and what your stress level was (on a scale of 0 to 10) during the situation. In addition, it asks if you used your general coping strategy that day (e.g., Relaxation Practice, Exercise), and what your estimated overall stress level was for the day (0 to 10). It then provides immediate feedback to you in graphical form on your progress in reducing your situation-specific and overall daily stress levels, as time has elapsed since you started this program. In addition, it provides you with verbal feedback on your progress in terms of how frequently

you have used your coping strategies, and in how your situational and overall stress levels have decreased.

You are requested to access this program on a daily basis for at least a 6-week period. (If you cannot access the BBS daily, that's OK. Just keep a hand-written record, and when you do call the BBS, the program will tell you how many days you have missed, and request your entry of data for the missing days.)

Prior to your starting use of these coping strategies, we need to determine your "baseline" stress level (your average estimated stress (0: no stress; 10: most stressed you have ever felt in your life)) over a 7-day period. So, please use the \$ Cmd to report daily your estimated overall stress level for the day, each day for the next 7 days. After these 7 days, we will compare your stress management progress against this baseline level.

#### OTHER STRESS INFORMATION FILES File

Additional Stress Information files are available to you via the Download (X Cmd) function. These include:

1. RELAX (Relaxation Training): How to learn the Relaxation Response, and how to use Relaxation as a general, as well as a situation-specific, coping strategy.
2. EX & STRESS (Exercise and Stress): How to design your own exercise program for use as a general coping strategy, and how to use exercise to reduce your overall stress level.
3. SELF-STATEMENTS: How to reduce your situational stress

by changing the things you tell yourself about yourself.

4. **ASSERTIVENESS (Assertiveness Training):** How to use assertiveness to reduce the stress you feel in interpersonal relations - and to improve these relationships in the process.
5. **TIME MANAGEMENT:** How to organize your life so you have more time available to attain both your personal and work-related goals.
6. **GOAL-SETTING:** A step-by-step procedure for defining your long-term and short-term goals in life.
7. **CHILD BEHAVIOR:** Suggestions on how to change problematic behaviors of your children (less than 11 yrs old).
8. **PROBLEM-SOLVING:** A general step-by-step procedure for coming up with new coping strategies.
9. **OTHER CPG STGYS:** Other techniques for dealing with stress.

After completing preliminary assessment, the Sysop will suggest which of these files might be most appropriate for you to download.

#### STRESS MANAGEMENT BBS GENERAL INFORMATION File

Welcome to Stress Management BBS. Stress is a reaction a person experiences when s/he feels threatened or tries to adjust to a major life change. The sources of stress may be general, large-scale stressors such as an economic recession or neighborhood crime, which exert some stress on all of us. Or, the source of stress may be personal and specific, such

as the stress associated with taking on a new job. A little stress can be good for us (i.e., we may perform better.) A lot of stress can be very bad for us: Four out of 10 Americans will die as a result of stress. 50-80% of all disease is stress-related. Of the 10 leading causes of death in the U.S., 7 occur as a result of stress-inducing life-styles. Fortunately, scientists have found that there is much we can do to combat stress, and the purpose of this BBS is to help you do exactly that.

If you feel that you are having difficulty handling the stress involved in a major life change, or feel that coping with the stress you experience in your everyday job or in your family interactions is adversely influencing your life, physically and/or mentally, we likely can help you. Our unique program provides you with professional, scientifically-validated help for your own specific stress problems, in the privacy of your own home. Through the use of your modem-equipped personal computer and telephone, you can learn to cope effectively with your personal stress problems at times that are convenient for you, without having to travel to appointments with health professionals.

The techniques employed in this BBS to manage stress involve: (1) Individualized assessment of your stress problems. (2) Presentation of general information on the nature of stress and its effects, and proven techniques for avoiding the harmful effects of stress and relieving stress

when it occurs. (3) Development of a stress management strategy customized to your unique stress problems. (4) Self-monitoring of your behaviors and thoughts which are associated with stress and its relief. (5) Individualized feedback on your progress in management of stress in your daily life. (6) A message exchange capability so that you can enlist suggestions and support from others with similar stress problems (if you so desire). (7) Individual consultation with the Sysop on any ongoing problems you may encounter in your stress management program. (8) Verification of your progress from a Significant Other designated by you (so that we may objectively measure the effectiveness of this program).

This BBS is operated by Bruce Walker (Sysop), a Doctoral candidate in Clinical Psychology at Virginia Tech, Blacksburg, VA. Mr. Walker holds a Master's degree in Clinical Psychology from San Diego State University. His work is being supervised by Richard A. Winett, Ph.D., who is a Clinical Psychologist, Professor, and Associate Department Head at Virginia Tech's Psychology Dept.

This BBS is being operated on an experimental basis, to develop effective use of the personal computer telecommunications medium for behavior change purposes. While this is the first known use of a BBS for Stress Management, the general techniques employed have been proven to be effective in more traditional settings. Access to



this BBS is free of charge to subscribers. Your only cost is your telephone usage. Be assured that all private communication between subscribers and the Sysop is strictly confidential. "Public" communication (posting of messages addressed to "All", communication with someone other than the Sysop), of course, cannot be afforded the same confidential protection. We ask, however, that you refrain from telling non-subscribers the details of other subscribers' communications (names, personal problems, etc.).

Hours of operation are 24 hours per day, 7 days per week. If you cannot connect with us at a particular time, the telephone line is likely busy, or else I am using the computer, so please try again later. In order to maximize ease-of-access to all subscribers, we ask you to try to keep your calls short, and to use your disk facilities to the maximum (e.g., Down-load general information files, store them on your disk, terminate your call, and then read the information). Your cooperation with these suggestions will allow us to best serve you, as well as all other subscribers.

#### ABOUT STRESS File

Stress can arise from the people and events around us, our own thoughts, and physiological sources. While a small amount of stress may help us perform better, a high amount of stress can result in markedly decreased performance, as

well as in physiological problems. Continuous high stress may result in serious, debilitating health problems. While sometimes the source of stress is largely external (e.g., in combat), usually we are primarily responsible for the stress we feel. We may feel stress because we have unrealistic expectations of ourselves and of the people around us. We also may feel stressed because we (knowingly or unwittingly) encourage others to place demands on us. In addition, our styles of coping with stress may create more stress rather than reduce it.

How you look at life affects the stress you feel. A realistic, positive outlook tends to reduce the number of things you experience as stressful. Such an outlook includes your recognizing that you have limited personal resources, both intellectually and physically. No one can go at "full-tilt" continuously without experiencing stress. We need to take time out to "recharge our batteries", intellectually, emotionally, and physically, and to regain our perspective. Secondly, it is important to remember that no "natural law" exists that forces the world to always be fair, and that you can enjoy your life even when things are not going exactly your way. Taking time to enjoy the fact that you are alive, and using your natural capacity to experience the joy that is available in the world (e.g., "to smell the roses"), is very important to stress-reduction.

Stress has been implicated in compromising the body's

immune system: Stress tends to reduce this system's ability to fight off disease. One effective way to combat stress is to relax. From a physical point-of-view, your body responds to stress and relaxation in opposite ways. It responds to stress with increased respiration rate, heart rate, metabolism rate, muscle tension, sweating, and decreased digestion. It responds to relaxation with decreased respiration, heart, and metabolism rates, decreased muscle tension, and increased digestion. Stress also changes your blood chemistry (e.g., increases blood cholesterol) and re-directs your blood flow to the large skeletal muscles, resulting in your hands and feet feeling cold. Relaxation has the opposite effect on blood chemistry and blood flow. To relax, however, it is insufficient to tell oneself, "I am going to relax". It is necessary to first learn the "Relaxation Response", and then to learn how to apply it to dealing with specific stress situations. (To learn about Relaxation Practice, access the RELAX file.)

Besides relaxing, people may attempt to combat stress in other ways, some of which are effective, and some of which amplify the problem. Each of us has different ways of coping with stress (coping styles or strategies). Many of us cope with stress by working even harder, getting angry, overeating, oversmoking, overdrinking, or in other ineffective ways which tend ultimately if not immediately to increase our stress level. Thus, it is important to learn

coping styles that have been shown to be effective in reducing stress. Among the large number of such strategies are:

1. Actively eliminating the source of stress (e.g., getting a less stressful job).
2. Removing yourself from the stressful situation (e.g., taking frequent breaks during high-stress periods).
3. Interpreting events as non-threatening (e.g. "My life will go on if I don't finish this project by Friday"; "I will be my own unique and highly-valuable self even if I never finish this project.")
4. Talking about the stress you feel with supportive friends.
5. Taking time out to "play".
6. Getting good nutrition (regular, balanced meals, which are low in saturated fat and high in complex carbohydrates, with moderate alcohol and caffeine intake).
7. Getting adequate sleep.
8. Exercising regularly (See the EXERCISE file)
9. Smoking Cessation.
10. Weight reduction (If one is overweight).
11. Learning and using the "Relaxation Response" noted above.
12. Learning new strategies for coping with situation-specific stress (e.g., See the SELF-STATEMENTS, PROBLEM-SOLVING, or TIME MANAGEMENT files).

Of course, not all of these strategies may be appropriate for all people at all times. In addition, it takes commitment and practice to learn any new coping response and to then apply it appropriately. After all, we have spent our lifetimes learning our old, ineffective, coping strategies. Merely reading about a coping response will not do it: One has to commit oneself to daily practice of the responses, and to self-monitoring of response usage and resultant effectiveness. This, of course will require some time on your part, but it will be worth it. Remember, your health and lifespan may be at stake. In addition, we will help you learn these new ways of coping in the most efficient manner possible.

#### RELAXATION RESPONSE/RELAXATION EXERCISE File

Relaxation techniques are the most effective stress management strategy because they can be used to directly reduce the physical and mental effects of stress even when the stressful situation cannot be changed. The ultimate goal of the relaxation coping strategy is for the body to monitor instantaneously all of its numerous control signals, and to automatically relieve all tensions that are not desired. Attainment of such an ultimate goal takes some long-term, regular practice, but effective stress reduction can be realized far short of attaining this ultimate goal.

#### A. Approaches and Benefits

The relaxation response has been used to relieve stress

for thousands of years in Eastern societies, as well as for a lesser period of time in the West. It has been the subject of intensive scientific scrutiny in the U.S. during the past few decades, and a number of techniques have been proven to be effective, including progressive muscle relaxation, yoga, meditation, biofeedback, and use of mental imagery. What is common to all of these techniques is narrowly-focused attention, and mental concentration on one simple, neutral idea or object. Regular practice of relaxation exercise helps us deal better with stress generally: It increases our awareness of our body's reactions to stress. We learn to identify the early signs of stress, giving us time to take action to reduce our stress reaction.

If relaxation exercise is done regularly (at least 3 times per week), it increases our general energy level, results in more restful sleep, allows us to concentrate better, reduces our anxiety, increases our feeling of well-being, and reduces the frequency and severity of headaches, backaches, and other muscle aches.

Once we have learned how to relax through regular relaxation exercising, we can learn how to instantaneously relax to deal with specific stress-provoking situations. Thus, relaxation is not only a strategy for generally improving our physical and mental health (and consequently making us more resistant to the effects of stress), but it

is also an extremely effective strategy for coping with unexpected stress.

#### B. General Procedure

To perform relaxation exercise, you need a quiet environment in which to practice, and you need to establish a passive attitude during the exercise (where you disregard distracting thoughts and images - you just let them "float by" and concentrate on the relaxation procedure itself). Practice your relaxation at least two hours after you eat. (Otherwise, your digestive processes will interfere with your efforts to relax.) While you are learning to relax, schedule a regular time each day, of about 20 minutes, during which you will not be disturbed (by the telephone, your family, etc.) Select a comfortable sitting position with your body well-supported. (Sit in an "easy chair" - forget about trying the "lotus position"). Concentrate on breathing easily, slowly, and evenly, as you proceed through the exercise. Once you are familiar with the procedure, it is advisable to keep your eyes closed as you perform it.

To begin to learn relaxation, it is necessary to be able to sense the difference between how your muscles feel when they are tensed and how they feel when they are relaxed. To accomplish this, it is necessary for you to focus your attention on each muscle group in your body, as you first tense it and then relax it. A recommended sequence for going through your muscle groups is listed

below.

### C. Step-By-Step Muscle Relaxation

For each muscle group, first tense the muscles (as tightly as possible so that you can really feel the tension) for about 5 seconds. Pay attention to the sensation that the tension produces in these muscles and in the surrounding areas. Next, relax the muscle group (just let the muscles quickly relax or "let go") for at least 10 seconds, and pay attention to the difference in sensations produced by relaxation vs. that produced by tension. Then, repeat the tensing/relaxation sequence for that muscle group. Then, go on to the next muscle group.

1. Right fist (clench, then release)
2. Left fist
3. Both fists
4. Both arms (tighten all muscles in both arms at once by raising arms and bending them up the forearms).
5. Shoulders (lift shoulders as high as you can)
6. Forehead (frown deeply)
7. Eyes (close tightly)
8. Mouth (make exaggerated smile)
9. Jaw (clench teeth)
10. Neck (lean head forward, and "bury" chin on chest)
11. Chest (deep-breathe, fully expanding chest, and then fully emptying lungs while breathing out)
12. Abdomen (pull stomach in)



13. Back (arch back and push shoulders into chair)
14. Right leg and toes (push against floor with front part of foot)
15. Right leg and heel (push against floor with heel)
16. Left leg and toes
17. Left leg and heel

For the remainder of the 20 minutes, just concentrate on your breathing, with your eyes remaining closed. Choose a simple, neutral relaxation-cue word to use such as "calm" or "peace" or "one". Breathe slowly and evenly, mentally saying your cue word to yourself each time you exhale, while continuing to focus on how relaxed you feel. If any distracting thought enters your mind, just let it go and continue concentrating on your breathing, your cue word as you breathe out, and your sensations of relaxation.

#### D. Learning to Relax 'Instantaneously'

Practice your relaxation exercise every day for at least two weeks. After two weeks, work on shortening the time needed to completely relax your body by:

- (1) Just relaxing rather than first tensing your muscle groups in succession.
- (2) Work on relaxing more than one muscle group at once.
- (3) Work up to relaxing all muscle groups at once.
- (4) Work on relaxing your entire body at once in response to repeating your relaxation cue word to yourself.

Obtaining objective (4) will require several more weeks

of regular practice. Once you have achieved this objective, you can then use your "Relaxation Response" as a very effective situation-specific strategy for coping with stress. When in such a situation, you need only tell yourself your cue word, and you will "automatically" relax.

If you choose to use Relaxation Practice as your General Coping Strategy, we can help you monitor your progress in applying it to reducing your daily overall stress level, through use of the DAILY REPORTING function (the "\$" Command). With this function, you report in daily on whether or not you used this coping strategy, and what your estimated overall stress level is for the day. Graphical and verbal feedback will be provided to you immediately on your progress by day, week, and month.

#### EXERCISE AND STRESS File

Exercise is a very powerful stress management technique. Even if you did not have a problem with stress, you really owe it to yourself to do something good for your body. Your body has kept you going for your whole life so far, while you likely have paid little attention to its needs (which are as much your own needs as are your "mental" needs). If you want your body to continue to support you through a long life, during stressful times that may lie ahead, you are going to have to pay more attention to keeping it in shape.

Regular exercise can dramatically reduce the general

level of stress you feel in your daily activities, increase your general health and feeling of well-being, and minimize your physical reaction to unexpected stress situations. Recent evidence has shown that exercise has both psychological and physical benefits not only in the treatment and prevention of stress, but also for dealing with problems such as anxiety and depression. Exercise may be of the Routine type (regular daily activities such as using the stairs instead of the elevator, parking further from your destination and walking to it, etc.), or it may be of the Programmed type.

Programmed exercise (pre-planned exercise sessions where a specific activity is performed for a preset time period or until some criterion is met) has been shown to be more effective in combatting stress than Routine exercise, although any regular exercise is better than none. A number of possible Programmed exercise activities were listed in the Stress Questionnaire you responded to initially, such as jogging, bicycling, swimming, aerobic dancing, etc.

Regular programmed exercise (3 to 4 times per week for 20 to 30 minutes per time) is required to achieve substantial stress reduction benefits. The consensus among researchers is that such exercise should be performed at 65-85% of maximum heart rate, where this maximum rate is obtained during testing (e.g., Harvard Step Test). You can obtain a rough estimate yourself as follows: Subtract your

age from 220 (e.g., if you are 40, your maximum HR is  $220 - 40$ , or 180 beats per minute. Thus your target heart rate for exercising should be over  $65\% \times 180$  and less than  $85\% \times 180$ , or between 117 and 153 beats per minute.) An exercise intensity of about 70% of maximum heart rate (128 beats/minute for the above example) is probably best to ensure exercise enjoyment, a low injury rate, and your long-term compliance with the program. Once you have started your exercise program, you can monitor your own heart rate by counting your pulse beat and using a stop watch immediately after you stop your exercise session.

A few important cautions should be noted regarding your physical fitness before starting an exercise program. If you are under 35 years of age, with no history of cardiovascular heart disease or other primary risk factors (e.g., hypertension, smoking, hypercholesterolemia), have had a medical examination within the past 2 years, and have no doubts about your health status, you can start programmed exercise without a physician's clearance at little risk. If you do not meet these criteria, the American College of Sports Medicine strongly recommends that you do not proceed without clearing it with your doctor. Your medical examination should include an electrocardiographically (EKG) monitored graded exercise test (treadmill, step-test, etc.). You should tell your physician the type, intensity, and frequency of the exercise you plan to do, so that s/he can

properly evaluate your ability to participate, and provide appropriate guidelines.

Once you have determined that programmed exercise is good for you to do, choose a type of exercise that you have reason to believe will be fun. (If it's not much fun, you will probably not do it for long, and will not reap much benefit.) Also, choose a type of exercise that is practical for you to do, considering where you live, available facilities, cost factors (if any), and the time-of-day when you can schedule your activity. If a friend, or a person you live with, also is interested in the same activity, you likely will find it more fun, and you can motivate each other to perform the activity regularly. However, thousands of people perform their exercise alone (e.g., runners), and really enjoy setting aside a regular time to be alone with their thoughts while simultaneously doing something they know is good for them. So, not having an exercise companion is no reason not to start exercising.

If you are new to exercise (or have not exercised regularly recently), take it easy when you start out. The idea is to build up to an effective level of strenuousness sensibly and gradually, and to enjoy yourself in the process. Set an easily-attainable goal for the first week (e.g., I am going to walk at a brisk pace for 20 minutes prior to lunch, on Monday, Wednesday, and Friday). Write this goal down, and then keep a log as you perform each

day's exercise, noting afterwards how much exercise you got, what your heart rate was when you completed it, and what your stress level was when you finished exercising (e.g., Walked for 21 minutes, HR = 120 BPM, Stress = 3 (on a scale of 10)). Write down your total exercise figures for the week at the end of the week, and compare them with your goal. Then, set a reasonable goal for the next week (e.g., slowly jog for 20 minutes on the same 3 days, so that HR gets up to 125 BPM). Continue this slow process of goal-adjustment until you reach your ultimate goal (e.g., achieving your 70% HR level). Then, set the same weekly goal so that you maintain this activity level.

We will help you with your exercise goal-setting and monitoring. A simple exercise self-monitoring record is available for your use (see the files listed under R command), which you can copy and print-out. After completing each day's exercise, enter your time or distance figures, HR, and stress level on the form. If you choose exercise as your General Coping Strategy, you can use the DAILY REPORTING function of this BBS ("@" Command) to record when you exercise and what your estimated overall stress level was for the day. Cumulative results will be fed back to you, providing weekly/monthly data on your associated stress-reduction progress. First, however, you need to choose a type of exercise and some goals for using it. Make your choice and send me (the SYSOP) a message.

## CHANGING YOUR SELF-STATEMENTS File

People both influence and respond to their physical and social environments. Stress can be viewed as arising from our "transactions" with our environment. A stressful transaction occurs in two steps: First, one appraises a situation and decides that it demands an effective response to avoid or reduce physical or psychological harm. Second, one appraises that no adequate response is available. We then either attempt to respond or fail to respond. Our response (or its absence) has repercussions, and alters the situation. This leads to new appraisals and new responses, and additional situational changes. This process continues until the transaction sequence ceases to be stressful. At that point, we judge that the danger has passed, either spontaneously or because we have used a coping response or strategy that neutralized the threat.

Our appraisals and our non-behavioral responses to situations are in the form of 'self-statements': the things we tell ourselves about ourselves. They are things that the 'little voice in the back of your head' tells you. If you question the existence of this 'little voice', it's the one that just said "what little voice?" to you. Frequently the things we tell ourselves contribute significantly to our experience of situational stress. They may be in the form of 'negative self-statements' (e.g., "I'm inadequate", "I'm going to look foolish", "Others will see that I am

panicked", etc.). If we train ourselves to learn new ways of appraising and responding mentally to stressful situations (substituting 'positive' self-statements for negative ones), the stress we experience in such situations can be reduced.

#### A. Self-Monitoring

You have noted the specific situations in which you experience stress via your Stress Questionnaire responses. It is going to be necessary for you to become a "scientist" where you are the experimental subject, so you can really examine in detail how you appraise and respond to these situations now, and to then experiment with alternative appraisal and response approaches. To start with, it will be useful to reconstruct these experiences using imagery. So, just sit back, relax, close your eyes, and relive one of your most stressful experiences in your mind's eye. Take your time, and "replay" the experience as if you were rerunning a movie in slow motion. Begin at the point just before you felt distressed and, taking your time, just go through the whole experience, and see what comes to mind. Afterwards, jot down any thoughts, feelings, or images you had before, during, or after the incident. Your notes on details that may seem insignificant, may in fact be important, when examined later.

Now, repeat this process for another, similar experience, and then for your other related experiences. Go



over your notes, looking for self-statements, feelings, and images that are common. Write these commonalities down as the first data in your experiment, in the following format:

	Before	During	After
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Self-Statements:

1.

2.

Etc.

Feelings:

1.

2.

Etc.

Images:

1.

2.

Etc.

Behavior (What you did)

1.

2.

Etc.

Now, since we sometimes overlook significant aspects of an experience when we recall it later, it is going to be important to continue this scientific inquiry as you encounter ongoing stressful experiences. To accomplish this, plan on keeping a "Stress Dairy" of your self-statements, feelings, images, and response behavior in

the same format as above, so that you can record these data immediately after (or even during) each of your stressful experiences from now on. After you have collected data on several such experiences, review your dairy, and look for new common items that you had not recorded in your first, "Recall" list. Look especially for "cues" that signal the onset of a stressful transaction. Later, you can work on developing "cue coping responses" to these early-warning signals, that can be used before you feel too overwhelmed to cope effectively.

#### B. Changing Your Self-Statements

Next, summarize what you have found out: Commonalities in cues, self-statements, feelings, images, and your response behavior, for your major stress situation types. Identify the negative self-statements you use before, during, and after these situations, and the consequences of using these self-statements. Then, come-up with some positive self-statements you can substitute for your negative ones in these situations. The examples listed below should help you do so. You can also use the Problem-Solving approach (see PROBLEM-SOLVING File) to 'brainstorm' possible positive self-statements and to then narrow-down the list of which may be most suitable for you. If you get 'stuck', send a message to me (the Sysop) listing your negative self-statements, and I will help you find some positive ones to substitute.

Once you have established the new self-statements you are going to use, repeatedly imagine yourself using them in your stressful situations, and then start using them in reality, noting their effectiveness and changes in your experience of stress in these situations. Also, keep recording in your dairy, as continued self-monitoring will be very important throughout your stress management program.

### C. Sample Positive Self-Statements

As we have pointed out, your appraisal of the situation, what you think and feel, plays a key role in your stress reaction. Our self-statements are under our control, and we can change them if we choose to do so. While there are no "standard-formula" stress-reduction self-statements that will work for everyone in every stress situation, it is possible for you to come up with a set of statements that will work for you in your own situations. Look over the following examples and see if one or more like these might be worth considering:

#### Preparing for a Stressor:

1. What do you have to do?
2. You can develop a plan to deal with it.
3. Just think about what you can do about it. That's better than getting anxious.
4. No negative self-statements. Just think rationally.
5. Don't worry. Worry won't help anything.

#### Confronting and Handling the Stressor:

1. Just psych yourself up - You can meet this challenge.
2. One step at a time. You can handle this situation.
3. Don't think about fear, but just what you have to do.
4. Stay relevant.
5. It's a reminder to use your relaxation response.
6. This tenseness can be an ally, a cue to cope.
7. Relax, you're in control. Take a slow, deep breath.

#### Coping With Feelings of Being Overwhelmed:

1. Keep the focus on the present; what is it you have to do?
2. Label your stress from 1 to 10, and watch it change.
3. You should expect your stress level to rise.
4. Don't try to eliminate the anxiety totally; just keep it manageable.

#### Afterwards:

1. It worked. You did it.
2. It wasn't as bad as you expected.
3. You made more out of your anxiety than it was worth.
4. Your damned ideas - that's the problem. When you control them, you control your stress.
5. It's getting better each time you use this procedure.
6. You can be pleased with the progress you are making.

Remember that "good copers" also experience negative self-statements, but that these negative thoughts act as cues for using active coping responses. You can use positive self-statements such as those above to overcome

your inhibition to actively cope. If changing your self-statements is part of the stress management program the Sysop suggests to you, you may use the DAILY REPORTING function to log (and get feedback on) your progress in using positive self-statements in your two top stress situations.

#### ASSERTIVENESS TRAINING File

Stress can arise from difficulties we encounter in our interactions with others, if we fail to draw lines, set limits, speak up, or say no when it is appropriate to do so. If we cannot refuse the requests of others, we may live our lives according to their priorities rather than our own. When we don't assert ourselves, we can stockpile anger and may become mentally and physically uptight. And we may find ourselves saying 'no' in unconscious, indirect, or even dishonest ways that damage our relationships. The answer is to learn to become assertive.

#### A. Passive/Aggressive/Assertive Behavior

Passive behavior involves trying to please others, to avoid conflict or rejection, permitting others to 'walk all over' us, and expressing ourselves in an apologetic manner so that we are overlooked. We may look as though we don't mean what we say, and may speak with a soft, hesitant voice, with our eyes averted or downcast, nodding our head to almost anything the other person has to say. Associated feelings may be helplessness, anxiety, resentment, feeling ignored or manipulated, and disappointment in ourselves.

Our payoff is avoidance of unpleasant situations, and not having to take responsibility for our choices. Others may feel irritated with us, and may tend to lose respect for us because we are a 'pushover'.

With aggressive behavior, we may stand up for our personal rights and express our thoughts and feelings, but we do so in dishonest ways that almost always step on the personal rights of others. Blaming, threatening, and fighting frequently is involved, directed toward domination, protection, humiliation, and forcing the other person to lose. We may come on with an air of superiority. You statements are common: statements that label or blame the other person. Our voice tends to be tense, loud, cold, or demanding. When acting aggressively, we usually feel angry, frustrated, or self-righteous, and afterwards may feel bitter, guilty, or lonely. Our payoff is getting some anger off our chest, and feeling in control. Others likely feel depreciated, hurt, and defensive, and may want revenge.

Behaving assertively involves standing up for our personal rights and expressing our thoughts, feelings, and beliefs in direct, honest, and helpful ways, without violating the rights of others. We respect ourselves, make known our needs, and defend our rights, but we also respect the needs, feelings, beliefs, and rights of other people. Our goal is to communicate and be respected. We use I statements (e.g., I feel --- when you do or say ---). We

listen closely, and communicate caring and strength in a firm, warm, expressive voice. We look directly at the other person but do not stare. We feel in control, are goal-oriented, and have self-respect. Our payoff is feeling good about ourselves, being in touch with our feelings, and improved relationships with others. Others also feel respected and valued, and free to express themselves. Usually they will respect, trust, and value us, for they know where we stand. Often we get what we want, if it is reasonable. We convert a 'win-lose' situation to 'win-win'.

