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The Cornell Medical Index-Health Questionnaire: A possible screening psychodiagnostic device

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Throughout the history of the healing arts, the healer has been concerned with the mental and emotional state of his patients. With the advent of so-called scientific medicine, tremendous emphasis was placed upon diagnosis and treatment of a disease entity. Often the humane side of healing was depreciated. In the 1930's, Helen Flanders Dunbar and others began emphasizing the effects of the emotional, mental state of the patient upon his bodily functioning. Gradually over the last two or three decades the physician has been repeatedly, even stridently admonished to turn away from simply trying to understand disease and to return to understanding the "whole person."

In 1943 Weiss and English[1] wrote in the preface to their text, *Psychosomatic Medicine,* "Understanding illness and treating sick people consists of something more than a knowledge of disease." Over the last two decades, attempts have been made to turn the physician's interest in illness to include the psychologic and sociologic aspects as well as the physical. I feel that the conscientious physician has always sought to do just that. The general practitioner has not always consciously thought about doing a psychologic evaluation of his patient as such. Rather, he has simply utilized his common-sense understanding of people.

Of course the common-sense understanding of people is highly variable. It not only varies from physician to physician but changes from day to day and patient to patient for each physician. One can be empathetic, understanding, and sensitive to the needs of one patient and because of personal idiosyncracies be quite blind to the emotional problems of another.

Certainly many physicians have found the task of evaluating the psychologic factors in a patient's disease quite difficult, even an odious task to be

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avoided as long as possible. They have yearned for some simple psychologic screening technique which would help to identify the patient with strong emotional tensions and conflicts which contribute to his physical difficulties to a significant degree.

This paper is concerned with the possibility of using a simple, relatively well-established, reliable medical questionnaire as a psychodiagnostic screening device. The questionnaire to be discussed here is the *Cornell Medical Index-Health Questionnaire*, or C.M.I., as it is usually called. Although a far from perfect psychologic screening device, the C.M.I. could be used both in general and specialty practice to alert the physician to psychologic factors operant in disease processes.

Admittedly, the C.M.I. was designed to collect a large body of purely medical data, to standardize the patient's medical history, and to guide the physician in his initial interviews. Yet it also gathers psychologic data of considerable importance.[2]

With a little guidance and practice, any physician who is genuinely interested can learn to use the C.M.I. quite effectively in screening out as many as three-fourths of his patients who have emotional tensions and anxieties of a sufficient degree that they must be considered in the over-all treatment plan.

First, however, one should consider the history of the development of questionnaires in general and the C.M.I. in particular. There are historical and theoretic considerations which it is important for the user of the C.M.I. to understand. It is only with a good foundation of knowledge of both the strengths and weaknesses of a technique that one can develop a reasonable and flexible usage of it. This certainly holds true with the C.M.I.

Historical consideration of questionnaires

During the First World War, it was recognized that individuals with important psychologic problems, both latent and overt, were poor risks for duty in the armed services. When these soldiers developed obvious psychiatric difficulties following induction, it required much time, money, staff, and attention before they could be separated from service. It has been estimated that the cost ranged as high as $75,000[3] or at least from $30,000 to $35,000[4] per soldier. Thus, there was considerable motivation for development of a technique which would aid in screening out these emotionally poor risks before they were inducted.

When this need for a simple screening device which would aid in the psychologic evaluation of a large number of draftees was made obvious, an eminent experimental psychologist, Robert S. Woodworth, was called upon to develop some measure which would be easily evaluated, easily administered to large groups of men, and inexpensive.

After reading through a mass of literature concerned with psychiatric difficulties and abnormal human psychology, Dr. Woodworth culled out some varieties of symptoms associated with neuroses, including "psychosomatic" complaints, obsessive-compulsive thinking, nightmares, unusual fears, and inferiority feelings, to mention only a few. Altogether his questionnaire contained some 200 items which could be answered by underlining either a "Yes" or "No," or a "?" when the answer was too difficult for the subject or did not apply for him. The questionnaire was developed too late for use in World War I, but a version of it was adapted for the civilian population.[3]

The civilian edition of Dr. Woodworth's questionnaire was published as the *Woodworth Personal Data Sheet*. It consisted of some 116 questions which were worded so that the poor or "neurotic" answer was sometimes "Yes" and sometimes "No." The individual's score was simply the sum of items answered in a deviant direction. If the individual's score exceeded a certain point, or cut-off score, his performance was considered indicative of "neuroticism."[5]

Questionnaires flourished in the 1920's as a measure of personality. Like Woodworth's *Personal Data Sheet*, they were often a motley assemblage of items, put together without adequate theoretic or experimental justification. They were misused then just as questionnaires are still misused today.[6] However, studies done in the 1930's indicated that similar questionnaires that claimed to measure similar traits did not correlate closely with each other. The results of these questionnaires tended to be misleading or even useless.[3] It still holds true that when one uses a questionnaire, one must be very conscious of possible internal and external forces which limit the questionnaire's valid usefulness.

A predecessor of the C.M.I.

Anne Anastasi[5] describes the *Cornell Index* as a modern descendant of the *Woodworth Personal Data Sheet*. The reason for this is that the *Cornell Index* was developed during World War II as a simple psychologic screening device. One version of this questionnaire, the *Cornell Selectee Index*, was used to screen inductees.

Certainly the *Cornell Selectee Index* had the advantage of being short, easy to administer, inexpensive, and capable of being administered to either individuals or groups. One of its obvious weaknesses was that it required the equivalent of a seventh grade elementary education before the subject could be expected to answer it validly. Its developers (Arthur Weider, Harold G. Wolff, Keeve Brodman, Bela Mittelmann, and David Wechsler)[7]

claimed it to be effective in pointing out anxiety states, convulsive disorders, "psychosomatic" diseases, unusual physical concerns, and even asocial trends.[4]

The *Cornell Selectee Index* was not successful in screening out those selectees with monosymptomatic disturbances, including such difficulties as hysterical palsies, prepsychotic states, and psychotic disorders. It was also poor at picking up obsessive-compulsive difficulties.[4,8]

This questionnaire, like its predecessors, was designed as a time saver, an adjunct to a psychiatric interview. It was validated, or tested, on the basis of its correlation or agreement with the judgments of psychiatrists at induction centers. These studies indicated that it served well as an information gatherer and that interpretations from the questionnaire were consistent with the judgments of psychiatrists.[8]

Following World War II, a civilian form, Form N2, called the *Cornell Index,* was developed. It contained 101 "yes-no" items which pertained to such pathologic states as depression, fears, feelings of inadequacy, startle reactions, and "psychosomatic" symptoms. It required from 5 to 15 minutes for the patient to complete. Although written in simple, nontechnical language, the *Cornell Index* usually required at least a sixth or seventh grade educational level on the part of the patient. This form is a little longer and thus more consistent in its results than its wartime predecessor.

The *Cornell Index* was tried out on some 600 persons without apparent personality disturbances and also on some 400 persons with personality disturbances. The findings indicated that a simple score of 7, that is, 7 answers in a deviant direction, would identify some 86 per cent of the psychologically disturbed individuals. However, this cut-off score of 7 also resulted in the inclusion of some 28 per cent of the "normals" in the "upset" group, misclassifying them as false positives.[8]

Another scoring system which could be used with the *Cornell Index* utilizes both a total score (thirteen items) plus one or more unfavorable responses to special "stop items." The stop items were supposed to indicate the possibility of severe emotional or physical disturbance or dysfunction which demanded further investigation in the clinical interview.[4,7]

An example of a "stop item" would be, "Do you go all to pieces if you don't constantly control yourself?" Of course, a "Yes" answer would require careful follow-up in the clinical, psychiatric interview, even if this were the only deviant response to the whole questionnaire. It is an interesting device, rather novel in the history of the development of methods of interpretation of questionnaire results. However, the use of "stop questions" did not significantly improve the validity of the *Cornell Index* over the use of a simple "cut-off" score.[4]

Weider and associates, in the *Manual*[7] of the *Cornell Index,* point out that a score of 23 or higher tends to identify at least 50 per cent of the individuals with diagnosed (by psychiatric interview) emotional problems. This is a good cut-off point since only 4 or .66 per cent of the individuals without emotional problems have a score of 23 or higher. Thus, we see that the more deviant responses, the more valid the *Cornell Index* is in differentiating between individuals who are upset and those who are not upset. This is true of all questionnaires. They are best at picking out the extremes.