#### B. Other Reasons to be Assertive

1. If we try not to hurt anyone else, we may end up hurting ourselves and others.
2. Not letting others know what we think and feel is selfish.
3. Not being assertive teaches others to take advantage of us.
4. By telling others how their behavior affects us, we give them the opportunity to change their behavior.
5. We have the right to have others respect us.

#### C. Assertiveness Techniques

1. Display recognition of the other's position and feelings (be empathic: reflect back to them your understanding of what they said). You don't have to express agreement with their point-of-view, but only that you 'get' what they said/where they are 'coming from'.

2. Choose the right time and place to exercise your right to be (or not to be) assertive.
3. Compromise: Work on finding a solution where neither party 'loses', and both parties are left feeling satisfied with the result.
4. When criticizing another, express your displeasure with their current behavior, and not your perception of their personality traits. Suggest how you would like them to behave in the future.
5. Don't dump 'old garbage' on the other person. Stick with the current problem. Deal with problems as they come up, rather than 'storing-up' your list of past injustices and 'dumping' them all when you feel like you are about to 'explode'. If you deal with problems immediately, there won't be any 'old garbage'.
6. Recognize that we all need 'strokes', and we have a right to ask for them.
7. Learning to become assertive takes practice, as does acquiring any new skill. For your problematic interactions with others, first plan-out how you will deal with the next situation assertively. Imagine carrying-out your plan, and then rehearse it (first in front of a mirror, and preferably then role-play it with your spouse or a friend), before actually doing it. When you feel fairly confident with your planned assertive interaction, then try it out 'for real'.



Monitor your behavior, thoughts, and feelings during and after the interaction. Use this self-monitoring to evaluate the success of your assertiveness tactics, and re-plan if necessary so you can feel more confident and more effective the next time.

8. The Broken-Record Technique: You can use this technique to refuse a request or to get something that you want (e.g., an adjustment on an unsatisfactory purchase). You just keep calmly but firmly repeating your 'no' or your request, with or without your original reason, until the other person 'hears you' and you get what you want. You continue saying no to any compromise that is unsatisfactory.
9. The Silence Technique: If the other person continues to respond unsatisfactorily after you have used your 'broken record' for awhile, just become silent, don't respond, and wait for the other person to offer a solution more to your liking.
10. The Fogging Technique: Particularly useful for refusing requests, this technique involves your repeated acknowledgement of the other person's problems and feelings, followed by repeating your refusal. (e.g., "I know that you really want me to volunteer for this charity drive, and will be disappointed if I don't do it, but I won't be able to.") Avoid saying "I'm sorry", as you may not really be sorry, and saying so

compromises your basic right to say 'no'.

As you try out these techniques, please communicate with me on your successes (and failures, as there likely will be some, especially at first). I will give you suggestions on further applying assertiveness to the stressful interpersonal situations you have identified.

### TIME MANAGEMENT File

It has been said that your time is your life. If you waste your time, you waste your life. But time can be on our side once we have the ability to organize our lives to use time to our benefit. There is more to life than increasing its speed, and it is doubtful if anything ever failed because it was done too well, too slowly. Time management involves throwing away your "stopwatch" and substituting a calendar. It includes scheduling extra time for important, high-priority tasks, but also allocating time for relaxation and recreation. Major time-wasters stand between us and what we want to accomplish. They include problems with our attitudes, goals, priorities, plans, and abilities to make major decisions. A useful first step in time management is to take your own personal time inventory.

#### Step 1: Time Inventory

Make a chart of the day, broken into 15 minute segments, or use an appointment book. Carry the chart around with you during the day and fill it out as you go along. Categorize each activity as follows: Socializing,

routine tasks, low-priority work, productive work, meetings, telephone calls, TV, recreation, errands, commuting, household chores, etc. Then make a "satisfaction" column and indicate whether you were satisfied ("+"), unsatisfied ("-"), or neither (not satisfied but what you did was necessary: "0") with how you spent each 15-minute segment. Next, group the activities according to category and sum up the time you spent in each.

If you are dissatisfied with the amount of time spent in some category, add an "adjustment" column to show how much more or less time you want to spend on this activity. You may also find some "hidden hours" of essentially "dead time" that you could use to accomplish some really important things.

### Step 2: Goal-setting

If you are quite certain what your major goals are for the next year, list them in writing, using an 'A-B-C' notation for their priorities. The "A's" are the most essential and most desired; they are "must do's" and often require innovativeness and creativity. The "B's" are "desirable" or routine duties that are important but could be put off for a while. The "C's" are "can waits" and are often trivial. Scratch-out your 'C' items for sure and as many 'B' items as you possibly can. Call the remaining items on the list your "A-Priority Goals", as they are the most important goals you would like to accomplish in the

near-term future.

If you are not certain what your prioritized goals are for the next year, stop right here and read the GOAL-SETTING file before proceeding further. Detailed step-by-step suggestions are provided there for establishing your goals according to A-B-C priorities.

### Step 3: Tasks and Sub-tasks

Using your A-Priority goal list, indicate the time periods in which each goal can be reasonably attained. Translate these goals and projects into monthly, weekly, and daily activities, and use these activities as a guide for your time management for the next month. Set aside time every day to work on your A-Priority goals. Emphasize the results that you want rather than the activity, and try to accomplish at least one step toward each "A" goal every day. (The steps need not be large; in fact, defining large steps may be self-defeating -- by encouraging procrastination due to the size of the task, and guilt when the day's tasks do not get completed. A major key to good time management is scheduling of tangible, short, readily- accomplishable sub-tasks.) At the end of the month, review the list to see if it needs revision.

If this planning process seems like too much work, remember one of the most powerful rules of time management is: One hour spent in effective planning saves three or four hours in execution. Besides, we are now coming up to the

**big one:** Use of a daily "To-Do" list.

#### **Step 4: Make Daily To-Do List**

This list should be prepared each night, listing the tasks to be accomplished the next day. Not only should it include one sub-task of each of your A-priority tasks, but also should include recreational activities. When you feel subconsciously or consciously that you have not earned the right for recreation or play because of wasted time during the day, guilt is the price you pay. This can become a pattern, and the feelings of guilt can become attached to play even after a productive day's work. Instead, schedule-in recreation and play, and use it as a reward for making progress on your A-Priority tasks. In addition, if you have successfully broken down your large "A" tasks into small, "do-able" sub-tasks that you can realistically complete in, say, one hour or less of work, completion of each of these subtasks can be very rewarding in itself: It gives you an important sense of accomplishment and momentum.

#### **Step 5: Using the To-Do List**

Items on your To Do list also should be rated A, B, and C. If you find yourself doing a "C" item such as cleaning out your desk, and the "A" items you have scheduled for the day are not finished, you can be sure you are wasting your time. Often we do these little tasks to put off what causes us anxiety - our A items. Work your way down from the A items to the C items. To become more comfortable not doing

C items, remember the "80/20" rule: Only 20% of the tasks that we do produce 80% of the rewards (or, most people spend 80% of their time doing duties that are related to only 20% of the total job results). If you are trying to meet a deadline, this rule means that unless you manage your time, you are faced with doing the important 80% of the job in 20% of the little time left before your deadline.

#### Step 6: a Few More Pointers

Remember to reward yourself after completing each scheduled daily task, such as by taking a break for a brief "fun" activity after completing each "A" segment.

When you have many B and particularly C items to do, delegate them (to secretary, hired help, spouse, children, etc.) Some C items likely can be delegated to the garbage can. Or, if you find you cannot discard some C items, put them on cards in a special box, along with the date. Periodically (say, every Jan 2nd), go through the box and re-check what you can throw out.

Also, note that trying to do your best at everything can lead to doing everything adequately and nothing brilliantly. Allocate your best efforts to your A tasks, and strive for merely acceptable performance on B and C items.

Build time into your daily schedule for interruptions and unforeseen problems. If you schedule time for them, you can avoid rushing and feeling pressured. Also schedule

daily quiet times when you can focus on relaxing. Remember to plan your weekend time. Early in the week, write down your weekend recreational plans and begin the necessary preparation. This is very important for "workaholics".

Review the 5 most important items (what they are, and roughly how you are going to do them) on your To Do list for the next day just before going to sleep. The mind has an amazing capacity to plan-out details of tasks at night while we sleep.

Use your appointment book to schedule your work tasks, family and social events, birthdays, meetings, and even relaxation cues.

Vividly imagine accomplishment of your goals on a regular basis. See yourself working at and achieving them. The winners in life rehearse time and time again seeing themselves being successful and reaching their goals.

Remember that as long as you are striving towards your goals, and as long as you are practicing these techniques, you will accomplish what you are working toward.

### GOAL-SETTING File

Sometimes we experience stress because we feel conflicted about our goals in life. The time we spend working on (or worrying about working on) our day-to-day activities may interfere with what we think we should be doing to meet our long-term goals. Our priorities may be "out-of-whack". Or, we may feel conflicted because we are

not really sure about what our goals should be.

Goal-setting involves figuring-out our long-term and short-term goals in a systematic manner. Once we have established these goals, we may use time management techniques to ensure that our goals are attained in a manner that is not only efficient but also stress-reducing. A step-by-step procedure is outlined below for goal-setting. It is suggested that you first scan-through these instructions to get the 'big-picture', before starting your actual goal-setting process.

#### Step 1: Goal-Listing

First, it will be necessary to determine explicitly what your long-term and short-term goals are. These goals should be put down in writing. If they are not written down, they are just wishes and not goals. Your goals must be believable and ones you really want to achieve, if you are really going to take them seriously enough to do the work needed to attain them. Your long-term goals should be related to your lifelong goals (e.g., what do you want the epitaph on your tombstone to say? How do you want others to remember you after you are gone?) Other long-term goals may involve job advancement, developing new skills, solving a major problem, improving your relationship with someone, etc.

You can use '2-minute drills' to establish these: In the 1st 2 minutes, write down all the goals you would like



to accomplish in the next 5 years. Next, list all of your goals for the next year. Then, spend 2 minutes on your goals for the next 6 months. Finally, spend 2 minutes listing your goals for the next month, including work priorities, self-improvement programs, recreational activities, social functions, and so forth.

### Step 2: Priorities

Now, prioritize these 4 lists of goals, using an A-B-C format. The "A's" are the most essential and most desired; they are "must do's" and often require innovativeness and creativity. The "B's" are "desirable" or routine duties that are important but could be put off for a while. The "C's" are "can waits" and are often trivial. Next, combine the 4 lists into one by including 2 'A-items' from each list. Call this list your "A-Priority Goals", as it indicates the most important goals you would like to accomplish in the next year.

### Step 3: Goal Refinement

To make sure this list is appropriate, now make another list: Imagine that you have a terminal illness and have only one year to live, but you will be just as healthy as you are now until the very end of the year. Write down "My Goals if Next Year is the Last Year of my Life". Now, compare the two lists. If the lists are radically different, you may want to adjust the goals in your first list. When you have done so, you will have identified the

appropriate goals to work toward over the next year.

#### Step 4: Taking Action

Now that you have a prioritized list of goals for the next year, for what is really important to accomplish in the near-future, do you feel like a little load has been taken off of your mind? Next, it is time to start converting these goals into reality. For help in doing so, refer to the TIME MANAGEMENT file for step-by-step instructions.

#### PARENTING OF YOUNG CHILDREN File

Here is an overview of the steps to effective parenting of children. It's oriented primarily to pre-teenage children.

A. RULES: Children need and want structure in their lives.

(It makes them feel secure). Giving them a set of rules will help provide such structure at home, and prepare them for dealing with a structured outside world later. Make up a few (very few) simple rules for your children that you know are important and that you can enforce (e.g., Put away toys by 5:00 PM). Write them down on a card and post the card where the children can see it. If they are too young to read, tell them what is on the card (several times).

B. ATTENDING: Children learn to do things that gain their parent's attention. It does not matter if these are "good things" or "bad things", as far as they are concerned. If a child gets attention for what s/he is doing, s/he will do more of it. If they do not get attention for a particular

behavior, they will do less of it. Concentrate on "attending" to the things your children do that you want them to do, and do not attend to behaviors you want them to stop. (Of course, one cannot ignore behaviors that may injure the child or someone else, but more about this aspect later.)

To attend to a desired behavior, watch the child and tell him or her what you see them doing. (e.g., "Johnny, I see you are quietly building a house with your blocks."; "Sally, you are drawing a horse with your crayons, and you are leaving Johnny alone."; "Joanne, you are putting your toys away by 5:00, just like the rule. I'm happy that you remembered the rule."). You do not have to do this all the time. If you can do it only for 15 minutes each day, you will soon see improvement.

C. CONTINGENCY MANAGEMENT: We all have learned to become socialized adults as a result of the rewards we received for behaving in certain ways as we grew up. None of us was born knowing (or having any motivation to do) "what's right". As we are rewarded for doing certain behaviors, we do more of them. These rewards mostly are not financial; they may be the attention we receive from those we love/like/respect, compliments, getting a toy we have wanted, getting a gold star, or (best yet) getting to spend some time all by ourselves with one or both parents. Rewarding a child's good behavior, even if the reward is money, is not

"bribery"; it's just learning. "Contingency Management" involves setting up a system where the child's desirable behavior is rewarded, and undesirable behavior is ignored or punished. Rewarding "good" behavior is much more effective than punishing "bad" behavior (since punishment is a form of attention, and may be "rewarding").

Make a short list of those behaviors you want your child to decrease. For each such behavior, find a substitute "good behavior" for it that you can reward. The more immediate the reward the better. (Immediate rewards are very important for very young children.) One way to provide such rewards is to use a little chart or card which has a place for stick-on stars for each day of the week. (e.g., When Johnny puts away his toys by 5:00, you not only attend to his behavior but show him you are placing a star on his chart for the day.) When the weekend arrives, Johnny can "exchange" the number of stars he got for the week for a special reward, such as a little toy he has been wanting, getting to go for a 1/2 hour walk in the park with Dad, etc. If he got just one star for the week, still reward him. If he got a lot of stars, reward him more.

While you could start with a chart having several different behaviors you want to change, it is probably best to start with just one, and once you have seen some improvement, add a second behavior, and so forth.

D. PUNISHMENT: As we noted above, some behaviors just cannot

be tolerated, and have to be dealt with immediately and firmly as they happen. (e.g., Johnny hits his little sister, or writes all over the wall with a crayon). When this happens, tell the child that s/he has broken a rule, and give him or her a "time-out". Put the child in a room where s/he will get no attention and have no source of stimulation for a fixed period of time. (5 minutes is good). The place should be somewhere where there is absolutely nothing of interest for the child to do. A totally empty room is best, but you can compromise/improvise. Time-outs are much more effective than punishment like spanking, again because little attention and no reward is involved.

There are, of course, times when a time-out is impractical and something must be done immediately because the child may endanger himself or another (e.g., starting to run across the street in traffic). In such cases, grab hold of the child, give him or her a quick, firm spank on the buttocks, and tell them that they broke one of the rules.

E. CONSISTENCY: No contingency management program will work if you are not consistent in enforcing the rules, and in rewarding your child's desirable behaviors. Children constantly test us for such consistency, and try to find out the "loopholes". It will take some extra effort on your part to ensure your consistency, but you will soon be rewarded for it. Remember that your child really wants and

needs such consistency from parents to feel safe and secure. As you start this behavior-change program, let me know about your successes and problems with it, and we will "fine-tune" it as necessary.

#### PROBLEM-SOLVING

Problem-Solving is a general approach to dealing with a problematic situation by (1) Making available a variety of potentially effective response alternatives, and (2) Increasing the probability of selecting the most effective of these alternatives. A step-by-step approach to problem-solving is presented below:

1. Look at the situation (and your reaction to it) objectively as a problem to be solved. Frequently, we recognize that we are in a problematic situation only by virtue of the fact that we are 'upset about something'. When we realize this, it is important to re-focus our attention from our emotional state to the actual situation creating the upset. In other words, do not succumb to the temptation to act impulsively, but instead take the time to start solving the problem.
2. Define the problem on paper in concrete terms. Consider not only external events and your behavior, but also your thoughts and feelings associated with these events. Exclude irrelevant information (e.g., vague feelings, what happened 10 years ago) and focus on making the problem specific (e.g., I feel stressed because I consented to complete a

project at work on an unrealistic schedule, and I need to work at either getting the schedule revised or getting some more people on the project).

3. "Brainstorm" a wide range of possible courses of action and list these on paper. While doing so, defer any judgement on 'how-good' each possible course might be. Also assume that in this case 'quantity breeds quality': The more alternatives that are produced (even if some at first seem 'hare-brained') the greater likelihood that some good solutions will appear on your list.

4. Imagine and consider how others might respond if asked to deal with a similar stress problem, and add these possibilities to your list.

5. Evaluate the pros and cons of each possible solution, and rank-order the solutions from least to most practical and desirable. To do so, keep in mind the following:

- a. The personal consequences of the alternative. (e.g., what is likely to happen to you if you choose this course of action).
- b. The social consequences (how will this alternative likely affect the significant others in your life).
- c. The short-term consequences (on you and your significant others).
- d. The long-term consequences (how this alternative may affect your future personal-social functioning, and how it may prevent similar problematic situations

from occurring in the future).

6. Based on your ranking, select the most acceptable and feasible solution, and determine exactly how you are going to carry it out (your tactics). First try it out by repeatedly imagining doing it. Then, if possible, rehearse it with your spouse or significant other, until you feel comfortable that you can use this solution (coping response) in the actual situation.
7. Try out the solution when you next encounter the problematic situation, and verify the extent to which it was a good solution.
8. Expect some failures, but reward yourself for having tried. You have collected some valuable data on a new coping response, and you can use that data to make the response more satisfactory the next time. Bouncing back from failures and profiting from them is considered successful coping.
9. Reconsider the original problem in light of your new experience, and determine if the consequences are satisfactory for you. If they are, you are through with the process for this situation. If you are dissatisfied, repeat this problem-solving process as required until you find a satisfactory solution.

The problem-solving approach is an excellent coping strategy in general for dealing with stressful situations, and you are encouraged to use it whenever you encounter new



situations for which you do not already have a "game plan".

#### OTHER COPING STRATEGIES File

In addition to learning the relaxation response, setting up an exercise program, learning how to be assertive, changing your negative self-statements to positive ones, goal-setting, time management, and dealing with problematic behaviors of your children, other techniques for stress-reduction are available. Some of these techniques relate to changing your life-style, and were alluded to in the Stress Questionnaire you took initially. They may involve getting more sleep, losing weight, and/or changing your nutritional practices: Cutting down on protein and saturated fat, consuming less salt and sugar, and substituting complex carbohydrates (grains, pasta, fresh vegetables and fruits) for meats can be extremely beneficial to your health and sense of well-being. Smoking cessation and reduction of alcohol intake are important to stress reduction generally, as is cutting-down on other substances or medication you may over-indulge in. Increasing your social support (developing close friendships with people with whom you can share your problems and successes) also may be important to minimizing your overall general stress level.

Problem-solving (see PROBLEM-SOLVING File) is an excellent approach for developing other situation-specific coping strategies, and you are encouraged to use it whenever

you encounter new situations for which you do not already have a "game plan". Frequently, of course, there is no time to engage in objective problem-solving on the spot, and then one must use a pre-planned approach, such as Relaxation (e.g., telling yourself your relaxation cue word and "triggering" your relaxation response).

Some situations are such that there is no effective "active" coping response for eliminating the stress, and the best we can do is "psych ourselves through it". One way to do this is by "perspective-taking": When things are objectively bad, they may seem subjectively worse. We may minimize the stress at such times by reminding ourselves that the problem is time-limited, that the outcome is unwelcome but bearable, that there are still sources of satisfaction in other areas of our life, etc.

A second strategy is "attention diversion", which for example might involve imagining a pleasant past experience when in the stressful situation.

For some stress situations, one of the above suggestions may be the appropriate coping response, and you should consider these as you engage in your problem-solving process. Whenever possible, however, a more active response involving behavior oriented to directly influencing the situation is preferable.

Finally, please note that no program can eliminate stress completely. Stress is a normal part of life, and you

will continue to experience some stress, even after completing this program. However, our goal is to help you learn to respond adaptively in stressful situations, to experience the situations as less stressful, and to be resilient in the face of occasional inevitable setbacks. I will remain in contact with you throughout the program as long as you continue to communicate with the BBS, and will help you in any way I can to deal effectively with your stress situations.

#### OPERATING INSTRUCTIONS File

Note: This file was written exclusively in upper-case to accomodate subscribers who did not have a lower-case capability.

TO TEMPORARILY STOP THIS (OR ANY OTHER LISTING), TYPE CTRL-S. (TRY IT AND SEE.) TYPE ANY OTHER CHARACTER TO RESUME. TO GO BACK TO THE COMMAND PROMPT, TYPE CTRL-C OR CTRL-K.

THIS BBS ALLOWS YOU TO ENTER AND RETRIEVE MESSAGES, READ AND RECEIVE INFORMATIONAL FILES, AND SEND INFORMATIONAL FILES.

THE BBS USES AN ASSIGNED NUMBER WITH A 2 OR 3 CHARACTER PREFIX, SUCH AS STRXXX OR SRXXXX TO KEEP TRACK OF SENDERS AND RECIPIENTS OF MESSAGES. THIS STRING IS CALLED THE "USERID". MESSAGES ARE REFERENCED BY AN ARBITRARY NUMBER SUCH AS 1, 73, OR 138. HOWEVER, YOU SHOULD USE THE "S" (SUMMARY), "Q" (QUICK SUMMARY), OR "L" (LIST MULTIPLE

MESSAGES) COMMANDS TO REVIEW (IN CHRONOLOGICAL ORDER) ALL MESSAGES POSTED SINCE THE LAST TIME YOU CALLED IN.

TO SIGN OFF THE BBS, ENTER "G" (FOR GOODBYE) IN RESPONSE TO THE "COMMAND?" PROMPT.

MESSAGES:

RETRIEVING THE TEXT OF MESSAGES:

THERE ARE THREE WAYS TO RETRIEVE MESSAGES. THE BEST IS THE "S" COMMAND, WHICH IS DESCRIBED BELOW. THE "L" COMMAND LISTS ALL MESSAGES WITHIN A SPECIFIED NUMBER OF DAYS. ENTERING JUST A MESSAGE NUMBER WILL RETRIEVE THAT MESSAGE. EACH MESSAGE IS PREFACED BY A SUMMARY THAT DISPLAYS THE MESSAGE NUMBER, THE ID OF THE SENDER, THE ID OF THE RECIPIENT, THE DATE, THE SUMMARY, AND THE TEXT OF THE MESSAGE. NOTE THAT A MESSAGE SENT TO AN INDIVIDUAL MAY BE OPEN TO ALL TO READ. IF IT IS OPEN, THERE WILL BE A ":" AFTER THE "TO"; IF IT IS PRIVATE, A " " WILL FOLLOW THE "TO".

AFTER YOU HAVE READ A MESSAGE SENT ONLY TO YOU, YOU WILL BE ASKED WHETHER YOU WANT TO DELETE THE MESSAGE. UNLESS YOU MUST KEEP IT ON THE SYSTEM FOR SOME REASON, PLEASE DELETE IT TO FREE UP THE SPACE FOR ANOTHER MESSAGE. ALSO, DELETING IT WILL TELL THE SENDER THAT YOU HAVE READ THE MESSAGE. ONLY YOU, THE SENDER AND THE SYSTEM OPERATOR (OR "SYSOP") CAN DELETE A MESSAGE TO YOU, AND I ONLY DO SO AFTER IT HAS BEEN ON THE SYSTEM FOR ABOUT A MONTH.

THE "L" COMMAND LISTS THE FULL TEXT OF ALL MESSAGES.

IT FIRST ASKS YOU HOW MANY DAYS BACK YOU WISH TO READ MESSAGES, AND THEN IT ASKS YOU WHETHER YOU WANT TO READ THE MESSAGES WITHOUT INTERRUPTION OR WITH A PAUSE AFTER EACH MESSAGE TO ALLOW FOR A REPLY, AN INQUIRY AS TO THE NAME OF THE SENDER, OR SIMPLY FOR MORE LEISURELY READING.

#### MESSAGE SUMMARIES:

SUMMARIES CAN BE OBTAINED WITH EITHER THE "S" OR THE "Q" COMMAND. THE "S" COMMAND IS THE BEST WAY TO REVIEW MESSAGES. IT FIRST ASKS YOU HOW MANY DAYS BACK YOU WISH TO SEARCH, AND WHETHER YOU WISH TO FLAG MESSAGES FOR LATER READING IN FULL. THE SUMMARY WILL LIST THE SENDER, THE RECIPIENT, THE DATE THE MESSAGE WAS SENT, AND THE SUBJECT OF THE MESSAGE. AFTER YOU ARE SHOWN ALL THE SUMMARIES, YOU WILL BE TRANSFERRED INTO THE "L" COMMAND (SEE ABOVE), ALTHOUGH ONLY FLAGGED MESSAGES WILL BE DISPLAYED.

THE "Q" COMMAND WILL GIVE YOU THE MESSAGE NUMBERS OF MESSAGES SENT TO YOU, TO ALL, AND FROM YOU. (WHEN YOU SIGN ON, THE BBS ALSO LISTS THE NUMBERS OF MESSAGES SENT TO YOU.) THE "Q" COMMAND THEN ASKS YOU HOW FAR BACK YOU WISH TO SEE QUICK SUMMARIES OF MESSAGES. QUICK SUMMARIES CONTAIN ONLY THE MESSAGE NUMBER AND THE SUMMARY. YOU MAY FLAG MESSAGES FOR READING IN FULL JUST AS WITH "S", AND AFTER ALL OF THE SUMMARIES ARE DISPLAYED, YOU WILL BE TRANSFERRED INTO THE "L" COMMAND, ALTHOUGH OF COURSE ONLY FLAGGED MESSAGES WILL BE SHOWN.

#### ENTERING A MESSAGE:

AFTER ENTERING "E" OR SELECTING TO RESPOND TO A PARTICULAR MESSAGE DURING A FULL-TEXT LISTING, YOU WILL BE ASKED TO GIVE THE STR NUMBER OF THE PERSON TO WHOM THE MESSAGE IS INTENDED. YOU CAN FIND A PERSON'S STR NUMBER WITH THE "W" (WHO) COMMAND. TO SEND A MESSAGE TO THE SENDER OF THE PREVIOUS MESSAGE DURING A FULL-TEXT LISTING, SIMPLY PRESS RETURN. FOR MESSAGES TO EVERYONE, USE "ALL", AND FOR MESSAGES TO ME, USE "SYSOP". YOU WILL THEN BE ASKED WHETHER YOU WANT THE MESSAGE OPEN TO ALL TO READ OR WHETHER YOU WANT IT TO BE PRIVATE. YOU THEN ENTER A SUMMARY (OF UP TO 20 CHARACTERS) OF THE SUBJECT OF THE MESSAGE. IF YOU ARE IN 80-COLUMN MODE (SEE BELOW), YOU WILL BE SHOWN A RULER INDICATING THE MAXIMUM LINE LENGTH OF 39 CHARACTERS FOR EACH LINE OF TEXT. YOU CAN THEN ENTER UP TO 10 LINES OF TEXT. IF YOU NEED LESS THAN 10 LINES, SIMPLY PRESS RETURN WHEN YOU ARE THROUGH. THE BBS WILL KEEP YOUR LINES TO LESS THAN 40 CHARACTERS. USE BACKSPACE (LEFT-ARROW), RIGHT-ARROW (CTRL-U) AND CTRL-X AS YOU NORMALLY DO. AFTER YOU HAVE FINISHED ENTERING TEXT, THE BBS WILL ASK IF YOU WANT TO EDIT THE MESSAGE OR SAVE IT AS IS. IF YOU DO NOT SAVE IT, YOU CAN USE THE EDIT COMMANDS (SEE THE "A" COMMAND BELOW) TO MAKE CHANGES. TO EXIT MESSAGE ENTRY, USE "CANCEL".