The *Cornell Index,* like all questionnaires, is a valuable adjunct to interviewing, a simple device for psychologic screening of large groups of people, and a relatively consistent device for gathering large amounts of information. It is self-administering, easy to score, and fairly valid in neuropsychiatric settings, medical and surgical settings, and even in industry. The authors found it useful for pointing out emotional disturbances which could interfere with the treatment and recovery of medical and surgical patients. It was also helpful in picking out employees in industry who had psychologic problems, poor morale, and lowered efficiency. It is interesting that the authors do not recommend the *Cornell Index* as a criterion for hiring and firing of employees but suggest its use in the selective placement of the worker. Finally, the *Cornell Index* is suggested as a possible research tool, an aid in the standardized gathering of data concerning personality, emotional tensions, emotional moods, and anxieties.[7,8]

Surely by this time the reader is wondering why there is so much consideration given to this predecessor of the C.M.I. There are several reasons. First, most of the individuals who developed the *Cornell Index* in its various forms were also the constructors of the C.M.I. Secondly, from 73 to 80 of the 101 questions on the *Cornell Index* are found either unchanged or slightly modified in form on the C.M.I.

One might, then, loosely generalize from the *Cornell Index* to the C.M.I. If the former has some validity and usefulness, then at least a certain number of the items on the C.M.I. (namely, those borrowed from the *Cornell Index*) should be useful in measuring personality and psychosomatic disturbances.

A theoretic consideration of questionnaires

Weaknesses • One of the simplest criticisms which can be leveled at all questionnaires is that they ask questions that can only be answered either with "Yes" or "No." Everything is dichotomized. It is either black or white, right or wrong. Yet it is ob-

vious that personality traits range along a continuum.

Secondly, it is obvious that questionnaires are theoretically weak in that they tend to segment the patient. Just when one is trying to emphasize the dynamic whole of the patient, questionnaires divide him into so many separate traits.

Thirdly, one of the principal weaknesses of all questionnaires is the assumption that the individual answering the questions will be giving an objectively true answer. We all know that most people tend to make themselves "look good" if they can. We tend to deny our weaknesses. There is an interesting exception: Some patients seek attention, special consideration, and special emotional support from the physician.

The attention-seeking patient, especially if from the lower socioeconomic class, will tend to magnify his pathologic state. Also, the hypochondriacal patient and the hysteric will tend to utilize their physical complaints as defenses against inner anxiety. They, too, will have a tendency to magnify physical complaints although they will deny emotional difficulties.

One should not overlook the fact that some patients may try to make themselves look bad in order to receive some special gain. All illness has some secondary gains. An insurance claim, a V.A. pension, or a chance for public aid may promote some unconscious exaggeration of symptomatology in a patient. Others may exaggerate their difficulties in an unknowing flight from responsibility or conflict. Only a close inspection of the patient's past history and a consideration of his present status can prevent a misinterpretation of some of his answers to a questionnaire.

One of the most important weaknesses of questionnaires is the naive assumption that the patient knows himself and can convey this knowledge in his answers. Only a little reflection will force one to realize that insightful self-understanding is a rather rare quality, and individuals with such understanding are not those we wish to be screening with psychologically oriented questionnaires.

The questionnaires fail, then, to tap the deeper personality levels of the individual tested. There are many characteristics which we cannot admit to because they tend to conflict with our own self-image. A questionnaire with its relatively direct, straightforward questions is all too easily evaded. The patient presents only those weaknesses which are acceptable to his own self-image.

An interesting variable introduced into questionnaires is a semantic one. No two patients, or even the same patient on different occasions, will interpret the question in exactly the same way. Words such as "often" and "easily" will be differently defined by different people. Every person completing a questionnaire is called upon to make many subjective judgments as to the meanings of the items. Since it is obvious that any question does not have exactly the same meaning for each patient, it follows that one cannot assume that each patient has the same reasons for answering each question in the same direction. In other words, a "Yes" answer to a question will mean two different things for two different patients, thus clouding the process of interpretation.

Indeed, interpretation is an area of considerable difficulty. Typically, questionnaires are unusually susceptible to scorer subjectivity during interpretation. Even when questionnaires have been tried out (validated) on various groups, usually the interpretation of the responses is based upon the experience, values, and judgment of the individual clinician. This means that the value of questionnaires varies considerably, depending on the expertness and experience of the clinician using them.[9]

Strengths • The many criticisms noted above may bring the reader to doubt the value of questionnaires. They do have considerable value, though, when used in limited settings for reasonable, limited purposes.

As has been noted previously, questionnaires are excellent adjuncts to interviews. Most authors of questionnaires have stressed this aspect of their use, for questionnaires have proved successful in gathering information in a standardized manner, covering a wide area with relatively little expenditure of time. In situations such as a military or medical setting, questionnaires have proved to be reliable, valid means of gathering data about patients because they feel that their answers will be used more to help them than to hinder them.

As has been noted in the discussion of the *Cornell Index,* questionnaires have proved themselves accurate in picking out the extremes of personality adjustment. They can screen out the very poor emotional risks as well as identify the very good risks.

In our upcoming discussion of the C.M.I., we will find that some studies have shown questionnaires to be more reliable and consistent in picking up psychiatric disabilities than a brief psychiatric interview of a screening nature.

Questionnaires are valuable in research work because they are standardized. In contrast with the interview, they present the same questions in the same words, in the same order, to every patient. Even the best interviewer will vary his interview from person to person; this is an asset for treatment and rapport building but not for research.

Questionnaires are useful in studying group trends, differentiating between groups of well-adjusted and poorly adjusted individuals. They can

be administered readily to large groups of individuals at little expense. Last but not least, the questionnaire seems to be quite acceptable to almost all patients. It can even provide a rapport-building opening for the later clinical interview. Many clinicians like questionnaires because they provide a focus for interviewing, and they direct attention to significant areas which might occasionally be missed during a usual interview.[9]

An introduction to the C.M.I.

The *Cornell Medical Index-Health Questionnaire* (C.M.I.) was largely developed by Keeve Brodman, Albert J. Erdmann, Jr., Irving Lorge, and Harold G. Wolff. This undertaking, like the development of the earlier *Cornell Index,* was stimulated by the National Research Council as an effort to meet the need for a simple device which would permit the physician to easily, quickly, and efficiently gather a large amount of medical and psychiatric information on each patient in a standardized manner. The C.M.I. was developed under a contract between the Veterans Administration and Cornell University. It was copyrighted in 1949.[10]

The C.M.I. consists of 195 questions written in simple and nontechnical language, which the patient is to answer by circling either "Yes" or "No." Like the *Cornell Index,* the C.M.I. has spaces on the first page for the patient's name, address, age, marital status, educational level, occupational status, the date of the testing, and even a place for the "history number." The 195 questions are divided into eighteen arbitrary sections, each labelled with a letter of the alphabet. There are four pages to the C.M.I., but it ordinarily does not take long to complete.

As has been noted, there are eighteen sections to the C.M.I. They are listed below, including the section letters and the general areas of symptomatology to which they refer:[2]

Section A— 9 questions dealing with the *eyes and ears.*
Section B—18 items dealing with the *respiratory system.*
Section C—13 questions dealing with the *cardiovascular system.*
Section D—23 items dealing with *gastrointestinal complaints.*
Section E— 8 questions dealing with *musculoskeletal complaints.*
Section F— 7 questions dealing with *skin problems.*
Section G—18 items concerned with *neurologic problems.*
Section H—11 questions dealing with the *genitourinary system.*
Section I— 7 questions concerned with *fatigue and exhaustion.*
Section J— 9 questions dealing with *frequency of illness.*
Section K—15 items dealing with a *miscellany of difficulties,* including diabetes, goiter, tumor, serious injury, and accident proneness.
Section L— 6 questions concerned with *habits,* including coffee drinking, smoking, sleeping, and the use of alcohol.
Section M—12 items dealing with *fear and inadequacy.*
Section N— 6 questions concerned with *depressive moods.*
Section O— 9 items dealing with *worrying and nervousness.*
Section P— 6 questions dealing with *shyness and interpersonal sensitivity.*
Section Q— 9 questions dealing with *suspiciousness and irritability.*
Section R— 9 questions dealing with *anxiety and startle reactions.*

Sections M, N, O, P, Q, and R all deal with psychologic disturbances. Since these are all contained on page 4, the last page of the questionnaire, they permit relatively easy inspection and interpretation by the physician. But this also makes it simple for the sophisticated, guarded patient to "fake" a good psychologic profile. He simply circles all of the "No" answers to these questions.