#### DELETING A MESSAGE:

THE "D" COMMAND WILL SHOW YOU THE SUMMARY OF THE MESSAGE AND ASK YOU IF YOU WANT TO DELETE IT. ONLY THE SENDER, THE RECIPIENT (IF THE MESSAGE WAS NOT SENT TO "ALL") AND THE

SYSOP CAN DELETE MESSAGES. SO THAT EVERYONE CAN USE THE BBS, PLEASE DELETE YOUR OLD MESSAGES.

**AMENDING A MESSAGE:**

THE "A" COMMAND AND THE EDIT OPTION OF THE "E" COMMAND ALLOW YOU TO CHANGE THE RECIPIENT, SUMMARY OR TEXT OF A MESSAGE. IF THE MESSAGE HAS FEWER THAN 10 LINES, YOU MAY ADD A LINE. YOU CAN'T DELETE A LINE, BUT REPLACING IT WITH 1 OR 2 SPACES WILL HAVE THE SAME EFFECT.

**INFORMATIONAL PRINTOUTS:**

THE "H" COMMAND GIVES A SHORT DESCRIPTION OF ALL AVAILABLE COMMANDS AND CONTROL CHARACTERS. NEW USERS MAY WANT TO MAKE A PRINTOUT OF THIS LIST FOR HANDY REFERENCE. (IF YOUR PRINTER IS TOO SLOW, SEE THE "N" COMMAND, EXPLAINED BELOW.)

THE "?" COMMAND LISTS ONLY THE LETTERS OF ALLOWED COMMANDS, AND IS FOR QUICK REFERENCE.

THE "B" COMMAND PROVIDES GENERAL INFORMATION ABOUT THIS BBS, AND ITS STRESS MANAGEMENT ORIENTATION.

THE "P" COMMAND WILL PRINT OUT THE DATE AND TIME, AND THE DATE AND TIME YOU LAST CALLED IN. IT WILL ALSO GIVE YOU THE OPPORTUNITY TO PRINT OUT THE BULLETIN THAT YOU WERE GIVEN THE OPTION OF SEEING WHEN YOU SIGNED ON. IT ALSO PRINTS OUT THE NUMBERS OF MESSAGES FOR YOU.

THE "M" COMMAND PROVIDES A SHORT TUTORIAL ON THE NATURE OF STRESS, AND WHAT CAN BE DONE TO REDUCE ITS ADVERSE EFFECTS.

THE "\$" COMMAND IS USED TO CALL THE "DAILY REPORTING"

PROGRAM, A SPECIAL FUNCTION OF THIS BBS AVAILABLE TO SELECTED MEMBERS FOR REPORTING (AND GETTING FEEDBACK ON) THEIR PROGRESS IN MANAGING THEIR STRESS.

THE " " COMMAND CALLS THE LIFE EVENTS PROGRAM, WHILE THE "%" COMMAND CALLS THE STRESS ASSESSMENT PROGRAM. BOTH ARE AUTOMATED QUESTIONNAIRES.

THE "O" COMMAND IS A MEMBERS' OPINION POLL. THIS IS AN IMPORTANT FEEDBACK DEVICE FOR THE SYSOP. QUESTIONS ARE USUALLY CHANGED BIWEEKLY. PLEASE GIVE US THE BENEFIT OF YOUR OPINION.

THE "I" COMMAND LISTS THIS INFORMATION ABOUT THE BBS.

HOUSEKEEPING COMMANDS:

LINEFEEDS AND NULLS:

IF AT ANY TIME YOU SEND THE BBS A LINEFEED BY PRESSING CTRL-J, WHICH DROPS THE CURSOR ONE LINE WITHOUT RETURNING TO LEFT MARGIN, THE BBS WILL BEGIN TO SEND YOU LINEFEEDS BACK. (LINEFEEDS ARE NEEDED BY IBM PC'S AND CP/M PC'S TO KEEP TEXT FROM SHOWING UP ON THE SAME LINE.) YOU CAN USE THE "N" COMMAND TO TURN LINEFEED INSERTION ON OR OFF. (SEE ALSO THE "U" COMMAND.)

"NULLS" ARE THE BBS' WAY OF ALLOWING YOUR PRINTER TO KEEP UP WITH THE BBS. CRT'S AND MANY PRINTERS DON'T NEED THEM. IF YOU DO NEED NULLS, THE "N" COMMAND WILL TELL YOU THE CURRENT DELAY AFTER CARRIAGE RETURNS, WHICH CAN BE 0-2.55 SECONDS. ALSO, YOU CAN USE THE SPEED COMMAND TO SLOW DOWN PRINTING OF INDIVIDUAL CHARACTERS. BECAUSE NORMAL



TRANSMISSION IS AT ONLY 30 CHARACTERS A SECOND, ONLY SPEEDS OF 100 OR LESS HAVE ANY EFFECT. "SPEED=" IS IN EFFECT AT ALL TIMES REGARDLESS OF WHETHER LINEFEED INSERTION IS ON.

**KNOWLEDGABLE USER:**

WHEN YOU KNOW THE WORKINGS OF THE BBS WELL, YOU CAN USE THE "K" COMMAND TO ELIMINATE SOME OF THE PROMPTS. THIS WILL SPEED UP OPERATIONS SOME. TO TURN IT OFF, ENTER "K" AGAIN.

**80-COLUMN MODE:**

IF YOU HAVE AN 80-COLUMN DISPLAY OR A PRINTER, YOU CAN USE THE "+" COMMAND TO CHANGE EVERY OTHER CARRIAGE RETURN IN MOST BBS FILES INTO A SPACE, THEREBY USING ALL 80 COLUMNS. TO TURN THIS OFF, ENTER "+" AGAIN. IF YOU ARE IN 80-COLUMN MODE AND ARE NOT USING ABBREVIATED PROMPTS, YOU WILL BE SHOWN A 40-COLUMN RULER ON MESSAGE ENTRY.

**LOWERCASE:**

UNTIL YOU TELL IT OTHERWISE, THE BBS WILL ECHO LOWERCASE LETTERS AS UPPERCASE LETTERS AND WILL TRANSMIT LOWERCASE IN MEMORY AS UPPERCASE. IF YOU WANT TO SEE LOWERCASE, ENTER CTRL-L ANY TIME THE BBS EXPECTS INPUT. ENTERING CTRL-L AGAIN MAKES ALL LOWERCASE INTO UPPERCASE. USE CTRL-L LIKE A SHIFT-LOCK KEY TO TOGGLE OFF OR ON LOWERCASE TRANSLATION. NOTE THAT ONLY THE SUBJECT AND TEXT OF MESSAGES AND INFO FILES CAN BE MADE LOWERCASE; COMMANDS, ETC. WILL ALWAYS BE UPPERCASE.

**YOUR USER RECORD:**

TO SIMPLIFY ALL OF THE ABOVE, THE BBS WILL KEEP TRACK

OF YOUR PREFERENCE FOR LINEFEEDS VS. NO LINEFEEDS, KNOWLEDGABLE VS. NORMAL USER, WHETHER YOU CAN RECEIVE LOWERCASE, AND 80 OR 40 COLUMNS. THESE PARAMETERS ARE LOADED WHEN YOU LOGON SUCCESSFULLY. TO CHANGE THEM, USE THE "U" COMMAND. YOU WILL BE TOLD THE STATUS OF THESE SETTINGS, AND ALLOWED TO CHANGE THEM. NOTE THAT "U" DOES NOT AFFECT THE CURRENT STATUS OF THESE VALUES; THUS, IF YOU USE THE "U" COMMAND TO SEND YOU LINEFEEDS, IT WILL NOT TAKE EFFECT UNTIL THE NEXT TIME YOU LOGON.

#### USERS AND STR NUMBERS:

THE "W" (WHO) COMMAND ALLOWS YOU TO FIND A PERSON'S STR NUMBER IF YOU KNOW THE FIRST TWO LETTERS OF THE PERSON'S LAST NAME, AND TO FIND HIS OR HER NAME IF YOU KNOW HIS OR HER STR NUMBER. WHEN LISTING NAMES, THE BBS WILL PRINT A "." PERIODICALLY. THIS WILL ALLOW YOU TO INTERRUPT THE BBS WITH A CTRL-C OR CTRL-K.

#### CHATTING WITH THE SYSOP:

OCCASIONALLY, I WILL BE AVAILABLE TO CHAT WITH YOU. TO SEE IF I AM AVAILABLE, ENTER "C". IF I AM LISTED AS "NOT AVAILABLE", IT DOES NOT MEAN THAT I AM NOT PHYSICALLY HERE, IT MEANS ONLY THAT I AM OTHERWISE OCCUPIED (EATING, SLEEPING, DOING CHORES, ETC.). IF I AM LISTED AS AVAILABLE, YOU CAN RING ME. CONTINUE USING THE BBS, AND WHEN I COME TO THE KEYBOARD, I WILL BREAK IN FOR A FRIENDLY CHAT.

#### FILE TRANSFER SYSTEMS:

THE "X" COMMAND ENTERS A FILE TRANSFER SUBSYSTEM. IT

ALLOWS YOU TO READ TEXT FILES AND LOAD THEM DIRECTLY INTO YOUR COMPUTER. "X" HAS A SEPARATE HELP COMMAND. PLEASE READ IT CAREFULLY.

RECIPES:

THE "R" COMMAND GIVES YOU ACCESS TO TEXT FILES OF A VARIETY OF STRESS MANAGEMENT INFORMATION, INCLUDING INSTRUCTIONS ON BECOMING A MEMBER, PRELIMINARY STRESS ASSESSMENT, AND VARIOUS STRATEGIES FOR COPING WITH STRESS. TO BECOME A MEMBER, ACCESS THE "MEMBERSHIP INFORMATION" FILE. AFTER YOU FOLLOW THE INSTRUCTIONS, THE SYSOP WILL SUGGEST THE PARTICULAR FILE(S) MOST LIKELY TO BE OF VALUE IN MANAGING YOUR INDIVIDUAL STRESS SITUATIONS.

GENERAL INFORMATION:

THIS SYSTEM RUNS ON AN APPLE II+ IN APPLESOFT AND ASSEMBLY LANGUAGE USING A D.C. HAYES MICROMODEM II AND A PROGRAM WRITTEN BY TOM WARRICK BASED ON A USER INTERFACE DESIGNED BY JOHN MOON, AS MODIFIED BY BRUCE WALKER.

THE POLICY OF THIS BBS PROHIBITS COMMERCIAL MESSAGES. "COMMERCIAL" MEANS ANY OFFER OR SOLICITATION OF AN OFFER FOR A PRODUCT OR SERVICE BY ANYONE IN THE TRADE OR BUSINESS OF SELLING THAT PRODUCT OR SERVICE.

EXCEPT FOR CONTROL CHARACTERS C, H (BACKSPACE OR LEFT-ARROW), J (LINEFEED OR DOWN-ARROW), K (UP-ARROW), L, M (RETURN), S, AND U (RIGHT-ARROW), ALL CONTROL CHARACTERS ARE IGNORED.

I WELCOME ALL YOUR COMMENTS AND SUGGESTIONS. IN FACT,

I NEED THEM IN ORDER TO FURTHER THE DEVELOPMENT OF THIS  
EXPERIMENTAL SYSTEM.

BRUCE WALKER, SYSOP

## Appendix B

### Questionnaires

The paper-and-pencil versions of the questionnaires administered in the study for the FFI and CNI groups are presented in this appendix. Software listings for the automated, interactively-administered Stress Questionnaire (CII and CNI groups), Daily Reporting (CII group), and Post-Questionnaire (CII group) assessments are presented in Appendix C.

The Stress Questionnaire included in this appendix was filled-out by hand by FFI group subjects, who then recorded their baseline stress, using the Baseline Stress Monitoring Record, during the following week. In subsequent weeks, FFI subjects recorded their data using the Daily Stress/Coping Monitoring Record. FFI subjects were administered a "customized" Post Questionnaire, as presented below, for post-treatment follow-up assessment. This questionnaire (with the modifications indicated) also was mailed to all CNI subjects at follow-up. The Significant-Other Post Questionnaire included herein was mailed to CII SO's at follow-up, while the Supplemental Post-Questionnaire was mailed to both CII and CNI subjects at follow-up. These latter questionnaires also were "customized", and typical examples are shown.

STRESS QUESTIONNAIRE

Please answer all of these questions to help us determine how best to manage your stress. For multiple-choice questions, just circle all appropriate answers.

1. What is your:

a. Name:

b. Age:

c. Sex:                         Male             Female

d. Marital status:       Married         Living with someone  
  Single             Separated or Divorced

e. Occupation:

2. How long have you experienced difficulty with stress in your life?

a. Past 1 month             b. Past 3 months             c. Past 6 months  
d. Past 1 year             e. Past 3 years             f. Longer

3. Did you experience changes in any of the following areas just before your stress difficulty started?

a. Job change                         b. Marital/relationship change  
c. Change in family             d. School change  
e. Health/illness             f. Income change  
g. Other life event or change (specify):

4. Where indicated in the asterisk-space below (\*), list 4 situations, starting with the worst, in which you currently experience stress (e.g., at work or school

when you have to meet a deadline, relating to another person, etc.)

5. Also note in the asterisk-space how often you experience this stress in each of these situations. (Select one of the codes listed below for each situation.)
6. Also note in the asterisk-space below, on a scale of one to ten, for each of these situations, how intense this stress is, relative to the most stress you have ever felt in your life?
7. Finally, indicate in the asterisk-space below, when you last felt this intense stress, how long did it last? (Select one of the codes listed below for each situation.)

\*\*\*\*\*

Key: Frequency	Intensity	Duration
6. All the time	0: No Stress	1. Less than 5 min
5. Once per day	-	2. Less than 1/2 hr
4. Several Times/Week	-	3. Less than 1 hr
3. Once per week	-	4. Less than 5 hrs
2. Once per month	-	5. Less than 10 hrs
1. Less frequently	10: Super-Extreme	6. All day long

Situation	Freq (1-6)	Inten (0-10)	Duratr (1-6)
-----------	---------------	-----------------	-----------------

Sit 1:	---	---	---
Sit 2:	---	---	---
Sit 3:	---	---	---
Sit 4:	---	---	---

\*\*\*\*\*

**B. What are the physical symptoms of this intense stress?**

(Circle all the symptoms that apply for each of your 4 stress situations.)

Situation 1

- |                            |                               |
|----------------------------|-------------------------------|
| a. Rapid heart beat.       | b. Pain in chest.             |
| c. Difficulty swallowing.  | d. Feeling suffocated.        |
| e. Choking sensation.      | f. Hands or feet tingle.      |
| g. Face feels hot.         | h. Sweating.                  |
| i. Trembling/shaking.      | j. Hands/feet feel numb.      |
| k. Nausea/vomiting         | l. Breathing rapidly.         |
| m. Hands/feet feel cold.   | n. Mouth dry.                 |
| o. Headache.               | p. Stomach ache.              |
| q. Feel fatigued.          | r. Sinking feeling in stomach |
| s. Other (Please specify). |                               |

Situation 2

- |                            |                               |
|----------------------------|-------------------------------|
| a. Rapid heart beat.       | b. Pain in chest.             |
| c. Difficulty swallowing.  | d. Feeling suffocated.        |
| e. Choking sensation.      | f. Hands or feet tingle.      |
| g. Face feels hot.         | h. Sweating.                  |
| i. Trembling/shaking.      | j. Hands/feet feel numb.      |
| k. Nausea/vomiting         | l. Breathing rapidly.         |
| m. Hands/feet feel cold.   | n. Mouth dry.                 |
| o. Headache.               | p. Stomach ache.              |
| q. Feel fatigued.          | r. Sinking feeling in stomach |
| s. Other (Please specify). |                               |

Situation 3

- |                            |                               |
|----------------------------|-------------------------------|
| a. Rapid heart beat.       | b. Pain in chest.             |
| c. Difficulty swallowing.  | d. Feeling suffocated.        |
| e. Choking sensation.      | f. Hands or feet tingle.      |
| g. Face feels hot.         | h. Sweating.                  |
| i. Trembling/shaking.      | j. Hands/feet feel numb.      |
| k. Nausea/vomiting         | l. Breathing rapidly.         |
| m. Hands/feet feel cold.   | n. Mouth dry.                 |
| o. Headache.               | p. Stomach ache.              |
| q. Feel fatigued.          | r. Sinking feeling in stomach |
| s. Other (Please specify). |                               |



Situation 4

- |                            |                               |
|----------------------------|-------------------------------|
| a. Rapid heart beat.       | b. Pain in chest.             |
| c. Difficulty swallowing.  | d. Feeling suffocated.        |
| e. Choking sensation.      | f. Hands or feet tingle.      |
| g. Face feels hot.         | h. Sweating.                  |
| i. Trembling/shaking.      | j. Hands/feet feel numb.      |
| k. Nausea/vomiting         | l. Breathing rapidly.         |
| m. Hands/feet feel cold.   | n. Mouth dry.                 |
| o. Headache.               | p. Stomach ache.              |
| q. Feel fatigued.          | r. Sinking feeling in stomach |
| s. Other (Please specify). |                               |

9. What are your thoughts and feelings when you experience this stress? (Circle all answers that apply for each stress situation.)

Situation 1

- |                            |                      |
|----------------------------|----------------------|
| a. I am out of control.    | b. I am angry.       |
| c. I feel helpless.        | d. I feel anxious.   |
| e. I can't concentrate.    | f. I want to escape. |
| g. Other (Please specify): |                      |

Situation 2

- |                            |                      |
|----------------------------|----------------------|
| a. I am out of control.    | b. I am angry.       |
| c. I feel helpless.        | d. I feel anxious.   |
| e. I can't concentrate.    | f. I want to escape. |
| g. Other (Please specify): |                      |

Situation 3

- |                            |                      |
|----------------------------|----------------------|
| a. I am out of control.    | b. I am angry.       |
| c. I feel helpless.        | d. I feel anxious.   |
| e. I can't concentrate.    | f. I want to escape. |
| g. Other (Please specify): |                      |

Situation 4

- |                            |                      |
|----------------------------|----------------------|
| a. I am out of control.    | b. I am angry.       |
| c. I feel helpless.        | d. I feel anxious.   |
| e. I can't concentrate.    | f. I want to escape. |
| g. Other (Please specify): |                      |

10. What happens immediately before you feel intensely stressed, in each of these situations?

Situation 1

- |  |                          |
|--|--------------------------|
| a. I arrive at work or school.                     | b. I arrive home.        |
| c. I work overtime.                                | d. I'm given a deadline. |
| e. Someone 'puts me down'.                         | f. I get in an argument. |
| g. I think about how much work I have to get done. |                          |
| h. My spouse/roommate hassles me.                  |                          |
| i. My child (children)'s behavior gets to me.      |                          |
| j. Other (Please specify):                         |                          |

Situation 2

- |  |                          |
|--|--------------------------|
| a. I arrive at work or school.                     | b. I arrive home.        |
| c. I work overtime.                                | d. I'm given a deadline. |
| e. Someone 'puts me down'.                         | f. I get in an argument. |
| g. I think about how much work I have to get done. |                          |
| h. My spouse/roommate hassles me.                  |                          |
| i. My child (children)'s behavior gets to me.      |                          |
| j. Other (Please specify):                         |                          |

Situation 3

- |  |                          |
|--|--------------------------|
| a. I arrive at work or school.                     | b. I arrive home.        |
| c. I work overtime.                                | d. I'm given a deadline. |
| e. Someone 'puts me down'.                         | f. I get in an argument. |
| g. I think about how much work I have to get done. |                          |
| h. My spouse/roommate hassles me.                  |                          |
| i. My child (children)'s behavior gets to me.      |                          |
| j. Other (Please specify):                         |                          |

Situation 4

- |  |                          |
|--|--------------------------|
| a. I arrive at work or school.                     | b. I arrive home.        |
| c. I work overtime.                                | d. I'm given a deadline. |
| e. Someone 'puts me down'.                         | f. I get in an argument. |
| g. I think about how much work I have to get done. |                          |
| h. My spouse/roommate hassles me.                  |                          |
| i. My child (children)'s behavior gets to me.      |                          |
| j. Other (Please specify):                         |                          |

11. What have you found to be effective in getting rid of  
or reducing your feeling of stress at these times?

Situation 1

- |   |                      |
|---|----------------------|
| a. Leaving the situation                        | b. Eating something. |
| c. Smoking a cigarette.                         | d. Taking a drug.    |
| e. Drinking an alcoholic beverage.              | f. Taking a nap.     |
| g. Fighting or arguing.                         | h. Take the day off. |
| i. Talking to someone about it.                 | j. Exercising.       |
| k. Telling myself to "hang in there".           |                      |
| l. Telling myself "It really doesn't matter".   |                      |
| m. Other (e.g., Telling myself something else.) |                      |
- (Please specify):

Situation 2

- |   |                      |
|---|----------------------|
| a. Leaving the situation                        | b. Eating something. |
| c. Smoking a cigarette.                         | d. Taking a drug.    |
| e. Drinking an alcoholic beverage.              | f. Taking a nap.     |
| g. Fighting or arguing.                         | h. Take the day off. |
| i. Talking to someone about it.                 | j. Exercising.       |
| k. Telling myself to "hang in there".           |                      |
| l. Telling myself "It really doesn't matter".   |                      |
| m. Other (e.g., Telling myself something else.) |                      |
- (Please specify):

Situation 3

- |   |                      |
|---|----------------------|
| a. Leaving the situation                        | b. Eating something. |
| c. Smoking a cigarette.                         | d. Taking a drug.    |
| e. Drinking an alcoholic beverage.              | f. Taking a nap.     |
| g. Fighting or arguing.                         | h. Take the day off. |
| i. Talking to someone about it.                 | j. Exercising.       |
| k. Telling myself to "hang in there".           |                      |
| l. Telling myself "It really doesn't matter".   |                      |
| m. Other (e.g., Telling myself something else.) |                      |
- (Please specify):

Situation 4

- |   |                      |
|---|----------------------|
| a. Leaving the situation                        | b. Eating something. |
| c. Smoking a cigarette.                         | d. Taking a drug.    |
| e. Drinking an alcoholic beverage.              | f. Taking a nap.     |
| g. Fighting or arguing.                         | h. Take the day off. |
| i. Talking to someone about it.                 | j. Exercising.       |
| k. Telling myself to "hang in there".           |                      |
| l. Telling myself "It really doesn't matter".   |                      |
| m. Other (e.g., Telling myself something else.) |                      |
- (Please specify):

12. How effective have these strategies been for you, on a scale of ten? (0: Not effective at all, 10: Totally effective)?

For Situation 1: ----      For Situation 2: ----  
 For Situation 3: ----      For Situation 4: ----

13. What happens immediately after your feeling of stress diminishes, for each of these situations?

Situation 1

- a. My physical symptoms go away.
- b. I feel calm.
- c. I get back to my work.
- d. I feel resentful
- e. I don't speak to anyone for awhile.
- f. I remain 'uptight' for quite a while.
- g. Other (Please specify):

Situation 2

- a. My physical symptoms go away.
- b. I feel calm.
- c. I get back to my work.
- d. I feel resentful
- e. I don't speak to anyone for awhile.
- f. I remain 'uptight' for quite a while.
- g. Other (Please specify):

Situation 3

- a. My physical symptoms go away.
- b. I feel calm.
- c. I get back to my work.
- d. I feel resentful
- e. I don't speak to anyone for awhile.
- f. I remain 'uptight' for quite a while.
- g. Other (Please specify):

Situation 4

- a. My physical symptoms go away.
- b. I feel calm.
- c. I get back to my work.
- d. I feel resentful
- e. I don't speak to anyone for awhile.
- f. I remain 'uptight' for quite a while.
- g. Other (Please specify):

14. What is your general physical condition?

- a. I am overweight.
- b. I have difficulty sleeping every night.
- c. I have pains almost continuously.
- d. I have shortness of breath.
- e. I have sexual performance difficulties.
- f. I am frequently constipated.
- g. I have a stomach ulcer.
- h. I have extreme menstrual distress.
- i. I am in perfect health.
- j. I have another physical problem. (Please specify.)

15. What exercise do you get?

- a. I walk at least 2 miles five times per week.
- b. I lift weights for at least 1/2 hr 3 times per week.
- c. I play at least one set of tennis or racquetball at least twice per week.
- d. I swim for at least 1/2 hour three times per week.
- e. I jog for at least 1/2 hour three times per week.
- f. I aerobic dance for at least 1/2 hour three times per week.
- g. I bicycle for at least 1/2 hr three times per week.
- h. I get less exercise than listed above.
- i. I get some other form of regular, strenuous exercise. (Please specify:)

16. Even if you now engage in no exercise, what type of exercise would you like to get, which is practical for you to do ( e.g., swim at the YMCA pool in the evening, run in the park at lunchtime, daily Yoga exercises at home)? Select one of the above, or name some other form of exercise you could perform regularly.

Exercise:

17. What drugs or substances do you use?

- a. Beer (Average No. of cans/day):
- b. Wine (Average No. of 3 oz. glasses/day):
- c. Liquor (Average No. of 1 1/2 oz. shots/day):

d. Cigarettes (Average No. of cigarettes/day):

e. Coffee or a caffeine drink. (e.g., coke).  
(Average No. of 3 cups/cans per day):

f. Amphetamines ("Speed"):

No Use. Daily use. Occasional Use.

g. Tranquilizers:

No Use. Daily use. Occasional Use.

h. Marijuana:

No Use. Daily use. Occasional Use.

i. Sleeping Medication:

No Use. Daily use. Occasional Use.

j. Other medication (Please specify):

No Use. Daily use. Occasional Use.

18. How much sleep do you get, on the average?

a. More than 10 hrs/night.

b. More than 8 hrs/night.

c. More than 6 hrs/night.

d. Less than 6 hrs/night.

19. What are your eating habits?

a. I eat three balanced meals (covering all of the four major food groups) per day.

b. I eat two balanced meals per day.

c. I eat one balanced meal per day.

d. My daily nutrition intake is usually balanced, but I do not eat at regular intervals.

e. My daily nutrition intake is not balanced, and I do not eat at regular intervals.

20. How many close friends (mutually supportive people you talk to frequently, with whom you share your problems and successes) do you have: ----
21. How supportive to you is your family?
- a. Always supportive.
  - b. Frequently supportive.
  - c. Sometimes supportive.
  - d. Never supportive.
22. Do you like yourself?
- a. All the time.
  - b. Most of the time.
  - c. Some of the time.
  - d. Never.
23. Are you satisfied with what you are accomplishing in your life?
- a. All the time.
  - b. Most of the time.
  - c. Some of the time.
  - d. Never.
24. Are you now seeing (or have you ever seen) a counselor or other mental health professional? Yes. No.
- If 'yes', please describe briefly the circumstances and outcome:

25. What would you be doing in your life that you are not doing now if you were not bothered by stress? (Provide 3 answers. Respond precisely, and keep each answer to less than 15 words.)

Goal 1:

Goal 2:

Goal 3:

Thank you for taking the time to respond carefully to this questionnaire.





**DAILY STRESS/COPING MONITORING INSTRUCTIONS**

In the space provided on the attached form, your reported major physical symptoms of stress, and the major thoughts/feelings you experience when stressed are listed (those you indicated on your Stress Questionnaire).

On this form, please record at the end of each day, over the next week, whether or not you performed the suggested General Coping Strategy (e.g., Relaxation Practice, Exercise), how long you performed it, and your overall average stress level that day. Base your daily overall stress estimate on how intensely stressed you felt that day, on a scale of 0-10 (where "0" represents no stress at all, and "10" represents the most stressed you have ever felt in your life. Your stress estimate should reflect how frequently, intensely, and for how long (relatively-speaking) you experienced these physical symptoms/thoughts/feelings that day.

Also, indicate in the spaces provided on the form, for the two specific stressful situations, whether or not these situations occurred that day, whether or not you used the suggested Situation-Specific Coping Strategy, and your estimated stress level \*during\* the time the situation occurred. Please remember to bring this form with you to next week's meeting.