As has been noted previously, the language of the C.M.I. is simple and nontechnical. It is designed so that it can be given to an individual with a sixth or seventh grade level of English achievement with the expectation that he will finish it in about 15 minutes. College graduates usually complete the questionnaire in as little as 5 or 6 minutes.[10]

Since the C.M.I. is labelled "Health Questionnaire" in rather conspicuous block letters on the first page, since many of its items pertain directly to physical symptoms or past illnesses, the C.M.I. is ordinarily quite acceptable to the patient. He will tend to perceive the questionnaire as an indication of the physician's interest in him and his physical illness. This actually tends to make it even more acceptable as a screening psychologic device, for it does not arouse the antagonism that many obvious psychologic screening questionnaires sometimes do.

Administration of the C.M.I.

The C.M.I. has the obvious advantage of being practically self-administering. There are instructions on the first page which most patients will readily follow without any request for additional informa-

tion or guidance. This means that the average secretary-receptionist or nurse can learn to administer the C.M.I. with very little instruction. She should be impressed with the necessity of establishing good rapport with the patient. This will tend to increase the reliability or consistency of his answers to the questionnaire as well as guarantee his cooperativeness in the follow-up interview with the physician.

The C.M.I. should always be presented as a standard procedure. Even when it is used as an out-of-the-ordinary screening device or a special procedure, the patient need not recognize this fact. Rather, he should be informed of the confidentiality of the information and the importance of his answers in the doctor's treatment program.

Ordinarily it is best if the patient has a private place, such as an examination room, in which he can fill out the C.M.I. However, if that is not possible, a simple lapboard (a stained or varnished breadboard will do) on which he can write will usually serve quite well. A sharp, medium-hardness pencil with an eraser should be provided for marking the patient's answers.

A word of warning should be issued at this point. There are two forms of the C.M.I., one for men and the other for women. The only difference is in section H (questions 97 through 102), dealing with genitourinary problems. Even though all of the C.M.I. forms are marked with "Men" or "Women" in parentheses on the first page, sometimes one makes a mistake and issues the wrong form to the patient. This can be embarrassing, although most patients tend to fill out the questionnaire, simply ignoring the items which do not apply to their sex.

After the patient has completed the C.M.I., a check by the receptionist-secretary or nurse should be made. If any questions have been left unanswered, the patient should be strongly encouraged to complete them.

To aid in interpretation, the person who administers the C.M.I. could go over the form underlining all of the "Yes" answers with a red pencil. Also, those items which have been left unanswered, those which have been answered both "Yes" and "No," those which have been erased and changed, and those which have been qualified with write-in comments should be underlined or emphasized in some manner so as to attract the physician's attention to them.

Although most patients will complete the C.M.I. without questions, some will want guidance, reassurance, or additional explanations. The person who administers the questionnaire should be informed that once she has ascertained that the patient has sufficient reading ability to be able to complete the C.M.I., she should answer all questions in a noncommittal manner. She might simply say, "That is up to you," or "You should answer as best you can." Of course, if the patient is having difficulty with such words as "diarrhea," "goiter," or "vaginal," she should be trained to give a simple definition which the patient can understand.

Validation of the C.M.I.

Before using any technique, one should try to determine its strengths and weaknesses, the setting in which it is useful, and those settings in which it is misleading or invalid. The following discussion will briefly summarize some of the important research studies done on the C.M.I.