POST-QUESTIONNAIRE

(Note: CNI Questionnaire additions are in parentheses.

Question # 2 was not asked of CNI subjects.)

To: John Smith

Date:

From: Bruce Walker

Dear John,

(I am writing to ask you for some feedback on your experience with the experimental Stress Management Computer Bulletin Board System. Although you did not enter a formal stress management program and thus did not explore all of the capabilities of the system, you did respond to the Life Events and Stress Questionnaires, and my records indicate you called the system X times. Your answers to the following questions will be very valuable to me in evaluating the effectiveness of this system, and in identifying improvements for possible future systems of this kind.) Please answer all of the following questions to help us evaluate the effectiveness of your stress management program. As with all of your other communication, your responses will be handled confidentially. Please just circle your answers on this form, as well as write-in any comments, positive or negative, you would like to make (and return the form to me using the enclosed stamped self-addressed envelope.)

(Note: the questions asked in the Supplemental Post Questionnaire regarding the automated Life Events and Stress questionnaires, general information file usage, the "Chat mode", communication with others, technical features, overall BBS experience, and potential fee acceptability, also were asked of CNI subjects, but not of FFI subjects.)

-----  
 John, please answer the following questions re. your stress management progress since you first responded to the Stress Questionnaire:

1. You listed 4 situations in which you experienced stress. Please indicate below the current (e.g., during the past week) frequency, intensity, and duration of your stress in these situations:

Key: Frequency	Intensity	Duration
6. All the time	0: No Stress	1. Less than 5 min
5. Once per day	-	2. Less than 1/2 hr
4. Several Times/Week	-	3. Less than 1 hr
3. Once per week	-	4. Less than 5 hrs
2. Once per month	-	5. Less than 10 hrs
1. Less frequently	10: Super-Extreme	6. All day long

Situation	Freq (1-6)	Inten (0-10)	Duratin (1-6)
Sit 1: Confrontation with office-mate:	---	---	---
Sit 2: Stress re. In-laws dropping by:	---	---	---
Sit 3: Confrontations with Dept Head:	---	---	---
Sit 4: Stress re. meeting deadlines:	---	---	---

-----

2. From these situations, we defined two relatively high-frequency, relatively-severe situations, together with coping strategies, as well as a general coping strategy, to work on/report on during your stress management program. Please indicate below how effective these strategies have been for you:

-----

Situation A:           Hassles with Boss and Peers  
 Coping Strategy:    Assertive action/perspective-taking  
 Effectiveness of Strategy (0:Not Useful/10:Very Useful)  
                   Rating (0-10):    ----

-----

Situation B:           Deadlines to Meet  
 Coping Strategy:    Goal-Setting/Time Management  
 Effectiveness of Strategy (0:Not Useful/10:Very Useful)  
                   Rating (0-10):    ----

-----

General Coping Strategy:   Brisk Walk for 30 minutes  
 Effectiveness of Strategy (0:Not Useful/10:Very Useful)  
                   Rating (0-10):    ----

-----

3. You reported generally experiencing the following physical symptoms when stressed. Has there been any change in the frequency/intensity/duration of these symptoms?

- |                      |         |             |           |
|----------------------|---------|-------------|-----------|
| a. Rapid heart beat: | Reduced | Stayed Same | Got worse |
| b. Hands/feet cold:  | Reduced | Stayed Same | Got worse |
| c. Stomach ache:     | Reduced | Stayed Same | Got worse |
| d. Nausea/vomiting:  | Reduced | Stayed Same | Got worse |
- 

4. You reported generally experiencing the following thoughts/feelings when stressed. Has there been any change in the frequency/intensity/duration of these?

- |                         |         |             |           |
|-------------------------|---------|-------------|-----------|
| a. Feel out-of-control: | Reduced | Stayed Same | Got worse |
| b. Can't concentrate:   | Reduced | Stayed Same | Got worse |
| c. Feel angry:          | Reduced | Stayed Same | Got worse |
| d. Want to escape:      | Reduced | Stayed Same | Got worse |
- 

5. You reported the following general physical conditions. Has there been any change in these?

- |                            |         |             |           |
|----------------------------|---------|-------------|-----------|
| a. Pain continuously:      | Reduced | Stayed Same | Got worse |
| b. Frequently constipated: | Reduced | Stayed Same | Got worse |
| c. Overweight:             | Reduced | Stayed Same | Got worse |
- 

6. You expressed interest in performing the following types of exercise. How many times per week are you doing these now? (0: not at all/ 7: 7 times per week):

- |                         |     |
|-------------------------|-----|
| a. Bicycling/exercycle: | --- |
| b. Swimming:            | --- |
-

7. Has there been any change in your usage of medications/  
drugs/substances you reported using initially?

Yes No If 'yes' please specify:

---

8. Has there been any change in how much you like yourself?

Yes No If 'yes' please specify:

---

9. Are you now more satisfied with what you are  
accomplishing in life?

Yes No If 'yes' please specify:

---

10. You initially listed 3 activities you thought you might  
engage in if you were not bothered by stress. Please  
indicate if you are doing these now:

a. Working on my book: Not at all Sometimes Frequently

b. Enjoy time with kids: Not at all Sometimes Frequently

c. Derive satisfaction/

enjoyment from work: Not at all Sometimes Frequently

---

Thank you again for taking the time to carefully answer  
this questionnaire, and for participating in this  
experiment.



SIGNIFICANT-OTHER POST-QUESTIONNAIRE

To: Jane Smith

Date: 10/31/86

From: Bruce Walker

Dear Jane,

As you know, John Smith has been using the experimental Stress Management Computer Bulletin Board System over the past few months and has now completed his/her program. At the beginning of this program, s/he designated you as the 'significant other' person who would be willing to verify (to the degree that you were able to observe) his/her use of the stress-coping strategies that were recommended, and any changes that have resulted from participation in this program. As the operator of this system, I would appreciate very much your filling-out this questionnaire. Your answers will be very valuable to me in evaluating the effectiveness of this system, and in identifying improvements for possible future systems of this kind. As with all communication in this experiment, your responses will be handled confidentially. Please just circle your answers on this form (as well as write-in any comments, positive or negative, you would like to make), and return the form to me using the enclosed stamped self-addressed envelope.

-----

1. At the beginning, John listed 4 situations in which s/he experienced stress. Please indicate below your estimate of the current (e.g., during past week) frequency, intensity, and duration of his/her stress in these situations. (If you had no opportunity to observe just write-in "N"):

Key: Frequency	Intensity	Duration
6. All the time	0: No Stress	1. Less than 5 min
5. Once per day	-	2. Less than 1/2 hr
4. Several Times/Week	-	3. Less than 1 hr
3. Once per week	-	4. Less than 5 hrs
2. Once per month	-	5. Less than 10 hrs
1. Less frequently	10: Super-Extreme	6. All day long

Situation	Freq (1-6)	Inten (0-10)	Duratr (1-6)
Sit 1: Confrontation with office-mate:	---	---	---
Sit 2: Stress re. In-laws dropping by:	---	---	---
Sit 3: Confrontations with Dept Head:	---	---	---
Sit 4: Stress re. meeting deadlines:	---	---	---

2. From these situations, John and I identified two relatively high-frequency, relatively-severe situations, and coping strategies for reducing the stress experienced in these situations. In addition, a "general coping strategy" was identified to use regularly (i.e., several times per week) to reduce his/her overall daily stress level. Please indicate below whether you observed John using these strategies, and your estimate of how effective they were. (Again, write-in "N" if you had no opportunity to observe):

-----  
 Situation A:           Hassles with Boss and Peers

Coping Strategy:   Assertive action/perspective-taking

S/he used strategy (Circle appropriate answer):

    Every Time Situation Occurred               Sometimes               Never

Effectiveness of Strategy (0:Not Useful/10:Very Useful)

    Rating (0-10):    -----

-----

Situation B:           Deadlines to Meet

Coping Strategy:   Goal-Setting/Time Management

S/he used strategy (Circle appropriate answer):

    Every Time Situation Occurred               Sometimes               Never

Effectiveness of Strategy (0:Not Useful/10:Very Useful)

    Rating (0-10):    -----

-----

General Coping Strategy:   Brisk Walk for 30 minutes

S/he used strategy (Circle appropriate answer):

    Daily               3 or More Times/Week               1 or 2 Times/Week

    Less Frequently Than Above                               Never

Effectiveness of Strategy (0:Not Useful/10:Very Useful)

    Rating (0-10):    -----

-----

3. John initially reported generally experiencing the following physical symptoms when stressed. From your perspective, has there been any change in the frequency/intensity/duration of these symptoms? (Again,

write-in an "N" if you have had no opportunity to observe):

- |                      |         |             |           |
|----------------------|---------|-------------|-----------|
| a. Rapid heart beat: | Reduced | Stayed Same | Got worse |
| b. Hands/feet cold:  | Reduced | Stayed Same | Got worse |
| c. Stomach ache:     | Reduced | Stayed Same | Got worse |
| d. Nausea/vomiting:  | Reduced | Stayed Same | Got worse |
- 

4. S/he initially reported generally experiencing the following thoughts/ feelings when stressed. Have you observed any change in his/her reported frequency/intensity/duration of these?

- |                         |         |             |           |
|-------------------------|---------|-------------|-----------|
| a. Feel out-of-control: | Reduced | Stayed Same | Got worse |
| b. Can't concentrate:   | Reduced | Stayed Same | Got worse |
| c. Feel angry:          | Reduced | Stayed Same | Got worse |
| d. Want to escape:      | Reduced | Stayed Same | Got worse |
- 

5. S/he initially reported the following general physical conditions. Have you noticed any change in these?

- |                            |         |             |           |
|----------------------------|---------|-------------|-----------|
| a. Pain continuously:      | Reduced | Stayed Same | Got worse |
| b. Frequently constipated: | Reduced | Stayed Same | Got worse |
| c. Overweight:             | Reduced | Stayed Same | Got worse |
- 

6. S/he initially expressed interest in performing the following types of exercise. Based on your observations, how many times per week is s/he you doing these now? (0: not at all/ 7: 7 times per week):

a. Bicycling/exercycle: ---

b. Swimming: ---

7. Have you observed any change in his/her usage of medications/ drugs/substances since starting this program?

Yes No If 'yes' please specify:

8. Have you observed any change in his/her self-esteem?

Yes No If 'yes' please specify:

9. Have you noticed if John now appears more satisfied with what s/he is accomplishing in life?

Yes No If 'yes' please specify:

10. John initially listed 3 activities s/he thought they might engage in if not bothered by stress. Please indicate if s/he is doing these now:

a. Working on his book: Not at all Sometimes Frequently

b. Enjoy time with kids: Not at all Sometimes Frequently

c. Derive satisfaction/

enjoyment from work: Not at all Sometimes Frequently

11. Do you think John's overall experience with this BBS was:

Beneficial	Not Beneficial	Entertaining	Boring
Frustrating	Interesting	Educational	Trivial

-----

Thank you again for taking the time to carefully answer this questionnaire, and for participating in this experiment.

Significant-Other Signature

-----  
Jane Smith

-----  
Date

SUPPLEMENTAL POST-QUESTIONNAIRE

To: John Smith

Date: 10/31/86

From: Bruce Walker

Dear John,

I am writing to ask you for some additional feedback on your experience with the experimental Stress Management Computer Bulletin Board System. You responded to the Life Events and Stress Questionnaires, entered a formal stress management program with the BBS, used the Daily Reporting feature, and my records indicate you called the system 77 times. Your answers to the following questions will be very valuable to me in evaluating the effectiveness of this system, and in identifying improvements for possible future systems of this kind. As with all of your other communication with this BBS, your responses will be handled confidentially. Please just circle your answers on this form (as well as write-in any comments, positive or negative, you would like to make), and return the form to me using the enclosed stamped self-addressed envelope.

## 1. What did you think of the Life Events Questionnaire?

## a. Taking it was:

Easy      Difficult      Fun      Tedious      Informative

## b. The automatic feedback provided (e.g., scores, probability of illness within next 2 years) was:

Interesting      Boring      Useful to me      Not useful

Valuable      Trivial      Educational      Motivating

---

## 2. What did you think of the Stress Questionnaire?

## a. Taking it was:      Easy      Difficult      Fun

Tedious      Informative      Educational

## b. The questions asked were:      Relevant      Irrelevant

Provocative      Thorough      Not Thorough

## c. The automatic feedback provided (e.g., consequences/effectiveness of present coping strategies) was:

Interesting      Boring      Useful to me      Not useful

Valuable      Trivial      Educational      Motivating

---

## 3. What did you think of the 'Chat Mode' (on-line, real-time conversing with the Sysop)? Please circle all

answers that apply:      I didn't use it

Useful Technically      Useful Stress Mgt Advice

Fun      Frustrating      Difficult      Easy

---



4. Please indicate below your usage (and opinion) of the General Information Files provided by the BBS? Please circle all answers that apply:

File Name	Read File		Down-Loaded File		Info Useful to Me		Used Info In My Stress Mgt	
	Yes	No	Yes	No	Yes	No	Yes	No
NEW MEMBR INSTRUCT'S								
ABOUT STRESS								
GEN INFO/STR MGT BBS								
EXERCISE AND STRESS								
RELAXATION TRAINING								
SELF-STATEMENTS								
GOAL-SETTING								
PROBLEM-SOLVING								
TIME MANAGEMENT								
ASSERTIVENESS TNG								
CHILD BEHAVIOR								
OTHER STRATEGIES								

Comments you may have on any of these files:

-----

5. Did you exchange messages with any other members of this BBS?    Yes            No

b. If 'yes' did you find the exchange:            Fun  
 Stimulating            Beneficial re Stress Mgt            Trivial

-----

## 6. What was your opinion of the Daily Reporting feature?

a. Using it was:      Easy      Difficult      Fun      Tedious  
                          Informative      Educational

b. I bypassed the automatic feedback feature:

Always              Usually              Sometimes              Never

c. The graphical automatic feedback provided was:

Interesting      Boring      Useful to me      Not useful  
 Valuable      Trivial      Educational      Motivating

d. The 'canned' verbal automatic feedback provided was:

Interesting      Boring      Useful to me      Not useful  
 Valuable      Trivial      Educational      Motivating

Not varied enough              Too simplistic      Adequate

Comments/Suggestions on improving Daily Reporting features:

-----  
 7. What did you think of the technical features of this BBS?

a. I have used other BBS's:      Yes              No

b. Using this BBS, compared to others, was:

                         Easier              Harder

c. The Instructions provided (e.g., I Command/Detailed  
 Operating Instructions, H (Help) Command) were:

Helpful      Of Little Help      Too Long      Too Brief

d. The 300 Baud speed was:

An Annoyance      Not Bothersome      Adequate      Inadequate  
 Necessary (I do not have 1200 Baud)

e. The 40-column standard format (switchable to 80

columns for some functions) was:

An Annoyance    Not Bothersome    Adequate    Inadequate  
Necessary (I do not have 80 columns)

f. I had trouble getting:

Line-feeds    80 Columns    Lower-Case

g. Reading and Entering Messages was:    Easy  
Difficult    Tedious    Straightforward    Frustrating

h. The Message Format was:

Restrictive    Restrictive    Adequate  
re 40-columns    re 10 lines    for me

i. Telephone charges were:    A problem    No problem  
for me    for me

---

8. My overall experience with this BBS was:

Beneficial    Not Beneficial    Entertaining    Boring  
Frustrating    Interesting    Educational    Trivial

---

9. Assuming an improved version of this BBS, incorporating the changes you have identified above were available, would you pay money to use it?

Yes (if the fees were 'reasonable')

No (even if it were free)

---

Thank you again for taking the time to carefully answer this questionnaire, and for participating in this experiment.

## Appendix C

### Specialized Software Listings

Software listings for the automated BBS questionnaires, questionnaire printout routines, the Daily Reporting/Feedback program, and system management support functions, are presented in this appendix. This software was written in APPLESOFT, Apple's floating-point BASIC programming language.

#### LIFE EVENTS QUESTIONNAIRE

```
5  PR# 2: IN# 2: CALL 1002
6  SLOT = 2
7  ONERR GOTO 250
10 DIM Q$(45): DIM V$(45): DIM SI$(45):D$ = CHR$(4): REM
    CTRL-D
12 POKE 1912 + SLOT,22
40 Q$(1) = "DEATH OF SPOUSE":Q$(2) = "DIVORCE":Q$(3) =
    "MARITAL SEPARATION":Q$(4) = "JAIL TERM":Q$(5) =
    "DEATH OF A CLOSE FAMILY MEMBER":Q$(6) = "PERSONAL
    INJURY OR ILLNESS":Q$(7) = "GOT MARRIED":Q$(8) =
    "FIRED FROM WORK"
45 Q$(9) = "MARITAL RECONCILIATION":Q$(10) =
    "RETIREMENT":Q$(11) = "CHANGE IN FAMILY MEMBER'S
    HEALTH":Q$(12) = "PREGNANCY":Q$(13) = "SEX
    DIFFICULTIES":Q$(14) = "ADDITION TO FAMILY":Q$(15) =
    "BUSINESS READJUSTMENT"
50 Q$(16) = "CHANGE IN FINANCIAL STATUS":Q$(17) = "DEATH
    OF A CLOSE FRIEND":Q$(18) = "CHANGE TO A DIFFERENT
    LINE OF WORK":Q$(19) = "CHANGE IN NUMBER OF MARITAL
    ARGUMENTS":Q$(20) = "OBTAINED A MORTGAGE OR LOAN OVER
    $50000"
55 Q$(21) = "FORECLOSURE OF MORTGAGE OR LOAN":Q$(22) =
    "CHANGE IN WORK RESPONSIBILITIES":Q$(23) = "SON OR
    DAUGHTER LEAVING HOME":Q$(24) = "TROUBLE WITH
    IN-LAWS":Q$(25) = "OUTSTANDING PERSONAL ACHIEVEMENT"
60 Q$(26) = "SPOUSE BEGINS OR STOPS WORK":Q$(27) =
    "STARTING OR FINISHING SCHOOL":Q$(28) = "CHANGE IN
    LIVING CONDITIONS":Q$(29) = "REVISION OF PERSONAL
    HABITS":Q$(30) = "TROUBLE WITH BOSS"
```

```

65 Q$(31) = "CHANGE IN WORK HOURS/CONDITIONS":Q$(32) =
    "CHANGE IN RESIDENCE":Q$(33) = "CHANGE IN SCHOOLS":
    Q$(34) = "CHANGE IN RECREATIONAL HABITS":Q$(35) =
    "CHANGE IN CHURCH ACTIVITIES"
70 Q$(36) = "CHANGE IN SOCIAL ACTIVITIES":Q$(37) =
    "OBTAINED A MORTGAGE OR LOAN UNDER $50000":Q$(38) =
    "CHANGE IN SLEEPING HABITS":Q$(39) = "CHANGE IN NUMBER
    OF FAMILY GATHERINGS"
75 Q$(40) = "CHANGE IN EATING HABITS":Q$(41) =
    "VACATION":Q$(42) = "CHRISTMAS SEASON":Q$(43) = "MINOR
    VIOLATION OF THE LAW"
80 V%(1) = 100:V%(2) = 73:V%(3) = 65:V%(4) = 63:V%(5) =
    63:V%(6) = 53:V%(7) = 50:V%(8) = 47:V%(9) = 45:V%(10)
    = 45:V%(11) = 44:V%(12) = 40:V%(13) = 39:V%(14) = 39:
    V%(15) = 39
85 V%(16) = 38:V%(17) = 37:V%(18) = 36:V%(19) = 35:V%(20)
    = 31:V%(21) = 30:V%(22) = 29:V%(23) = 29:V%(24) =
    29:V%(25) = 28:V%(26) = 26:V%(27) = 26:V%(28) =
    25:V%(29) = 24
90 V%(30) = 23:V%(31) = 20:V%(32) = 20:V%(33) = 20:V%(34)
    = 19:V%(35) = 19:V%(36) = 18:V%(37) = 17:V%(38) =
    16:V%(39) = 15:V%(40) = 15:V%(41) = 13:V%(42) =
    12:V%(43) = 11
95 GOTO 117
100 HOME : PRINT "** LIFE EVENT: **": PRINT : PRINT Q$(I):
    PRINT : PRINT SPC( 5);"(VALUE: ";V%(I);" POINTS)":
    PRINT : INPUT "ENTER 'Y' OR C/R: ";Y$: PRINT
105 IF Y$ < > "Y" THEN 115
110 S% = S% + V%(I):J = J + 1:SI%(J) = I: PRINT NF$;", YOUR
    SCORE IS NOW: ";S%: PRINT : INPUT "PRESS 'P' TO
    PROCEED: ";P$: IF P$ = "P" THEN 115
115 RETURN
117 HOME : INPUT "WHAT IS YOUR FIRST NAME: ";NF$: PRINT :
    INPUT "WHAT IS YOUR LAST NAME: ";NL$: PRINT
120 HOME : PRINT SPC( 5);"LIFE EVENTS STRESS
    QUESTIONNAIRE": PRINT
122 PRINT NF$;", AS YOU LIKELY KNOW, OUR STRESS LEVEL
    RELATES, AT LEAST IN PART,": PRINT "TO THE CHANGES WE
    EXPERIENCE IN OUR LIVES. YOUR RESPONDING"
123 PRINT "TO THIS QUESTIONNAIRE WILL GIVE BOTH OF US SOME
    DATA ON HOW YOUR": PRINT "RECENT LIFE EVENTS
    INFLUENCED YOUR CURRENT EXPERIENCE OF STRESS.": PRINT
125 PRINT "THIS QUESTIONNAIRE WAS DEVELOPED BY T.H. HOLMES,
    M.D., TO": PRINT "QUANTIFY THE STRESS THE ORDINARY
    PERSON MAY BE SUBJECTED TO OVER": PRINT "A PERIOD OF
    TIME.": PRINT
130 PRINT "DR. HOLMES BASED THIS SCALE ON MORE THAN 15
    YEARS OF RESEARCH": PRINT "ON THE RELATIONSHIP BETWEEN
    LIFE CHANGES AND ILL HEALTH."
135 PRINT : INPUT "PRESS 'P' TO PROCEED: ";P$: IF P$ = "P"
    THEN HOME

```

```

140 PRINT : PRINT "TO TAKE THIS TEST, A SERIES OF EVENTS (&
    THEIR RELATIVE STRESS": PRINT "VALUE) WILL BE
    PRESENTED TO YOU.": PRINT
145 PRINT "ANSWER 'Y' TO ANY EVENT THAT OCCURRED IN YOUR
    LIFE IN THE PAST": PRINT "12 MONTHS. IF THE EVENT DID
    NOT OCCUR JUST ENTER A": PRINT "CARRIAGE RETURN
    (C/R).": PRINT
150 PRINT "GO THROUGH ALL 43 ITEMS. A RUNNING TOTAL OF YOUR
    STRESS SCORE": PRINT "WILL BE PRESENTED TO YOU AS YOU
    GO ALONG. WHEN FINISHED YOU"
152 PRINT "WILL BE GIVEN A PERCENTAGE SCORE THAT INDICATES
    THE ODDS ON": PRINT "YOUR BECOMING SERIOUSLY ILL
    WITHIN THE NEXT TWO YEARS.": PRINT
155 INPUT "PRESS 'P' TO PROCEED: ";P$: PRINT : IF P$ = "P"
    THEN 160
160 FOR I = 1 TO 43: GOSUB 100: NEXT I
170 IF S% < 150 THEN SC% = INT ((S% / 149) * 37): GOTO 190
175 IF S% < = 300 THEN SC% = 37 + INT ((S% / 300) * 14):
    GOTO 190
180 IF S% > 300 THEN SC% = 80 + INT ((S% / 1466) * 20) - 4
190 HOME : PRINT NF$;", YOUR TOTAL SCORE IS: ";S%;"":
    PRINT : PRINT "THIS SCORE REFLECTS THE TOTAL AMOUNT OF
    STRESS YOU HAVE BEEN SUBJECTED TO BY": PRINT "EVENTS
    OF THE PAST YEAR.": PRINT
200 PRINT "ACCORDING TO DR. HOLMES YOU HAVE A ";SC%;"%
    *CHANCE* OF": PRINT "BECOMING SERIOUSLY ILL WITHIN THE
    NEXT TWO YEARS.": PRINT
205 PRINT "PLEASE NOTE THAT A HIGH SCORE IS NOT A
    GUARANTEE OF ILLNESS.": PRINT "IT INDICATES ONLY THAT
    UNLESS YOU START ON A STRESS MANAGEMENT PROGRAM YOUR
    *CHANCES* OF": PRINT "BECOMING ILL ARE ";SC%;"%.":
    PRINT
210 IF SC% > 51 THEN PRINT : PRINT NF$;", FOR THOSE AREAS
    OF YOUR LIFE WHERE YOU HAVE A CHOICE,": PRINT "YOU
    SHOULD TRY *NOT* TO TAKE ON ANY MORE CHANGES FOR
    AWHILE.": PRINT
212 F$ = NF$ + " " + NL$ + ".LFEVNT ASMT": PRINT D$;"OPEN
    "F$""": PRINT D$;"WRITE "F$""": PRINT J: FOR L = 1 TO J:
    PRINT SI%(L): NEXT L: PRINT D$;"CLOSE "F$""
215 INPUT "WHEN READY TO PROCEED PRESS 'P'": ";P$: PRINT :
    IF P$ = "P" THEN 220
220 PRINT "TO START YOUR STRESS MANAGEMENT PROGRAM VIA THIS
    BBS: ANSWER": PRINT "THE STRESS QUESTIONNAIRE (VIA %
    CMD) THE NEXT TIME YOU LOG-ON.": PRINT
235 PRINT : PRINT NF$;", YOU WILL NOW BE DISCONNECTED
    (WHILE THE": PRINT "BBS RE-BOOTS). YOU MAY LOG-ON
    AGAIN (IF YOU WISH) IN 2 MINUTES."
240 PRINT D$;"PR#6"
250 ER = PEEK (222): IF ER = 53 THEN PRINT "ILLEGAL CHAR
    ENTERED": PRINT : RESUME
255 IF ER = 254 THEN PRINT "BAD RESPONSE TO INPUT": PRINT

```

```

      : RESUME
260 IF ER = 176 THEN PRINT "STRING TOO LONG": PRINT :
      RESUME
265 IF ER = 255 THEN PRINT "CTRL-C NOT ALLOWED": PRINT :
      RESUME
270 PRINT "UNRECOVERABLE ERROR": PRINT : PRINT D$;"PR#6"

```

### LIFE EVENTS ASSESSMENT PRINTOUT

Note: Lines 10-90 are same as Life Events Questionnaire.

```

117 HOME : PRINT SPC( 5);"LIFE EVENTS ASMT PRINTOUT":
      PRINT : INPUT "ENTER CLIENT'S NAME: ";CN$: PRINT
120 F$ = CN$ + ".LFEVNT ASMT"
125 PRINT D$;"OPEN "F$""; PRINT D$;"READ "F$""; INPUT L:
      PRINT D$;"CLOSE "F$""
130 PRINT D$;"OPEN "F$""; PRINT D$;"READ "F$""; INPUT L:
      FOR J = 1 TO L: INPUT SI%(J):S% = S% + V%(SI%(J)):
      NEXT J: PRINT D$;"CLOSE "F$""
133 PRINT "TURN ON PRINTER": PRINT D$;"PR#1": PRINT : PRINT
135 PRINT SPC( 15);CN$;" LIFE EVENTS ASMT": PRINT : FOR J
      = 1 TO L: PRINT Q$(SI%(J));":": SPC( 45 - LEN
      (Q$(SI%(J)))));V%(SI%(J));" PTS.": NEXT J
170 IF S% < 150 THEN SC% = INT ((S% / 149) * 37): GOTO 190
175 IF S% < = 300 THEN SC% = 37 + INT ((S% / 300) * 14):
      GOTO 190
180 IF S% > 300 THEN SC% = 80 + INT ((S% / 1466) * 20) - 4
190 PRINT : PRINT "TOTAL SCORE: "; TAB( 38);S%: PRINT :
      PRINT "PROB. OF ILLNESS: "; TAB( 38);SC%;"%": PRINT
200 PRINT D$;"PR#0"

```

### STRESS QUESTIONNAIRE

```

1 PRINT CHR$( 4)"MAXFILES2": HIMEM: 6 * 4096 + 15 * 256:
      TEXT : HOME
2 PR# 2: IN# 2: CALL 1002
5 SLOT = 2:D$ = CHR$( 4): REM CTRL-D
7 POKE 1912 + SLOT,22
10 DIM Q$(25): DIM M$(25,19): DIM L(25): DIM P(25): DIM
      M%(25): DIM A$(4,25,19)
15 L(1) = 4:L(2) = 6:L(3) = 7:L(4) = 4:L(5) = 5:L(6) =
      4:L(7) = 6:L(8) = 19:L(9) = 7:L(10) = 10:L(11) =
      13:L(12) = 1:L(13) = 7:L(14) = 10:L(15) = 8:L(16) = 1
20 L(17) = 10:L(18) = 4:L(19) = 5:L(20) = 1:L(21) =4:
      L(22) = 4:L(23) = 4:L(24) = 3:L(25) = 1
25 M%(3) = 7:M%(8) = 19:M%(9) = 7:M%(10) = 10:M%(11) =
      13:M%(13) = 7:M%(14) = 10:M%(15) = 8:M%(17) = 10
32 GOTO 400
50 FOR I = M TO N: HOME : PRINT Q$(I): PRINT : FOR J = 1
      TO L(I): PRINT M$(I,J): INPUT A$(0,I,J): IF I = 3 OR
      14 OR 15 THEN 55

```

```

52 NEXT J: NEXT I: RETURN
55 IF J = M%(I) AND A$(O,I,J) = "Y" THEN GOSUB 100
56 GOTO 52
60 FOR I = M TO N: HOME : PRINT Q$(I): PRINT : FOR J = 1
  TO L(I): PRINT M$(I,J): PRINT : NEXT J: INPUT
  A$(O,I,1): PRINT : NEXT I: RETURN
70 FOR I = M TO N: HOME : PRINT Q$(I): PRINT : FOR K = 1
  TO 4: PRINT "SIT ";K;" ";A$(O,4,K): PRINT : FOR J = 1
  TO L(I): PRINT M$(I,J): NEXT J: PRINT : INPUT "SELECT
  ONE:";A$(O,I,K): PRINT : HOME : NEXT K: NEXT I: RETURN
80 FOR K = 1 TO 4: FOR I = M TO N: PRINT "FOR SIT ";K;"
  ";A$(O,4,K): PRINT : PRINT Q$(I): PRINT : IF K > 1
  THEN GOSUB 110: IF YN$ = "Y" THEN 84
82 FOR J = 1 TO L(I): PRINT M$(I,J): INPUT A$(K,I,J): IF I
  > 7 AND I < 14 THEN 85
83 NEXT J
84 HOME : NEXT I: NEXT K: RETURN
85 IF J = M%(I) AND A$(K,I,J) = "Y" THEN GOSUB 100
87 GOTO 83
90 GOSUB 150: RETURN
95 PRINT : INPUT "PRESS 'Y' TO PROCEED: ";Y$: HOME :
  RETURN
96 GOSUB 145: RETURN
100 PRINT : PRINT NF$;" , YOU CHOSE 'OTHER' ON THE": PRINT
  "LAST QUESTION. PLEASE ENTER WHAT YOU": PRINT "MEAN,
  IN 10 WORDS OR LESS, WITHOUT USING": PRINT "COMMAS:"
  PRINT : INPUT A$(K,I,J): PRINT : RETURN
110 PRINT NF$;" , SAME ANSWERS AS FOR SITUATION 1?": INPUT
  "(ANSWER Y OR N):";Y$: IF Y$ = "Y" THEN 120
111 YN$ = "N"
112 HOME : PRINT "FOR SIT ";K;" ";A$(O,4,K): PRINT : PRINT
  Q$(I): PRINT : RETURN
115 FOR J = 1 TO L(I):A$(K,I,J) = A$(1,I,J): IF A$(1,I,J)
  = "Y" THEN A$(K,I,J) = "S"
116 NEXT J: PRINT : RETURN
120 PRINT : INPUT "ARE YOU SURE? (ANS Y OR N): ";YN$: IF
  YN$ = "Y" THEN 115
121 GOTO 112
145 PRINT L$: PRINT : FOR J = 1 TO L(I): IF A$(K,I,J) =
  "S" THEN M$ = "****"
146 NEXT J: GOTO 153
150 PRINT Q$(I): PRINT : PRINT "YOUR RESPONSE:" : PRINT :
  FOR J = 1 TO L(I): IF A$(K,I,J) = "S" THEN M$ = "****"
151 NEXT J
152 IF I = 12 THEN PRINT A$(K,I,J): GOTO 159
153 FOR J = 1 TO L(I): IF A$(K,I,J) = "Y" THEN PRINT
  M$(I,J);" ";M$: GOTO 158
154 IF A$(K,I,J) = "S" THEN PRINT M$(I,J);" ";M$: GOTO
  158
156 IF A$(K,I,J) = "N" THEN 158
157 IF LEN (A$(K,I,J)) > 2 THEN PRINT "OTHER:

```



```

";A$(K,I,J)
158 NEXT J
159 IF M$ = "***" THEN PRINT TAB(5);M$;": ";"(SAME AS
    SIT 1)"
160 M$ = " ": PRINT : RETURN
400 HOME : PRINT "PRE-STRESS MANAGEMENT QUESTIONNAIRE":
    PRINT
405 ONERR GOTO 1200
410 PRINT D$;"OPEN DATE,D2": PRINT D$;"READ DATE": INPUT
    DA$: INPUT U$: PRINT D$;"CLOSE DATE":CL% = VAL
    (RIGHT$(U$,3)): DIM C$(2 * CL%)
412 PRINT D$;"OPEN CLIENTS,L15,D2": FOR I = (2 * CL% - 1)
    TO (2 * CL%): PRINT D$;"READ CLIENTS,R";I: INPUT
    C$(I): NEXT : PRINT D$;"CLOSE CLIENTS": IF VAL (C$(2
    * CL%)) < > 0 THEN 414
413 PRINT "YOU ARE NOT LISTED IN THE CLIENT FILE.": PRINT
    "TO GET LISTED, SEND SYSOP A MSG.": PRINT : PRINT
    D$;"PR#6"
414 NL$ = C$(2 * CL% - 1):LL% = LEN (C$(2 * CL%)):NF$ =
    MID$(C$(2 * CL%),2,LL%)
415 PRINT NF$;": PLEASE ANSWER *ALL* OF THESE": PRINT
    "QUESTIONS TO HELP US DETERMINE HOW BEST": PRINT "TO
    MANAGE YOUR STRESS.": PRINT
416 PRINT "WHEN PROVIDING NON-NUMERIC (VERBAL) AN-": PRINT
    "SWERS, DO *NOT* USE COMMAS OR COLONS AS": PRINT "THE
    SYSTEM WILL NOT RECORD YOUR COMPLETE ANSWER.": PRINT
417 PRINT "TO QUIT THIS QUESTIONNAIRE BEFORE COMPLETING
    IT,": PRINT "ENTER A CONTROL-C AND A C/R AT ANY
    PROMPT": PRINT : PRINT "DO *NOT* HANG-UP YOUR YOUR
    PHONE.": PRINT
418 INPUT "PRESS 'Y' WHEN READY TO PROCEED: ";Y$
420 A$(0,1,0) = NF$ + " " + NL$
500 Q$(1) = "WHAT IS YOUR:"
505 M$(1,1) = "AGE:";M$(1,2) = "SEX (M/F): ";M$(1,3) =
    "MARITAL STATUS: MARRIED (M), LIVING WITH SOMEONE
    (L), SINGLE (S), SEPARATED OR DIVORCED (D):";M$(1,4)
    = "OCCUPATION (LESS THAN 5 WORDS): "
510 Q$(2) = "HOW LONG HAVE YOU HAD DIFFICULTY WITH STRESS
    (SELECT ONE):"
515 M$(2,1) = "1. PAST 1 MONTH ";M$(2,2) = "2. PAST 3
    MONTHS ";M$(2,3) = "3. PAST 6 MONTHS ";M$(2,4) = "4.
    PAST 1 YEAR ";M$(2,5) = "5. PAST 3 YEARS ";M$(2,6) =
    "6. MORE THAN PAST 3 YEARS"
520 Q$(3) = "DID YOUR STRESS START WITH ANY OF THE
    FOLLOWING (ANS Y OR N):"
525 M$(3,1) = "JOB CHANGE";M$(3,2) = "MARITAL CHANGE":
    M$(3,3) = "CHANGE IN FAMILY";M$(3,4) = "SCHOOL
    CHANGE";M$(3,5) = "HEALTH/ILLNESS";M$(3,6) = "INCOME
    CHANGE"
526 M$(3,7) = "OTHER LIFE EVENT OR CHANGE (Y/N)"
530 Q$(4) = "LIST 4 SITUATIONS IN WHICH YOU CURRENTLY FEEL

```

## STRESS:"

- 535 M\$(4,1) = "SIT 1: ":M\$(4,2) = "SIT 2: ":M\$(4,3) = "SIT  
3: ":M\$(4,4) = "SIT 4: "
- 540 Q\$(5) = "HOW OFTEN DO YOU EXPERIENCE STRESS IN EACH OF  
THESE (SEL ONE):"
- 545 M\$(5,1) = "1. ALL THE TIME ":M\$(5,2) = "2. ONCE PER DAY  
":M\$(5,3) = "3. ONCE PER WEEK ":M\$(5,4) = "4. SEVERAL  
TIMES PER WEEK ":M\$(5,5) = "5. ONCE PER MONTH "
- 550 Q\$(6) = "HOW INTENSE IS THIS STRESS? (0: NO STRESS /  
10: SUPER-EXTREME):"
- 551 M\$(6,1) = "STRESS INTENSITY (0-10)":M\$(6,2) = "  
":M\$(6,3) = " ":M\$(6,4) = " "
- 555 Q\$(7) = "WHEN YOU LAST FELT THIS STRESS, HOW LONG DID  
IT LAST:"
- 560 M\$(7,1) = "1. LESS THAN 5 MINUTES ":M\$(7,2) = "2. LESS  
THAN 1/2 HOUR ":M\$(7,3) = "3. LESS THAN 1 HOUR  
":M\$(7,4) = "4. LESS THAN 5 HOURS ":M\$(7,5) = "5. LESS  
THAN 10 HOURS ":M\$(7,6) = "6. ALL DAY LONG "
- 565 Q\$(8) = "WHAT ARE THE PHYSICAL SYMPTOMS OF THIS STRESS  
(Y OR N TO EACH):"
- 570 M\$(8,1) = "RAPID HEART BEAT":M\$(8,2) = "PAIN IN CHEST":  
M\$(8,3) = "DIFFICULTY SWALLOWING":M\$(8,4) = "FEELING  
SUFFOCATED":M\$(8,5) = "CHOKING SENSATION":M\$(8,6) =  
"HANDS OR FEET TINGLE"
- 571 M\$(8,7) = "FACE FEELS HOT":M\$(8,8) = "SWEATING":M\$(8,9)  
= "TREMBLING/SHAKING":M\$(8,10) = "HANDS/FEET FEEL  
NUMB": M\$(8,11) = "NAUSEA/VOMITING":M\$(8,12) =  
"BREATHING RAPIDLY"
- 572 M\$(8,13) = "HANDS/FEET FEEL COLD":M\$(8,14) = "MOUTH  
DRY":M\$(8,15) = "HEADACHE":M\$(8,16) = "STOMACH  
ACHE":M\$(8,17) = "FEEL FATIGUED":M\$(8,18) = "SINKING  
FEELING IN STOMACH"
- 573 M\$(8,19) = "OTHER (Y/N)"
- 575 Q\$(9) = "WHAT ARE YOUR THOUGHTS WHEN YOU FEEL THIS  
STRESS (Y OR N TO EA):"
- 580 M\$(9,1) = "I AM OUT OF CONTROL":M\$(9,2) = "I AM  
ANGRY":M\$(9,3) = "I FEEL HELPLESS":M\$(9,4) = "I FEEL  
ANXIOUS":M\$(9,5) = "I CAN'T CONCENTRATE":M\$(9,6) = "I  
WANT TO ESCAPE":M\$(9,7) = "OTHER (Y/N)"
- 585 Q\$(10) = "WHAT HAPPENS IMMEDIATELY BEFORE YOU FEEL  
STRESSED (Y/N TO EACH):"
- 590 M\$(10,1) = "I ARRIVE AT WORK OR SCHOOL":M\$(10,2) = "I  
ARRIVE HOME":M\$(10,3) = "I WORK OVERTIME":M\$(10,4) =  
"I HAVE A DEADLINE TO MEET":M\$(10,5) = "I THINK ABOUT  
HOW MUCH WORK I HAVE TO GET DONE":M\$(10,6) =  
"SOMEONE 'PUTS ME DOWN'"
- 591 M\$(10,7) = "I GET IN AN ARGUMENT":M\$(10,8) = "MY  
SPOUSE/ROOMMATE HASSLES ME":M\$(10,9) = "MY CHILD  
(CHILDREN)'S BEHAVIOR GETS TO ME":M\$(10,10) = "OTHER  
(Y/N)"
- 595 Q\$(11) = "WHAT HAS BEEN EFFECTIVE IN REDUCING YOUR

## STRESS AT THESE TIMES:"

- 600 M\$(11,1) = "LEAVING THE SITUATION":M\$(11,2) = "SMOKING A CIGARETTE":M\$(11,3) = "DRINKING AN ALCOHOLIC BEVERAGE":M\$(11,4) = "FIGHTING OR ARGUING":M\$(11,5) = "TAKING THE DAY OFF"
- 601 M\$(11,6) = "GETTING SOME EXERCISE":M\$(11,7) = "TAKING A NAP":M\$(11,8) = "TALKING TO SOMEONE ABOUT IT":M\$(11,9) = "EATING SOMETHING":M\$(11,10) = "TAKING A DRUG"
- 602 M\$(11,11) = "TELLING MYSELF TO 'HANG IN THERE'":M\$(11,12) = "TELLING MYSELF 'IT REALLY DOESN'T MATTER'":M\$(11,13) = "OTHER (E.G., TELLING MYSELF SOMETHING ELSE (Y/N))"
- 605 Q\$(12) = "EFFECTIVENESS OF THIS STRATEGY(S) (0:NOT USEFUL/10:VERY USEFUL):"
- 610 Q\$(13) = "WHAT HAPPENS IMMEDIATELY AFTER YOUR STRESS DIMINISHES:"
- 614 M\$(13,6) = "I FEEL RESENTFUL":M\$(13,7) = "OTHER (Y/N)"
- 615 M\$(13,1) = "MY PHYSICAL SYMPTOMS GO AWAY":M\$(13,2) = "I GET BACK TO MY WORK":M\$(13,3) = "I DON'T SPEAK TO ANYONE FOR AWHILE":M\$(13,4) = "I FEEL CALM":M\$(13,5) = "I REMAIN 'UPTIGHT' FOR QUITE A WHILE"
- 616 M\$(14,5) = "I HAVE SEXUAL PERFORMANCE DIFFICULTIES":M\$(14,6) = "I AM FREQUENTLY CONSTIPATED":M\$(14,7) = "I HAVE A STOMACH ULCER":M\$(14,8) = "I HAVE EXTREME MENSTRUAL DISTRESS"
- 617 M\$(14,10) = "I HAVE ANOTHER PHYSICAL PROBLEM (Y/N)":M\$(14,9) = "I AM IN PERFECT HEALTH"
- 618 Q\$(14) = "WHAT IS YOUR GENERAL PHYSICAL CONDITION (ANSWER 'Y' OR 'N' TO EACH):"
- 619 M\$(14,1) = "I AM OVERWEIGHT":M\$(14,2) = "I FREQUENTLY HAVE DIFFICULTY SLEEPING":M\$(14,3) = "I HAVE PAINS ALMOST CONTINUALLY":M\$(14,4) = "I HAVE SHORTNESS OF BREATH"
- 620 Q\$(15) = "WHAT EXERCISE DO YOU GET (ANS 'Y' OR 'N' TO EACH):"
- 625 M\$(15,1) = "I WALK AT LEAST 2 MILES 5 TIMES PER WEEK":M\$(15,2) = "I LIFT WEIGHTS FOR AT LEAST 1/2 HOUR 3 TIMES PER WEEK"
- 626 M\$(15,3) = "I PLAY AT LEAST 1 SET OF TENNIS OR RACQUETBALL AT LEAST TWICE PER WEEK":M\$(15,4) = "I SWIM FOR AT LEAST 1/2 HOUR 3 TIMES PER WEEK"
- 627 M\$(15,5) = "I JOG FOR AT LEAST 1/2 HOUR 3 TIMES PER WEEK":M\$(15,6) = "I AEROBIC DANCE FOR AT LEAST 1/2 HOUR 3 TIMES PER WEEK"
- 628 M\$(15,8) = "I GET SOME OTHER FORM OF REGULAR, STRENUOUS EXERCISE":M\$(15,7) = "I GET LESS EXERCISE THAN LISTED ABOVE"
- 630 Q\$(16) = "WHAT TYPE OF EXERCISE WOULD YOU LIKE TO GET, WHICH IS PRACTICAL:"
- 631 M\$(16,1) = "(SEL. ONE OF ABOVE OR SOME OTHER EX. YOU COULD DO REGULARLY):"

- 635 Q\$(17) = "WHAT SUBSTANCES DO YOU USE (ENTER 0 TO WHATEVER APPLIES FOR EA):"
- 640 M\$(17,1) = "BEER: AVERAGE NO. OF CANS PER DAY:"  
M\$(17,2) = "WINE: AVERAGE NO. OF 3 OZ. GLASSES PER DAY:"
- 641 M\$(17,3) = "LIQUOR: AVERAGE NO. OF 1 1/2 OZ. SHOTS PER DAY:"  
M\$(17,4) = "CIGARETTES: AVERAGE NO. OF CIGS. PER DAY:"
- 642 M\$(17,5) = "COFFEE OR CAFFEINE DRINK (E.G., COKE): AVERAGE NO. OF CUPS/CANS PER DAY:"
- 643 M\$(17,6) = "AMPHETAMINES ('SPEED'): 0 = NO USE / 1 = OCCASIONAL USE / 2 = DAILY USE:"  
M\$(17,7) = "TRANQUILIZERS: 0 = NO USE / 1 = OCCASIONAL USE / 2 = DAILY USE:"
- 644 M\$(17,8) = "MARIJUANA: 0 = NO USE / 1 = OCCASIONAL USE / 2 = DAILY USE:"  
M\$(17,9) = "SLEEPING MEDICATION: 0 = NO USE / 1 = OCCASIONAL USE / 2 = DAILY USE:"
- 645 M\$(17,10) = "OTHER MEDICATION: 0 = NO USE / 1 = OCCASIONAL USE / 2 = DAILY USE:"
- 650 Q\$(18) = "HOW MUCH SLEEP DO YOU GET, ON THE AVERAGE (SELECT ONE OF THE FOLLOWING 4):"
- 655 M\$(18,1) = "1. MORE THAN 10 HOURS PER NIGHT":  
M\$(18,2) = "2. MORE THAN 8 HOURS PER NIGHT":  
M\$(18,3) = "3. MORE THAN 6 HOURS PER NIGHT":  
M\$(18,4) = "4. LESS THAN 6 HOURS PER NIGHT"
- 660 Q\$(19) = "WHAT ARE YOUR EATING HABITS (SELECT ONE OF THE FOLLOWING):"
- 665 M\$(19,1) = "1. I EAT 3 BALANCED MEALS (COVERING ALL OF THE 4 MAJOR FOOD GROUPS) PER DAY":  
M\$(19,2) = "2. I EAT 2 BALANCED MEALS PER DAY":  
M\$(19,3) = "3. I EAT ONE BALANCED MEAL PER DAY"
- 667 M\$(19,4) = "4. MY DAILY NUTRITION IS BALANCED, BUT I DO NOT EAT REGULARLY"
- 668 M\$(19,5) = "5. MY DAILY NUTRITION INTAKE IS UNBALANCED/ AND I EAT IRREGULARLY"
- 670 Q\$(20) = "HOW MANY FRIENDS (MUTUALLY SUPPORTIVE PEOPLE YOU TALK TO OFTEN)?"
- 675 M\$(20,1) = "NO. OF CLOSE FRIENDS:"
- 680 Q\$(21) = "HOW SUPPORTIVE IS YOUR FAMILY (SELECT ONE OF THE FOLLOWING):"
- 685 M\$(21,1) = "1. ALWAYS SUPPORTIVE":  
M\$(21,2) = "2. FREQUENTLY SUPPORTIVE":  
M\$(21,3) = "3. SOMETIMES SUPPORTIVE":  
M\$(21,4) = "4. NEVER SUPPORTIVE"
- 690 Q\$(22) = "DO YOU LIKE YOURSELF (SELECT ONE OF THE FOLLOWING):"
- 695 M\$(22,1) = "1. ALL THE TIME":  
M\$(22,2) = "2. MOST OF THE TIME":  
M\$(22,3) = "3. SOME OF THE TIME":  
M\$(22,4) = "4. NEVER"
- 700 Q\$(23) = "ARE YOU SATISFIED WITH WHAT YOU ARE ACCOMPLISHING IN YOUR LIFE:"
- 705 M\$(23,1) = "1. ALL OF THE TIME":  
M\$(23,2) = "2. MOST OF

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    THE TIME":M$(23,3) = "3. SOME OF THE TIME":M$(23,4) =
    "4. NEVER"
710 Q$(24) = "WHAT WOULD YOU BE DOING IN YOUR LIFE THAT YOU
    ARE NOT DOING NOW IF YOU WERE NOT BOTHERED BY STRESS:"
715 M$(24,1) = "(E.G., I WOULD WORK ONLY 8 HOURS PER DAY, I
    WOULD SPEND 2 HOURS PER DAY WITH MY CHILDREN, "
716 M$(24,2) = "I WOULD SPEND 8 HOURS PER WEEK ON MY
    STAMP-COLLECTING HOBBY, I WOULD CHANGE CAREERS AND RUN
    MY OWN SOFTWARE BUSINESS)"
717 M$(24,3) = "PROVIDE 3 ANSWERS. RESPOND PRECISELY, AND
    KEEP EACH ANSWER TO LESS THAN 15 WORDS:"
1000 M = 1:N = 1: GOSUB 50
1005 M = 2:N = 2: GOSUB 60
1010 M = 3:N = 4: GOSUB 50
1015 M = 5:N = 7: GOSUB 70
1017 M = 8:N = 13: GOSUB 80
1019 K = 0
1020 M = 14:N = 15: GOSUB 50
1025 M = 16:N = 16: GOSUB 60
1030 M = 17:N = 17: GOSUB 50
1031 IF VAL (A$(0,17,10)) > 0 THEN K = 0:I = 17:J = 10:
    GOSUB 100
1035 M = 18:N = 23: GOSUB 60
1036 PRINT NF$;", ARE YOU NOW SEEING (OR HAVE YOU EVER
    SEEN)"
1037 PRINT "A COUNSELOR OR OTHER MENTAL HEALTH
    PROFESSIONAL?": INPUT "(ANS Y OR N):";Y$: IF Y$ = "N"
    THEN A$(0,25,0) = "N": HOME : GOTO 1040
1038 PRINT : PRINT "IN 20 WORDS OR LESS (WITHOUT USING
    COMMAS OR COLONS),"
1039 PRINT "DESCRIBE THE CIRCUMSTANCES AND OUTCOME": PRINT
    : INPUT A$(0,25,0): HOME
1040 PRINT NF$;", ";Q$(24): PRINT M$(24,1);M$(24,2): PRINT
    : PRINT M$(24,3): PRINT : FOR J = 1 TO 3: PRINT
    "ANS. ";J;""; INPUT A$(0,24,J): PRINT : NEXT J
1050 HOME : PRINT "YOU HAVE NOW COMPLETED THE
    QUESTIONNAIRE, ";NF$;".": PRINT "HERE IS YOUR PRELIM
    ASSESSMENT:": PRINT
1055 I = 1: FOR J = 1 TO L(I): PRINT M$(I,J): PRINT : PRINT
    TAB( 5);A$(0,1,J): PRINT : NEXT J: GOSUB 95
1060 I = 2: PRINT Q$(2): PRINT : PRINT "YOUR RESPONSE:
    "M$(2, VAL (A$(0,2,1))): GOSUB 95
1062 I = 3: GOSUB 90: GOSUB 95:I = 4
1063 PRINT "FOUR STRESS SITUATIONS:": PRINT : FOR J = 1
    TO 4: PRINT J;""; A$(0,4,J): PRINT : NEXT J: GOSUB
95
1064 FOR K = 1 TO 4: PRINT "SIT ";K;""; A$(0,4,K): PRINT
    : PRINT "FREQUENCY:": TAB( 12);M$(5, VAL
    (A$(0,5,K))): PRINT : PRINT "INTENSITY:": TAB( 12)
    ;A$(0,6,K): PRINT
1065 PRINT "DURATION:": TAB( 12);M$(7, VAL (A$(0,7,K))):

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      GOSUB 95: NEXT K
1066 FOR K = 1 TO 4: PRINT "SIT ";K;": ";A$(0,4,K): PRINT
      :I = 10:L$ = "ANTECEDENTS:": GOSUB 96
1067 I = 8:L$ = "PHYSICAL SYMPTOMS:": GOSUB 96
1068 GOSUB 95: PRINT "SIT ";K;": ";A$(0,4,K): PRINT
      "(CONTINUED)": PRINT :I = 9:L$ =
      "THOUGHTS/FEELINGS:": GOSUB 96
1069 I = 11:L$ = "CURRENT COPING STRATEGIES": GOSUB 96
1070 GOSUB 95: PRINT "SIT ";K;": ";A$(0,4,K): PRINT
      "(CONTINUED)": PRINT :I = 12:L$ = "EFFECTIVENESS OF
      THESE STRATEGIES:": PRINT L$;" ";A$(K,12,1): PRINT
1071 I = 13:L$ = "CONSEQUENCES OF PRESENT COPING:": GOSUB
      96: GOSUB 95
1072 : HOME : NEXT K
1074 K = 0: FOR I = 14 TO 15: GOSUB 90: GOSUB 95: NEXT I
1075 I = 16: PRINT Q$(I): PRINT : PRINT "YOUR RESPONSE:":
      PRINT : PRINT A$(0,16,1): GOSUB 95
1076 I = 17: PRINT Q$(I): PRINT : FOR J = 1 TO 5: PRINT
      M$(I,J): PRINT "YOUR RESPONSE:": PRINT A$(0,I,J):
      NEXT J: GOSUB 95
1077 I = 17: PRINT Q$(I): PRINT : FOR J = 6 TO 10: PRINT
      M$(I,J): PRINT "YOUR RESPONSE:": PRINT A$(0,I,J):
      NEXT J: GOSUB 95
1078 FOR I = 18 TO 19: PRINT Q$(I): PRINT : PRINT "YOUR
      RESPONSE:": PRINT M$(I, VAL (A$(0,I,1))): NEXT I:
      GOSUB 95
1079 I = 20: PRINT Q$(I): PRINT : PRINT "YOUR RESPONSE:":
      PRINT A$(0,I,1)
1080 FOR I = 21 TO 23: PRINT Q$(I): PRINT : PRINT "YOUR
      RESPONSE:": PRINT M$(I, VAL (A$(0,I,1))): NEXT I:
      GOSUB 95
1081 I = 25: PRINT "PAST EXPERIENCE WITH COUNSELING:":
      PRINT : PRINT A$(0,25,0): GOSUB 95
1083 I = 24: PRINT Q$(I): PRINT : PRINT "YOUR RESPONSE:":
      PRINT : FOR J = 1 TO 3: PRINT J;": ";A$(0,I,J): PRINT
      : NEXT J: GOSUB 95
1085 PRINT NF$;", THANKS FOR TAKING THE TIME TO RESPOND
      CAREFULLY TO THIS QUESTIONNAIRE.": PRINT "I WILL GET
      BACK TO YOU AS QUICKLY AS POSSIBLE (VIA MESSAGES TO
      YOU OVER THE BBS)"
1090 PRINT "ON A SUGGESTED APPROACH TO HANDLING THE STRESS
      PROBLEMS YOU HAVE IDENTIFIED.": PRINT
1095 PRINT "IF YOU WOULD LIKE TO CLARIFY/AMPLIFY": PRINT
      "SOME OF YOUR ANSWERS,": PRINT "PLEASE SEND ME ONE OR
      MORE MSG'S WHEN": PRINT "YOU NEXT SIGN ON.": PRINT :
      PRINT TAB( 10);"-- BRUCE WALKER, SYSOP"
1097 PRINT : INPUT "PRESS Y TO PROCEED: ";Y$: PRINT :
      PRINT "PLEASE WAIT WHILE YOUR FILE IS STORED.": PRINT
1100 F$ = A$(0,1,0) + " ASMT"
1110 PRINT D$;"OPEN "F$"" : PRINT D$;"WRITE "F$"" : K = 0:
      FOR J = 1 TO 4: PRINT A$(0,1,J): NEXT J: PRINT