The developers of the C.M.I. tried it out on 179 consecutive patients admitted to the New York General Hospital's Medical Out-Patient Department. A rather careful comparison of the responses given on the C.M.I. with the responses noted on the standard medical histories pointed out that the C.M.I. is successful at eliciting the same sorts of data as a standard medical history. Especially in areas dealing with emotional tensions, the C.M.I. seemed more successful than interview at consistently eliciting data concerned with the presence and absence of symptoms. This rather simple, uncontrolled study shows that the C.M.I. is not especially inferior to interviews when it comes to gathering information about symptoms from medical patients.[11]

Another study utilized some 191 consecutive patients from New York Hospital's Medical Department. A blind interpretation of the patient's condition was done just from the C.M.I. by four physicians, two interns, one nurse, and one medical technician. Their interpretations were found to be fairly accurate and consistent, regardless of training. They identified about 94 per cent of the general diagnostic categories which had been found during the hospitalization of the patient. The physicians, because of their greater training, could conclude what specific diseases were found in some 87 per cent of the cases. One of the most encouraging findings was that the C.M.I. was especially good at picking up the psychologic factors and their relationship to the patient's illness.[12]

Two rather extensive studies[13,14] of the validity of the C.M.I. as a screening psychiatric technique were reported in the *Journal of Clinical Psychology* in the spring of 1952. There were five different groups of males: 152 New York Hospital employees acting as "normal" controls; 282 apparently healthy, randomly chosen New York City citizens; some 2,107 New York Hospital patients; a subgroup of 183 of these 2,107 who had been diagnosed as "neurotic"; and 371 V.A. "psychiatric" patients.

There were four groups of females included in the study: 307 New York Hospital employees; 328 apparently healthy New York City "normals"; 3,014

New York Hospital patients; and a subgroup of the latter 3,014 which consisted of 343 New York Hospital patients who had been diagnosed as "neurotic."

The results indicated four fairly valid criteria of emotional disturbance: (1) thirty or more "Yes" responses to the whole C.M.I., (2) three or more questions answered both "Yes" and "No," (3) six or more answers omitted, or (4) three or more remarks or qualifications of a question.

Another study[15] was made of a random sample of 7,527 men from New York City who were to be inducted into the armed services. The findings indicated that men accepted for military service had fewer complaints on the C.M.I. than did those who were rejected by induction psychiatrists. Yet it is interesting that the men rejected because of physical defects but lacking in any psychiatric disturbance reported only slightly more complaints than did the physically healthy, "normal" individuals accepted for service. The general conclusion was that individuals who had a large number of physical and/or emotional complaints on the C.M.I. tended to serve in the service as if they were actually physically sick.

An interesting follow-up sample of 171 rejectees was done some 8 months after their rejection. It is notable that those men who were rejected for psychiatric disturbances reported ten times as many sick days as did men who were rejected for outright medical reasons. In other words, they tended to behave like their soldier counterparts.[15] The only conclusion that one can reach is that individuals who have a large number of medical complaints tend to be susceptible to psychologic difficulties.

In general, the validating studies have shown the C.M.I. to be at least as useful as screening psychiatric interviews in picking up extreme psychologic disturbances. In addition, the C.M.I. gathers information in a standardized, consistent manner, tending to help eliminate variability from clinician to clinician. Finally, it has proved to be not only a useful interview tool, but a successful rapport-building technique which can improve the physician-patient relationship.

Interpretation of the C.M.I.

Scoring levels • One of the simplest ways to detect emotional disturbances using the C.M.I. is to look for certain simple, objective but deviant responses. All of the "Yes" responses are considered to be deviant by the constructors of the C.M.I. Also, those items which have been modified by written-in comments and qualifications, as well as those items which have been answered both "Yes" and "No" or simply left blank, are considered unusual if not actually abnormal response tendencies on the part of the patient.

First, one might simply count the number of items answered with a "Yes." Thirty items or more for a man, even though they all pertained simply to physical complaints, would be a sufficient number to make one conclude that he had underlying emotional problems. However, with women, since they typically present more physical complaints than men, a cut-off score of fifty tends to be a better dividing point.

Secondly, one should note the number of "Yes" responses to the last page. Three or more "Yes" responses to this page, even without any other "Yes" answers on the rest of the questionnaire, indicate some sort of emotional disturbance or else an unusual tendency on the patient's part to display his weaknesses in a search for attention and emotional support. Again, women will often give "Yes" answers to these items more readily than will men.