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A$(0,2,1): FOR J = 1 TO 7: PRINT A$(0,3,J): NEXT J:
FOR J = 1 TO 4: PRINT A$(0,4,J): NEXT J
1111 FOR I = 5 TO 7: FOR J = 1 TO 4: PRINT A$(0,I,J): NEXT
J: NEXT I: FOR K = 1 TO 4: FOR I = 8 TO 13: FOR J = 1
TO L(I): PRINT A$(K,I,J): NEXT J: NEXT I: NEXT K
1112 FOR I = 14 TO 17: FOR J = 1 TO L(I): PRINT A$(0,I,J):
NEXT J: NEXT I: FOR I = 18 TO 23: PRINT A$(0,I,1):
NEXT I
1113 FOR J = 1 TO 3: PRINT A$(0,24,J): NEXT J: PRINT
A$(0,25,0)
1115 PRINT D$:"CLOSE "F$""
1120 PRINT NF$:", THE BBS WILL NOW HANG UP ON YOU": PRINT
"AND RE-BOOT. YOU CAN CALL BACK": PRINT "(IF YOU
WISH) IN ABOUT 2 MINUTES."
1130 PRINT D$:"PR#6"
1200 PRINT :ER = PEEK (222):LN = PEEK (218) + PEEK
(219) * 256: IF ER = 6 AND LN = 412 THEN 413
1205 IF ER = 5 AND LN = 412 THEN 413
1210 IF ER = 53 THEN PRINT "ILLEGAL CHAR ENTERED": PRINT
: RESUME
1215 IF ER = 254 THEN PRINT "BAD RESPONSE TO INPUT":
PRINT : RESUME
1220 IF ER = 176 THEN PRINT "STRING TOO LONG": PRINT :
RESUME
1225 IF ER = 255 THEN PRINT "DO YOU WISH TO QUIT WITHOUT
COMPLETING": INPUT "THE QUESTIONNAIRE (Y/N): ";Y$:
PRINT
1226 IF ER = 255 AND Y$ = "Y" THEN 1100
1227 IF ER = 255 AND Y$ < > "Y" THEN RESUME
1230 PRINT "ERR # ";ER;" IN LINE ";LN: PRINT

```

#### PRE-ASSESSMENT PRINTOUT

```

5 D$ = CHR$(4): REM CTRL-D
10 DIM Q$(25): DIM M$(25,19): DIM A$(4,25,19): DIM L(25):
DIM P(25)
15 L(1) = 4:L(2) = 6:L(3) = 7:L(4) = 4:L(5) = 5:L(6) = 4:
L(7) = 6::L(8) = 19:L(9) = 7:L(10) = 10:L(11) = 13:
L(12) = 1:L(13) = 7:L(14) = 10:L(15) = 8:L(16) = 1
20 L(17) = 10:L(18) = 4:L(19) = 5:L(20) = 1:L(21) = 4:
L(22) = 4:L(23) = 4:L(24) = 3:L(25) = 1
32 GOTO 500
80 PRINT L$: PRINT : FOR J = 1 TO L(I): IF A$(K,I,J) = "S"
THEN M$ = "****"
81 NEXT J
82 FOR J = 1 TO L(I): IF A$(K,I,J) = "Y" THEN PRINT
M$(I,J);" ";M$: GOTO 86
83 IF A$(K,I,J) = "S" THEN PRINT M$(I,J);" ";M$: GOTO 86
84 IF A$(K,I,J) = "N" THEN 86
85 PRINT "OTHER: ";A$(K,I,J);" ";M$
86 NEXT J

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87 IF M$ = "***" THEN PRINT : PRINT TAB( 5);M$;":
   ";"(SAME AS SIT 1)"
88 M$ = " ": PRINT : RETURN : REM PRINTOUT SUBROUTINE

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Note: Lines 500-717 are same as Stress Questionnaire.

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719 Q$(25) = "PAST EXPERIENCE WITH COUNSELING"
1200 REM PRINTOUT ROUTINE
1210 INPUT "ENTER CLIENT NAME: ";CL$: PRINT
1212 INPUT "ENTER DATE (MM/DD/YY): ";DT$: PRINT
1215 F$ = CL$ + " ASMT"
1220 PRINT D$;"OPEN "F$";D2": PRINT D$;"READ "F$"":K = 0:
   FOR J = 1 TO 4: INPUT A$(0,1,J): NEXT J: INPUT
   A$(0,2,1): FOR J = 1 TO 7: INPUT A$(0,3,J): NEXT J:
   FOR J = 1 TO 4: INPUT A$(0,4,J): NEXT J
1221 FOR I = 5 TO 7: FOR J = 1 TO 4: INPUT A$(0,I,J): NEXT
   J: NEXT I: FOR K = 1 TO 4: FOR I = 8 TO 13: FOR J = 1
   TO L(I): INPUT A$(K,I,J): NEXT J: NEXT I: NEXT K
1222 FOR I = 14 TO 17: FOR J = 1 TO L(I): INPUT A$(0,I,J):
   NEXT J: NEXT I: FOR I = 18 TO 23: INPUT A$(0,I,1):
   NEXT I
1223 FOR J = 1 TO 3: INPUT A$(0,24,J): NEXT J: INPUT
   A$(0,25,1)
1224 PRINT D$;"CLOSE "F$""
1230 PRINT "TURN ON PRINTER"
1235 PRINT D$;"PR#1": FOR J = 1 TO 5: PRINT " ": NEXT J
1240 PRINT SPC( 20);"ASSESSMENT REPORT FOR ";CL$
1242 PRINT : PRINT TAB( 35);DT$: PRINT : FOR J = 1 TO 79:
   PRINT "-";: NEXT : PRINT : PRINT
1245 I = 1: PRINT "AGE:"; TAB( 38);A$(0,1,1): PRINT "SEX:";
   TAB( 38);A$(0,1,2): PRINT "MARITAL STATUS:"; TAB(38);
   A$(0,1,3): PRINT "OCCUPATION:"; TAB( 38);A$(0,1,4):
   PRINT
1250 PRINT "DIFFICULTY WITH STRESS FOR HOW LONG: ";M$(2,
   VAL (A$(0,2,1))): PRINT
1260 PRINT "CHANGES PRIOR TO STRESS ONSET:" : PRINT
1265 I = 3: FOR J = 1 TO L(I): IF A$(0,I,J) = "Y" THEN
   PRINT M$(I,J): GOTO 1268
1266 IF A$(0,I,J) = "N" THEN 1268
1267 PRINT "OTHER: ";A$(0,I,J)
1268 NEXT J: PRINT
1270 PRINT "FOUR STRESS SITUATIONS:" : PRINT
1275 FOR J = 1 TO 4: PRINT J;": ";A$(0,4,J): PRINT : NEXT
   J: PRINT
1280 PRINT "*STRESS SITUATION FREQUENCY/INTENSITY/
   DURATION*": PRINT : PRINT "SIT"; TAB( 7);"FREQ"; TAB(
   35);"INT"; TAB( 39);"DURATION"
1281 PRINT "----"; TAB( 7);"-----"; TAB( 35);"----"; TAB(
   39);"-----"
1282 FOR J = 1 TO 4: PRINT J; TAB( 7);M$(5, VAL
   (A$(0,5,J))); TAB( 35);A$(0,6,J); TAB( 39);M$(7, VAL

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      (A$(0,7,J))): NEXT J: PRINT
1283 FOR J = 1 TO 79: PRINT "-";: NEXT : PRINT
1285 FOR K = 1 TO 4: PRINT "*SIT ";K;": ";A$(0,4,K);"*":
      PRINT TAB( 25);"FUNCTIONAL ANALYSIS DATA:"; PRINT
      TAB( 25);"-----"; PRINT
1290 I = 8:L$ = "PHYSICAL SYMPTOMS:"; GOSUB 80
1295 I = 9:L$ = "THOUGHTS/FEELINGS ASSOC. WITH STRESS:";
      GOSUB 80
1300 I = 10:L$ = "ANTECEDENTS:"; GOSUB 80
1305 I = 11:L$ = "COPING STRATEGIES USED IN PAST:"; GOSUB
      80
1310 I = 12: PRINT "EFFECTIVENESS OF THESE COPING
      STRATEGIES: ";A$(K,12,1): PRINT
1315 I = 13:L$ = "CONSEQUENCES:"; GOSUB 80
1317 FOR J = 0 TO 78: PRINT "-";: NEXT J: PRINT : NEXT K
1318 PRINT :K = 0
1320 I = 14:L$ = "*GENERAL PHYSICAL CONDITION*"; GOSUB 80
1325 I = 15:L$ = "*EXERCISE*"; GOSUB 80
1330 I = 16: PRINT "*DESIRED EXERCISE*"; A$(0,16,1): PRINT
1335 I = 17: PRINT "*DRUG/SUBSTANCE USE*"; PRINT : FOR J =
      1 TO 10: IF VAL (A$(0,I,J)) < > 0 THEN PRINT
      M$(I,J);" *";A$(0,I,J);"*": PRINT
1337 NEXT J: PRINT
1340 I = 18: PRINT "*SLEEP*"; M$(I, VAL (A$(0,I,1))):PRINT
1345 I = 19: PRINT "*EATING HABITS*"; M$(I, VAL
      (A$(0,I,1))): PRINT
1350 I = 20: PRINT "*NO. OF CLOSE FRIENDS*"; A$(0,I,1):
      PRINT
1355 I = 21: PRINT "*SUPPORTIVENESS OF FAMILY*"; M$(I, VAL
      (A$(0,I,1))): PRINT
1360 I = 22: PRINT "*";Q$(22);"*": PRINT : PRINT M$(I, VAL
      (A$(0,I,1))): PRINT
1365 I = 23: PRINT "*";Q$(23);"*": PRINT : PRINT M$(I, VAL
      (A$(0,I,1))): PRINT
1367 I = 25: PRINT "*";Q$(25);"*": PRINT : PRINT
      A$(0,25,1): PRINT
1370 I = 24: PRINT "*";Q$(24);"*": PRINT : FOR J = 1 TO 3:
      PRINT "ANS ";J;": ";A$(0,I,J): PRINT : NEXT J
1375 PRINT : FOR J = 0 TO 79: PRINT "-";: NEXT : PRINT

```

#### POST QUESTIONNAIRE

```

1 PRINT CHR$(4)"MAXFILES2": HIMEM: 6 * 4096 + 15 * 256:
  TEXT : HOME
2 FR# 2: IN# 2: CALL 1002
5 SLOT = 2:D$ = CHR$(4): REM CTRL-D
7 POKE 1912 + SLOT,22
10 DIM Q$(4): DIM M$(4,6): DIM L(4): DIM A$(13,10): DIM
  C$(6,4)
15 L(1) = 6:L(2) = 1:L(3) = 6:L(4) = 1
32 GOTO 210

```

```

50 PRINT J;": ": PRINT C$(6,J): PRINT : PRINT "PLEASE
    INDICATE IF YOU ARE DOING THIS NOW: ": PRINT : PRINT
    TAB( 5);"(0: NOT AT ALL)": PRINT TAB( 5);"(1:
    SOMETIMES)": PRINT TAB( 5);"(2: FREQUENTLY)": PRINT :
    INPUT A$(12,J): PRINT :
70 FOR I = M TO N: PRINT Q$(I): PRINT : FOR K = 1 TO 4:
    PRINT "SIT ";K;" ";C$(1,K): PRINT : FOR J = 1 TO L(I):
    PRINT M$(I,J): NEXT J: PRINT : INPUT "SELECT ONE:
    ";A$(I,K): PRINT : HOME : NEXT K: NEXT I: RETURN
80 G$ = NF$ + " " + NL$ + ".POST-IN"
82 PRINT D$;"OPEN "G$",S6,D2": PRINT D$;"READ "G$"": FOR K
    = 1 TO 3: FOR I = 1 TO 4: INPUT C$(K,I): NEXT I: NEXT K
85 K = 4: FOR I = 1 TO 3: INPUT C$(K,I): NEXT I:K = 5: FOR
    I = 1 TO 2: INPUT C$(K,I): NEXT I:K = 6: FOR I = 1 TO
    3: INPUT C$(K,I): NEXT I: PRINT D$;"CLOSE "G$"": RETURN
90 G$ = NL$ + " " + NF$: PRINT D$;"OPEN "G$",S5,D1": PRINT
    D$;"READ "G$"": FOR I = 1 TO 6: INPUT B$(I): NEXT I:
    PRINT D$;"CLOSE "G$"": RETURN
100 PRINT TAB( 5);"1: REDUCED": PRINT TAB( 5);"2: STAYED
    SAME": PRINT TAB( 5);"3: GOT WORSE": PRINT : INPUT
    "SELECT ONE: ";A$(I,0): RETURN
210 Q$(1) = "*HOW OFTEN* DO YOU NOW EXPERIENCE STRESS IN
    THIS SITUATION:"
220 M$(1,1) = "1. ALL THE TIME ":M$(1,2) = "2. ONCE PER DAY
    ":M$(1,3) = "3. ONCE PER WEEK ":M$(1,4) = "4. SEVERAL
    TIMES PER WEEK ":M$(1,5) = "5. ONCE PER MONTH "
221 M$(1,6) = "6. LESS THAN ONCE PER MONTH"
230 Q$(2) = "*HOW INTENSE* IS THIS STRESS? (0: NO STRESS /
    10: SUPER-EXTREME):"
240 M$(2,1) = "STRESS INTENSITY (0-10)"
250 Q$(3) = "WHEN YOU LAST FELT THIS STRESS, *HOW LONG* DID
    IT LAST:"
260 M$(3,1) = "1. LESS THAN 5 MINUTES ":M$(3,2) = "2. LESS
    THAN 1/2 HOUR ":M$(3,3) = "3. LESS THAN 1 HOUR
    ":M$(3,4) = "4. LESS THAN 5 HOURS ":M$(3,5) = "5. LESS
    THAN 10 HOURS ":M$(3,6) = "6. ALL DAY LONG "
270 Q$(4) = "EFFECTIVENESS OF THIS STRATEGY(S) (0:NOT
    USEFUL/10:VERY USEFUL):"
399 PRINT D$;"PR#1"
400 HOME : PRINT "POST- STRESS MANAGEMENT QUESTIONNAIRE":
    PRINT
405 ONERR GOTO 1200
410 PRINT D$;"OPEN DATE,S6,D2": PRINT D$;"READ DATE": INPUT
    DA$: INPUT U$: PRINT D$;"CLOSE DATE":CL% = VAL (
    RIGHT$(U$,3)): DIM E$(2 * CL%)
412 PRINT D$;"OPEN CLIENTS,L15,D2": FOR I = (2 * CL% - 1)
    TO (2 * CL%): PRINT D$;"READ CLIENTS,R";I: INPUT
    E$(I): NEXT : PRINT D$;"CLOSE CLIENTS": IF VAL (E$(2
    * CL%)) = 1 THEN 414
413 PRINT "YOU ARE NOT LISTED AS ELIGIBLE FOR THIS
    QUESTIONNAIRE.": PRINT "IF YOU THINK YOU *ARE*"

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    ELIGIBLE, PLEASE SEND SYSOP A MESSAGE.": PRINT : PRINT
    D$;"PR#6"
414 NL$ = E$(2 * CL% - 1):LL% = LEN (E$(2 * CL%)):NF$ =
    MID$ (E$(2 * CL%),2,LL%):A$(0,0) = NF$ + " " + NL$:
    GOSUB 80: GOSUB 90
415 PRINT NF$;"", PLEASE ANSWER *ALL* OF THESE QUESTIONS TO
    HELP US": PRINT "EVALUATE THE EFFECTIVENESS OF YOUR
    STRESS MANAGEMENT PROGRAM.": PRINT
416 PRINT "WHEN PROVIDING NON-NUMERIC (VERBAL) ANSWERS, DO
    *NOT* USE COMMAS": PRINT "OR COLONS AS THE SYSTEM WILL
    NOT RECORD YOUR COMPLETE ANSWER.": PRINT
417 PRINT "TO QUIT THIS QUESTIONNAIRE BEFORE COMPLETING
    IT,": PRINT "ENTER A CONTROL-C AND A C/R AT ANY
    PROMPT": PRINT : PRINT "DO *NOT* HANG-UP YOUR YOUR
    PHONE.": PRINT
418 INPUT "PRESS 'Y' WHEN READY TO PROCEED: ";Y$: PRINT :
    HOME
430 PRINT NF$;"", IN YOUR PRE-QUESTIONNAIRE, YOU LISTED 4
    SITUATIONS": PRINT "IN WHICH YOU EXPERIENCED STRESS.
    PLEASE INDICATE BELOW HOW": PRINT "STRESSFUL THESE
    SITUATIONS ARE FOR YOU *NOW* (EG, IN PAST WEEK).":
    PRINT
440 M = 1:N = 3: GOSUB 70: HOME
450 PRINT NF$;"", FROM THESE SITUATIONS, WE DEFINED 2
    RELATIVELY HIGH-": PRINT "FREQUENCY, RELATIVELY SEVERE
    SITUATIONS, TOGETHER WITH COPING": PRINT "STRATEGIES,
    AS WELL AS A GENERAL COPING STRATEGY, TO WORK ON/"
455 PRINT "REPORT ON DURING YOUR STRESS MGT PROGRAM.
    PLEASE INDICATE BELOW": PRINT "HOW EFFECTIVE THESE
    STRATEGIES HAVE BEEN FOR YOU:": PRINT
460 PRINT "SIT A: ";B$(2): PRINT "CPG STGY: ";B$(4): PRINT
    : PRINT Q$(4): INPUT A$(4,1): PRINT : PRINT "SIT B:
    ";B$(3): PRINT "CPG STGY: ";B$(5): PRINT : PRINT
    Q$(4): INPUT A$(4,2): PRINT
470 HOME : PRINT "GEN CPG STGY: ";B$(6): PRINT : PRINT
    Q$(4): INPUT A$(4,3): PRINT
479 HOME
480 PRINT "YOU INITIALLY REPORTED GENERALLY EXPERIENCING
    THE FOLLOWING": PRINT "PHYSICAL SYMPTOMS WHEN
    STRESSED. HAS THERE BEEN ANY CHANGE": PRINT "IN THE
    FREQUENCY/INTENSITY/DURATION OF THESE SYMPTOMS?":
    PRINT
490 FOR J = 1 TO 4: PRINT C$(2,J): NEXT J: PRINT : I = 5:
    GOSUB 100: PRINT : HOME
580 PRINT NF$;"", YOU REPORTED GENERALLY EXPERIENCING THE
    FOLLOWING": PRINT "THOUGHTS/FEELINGS WHEN STRESSED.
    HAS THERE BEEN ANY CHANGE IN": PRINT "FREQUENCY/
    INTENSITY/DURATION OF THESE?": PRINT
590 FOR J = 1 TO 4: PRINT C$(3,J): NEXT J: PRINT : I = 6:
    GOSUB 100: PRINT : HOME
620 PRINT "YOU INITIALLY REPORTED THE FOLLOWING GENERAL

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    PHYSICAL CONDITIONS": PRINT ". HAS THESE BEEN ANY
    CHANGE IN THESE?": PRINT
630 FOR J = 1 TO 3: PRINT C$(4,J): NEXT J: PRINT :I = 7:
    GOSUB 100: PRINT : HOME
640 PRINT NF$;"", YOU INITIALLY EXPRESSED INTEREST IN
    PERFORMING THE": PRINT "FOLLOWING TYPES OF EXERCISE.
    HOW MANY TIMES PER WEEK ARE YOU": PRINT "DOING THESE
    NOW (0: NOT AT ALL/7: 7 TIMES PER WEEK)": PRINT
650 PRINT C$(5,1): PRINT : INPUT "FREQUENCY: ";A$(8,1):
    PRINT : IF LEN (C$(5,2)) < 2 THEN A$(8,2) = "N/A":
    GOTO 660
655 PRINT C$(5,2): PRINT : INPUT "FREQUENCY: ";A$(8,2):
    PRINT : HOME
660 PRINT "HAS THERE BEEN ANY CHANGE IN THE USAGE OF
    DRUGS/MEDICATIONS/": INPUT "SUBSTANCES YOU REPORTED
    USING INITIALLY (Y/N): ";A$(9,1): PRINT
670 IF A$(9,1) = "Y" THEN PRINT "PLEASE SPECIFY (IN 256
    CHAR OR LESS, WITHOUT USING COMMAS": PRINT "OR COLONS,
    WITH A C/R ONLY AT END: ": PRINT : INPUT A$(9,1):
    PRINT : HOME : GOTO 680
675 A$(9,1) = "NO CHANGE": PRINT : HOME
680 PRINT NF$;"", HAS THERE BEEN ANY CHANGE IN HOW MUCH YOU
    LIKE YOURSELF?"
690 PRINT : INPUT "Y OR N: ";A$(10,1): PRINT : IF A$(10,1)
    = "N" THEN A$(10,1) = "NO CHANGE": PRINT : HOME : GOTO
    700
695 PRINT "WHAT HAS BEEN THE CHANGE (IN 80 CHAR OR LESS
    WITHOUT COMMAS": PRINT "OR COLONS: ": PRINT : INPUT
    A$(10,1): PRINT : HOME
700 PRINT "ARE YOU NOW MORE SATISFIED WITH WHAT YOU ARE
    ACCOMPLISHING": INPUT "IN YOUR LIFE (ANS Y OR N):
    ";Y$: PRINT
705 IF Y$ = "N" THEN A$(11,1) = "NO CHANGE": PRINT : HOME :
    GOTO 1040
710 PRINT "IN WHAT WAY? (IN 80 CHAR OR LESS WITHOUT USING
    COMMAS OR COLONS:": PRINT : INPUT A$(11,1): PRINT :
    HOME
1040 PRINT NF$;"", INITIALLY YOU LISTED 3 ACTIVITIES YOU
    THOUGHT YOU MIGHT": PRINT "ENGAGE IN IF YOU WERE NOT
    BOTHERED BY STRESS:": PRINT
1045 FOR J = 1 TO 3: PRINT J;": ";C$(6,J)
1050 PRINT : PRINT "PLEASE INDICATE IF YOU ARE DOING THIS
    NOW: ": PRINT : PRINT TAB( 5);"(0: NOT AT ALL)":
    PRINT TAB( 5);"(1: SOMETIMES)": PRINT TAB( 5);"(2:
    FREQUENTLY)": PRINT : INPUT A$(12,J): PRINT : HOME :
    NEXT J
1055 PRINT : HOME
1070 PRINT NF$;"", DO YOU HAVE ANY COMMENTS/CLARIFICATIONS
    YOU WOULD": PRINT "LIKE TO MAKE ON YOUR ANSWERS, OR
    ON YOUR STRESS MGT PROGRESS,": PRINT "OR ON YOUR
    EXPERIENCE WITH THIS BBS?": PRINT

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1080 INPUT "ANS Y OR N: ";A$(13,1): PRINT : IF A$(13,1) =
    "N" THEN A$(13,1) = "NO COMMENTS": PRINT : HOME :
    GOTO 1085
1082 PRINT "YOU MAY ENTER 10 LINES OF UP TO 80 CHAR PER
    LINE. DO NOT USE": PRINT "COMMAS OR COLONS. IF YOU
    USE LESS THAN 10 LINES JUST ENTER": PRINT "C/R'S FOR
    'EMPTY' LINES.": PRINT
1083 FOR J = 1 TO 10: PRINT "#";J: INPUT A$(13,J): NEXT J:
    PRINT : HOME
1085 PRINT NF$;" , THANKS FOR TAKING THE TIME TO RESPOND
    CAREFULLY TO THIS QUESTIONNAIRE.": PRINT "-AND-
    CONGRATULATIONS ON COMPLETING YOUR STRESS MGT
    PROGRAM."
1090 PRINT : PRINT "I HOPE YOU ARE SATISFIED WITH YOUR
    RESULTS. - BRUCE"
1097 PRINT : INPUT "PRESS Y TO PROCEED: ";Y$: PRINT : PRINT
    "PLEASE WAIT WHILE YOUR FILE IS STORED.": PRINT
1100 F$ = A$(0,0) + ".PST-ASMT"
1110 PRINT D$;"OPEN "F$",S6,D2": PRINT D$;"WRITE "F$"";
    FOR I = 1 TO 3: FOR J = 1 TO 4: PRINT A$(I,J): NEXT
    J: NEXT I: FOR J = 1 TO 3: PRINT A$(4,J): NEXT J: FOR
    I = 5 TO 7: PRINT A$(I,0): NEXT I
1111 PRINT A$(8,1): PRINT A$(8,2): FOR I = 9 TO 11: PRINT
    A$(I,1): NEXT I: FOR J = 1 TO 3: PRINT A$(12,J): NEXT
    J: FOR J = 1 TO 10: PRINT A$(13,J): NEXT J: PRINT
    D$;"CLOSE "F$""
1120 PRINT NF$;" , THE BBS WILL NOW HANG UP ON YOU": PRINT
    "AND RE-BOOT. YOU CAN CALL BACK": PRINT "(IF YOU
    WISH) IN ABOUT 2 MINUTES."
1130 PRINT D$;"PR#6"
1200 PRINT :ER = PEEK (222):LN = PEEK (218) + PEEK (219)
    * 256: IF ER = 6 AND LN = 412 THEN 413
1205 IF ER = 5 AND LN = 412 THEN 413
1207 IF ER = 5 AND LN = 82 THEN 413
1208 IF ER = 6 AND LN = 82 THEN 413
1210 IF ER = 53 THEN PRINT "ILLEGAL CHAR ENTERED": PRINT :
    RESUME
1215 IF ER = 254 THEN PRINT "BAD RESPONSE TO INPUT": PRINT
    : RESUME
1220 IF ER = 176 THEN PRINT "STRING TOO LONG": PRINT :
    RESUME
1225 IF ER = 255 THEN PRINT "DO YOU WISH TO QUIT WITHOUT
    COMPLETING": INPUT "THE QUESTIONNAIRE (Y/N): ";Y$:
    PRINT
1226 IF ER = 255 AND Y$ = "Y" THEN 1100
1227 IF ER = 255 AND Y$ < > "Y" THEN RESUME
1230 PRINT "ERR # ";ER;" IN LINE ";LN: PRINT
1235 INPUT "Y TO PROCEED: ";Y$
1240 PRINT D$;"PR#6"

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POST ASSESSMENT PRINTOUT

```

5 D$ = CHR$(4): REM CTRL-D
10 DIM Q$(4): DIM M$(4,6): DIM L(4): DIM A$(13,10): DIM
    C$(6,4): L(1) = 6:L(2) = 1:L(3) = 6:L(4) = 1
32 GOTO 220
80 G$ = NF$ + " " + NL$ + ".POST-IN"
82 PRINT D$;"OPEN "G$,"S6,D2": PRINT D$;"READ "G$"": FOR K
    = 1 TO 3: FOR I = 1 TO 4: INPUT C$(K,I): NEXT I: NEXT K
85 K = 4: FOR I = 1 TO 3: INPUT C$(K,I): NEXT I:K = 5: FOR
    I = 1 TO 2: INPUT C$(K,I): NEXT I:K = 6: FOR I = 1 TO
    3: INPUT C$(K,I): NEXT I: PRINT D$;"CLOSE "G$"": RETURN
90 G$ = NL$ + " " + NF$: PRINT D$;"OPEN "G$,"S5,D1": PRINT
    D$;"READ "G$"": FOR I = 1 TO 6: INPUT B$(I): NEXT I:
    PRINT D$;"CLOSE "G$"": RETURN
100 IF A$(I,0) = "1" THEN I$ = "REDUCED"
105 IF A$(I,0) = "2" THEN I$ = "STAYED SAME"
110 IF A$(I,0) = "3" THEN I$ = "GOT WORSE"
115 IF VAL (A$(I,0)) < 1 OR VAL (A$(I,0)) > 3 THEN I$ =
    "NO RESPONSE"
120 PRINT "CLIENT'S CURRENT RATING: ";I$: PRINT : RETURN
130 F$ = A$(0,0) + ".PST-ASMT"
135 PRINT D$;"OPEN "F$,"S6,D2": PRINT D$;"READ "F$"": FOR I
    = 1 TO 3: FOR J = 1 TO 4: INPUT A$(I,J): NEXT J: NEXT
    I: FOR J = 1 TO 3: INPUT A$(4,J): NEXT J: FOR I = 5 TO
    7: INPUT A$(I,0): NEXT I
140 INPUT A$(8,1): INPUT A$(8,2): FOR I = 9 TO 11: INPUT
    A$(I,1): NEXT I: FOR J = 1 TO 3: INPUT A$(12,J): NEXT
    J
142 FOR I = 1 TO 10: INPUT A$(13,I)
144 ONERR GOTO 146
145 NEXT I
146 PRINT D$;"CLOSE "F$""
147 GOTO 420
220 M$(1,1) = "1. ALL THE TIME ":M$(1,2) = "2. ONCE PER DAY
    ":M$(1,3) = "3. ONCE PER WEEK ":M$(1,4) = "4. SEVERAL
    TIMES PER WEEK ":M$(1,5) = "5. ONCE PER MONTH "
221 M$(1,6) = "6. LESS THAN ONCE PER MONTH": M$(2,1) =
    "STRESS INTENSITY (0-10)": M$(3,1) = "1. LESS THAN 5
    MINUTES ":M$(3,2) = "2. LESS THAN 1/2 HOUR ":M$(3,3) =
    "3. LESS THAN 1 HOUR ":M$(3,4) = "4. LESS THAN 5 HOURS
    ":M$(3,5) = "5. LESS THAN 10 HOURS ":M$(3,6) = "6. ALL
    DAY LONG "
270 Q$(4) = "CLIENT'S EFFECTIVENESS RATING"
408 HOME
410 PRINT "*POST-QUESTIONNAIRE PRINTOUT*": PRINT : INPUT
    "ENTER CLIENT FIRST NAME: ";NF$: PRINT : INPUT "ENTER
    CLIENT LAST NAME: ";NL$: PRINT : INPUT "ENTER TODAY'S
    DATE: ";DA$: PRINT
415 A$(0,0) = NF$ + " " + NL$: GOSUB 80: GOSUB 90: GOTO 130
420 PRINT : PRINT "TURN ON PRINTER": PRINT D$;"PR#1": FOR J

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= 1 TO 5: PRINT " ": NEXT J: PRINT TAB( 20);
"POST-ASSESSMENT REPORT FOR ";A$(0,0): PRINT
425 PRINT TAB( 35);DA$: PRINT : FOR J = 1 TO 79: PRINT
  "-";: NEXT J: PRINT : PRINT : PRINT "INITIAL 4 STRESS
  SITUATIONS:": PRINT : FOR J = 1 TO 4: PRINT J;":
  ";C$(1,J): NEXT J: PRINT
430 PRINT "CURRENT STATUS OF THESE SITUATIONS:": PRINT :
  PRINT "SIT"; TAB( 7);"FREQ"; TAB( 35);"INT"; TAB(
  39);"DURATION": PRINT "----"; TAB( 7);"----"; TAB(
  35);"----"; TAB( 39);"-----": PRINT
435 FOR J = 1 TO 4: PRINT J; TAB( 7);M$(1, VAL (A$(1,J)));
  TAB( 35);A$(2,J); TAB( 39);M$(3, VAL (A$(3,J))): NEXT
  J: PRINT : FOR J = 1 TO 79: PRINT "-";: NEXT J: PRINT
  : PRINT
440 PRINT "*INTERVENTION STRESS SITUATIONS/COPING
  STRATEGIES*": PRINT
460 PRINT "SIT A: ";B$(2): PRINT "CPG STGY: ";B$(4): PRINT
  : PRINT Q$(4);": ";A$(4,1): PRINT : PRINT "SIT B:
  ";B$(3): PRINT "CPG STGY: ";B$(5): PRINT : PRINT
  Q$(4);": ";A$(4,2): PRINT
470 PRINT "GEN CPG STGY: ";B$(6): PRINT : PRINT Q$(4);":
  ";A$(4,3): PRINT
480 PRINT "ORIG. PHYSICAL SYMPTOMS ASSOC. WITH STRESS:":
  PRINT
490 FOR J = 1 TO 4: PRINT C$(2,J): NEXT J: PRINT :I = 5:
  GOSUB 100
580 PRINT "ORIG. THOUGHTS/FEELINGS ASSOC. WITH STRESS:":
  PRINT
590 FOR J = 1 TO 4: PRINT C$(3,J): NEXT J: PRINT :I = 6:
  GOSUB 100
620 PRINT "ORIG. GENERAL PHYSICAL CONDITION:": PRINT
630 FOR J = 1 TO 3: PRINT C$(4,J): NEXT J: PRINT :I = 7:
  GOSUB 100
640 PRINT "ORIG. DESIRED PHYSICAL EXERCISE:": PRINT
650 PRINT C$(5,1): PRINT : PRINT "REPORTED CURRENT FREQ
  (TIMES/WK): ";A$(8,1): PRINT
655 PRINT C$(5,2): PRINT : PRINT "REPORTED CURRENT FREQ
  (TIMES/WK): ";A$(8,2): PRINT
660 PRINT "REPORTED CHANGE IN SUBSTANCE/DRUG/MEDICATION
  USAGE:": PRINT
670 PRINT TAB( 5);A$(9,1): PRINT
680 PRINT "REPORTED CHANGE IN SELF-ESTEEM:": PRINT
690 PRINT TAB( 5);A$(10,1): PRINT
700 PRINT "REPORTED CHANGE IN SATISFACTION WITH
  ACCOMPLISHMENTS IN LIFE:": PRINT
705 PRINT TAB( 5);A$(11,1): PRINT
1040 PRINT "ORIG. DESIRED ACTIVITIES IF NOT BOTHERED BY
  STRESS:": PRINT
1045 FOR J = 1 TO 3: PRINT J;": ";C$(6,J): PRINT
1050 IF A$(12,J) = "0" THEN U$ = "NOT AT ALL"
1052 IF A$(12,J) = "1" THEN U$ = "SOMETIMES"

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1054 IF A$(12,J) = "2" THEN U$ = "FREQUENTLY"
1055 IF VAL (A$(12,J)) > 2 THEN U$ = "RESP > 2"
1060 PRINT TAB( 5);"CURR FREQ OF USE: ";U$: PRINT : NEXT
      J: PRINT
1070 PRINT "CLIENT'S COMMENTS/CLARIFICATIONS:": PRINT
1075 PRINT "***": PRINT
1077 ONERR GOTO 1079
1078 FOR J = 1 TO 10: PRINT A$(13,J): NEXT J
1079 PRINT "***": PRINT
1080 FOR J = 1 TO 79: PRINT "-";: NEXT J: PRINT
1085 PRINT CHR$ (12): PRINT D$;"PR#0"

```

### CREATE CLIENT FILE PROGRAM

```

10 D$ = CHR$ (4): DIM B(18): DIM A$(55)
20 INPUT "ENTER NF$: ";NF$: INPUT "ENTER NL$: ";NL$
30 LC$ = NL$ + " " + NF$: CC$ = NF$ + NF$ + NL$: CL$ = NF$
  + " " + NL$: PRINT: PRINT LC$: LD$ = "00/00/00"
53 INPUT "WANT TO BYPASS SIT INPUTS? (Y/N): ";Y$(1): PRINT
55 IF Y$(1) = "N" THEN 60
57 NA$ = "TBD":NB$ = "TBD":CA$ = "TBD":CB$ = "TBD":CG$ =
  "TBD":BD% = 0:BO = 0:CD% = 0: GOTO 135
60 INPUT "SIT A DESC (NA$): ";NA$: PRINT NA$
70 INPUT "SIT B DESC (NB$): ";NB$: PRINT NB$
80 INPUT "SITA COPE DESC (CA$): ";CA$: PRINT CA$
90 INPUT "SITB COPE DESC (CB$): ";CB$: PRINT CB$
100 INPUT "GEN'L COPE DESC (CG$): ";CG$: PRINT CG$
107 INPUT "WANT TO BYPASS CHANGING ANYTHING ELSE? (Y/N):
  ";Y$(2): PRINT
108 IF Y$(2) = "Y" THEN 190
110 INPUT "SET DESIRED BASELINE DAY,BD%: ";BD%: PRINT
112 INPUT "SET DESIRED B/L STRESS LEVEL: ";BO: PRINT
120 INPUT "SET DESIRED STRESS MGT DAY, CD%: ";CD%: PRINT
135 IF BD% = 0 THEN 140
137 LD$ = "99/99/99"
140 PRINT
192 PRINT D$;"OPEN "LC$",D2": PRINT D$;"WRITE "LC$"": PRINT
  LC$: PRINT NA$: PRINT NB$: PRINT CA$: PRINT CB$: PRINT
  CG$: PRINT LD$: PRINT D$;"CLOSE "LC$""
255 IF Y$(2) = "Y" THEN 500
291 FOR I = 0 TO 18: B(I) = 0: NEXT I:B(0) = BD%: B(1) =
  CD%: B(2) = BO
300 PRINT D$;"OPEN "CC$",L6,D2": FOR I = 0 TO 18
  PRINT D$;"WRITE "CC$",R";I: PRINT B(I): NEXT I: PRINT
  D$;"CLOSE "CC$""
326 PRINT
328 PRINT D$;"OPEN "CL$",L3,D2": FOR I = 0 TO 55: PRINT
  D$;"WRITE "CL$",R";I: PRINT A$(I): NEXT I: PRINT
  D$;"CLOSE "CL$""

```



DAILY REPORTING/FEEDBACK PROGRAM

```

195 PR# 2: IN# 2: CALL 1002
200 D$ = CHR$(4): REM CTRL-D
201 SLOT = 2
202 POKE 1912 + SLOT,22
210 PRINT D$;"OPEN DATE,S6,D2": PRINT D$;"READ DATE": INPUT
    DA$: INPUT U$: PRINT D$;"CLOSE DATE"
235 CL% = VAL ( RIGHT$ (U$,3))
240 DT$ = MID$ (DA$,3,2) + "/" + MID$ (DA$,5,2) + "/" +
    LEFT$ (DA$,2)
242 DIM C$(2 * CL%)
245 PRINT D$;"OPEN CLIENTS,L15"
247 FOR I = (2 * CL% - 1) TO (2 * CL%)
250 PRINT D$;"READ CLIENTS,R";I
252 ONERR GOTO 9100
253 INPUT C$(I)
254 NEXT
256 PRINT D$;"CLOSE CLIENTS"
258 ZZ% = VAL (C$(2 * CL%)): IF ZZ% = 1 THEN 265
260 PRINT "YOU ARE NOT ON DLY RPTG FILE. TO"
261 PRINT "REQUEST ELEGIBILITY, SEND SYSOP A MSG.":PRINT
263 PRINT D$;"PR# 6"
265 NL$ = C$(2 * CL% - 1):LL% = LEN (C$(2 * CL%))
266 NF$ = MID$ (C$(2 * CL%),2,(LL%))
268 CL$ = NF$ + " " + NL$: LC$ = NL$ + " " + NF$
274 PRINT "WELCOME TO DAILY REPORTING, ";NF$: PRINT
285 PRINT D$;"OPEN "LC$","S5,D1"
290 DIM A$(6)
300 PRINT D$;"READ "LC$""
302 FOR I = 0 TO 6: INPUT A$(I): NEXT
315 PRINT D$;"CLOSE "LC$""
320 DIM C(18)
325 PRINT D$;"OPEN "CC$","L6": FOR I = 0 TO 18
335 PRINT D$;"READ "CC$","R";I: INPUT C(I): NEXT
350 PRINT D$;"CLOSE "CC$""
355 NA$ = A$(1): NB$ = A$(2): CA$ = A$(3): CB$ = A$(4)
359 CG$ = A$(5): LD$ = A$(6)
361 BD% = C(0):CD% = C(1):BO = C(2):GP = C(3):GF = C(4):AP
    = C(5):CA = C(6):BP = C(7):CB = C(8):SQ = C(9):GQ =
    C(10):SR = C(11)
362 GW = C(12):SS = C(13):GS = C(14):ST = C(15):GT =
    C(16):SU = C(17):GU = C(18)
420 IF BD% = 6 THEN GOTO 600
422 GOTO 6000
435 PRINT NF$;"", WHAT WAS YOUR AVERAGE": PRINT "OVERALL
    STRESS LEVEL TODAY?"
440 PRINT "(ON A SCALE OF 0 TO 10, ": INPUT "WHERE 0 IS NO
    STRESS): ";SO%: PRINT
451 IF SO% < 0 THEN GOTO 435
452 IF SO% > 10 THEN GOTO 435

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455 PRINT "IS THIS CORRECT?: ";SO%: INPUT "ANSWER Y OR N:
      ";YN$: PRINT
467 GOSUB 9000
470 IF YN% < > 1 THEN GOTO 435
490 PRINT D$;"OPEN "CL$",L3": PRINT D$;"WRITE "CL$",R";BZ%
500 PRINT SO%: PRINT D$;"CLOSE "CL$""
507 IF QO% > 0 THEN PRINT "NOW PLEASE ENTER YOUR STRESS":
      PRINT "LEVEL FOR THE NEXT DAY:": PRINT : CLEAR : GOTO
      200
512 IF BZ% < 6 THEN 8500
520 PRINT D$;"OPEN "CL$",L3": FOR I = 0 TO 6:PRINT D$;"READ
      "CL$",R";I: INPUT A%(I): NEXT I:PRINT D$;"CLOSE "CL$""
550 BO = A%(0) + A%(1) + A%(2) + A%(3) + A%(4) + A%(5) +
      A%(6): BO = 10 * BO / 7: BO = ( INT (BO)) / 10
556 PRINT D$;"OPEN "CC$",L6": PRINT D$;"WRITE "CC$",R2"
558 PRINT BO: PRINT D$;"WRITE "CC$",R1": PRINT 99
561 PRINT D$;"CLOSE "CC$""
565 PRINT "B/L AVG STRESS LVL: ";BO: PRINT
568 PRINT NF$;" , CONGRATULATIONS ON": PRINT "COMPLETING
      YOUR BASELINE MONITORING.": PRINT "PLEASE START YOUR
      DAILY STRESS": PRINT "MONITORING PROGRAM TOMORROW."
575 PRINT D$;"OPEN "CL$",L3": PRINT D$;"DELETE "CL$""
590 GOTO 8500
600 PRINT "YOUR LAST REPORTING DATE WAS: ";LD$: PRINT
603 IF CD% < > 99 THEN GOTO 608
604 INPUT "PLEASE ENTER 1 AS YOUR 1ST STR MGT DAY: ";SD$
605 PRINT
606 IF VAL (SD$) < > 1 THEN 604
607 SD% = 0: GOTO 656
608 IF LEFT$ (LD$,2) = MID$ (DA$,3,2) THEN 620
610 MO% = 31
612 IF VAL ( LEFT$ (LD$,2)) = 4 OR 6 OR 9 OR 11 THEN MO% =
      30
614 IF VAL ( LEFT$ (LD$,2)) = 2 THEN MO% = 28
616 DE% = MO% - VAL ( MID$ (LD$,4,2)) + VAL ( MID$
      (DA$,5,2)) - 1
618 GOTO 622
620 DE% = VAL ( MID$ (DA$,5,2)) - VAL ( MID$ (LD$,4,2)) -
      1
622 IF DE% < = 0 THEN 654
624 PRINT NF$;" , YOU APPEAR TO HAVE SKIPPED ";DE%;" DAYS."
626 PRINT "PLEASE ENTER YOUR DATA FOR THE FIRST": PRINT
      "SKP'D DAY NOW (THE DAY AFTER ";LD$;").": PRINT
632 PRINT "ENTER YOUR FIRST MISSING DATE HERE": INPUT
      "(MO/DAY/YR, E.G., 01/01/85): ";DT$
636 IF LEN (DT$) < > 8 THEN 632
638 PRINT
640 PRINT DT$: INPUT "IS THIS CORRECT? (ANSWER Y OR N):
      ";YN$: PRINT
646 GOSUB 9000
648 IF YN% < > 1 THEN 632

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650 IF DE% < = 0 THEN 654
651 PRINT "AFTER FEEDBACK PRESENTATION, PROGRAM": PRINT
    "WILL RECYCLE TO PICK UP NEXT": PRINT "MISSING DAY."
654 SD% = CD% + 1: LD% = DT%
657 PRINT D$;"OPEN "LC$"": PRINT D$;"POSITION "LC$","R6":
    PRINT D$;"WRITE "LC$"": PRINT DT$; PRINT D$;"CLOSE
    "LC$"
668 PRINT D$;"OPEN "CC$","L6": PRINT D$;"WRITE "CC$","R1":
    PRINT SD%; PRINT D$;"CLOSE "CC$"
675 FA% = 0: AC% = 0: SA% = 0: FB% = 0: BC% = 0: SB% = 0:
    GG% = 0: HOME
705 PRINT NF$;", DID SITUATION A OCCUR TODAY?"
710 PRINT "(";NA$;")": PRINT: INPUT "ANSWER Y OR N:
    ";YN$: PRINT
727 GOSUB 9000
730 IF YN% < > 1 THEN 808
735 FA% = 1: YA% = 1
740 PRINT "DID YOU USE YOUR SIT A COPING STRATEGY?"
745 PRINT "(";CA$;")": PRINT
760 INPUT "ANSWER Y OR N: ";YN$: PRINT
767 GOSUB 9000
770 IF YN% < > 1 THEN 780
775 AC% = 1
780 PRINT "WHAT WAS YOUR STRESS LEVEL AFTER SIT A?"
785 INPUT "(ON A SCALE OF 0 TO 10): ";SA$: PRINT
791 IF SA% < 0 THEN 780
792 IF SA% > 10 THEN 780
808 PRINT "DID SITUATION B OCCUR TODAY?": PRINT
    "(";NB$;")": PRINT
820 INPUT "ANSWER Y OR N: ";YN$: PRINT
827 GOSUB 9000
830 IF YN% < > 1 THEN 907
835 FB% = 1: YB% = 1
840 PRINT "DID YOU USE YOUR SIT B COPING STRATEGY?": PRINT
    "(";CB$;")": PRINT
860 INPUT "ANSWER Y OR N: ";YN$: PRINT
867 GOSUB 9000
870 IF YN% < > 1 THEN 880
875 BC% = 1
880 PRINT "WHAT WAS YOUR STRESS LEVEL AFTER SIT B?"
885 INPUT "(ON A SCALE OF 0 TO 10): ";SB$: PRINT
891 IF SB% < 0 THEN 880
892 IF SB% > 10 THEN 880
900 REM : GENERAL COPING DATA SOLICITATION
907 PRINT NF$;", DID YOU USE YOUR GENERAL": PRINT "COPING
    STRATEGY TODAY?": PRINT "(";CG$;")": PRINT
920 INPUT "ANSWER Y OR N: ";YN$: PRINT
927 GOSUB 9000
930 IF YN% < > 1 THEN 940
935 GG% = 1
940 PRINT "WHAT WAS YOUR AVERAGE STRESS LEVEL": INPUT

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      "TODAY? (ON A SCALE OF 0 TO 10): ";SG%: PRINT
947 IF SG% < 0 THEN 940
948 IF SG% > 10 THEN 940
950 X = INT (10 * RND (1))
952 IF X > 4 THEN 965
953 IF SD% < 7 THEN X = 0:FZ% = 0: GOTO 965
955 FZ% = 1
965 GOTO 5000
1000 REM ;SET UP F/B DATA
1005 FOR J = 0 TO 6: FA%(J) = A%(6 - J): AC%(J) = A%(13 -
      J): SA%(J) = A%(20 - J): FB%(J) = A%(27 - J): BC%(J)
      = A%(34 - J): SB%(J) = A%(41 - J): GG%(J) = A%(48 -
      J): SG%(J) = A%(55 - J): NEXT: PRINT
1105 PRINT NF%";", DO YOU WANT FEEDBACK TODAY?": INPUT
      "ENTER Y OR N: ";YN%: PRINT : GOSUB 9000:G$(1) = YN%
1107 IF (SD% - KD%) = 6 THEN PRINT "CANNOT BYPASS FDBK ON
      DAY 7": PRINT : INPUT "PRESS G TO PROCEED: ";G%: GOTO
      1110
1108 IF G$(1) = "N" THEN 2920
1110 HOME : FOR I = 0 TO 38: PRINT "*";: NEXT: PRINT
1130 PRINT "SIT A: ";NA%: PRINT " (COPE: ";CA%";)"
1145 FOR I = 0 TO 38: PRINT "-";: NEXT : PRINT
1160 PRINT "DAYS/          OVERALL STRESS LEVEL": PRINT "      0
      1  2  3  4  5  6  7  8  9 10"
1170 FOR I = 0 TO 38: PRINT "-";: NEXT : PRINT
1182 PA% = 1 + INT ((AP * 30) / 10)
1185 DIM PA$(31)
1190 PA$(0) = "PREJ:": FOR I = 1 TO PA%: PA$(I) = "^": NEXT
1210 FOR I = 0 TO PA%: PRINT PA$(I);: NEXT: PRINT
1225 DIM SA$(6): DIM SL$(6)
1230 FOR J = 0 TO 6: SL$(J) = "T-" + STR$ ( ABS (J - 6)) +
      "1:"
1250 IF FA%(J) = 0 THEN 1275
1255 IF AC%(J) = 1 THEN 1265
1260 SA$(J) = "-"
1262 GOTO 1285
1265 SA$(J) = "+"
1270 GOTO 1285
1275 SA$(J) = " "
1285 NEXT
1286 DIM AS$(6,31)
1295 FOR J = 0 TO 6
1300 FOR K = 0 TO (3 * SA%(J) + 1)
1301 IF K > 0 THEN 1304
1302 AS$(J,K) = SL$(J)
1303 GOTO 1305
1304 AS$(J,K) = SA%(J)
1305 PRINT AS$(J,K);
1310 NEXT
1315 PRINT
1320 NEXT

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1330 FOR I = 0 TO 38: PRINT "-";: NEXT: PRINT
1350 PRINT "BLNK: DAYS SITA DID NOT OCCUR": PRINT "+:
      DAYS WHEN COPING STGY USED": PRINT "-:      DAYS WHEN
      COPING STGY NOT USED": PRINT
1365 FOR I = 0 TO 38: PRINT "*";: NEXT:PRINT :PRINT
1440 INPUT "PRESS G TO GO ON: ";G$: PRINT
1445 IF ASC (G$) < > 71 THEN 1440
1450 HOME
1451 GOTO 5778
1495 HOME
1500 FOR I = 0 TO 38: PRINT "*";: NEXT: PRINT
1525 PRINT "SIT B: ";NB$: PRINT " (COPE: ";CB$;)"
1545 FOR I = 0 TO 38: PRINT "-";: NEXT: PRINT
1560 PRINT "DAYS/      OVERALL STRESS LEVEL": PRINT "
      0 1 2 3 4 5 6 7 8 9 10"
1570 FOR I = 0 TO 38: PRINT "-";: NEXT:PRINT
1582 PB% = 1 + INT ((BP * 30) / 10): PA$(0) = "PREJ:"
1595 FOR I = 1 TO PB%: PA$(I) = "^": NEXT
1610 FOR I = 0 TO PB%: PRINT PA$(I);: NEXT: PRINT
1630 FOR J = 0 TO 6
1650 IF FB%(J) = 0 THEN 1675
1655 IF BC%(J) = 1 THEN 1665
1660 SA$(J) = "-"
1662 GOTO 1685
1665 SA$(J) = "+"
1670 GOTO 1685
1675 SA$(J) = " "
1685 NEXT
1695 FOR J = 0 TO 6
1700 FOR K = 0 TO (3 * SB%(J) + 1)
1701 IF K > 0 THEN 1704
1702 AS$(J,K) = SL$(J)
1703 GOTO 1705
1704 AS$(J,K) = SA$(J)
1705 PRINT AS$(J,K);
1710 NEXT
1715 PRINT
1720 NEXT
1730 FOR I = 0 TO 38: PRINT "-";: NEXT: PRINT
1750 PRINT "BLNK: DAYS SITB DID NOT OCCUR": PRINT "+:
      DAYS WHEN COPING STGY USED": PRINT "-:      DAYS WHEN
      COPING STGY NOT USED": PRINT
1765 FOR I = 0 TO 38: PRINT "*";: NEXT: PRINT: PRINT
1840 INPUT "PRESS G TO GO ON: ";G$
1845 IF ASC (G$) < > 71 THEN GOTO 1840
1850 HOME
1851 GOTO 3015
1855 HOME :X = FRE (0)
1856 PRINT NF$;", ARE YOU READY TO SEE": PRINT "HOW USE OF
      YOUR GENERAL COPING STGY": PRINT "(";CG$;)"": PRINT
      "HAS HELPED YOU REDUCE YOUR OVERALL": PRINT "STRESS

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SINCE STARTING THIS PROGRAM?": PRINT
1863 INPUT "PRESS G TO GO ON: ";G$
1864 IF ASC (G$) < > 71 THEN 1863
1865 HOME
1867 FOR I = 0 TO 38:1870 PRINT "*";: NEXT I: PRINT
1880 PRINT "DAYS/ OVERALL STRESS LEVEL"
1885 PRINT " 0 1 2 3 4 5 6 7 8 9 10"
1890 FOR I = 0 TO 38: PRINT "-";: NEXT: PRINT
1902 BO% = 1 + INT ((BO * 30) / 10): PA$(0) = "B/LJ:"
1910 FOR I = 1 TO BO%: PA$(I) = "^": NEXT
1920 FOR I = 0 TO BO%: PRINT PA$(I);: NEXT: PRINT
1933 PP% = 1 + INT ((SS * 30) / 10): PA$(0) = "PREJ:"
1945 FOR I = 1 TO PP%: PA$(I) = "^": NEXT
1960 FOR I = 0 TO PP%: PRINT PA$(I);: NEXT: PRINT
1973 GOTO 4000
1974 GN% = 1 + INT ((GN * 30) / 10): PA$(0) = "LMOJ:"
1985 FOR I = 1 TO GN%: PA$(I) = "^": NEXT
2000 FOR I = 0 TO GN%: PRINT PA$(I);: NEXT: PRINT
2014 GP% = 1 + INT ((GP * 30) / 10): PA$(0) = "LWKJ:"
2025 FOR I = 1 TO GP%: PA$(I) = "^": NEXT
2037 FOR I = 0 TO GP%: PRINT PA$(I);: NEXT: PRINT
2105 FOR J = 0 TO 6
2120 IF GG%(J) = 1 THEN 2135
2125 SA$(J) = "-"
2130 GOTO 2145
2135 SA$(J) = "+"
2145 NEXT
2150 FOR J = 0 TO 6
2155 FOR K = 0 TO (3 * SG%(J) + 1)
2156 IF K > 0 THEN 2159
2157 AS$(J,K) = SL$(J)
2158 GOTO 2160
2159 AS$(J,K) = SA$(J)
2160 PRINT AS$(J,K);
2165 NEXT
2170 PRINT
2175 NEXT
2800 FOR I = 0 TO 38: PRINT "-";: NEXT: PRINT
2822 IF SD% < 6 THEN 2827
2823 DA% = 6: CC = (A%(49) + A%(50) + A%(51) + A%(52) +
A%(53) + A%(54) + A%(55)) / (DA% + 1)
2826 GOTO 2831
2827 IF DA% > 0 THEN 2824
2828 CC = A%(49)
2830 GOTO 2835
2831 CC = ( INT (10 * CC)) / 10
2835 PRINT "CURRENT 7-DAY AVG STRESS LEVEL: ";CC
2845 PRINT " BASELINE AVG STRESS LEVEL: ";BO: PRINT
2855 PRINT "+: DAYS WHEN GEN COPING STR'GY USED"
2865 PRINT "-: DAYS WHEN GEN COPING STR'GY NOT USED"
2885 FOR I = 0 TO 38: PRINT "*";: NEXT: PRINT : PRINT

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2899 INPUT "PRESS G WHEN READY TO GO ON: ";G$
2910 HOME
2915 GOTO 3900
2920 PRINT
2921 IF (SD% - KD%) = 6 THEN 7000
2922 PRINT
2923 INPUT "PRESS G TO GO ON: ";G$
2924 IF ASC (G$) < > 71 THEN 2922
2925 IF DE% > 0 THEN CLEAR : 200
2926 HOME : IF G$(1) = "N" THEN 8500
2927 PRINT NF$;" , DO YOU AGREE WITH THE FEEDBACK?": PRINT
      "IF YOU DO, GOODBYE FOR TODAY, AND I'LL": PRINT
      "EXPECT YOUR NEXT CALL TOMORROW."
2930 PRINT "IF NOT, PLEASE SEND ME A MESSAGE": PRINT "WITH
      YOUR COMMENTS, AND I'LL RESPOND": PRINT "AS SOON AS
      POSSIBLE. MEANWHILE, KEEP": PRINT "UP YOUR DAILY
      REPORTING."
2935 IF DE% < = 0 THEN PRINT D$;"PR#6"
3000 REM : CUSTOMIZED F/B
3005 YX$ = NA$: YY$ = CA$: XF% = 0: YA$ = "SIT A": YC$ =
      "YES": YS = PA: YF = AC: ZS = AP: ZF = CA: AS = SA%: CC%
      = AC%
3012 IF YA% = 0 THEN 4010
3013 IF FA% = 0 THEN 4010
3014 GOTO 3030
3015 YX$ = NB$: YY$ = CB$: XF% = 1: YA$ = "SIT B": YC$ =
      "YES": X = INT (10 * RND (1))
3017 FZ% = 0: IF X > 4 THEN FZ% = 1
3018 IF SD% < 7 THEN X = 0: FZ% = 0
3021 YS = PB: YF = BC: ZS = BP: ZF = CB: AS = SB%: CC% = BC%
3024 IF YB% = 0 THEN 4010
3025 IF FB% = 0 THEN 4010
3030 PRINT "          FEEDBACK, ";YA$;"": PRINT: PRINT
      YA$;"": ";" " ";YX$: PRINT "CP/SY: ";YY$: PRINT
3051 IF FZ% = 0 THEN 3055
3052 PRINT "          STRESS LVL      COPED?"
3053 PRINT "          -----"
3054 GOTO 3063
3055 PRINT "          AVG STRESS      ";"% OF TIME COPED"
3056 PRINT "          -----"
3058 IF XF% = 2 THEN 3066
3059 IF YF% = 0 THEN 3066
3060 PRINT "SO FAR THIS WK: -          ";YF;"%": PRINT
3062 GOTO 3068
3063 IF FZ% = 0 THEN 3066
3064 GOTO 4600
3066 PRINT "SO FAR THIS WK: ";YS;"          ";YF;"%": PRINT
3068 IF SD% < 7 THEN 3071
3070 PRINT "PREV 7 DAYS: ";ZS;"          ";ZF;"%": PRINT
3071 IF FZ% = 1 THEN 4200
3072 IF FF% = 1 THEN 4100

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3073 IF XF% = 2 THEN 3080
3074 IF YF% = 1 THEN 4020
3075 IF YS < 8.5 THEN 3080
3076 IF SD% < 7 THEN 3120
3077 IF YF > 0 THEN 3079
3078 GOTO 3560
3079 GOTO 4100
3080 IF SD% < 7 THEN 3120
3081 IF YS > ZS THEN 3093
3082 IF YS = ZS THEN 3088
3083 IF YF = 100 THEN 3485
3084 IF YF = 0 THEN 3520
3085 IF YF > ZF THEN 3140
3086 IF YF = ZF THEN 3285
3087 IF YF < ZF THEN 3315
3088 IF YF = 100 THEN 3485
3089 IF YF = 0 THEN 3520
3090 IF YF > ZF THEN 3335
3091 IF YF = ZF THEN 3405
3092 IF YF < ZF THEN 3335
3093 IF YF = 100 THEN 3365
3094 IF YF = 0 THEN 3560
3095 IF YF > ZF THEN 3365
3096 IF YF = ZF THEN 3365
3097 IF YF < ZF THEN 3440
3120 IF XF% = 2 THEN 3125
3121 IF YS < 8.5 THEN 3125
3122 IF YF > 0 THEN 3124
3123 GOTO 3670
3124 GOTO 4100
3125 IF YF = 0 THEN 3670
3133 IF YF = 100 THEN 3635
3135 GOTO 3600
3140 REM : F/B #1
3145 PRINT NF#; ", SO FAR THIS WEEK YOU": PRINT "HAVE USED
      YOUR COPING STRATEGY "; YF; "%"
3151 IF XF% < 2 THEN 3155
3152 PRINT "OF THE TIME, AND YOUR AVERAGE": PRINT "GENERAL
      STRESS LEVEL IS "; YS; "."
3154 IF XF% = 2 THEN 3165
3155 PRINT "OF THE TIME "; YA#; " HAS OCCURRED, AND": PRINT
      "YOUR AVERAGE "; YA#; " STRESS LEVEL IS "; YS; "."
3165 PRINT "COMPARED TO LAST WEEK, MORE CONSISTENT": PRINT
      "USE OF YOUR COPING STRATEGY HAS": PRINT "LOWERED
      YOUR "; YA#; " STRESS LEVEL.": PRINT "KEEP UP THE GOOD
      WORK."
3179 GOTO 3800
3185 IF YF = 100 THEN 3490
3187 IF YF = 0 THEN 3525
3189 GOTO 3340
3200 IF YF = 100 THEN 3370
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3202 IF YF = 0 THEN 3565
3204 IF YF > ZF THEN 3370
3206 IF YF = ZF THEN 3410
3208 IF YF < ZF THEN 3445
3285 REM : F/B #2
3290 PRINT NF$; ", COMPARED TO LAST WEEK, ": PRINT "YOUR
";YA$;" AVERAGE STRESS LEVEL": PRINT "HAS DECREASED,
AS A RESULT OF": PRINT "CONSISTENT USE OF YOUR
COPING": PRINT "STRATEGY. NICE GOING."
3312 GOTO 3800
3315 REM : F/B #3
3320 PRINT NF$; ", COMPARED TO LAST WEEK, ": PRINT "YOUR
";YA$;" AVERAGE STRESS LEVEL": PRINT "HAS DECREASED.
NICE WORK, AND KEEP COPING."
3332 GOTO 3800
3335 REM : F/B #4
3340 PRINT NF$; ", SO FAR THIS WEEK, YOU ARE": PRINT
"MAINTAINING THE SAME ";YA$; PRINT "STRESS LEVEL AS
LAST WEEK. KEEP": PRINT "USING YOUR COPING STRATEGY,
AND SEE": PRINT "IF YOU CAN LOWER YOUR STRESS
FURTHER."
3362 GOTO 3800
3365 REM : F/B #5
3370 PRINT NF$; ", SO FAR THIS WEEK, COMPARED TO": PRINT
"LAST WEEK, YOUR ";YA$;" STRESS": PRINT "LEVEL HAS
INCREASED, DESPITE CONTINUED": PRINT "COPING ON YOUR
PART. WHY NOT SEND": PRINT "ME A MESSAGE REGARDING
ANY DIFFICULTY"
3395 PRINT "YOU MAY HAVE IN EFFECTIVE USE OF": PRINT "THIS
STRATEGY."
3402 GOTO 3800
3405 REM : F/B # 6
3410 PRINT NF$; ", SO FAR THIS WEEK, COMPARED TO": PRINT
"LAST WEEK, YOUR ";YA$;" STRESS LEVEL IS": PRINT "THE
SAME, DESPITE EQUIVALENT COPING"
3425 PRINT "ON YOUR PART. WHY NOT SEND ME A":PRINT "MESSAGE
ABOUT ANY TROUBLE YOU MAY BE": PRINT "HAVING IN USING
THIS STRATEGY": PRINT "EFFECTIVELY."
3437 GOTO 3800
3440 REM : F/B # 7
3445 PRINT NF$; ", SO FAR THIS WEEK, COMPARED TO": PRINT
"LAST WEEK, YOUR ";YA$;" AVERAGE": PRINT "STRESS
LEVEL HAS INCREASED, PROBABLY": PRINT "AS A RESULT OF
YOUR USING YOUR COPING"
3465 PRINT "STRATEGY LESS CONSISTENTLY. IF YOU": PRINT "ARE
HAVING TROUBLE USING THE STRATEGY,": PRINT "PLEASE
SEND ME A MESSAGE REQUESTING": PRINT "WE REVIEW AND
ADJUST IT."
3482 GOTO 3800
3485 REM : F/B #8
3490 PRINT NF$; ", SO FAR THIS WEEK, YOU HAVE": PRINT
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"MAINTAINED OR IMPROVED YOUR ";YA$: PRINT "AVERAGE
STRESS LEVEL, COMPARED TO": PRINT "LAST WEEK, BY
USING YOUR COPING"
3506 IF XF% < 2 THEN 3510
3507 PRINT "STRATEGY EVERY DAY."
3508 GOTO 3515
3510 PRINT "STRATEGY WHENEVER IT WAS CALLED FOR.": PRINT
      "NICE WORK, AND KEEP AT IT."
3517 GOTO 3800
3520 REM : F/B # 9
3525 PRINT NF$;", SO FAR THIS WEEK, COMPARED": PRINT "TO
      LAST WEEK, YOUR ";YA$;" AVERAGE": PRINT "STRESS LEVEL
      HAS IMPROVED OR MAINTAINED": PRINT "BUT YOU HAVE NOT
      USED YOUR ";YA$: PRINT "COPING STRATEGY. IF YOU ARE
      HAVING"
3550 PRINT "DIFFICULTY USING IT, PLEASE SEND": PRINT "ME A
      MESSAGE REQUESTING WE CHANGE IT."
3556 GOTO 3800
3560 REM : F/B # 10
3565 PRINT NF$;", SO FAR THIS WEEK, COMPARED": PRINT "TO
      LAST WEEK, YOUR ";YA$;" STRESS": PRINT "LEVEL HAS
      INCREASED, PROBABLY DUE TO": PRINT "YOUR NOT USING
      YOUR COPING STRATEGY."
3585 PRINT "IF YOU ARE HAVING TROUBLE USING IT,": PRINT
      "PLEASE SEND ME A MESSAGE REQUESTING": PRINT "WE
      REVISE THE STRATEGY."
3597 GOTO 3800
3600 REM : F/B # 11
3605 PRINT NF$;", SO FAR THIS WEEK, YOU HAVE USED": PRINT
      "YOUR ";YA$;" COPING STRATEGY"
3611 IF XF% < 2 THEN 3615
3612 PRINT YF%;"% OF THE TIME, AND YOUR AVERAGE"
3613 IF XF% = 2 THEN 3625
3615 PRINT YF%;"% OF THE TIME ";YA$;" HAS": PRINT "OCCURRED,
      AND YOUR ";YA$;" AVERAGE": PRINT "STRESS LEVEL IS
      ";YS;". HOW ABOUT TRYING": PRINT "USE OF THE STRATEGY
      ALL OF THE TIME?"
3632 GOTO 3800
3635 REM : F/B # 12
3640 PRINT NF$;", SO FAR THIS WEEK, YOU HAVE": PRINT "USED
      YOUR ";YA$;" COPING STRATEGY"
3646 IF XF% < 2 THEN 3650
3647 PRINT "EVERY DAY, AND YOUR AVERAGE STRESS"
3648 IF XF% = 2 THEN 3660
3650 PRINT "EVERY TIME THE SITUATION HAS OCCURRED,": PRINT
      "AND YOUR AVERAGE ";YA$;" STRESS": PRINT "LEVEL IS
      ";YS;". CONGRATULATIONS ON": PRINT "COPING SO
      CONSISTENTLY."
3667 GOTO 3800
3670 REM : F/B # 13
3675 PRINT NF$;", SO FAR THIS WEEK, YOU HAVE": PRINT "NOT
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USED YOUR ";YA$;" COPING": PRINT "STRATEGY, AND YOUR
AVERAGE ";YA$: PRINT "STRESS LEVEL IS ";YS;". IF YOU
ARE"
3700 PRINT "HAVING DIFFICULTY USING THE STRATEGY,": PRINT
"PLEASE SEND ME A MESSAGE REQUESTING": PRINT "WE
MODIFY IT."
3800 IF XF% = 2 THEN 2921
3801 YF% = 0
3802 FF% = 0
3803 PRINT
3804 INPUT "PRESS 6 FOR MORE FEEDBACK: ";G$: PRINT
3806 IF ASC (G$) < > 71 THEN 3804
3807 IF XF% = 0 THEN 1495
3808 IF XF% = 1 THEN 1855
3900 XF% = 2:FF% = 0:YF% = 0
3901 X = INT (10 * RND (1)): FZ% = 0: IF X > 4 THEN FZ% =
1
3903 IF SD% < 7 THEN X = 0:FZ% = 0
3905 YX$ = "OVERALL STRESS MGT": YY$ = CG$: YA$ ="GENERAL":
YS = SG:YF = GC: ZS = GP:ZF = GF: AS = SG:CC% = GG%:
YC$ = "YES"
3932 IF GG% = 1 THEN 3936
3933 YC$ = "NO"
3936 IF YS < = 80 THEN 3940
3937 IF YF = 0 THEN 3940
3939 FF% = 1
3940 GOTO 3030
4000 IF WK% > 2 THEN 4003
4001 GN = GP
4002 GOTO 4007
4003 IF WK% > 3 THEN 4006
4004 GN = (GP + SQ) / 2
4005 GOTO 4007
4006 GN = (GP + SQ + SR) / 3
4007 GOTO 1974
4010 IF DA% > 0 THEN 4013
4011 YF% = 1
4012 GOTO 4015
4013 IF YS > 0 THEN 4015
4014 YF% = 1
4015 IF FZ% = 0 THEN 4018
4016 YF% = 1: YC$ = " - "
4018 GOTO 3030
4020 PRINT "NO FEEDBACK ON THIS SITUATION TODAY -": PRINT
"AS YOU REPORTED IT DID NOT OCCUR.": PRINT
4035 GOTO 3800
4100 REM : F/B #14
4101 PRINT: PRINT NF$;", SO FAR THIS WEEK, WHILE YOU":
PRINT "HAVE USED YOUR COPING STRATEGY ";YF%;"% "; "OF":
PRINT "THE TIME, YOUR ";YA$;" AVG STR LEVEL IS"
4119 IF XF% < 2 THEN 4122

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4120 PRINT "GREATER THAN YOUR BASELINE LEVEL."
4121 GOTO 4125
4122 PRINT "VERY HIGH (GREATER THAN 8.5).": PRINT "IF YOU
      ARE HAVING TROUBLE USING THE": PRINT "STRATEGY
      EFFECTIVELY, PLEASE SEND ME": PRINT "A MESSAGE
      REQUESTING WE ADJUST IT."
4150 GOTO 3800
4200 IF YF% = 1 THEN 4505
4270 PRINT NF$;" , YOUR ";YA$;" STRESS LEVEL"
4275 IF AS < ZS THEN 4305
4280 IF AS = ZS THEN 4295
4285 WE$ = "HIGHER THAN"
4290 GOTO 4310
4295 WE$ = "THE SAME AS"
4300 GOTO 4310
4305 WE$ = "LOWER THAN"
4310 PRINT "TODAY WAS ";AS;" , WHICH IS ";WE$
4312 IF CC% = 0 THEN 4325
4315 IF AS > ZS THEN 4345
4325 PRINT "LAST WEEK'S AVG. LEVEL, PROBABLY BECAUSE"
4327 IF CC% = 0 THEN 4485
4330 PRINT "YOU USED YOUR ";YA$;" COPING STRATEGY.": PRINT
      "NICE GOING."
4340 GOTO 4515
4345 PRINT "LAST WEEK'S AVERAGE LEVEL, EVEN THOUGH": PRINT
      "YOU USED YOUR ";YA$;" COPING STRATEGY."
4357 GOTO 4470
4360 PRINT "YOU DIDN'T USE YOUR COPING STRATEGY"
4465 GOTO 4515
4470 PRINT "ARE YOU HAVING A PROBLEM WITH USING THE": PRINT
      "STRATEGY EFFECTIVELY? IF SO, PLEASE": PRINT "SEND ME
      A MESSAGE ABOUT IT."
4482 GOTO 4515
4485 IF AS > ZS THEN 4360
4490 PRINT "OF PROGRESS MADE PREVIOUSLY IN": PRINT "USING
      THE STRATEGY EFFECTIVELY."
4500 GOTO 4515
4505 PRINT NF$;" , NO FEEDBACK ON ";YA$;" TODAY,": PRINT "AS
      YOU REPORTED IT DID NOT OCCUR."
4515 GOTO 3800
4600 IF YF% = 0 THEN 4610
4605 PRINT "TODAY:           - ";           ";YC$"
4607 GOTO 3068
4610 IF CC% = 1 THEN 4620
4615 YC$ = "NO"
4620 PRINT "TODAY:           ";AS;"           ";YC$"
4625 GOTO 3068
5000 MO = SD% / 28
5005 IF MO > = 2 THEN 5035
5010 IF MO > = 1 THEN 5025
5015 MO% = 1

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5020 GOTO 5040
5025 MO% = 2
5030 GOTO 5040
5035 MO% = 3
5040 KW% = SD% - 28 * (MO% - 1)
5042 WK = KW% / 7
5045 IF WK > = 3 THEN 5090
5050 IF WK > = 2 THEN 5080
5055 IF WK > = 1 THEN 5070
5060 WK% = 1
5065 GOTO 5095
5070 WK% = 2
5075 GOTO 5095
5080 WK% = 3
5085 GOTO 5095
5090 WK% = 4
5095 KD% = 28 * (MO% - 1) + 7 * (WK% - 1)
5097 DA% = SD% - KD%
5100 PRINT
5102 HOME
5105 PRINT "MONTH:          ";MO%: PRINT "WEEK:          ";WK%
5130 PRINT "DAY OF WEEK:    ";DA% + 1: PRINT
5500 PRINT "(PLEASE WAIT WHILE FILES ARE UPDATED)": PRINT
5505 IF SD% > 0 THEN 5520
5506 DIM A%(55): FOR I = 0 TO 55: A%(I) = 0: NEXT
5510 GOTO 5595
5520 PRINT D$;"OPEN "CL$",L3": DIM A%(55): FOR I = 0 TO 55:
PRINT D$;"READ "CL$",R";I: INPUT A%(I): NEXT: PRINT
D$;"CLOSE "CL$"": PRINT
5595 DIM DD%(55): DD%(0) = FA%: DD%(7) = AC%: DD%(14) = SA%
DD%(21) = FB%: DD%(28) = BC%: DD%(35) = SB%: DD%(42)
= GG%: DD%(49) = SG%
5610 FOR J = 0 TO 5: DD%(J + 1) = A%(J): DD%(J + 8) = A%(J
+ 7): DD%(J + 15) = A%(J + 14): DD%(J + 22) = A%(J +
21): DD%(J + 29) = A%(J + 28): DD%(J + 36) = A%(J +
35): DD%(J + 43) = A%(J + 42): DD%(J + 50) = A%(J +
49): NEXT
5625 FOR I = 0 TO 55: A%(I) = DD%(I): NEXT
5700 PRINT D$;"OPEN "CL$",L3": FOR I = 0 TO 55: PRINT
D$;"WRITE "CL$",R";I: PRINT A%(I): NEXT: PRINT
D$;"CLOSE "CL$""
5730 GOTO 1000
5778 SA = 0: FA% = 0: AC = 0: SB = 0: FB% = 0: BC = 0: SG =
0: GC% = 0
5787 FOR J = 0 TO DA%: SA = SA + A%(J) * A%(J + 14)
FA% = FA% + A%(J): AC = AC + A%(J) * A%(J + 7)
SB = SB + A%(J + 21) * A%(J + 35):FB% = FB% + A%(J +
21): BC = BC + A%(J + 21) * A%(J + 28)
5794 SG = SG + A%(J + 49): GC% = GC% + A%(J + 42): NEXT
5797 IF FA% = 0 THEN 5801
5798 PA = 10 * (SA / FA%): PA = ( INT (PA) ) / 10: AC = (

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      INT (1000 * AC / FA%) / 10
5801 IF FB% = 0 THEN 5806
5802 PB = 10 * (SB / FB%): PB = ( INT (PB)) / 10: BC = (
      INT (1000 * BC / FB%)) / 10: SG = (SG * 10) / (DA% +
      1): SG = ( INT (SG)) / 10: GC = (1000 * GC%) / (DA% +
      1): GC = ( INT (GC)) / 10
5845 GOTO 3000
5865 PRINT: INPUT "PRESS G TO GO ON: ";G$: HOME
5869 GOTO 1495
6000 IF VAL (LD$) < > 0 THEN 6010
6001 PRINT NF$;", WELCOME TO THE START OF YOUR": PRINT
      "FORMAL STRESS MGT PROGRAM. FIRST": PRINT "IT WILL BE
      NECESSARY FOR YOU TO MONITOR": PRINT "YOUR AVERAGE
      OVERALL STRESS LEVEL DAILY"
6005 PRINT "FOR 7 DAYS IN A ROW. SO, PLEASE ENTER": INPUT
      "1 AS YOUR FIRST BASELINE DAY: ";BZ$: PRINT
6008 IF VAL (BZ$) < > 1 THEN 6001
6009 GOTO 6080
6010 PRINT NF$;", YOU LAST REPORTED ON: ";LD$: PRINT
6020 PRINT "YOUR LAST REPORTED BASELINE DAY WAS: ";BD% +
      1: PRINT : PRINT "WHAT IS YOUR BASELINE DAY TODAY?"
6050 INPUT "(1 TO 7): ";BZ$: PRINT
6080 BZ% = VAL (BZ$) - 1: DE% = BZ% - BD% - 1
6084 IF DE% < = 0 THEN 6096
6085 QQ% = DE%
6086 PRINT NF$;", YOU APPEAR TO HAVE SKIPPED": PRINT
      "REPORTING FOR ";DE%;" DAYS": PRINT
6092 PRINT "PLEASE ENTER YOUR DATA FOR THESE DAYS": PRINT
      "STARTING WITH DAY ";BD% + 2: PRINT
6095 GOTO 6000
6096 PRINT BZ$: INPUT "IS THIS CORRECT? (ANSWER Y OR N):
      ";YN$: PRINT: GOSUB 9000
6110 IF YN% < > 1 THEN 6000
6112 LD$ = DT$
6115 PRINT D$;"OPEN "LC$"": PRINT D$;"POSITION "LC$","R6"
      PRINT D$;"WRITE "LC$"": PRINT LD$: PRINT D$;"CLOSE
      "LC$""
6155 PRINT D$;"OPEN "CC$","L6": PRINT D$;"WRITE "CC$","R0"
      PRINT BZ%: PRINT D$;"CLOSE "CC$""
6175 GOTO 435
7000 PRINT: PRINT "(COMPUTING HISTORICAL DATA)"
7040 PRINT D$;"OPEN "CC$","L6": PRINT D$;"WRITE "CC$","R3"
      PRINT SG: PRINT D$;"WRITE "CC$","R4": PRINT GC: PRINT
      D$;"WRITE "CC$","R5": PRINT PA: PRINT D$;"WRITE
      "CC$","R6": PRINT AC: PRINT D$;"WRITE "CC$","R7": PRINT
      PB: PRINT D$;"WRITE "CC$","R8": PRINT BC
7120 IF WK% < 2 THEN 7290
7130 REM : STORE WK 2 DATA
7135 PRINT D$;"WRITE "CC$","R9": PRINT GP: PRINT D$;"WRITE
      "CC$","R10": PRINT GF
7155 IF WK% < 3 THEN 7290

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7160 PRINT D$;"WRITE "CC$",R11": PRINT SQ: PRINT D$;"WRITE
      "CC$",R12": PRINT GQ
7176 IF WK% < 4 THEN 7290
7200 SV = (SG + GP + SQ + SR) / 4: SV = ( INT (10 * SV)) /
      10: GV = (GC + GF + GQ + GW) / 4: GV = ( INT (10 *
      GV)) / 10
7220 PRINT D$;"WRITE "CC$",R13": PRINT SV: PRINT D$;"WRITE
      "CC$",R14": PRINT GV
7237 IF MO% < 2 THEN 7290
7240 REM : STORE MONTH 2 DATA
7245 PRINT D$;"WRITE "CC$",R15": PRINT SS: PRINT D$;"WRITE
      "CC$",R16": PRINT GS
7262 IF MO% < 3 THEN 7290
7270 PRINT D$;"WRITE "CC$",R17": PRINT ST: PRINT D$;"WRITE
      "CC$",R18": PRINT GT: PRINT D$;"CLOSE "CC$""
7292 GOTO 2922
8500 PRINT "THANKS FOR TODAY'S INPUT, ";NF$: PRINT "WILL
      EXPECT YOUR NEXT DATA TOMORROW"
8515 GOTO 9050
9000 REM : SUB: Y/N INPUT
9010 IF ASC (YN$) < > 89 THEN 9020
9015 YN% = 1
9017 GOTO 9040
9020 IF ASC (YN$) < > 78 THEN 9030
9025 YN% = 0
9027 GOTO 9040
9030 INPUT "PLEASE ENTER Y OR N: ";YN$
9035 GOTO 9010
9040 RETURN
9050 PRINT D$;"PR#6"
9100 PRINT :ER = PEEK (222):LN = PEEK (218) + PEEK (219)
      * 256: IF ER = 6 AND LN = 250 THEN 260
9105 IF ER = 5 AND LN = 253 THEN 260
9110 IF ER = 53 THEN PRINT "ILLEGAL QUANTITY ENTERED":
      PRINT : GOTO 9130
9115 IF ER = 254 THEN PRINT "BAD RESPONSE TO INPUT":
      PRINT: RESUME
9120 IF ER = 176 THEN PRINT "STRING TOO LONG": PRINT :
      RESUME
9125 IF ER = 255 THEN PRINT "CONTROL CHAR'S NOT ALLOWED":
      PRINT : RESUME
9130 IF ER THEN PRINT "UNRECOVERABLE ERROR": PRINT
      D$;"PR#6"

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