Thirdly, one should look for the items that are answered both "Yes" and "No." Also, consider the items that have been qualified in some way by the patient. Some patients who are unusually controlled, compulsive, or intellectually fastidious will try to qualify the questions in some manner. Also, the overly conscientious patient will tend to write in complete answers in an effort to fill the physician in on the nuances of his complaints. Finally, consider the items that have been left unanswered or have been erased. If four or more questions meet any of the above criteria, then one must suspect unusual emotional tensions in the patient.

Finally, three or more "Yes" responses to the sections concerned with fatigue and frequency of illness (section I and section J) also point up the high probability that the patient has some emotional overlay to any of his physical difficulties.

The reader should keep in mind that more than one of the above criteria will be found when the patient has a fairly serious emotional difficulty; however, any one of these objective scoring signs is a warning signal that the patient has difficulties of an emotional nature. The "psychic overlay" should be considered more thoroughly in the follow-up interview.

The patient's style of answering • There are certain objective qualities about the patient's manner or style of response to the questions of the C.M.I. which can be important in the over-all interpretation of it.

First, one should consider the length of time it takes patients to complete the C.M.I. Most patients will be finished in about 15 minutes or less. However, the meticulous obsessive-compulsive who cannot readily commit himself to either a "Yes" or "No" answer may take well over a half hour, leaving many items unanswered. The apathetic patient who is struggling under a pervasive depression will also take an unusually long time to complete the C.M.I.

Also, the individual with little education, or the patient who is confused, either because of an acute psychosis or brain damage, will take longer to finish the questionnaire than will the confident, active person.

The patients who answer the C.M.I. questions most quickly are the intellectually sophisticated individuals who wish to guard against self-revelation. They will simply mark all of the items, except for a few physical complaints which are common, with a "No." Of course, the unusually suspicious patient will refuse to complete the C.M.I. at all.

Next, one could look at the way the patient answers the questions. The depressed patient will circle the answers with faint lines. Usually the depressed patient begins with firm lines and then gradually they become fainter and fainter.

The tense, anxious patient, as well as some persons with organic brain damage, will circle the answers with dark, heavy lines. The acutely anxious patient will tend to draw tremulous lines. The overactive, manic patient will tend to utilize large, poorly drawn circles to answer questions. The obsessive-compulsive will tend to draw small, tight, careful circles. Also, he will erase often or else write in qualifications of items.

There is also the dependent patient who asks many, many questions about what he is expected to do on the C.M.I. He is overly eager to please, somewhat fearful of making a mistake, and a little childish in his demands for guidance. Such individuals openly look to authority for support and an answer to their difficulties. Overtly self-effacing, these individuals often harbor deep resentment of authority and their questions are sometimes designed to reduce the authority figure to an absurdity.

Generally, the patient will take the C.M.I., complete it in a reasonable time with fewer than 20 "Yes" answers, and show little resentment, hesitation, or doubt with regard to its use.

Stop items • There are certain important test questions on the C.M.I. which *require* further investigation even though they may be the only "Yes" answer on the whole questionnaire. They are called "stop items," simply because they are rarely answered in a deviant direction by persons who do not have special problems.

Clinically, one of the most important "stop items" is the question 162, "Do you often wish you were dead and away from it all?" Such an item points up possible suicidal trends, a desire to escape from an intolerable situation, or possibly a desire to (unknowingly) hurt and punish oneself.

Another "stop item" which also indicates some of the same sorts of depressive feelings as the question discussed above is question 161: "Does life look entirely hopeless?" A "Yes" answer to this item indicates a feeling of futility which strongly suggests a dangerous underlying depression. In any case, both items suggest the possibility of hostility turned inward in the form of depression and self-destructive tendencies.

The significance of both of the above "stop items" as indicators of depression is vastly increased if they are accompanied by complaints of fatigue, exhaustion, joint pain, difficulty in sleeping, weight loss, increased irritability, and anorexia. All of these items which point to vague, diffuse physical complaints show that the depressed patient can unknowingly reveal himself, even when he does not realize consciously that he is depressed.

Another obvious "stop item" is question 170: "Were you ever a patient in a mental hospital?" This item is important in our culture because the stigma attached to hospitalization for neuropsychiatric disability forces people to avoid being hospitalized until they are acutely upset about something. Thus, many patients with a history of hospitalization are chronically ill persons who have stabilized at some acceptable but not entirely satisfactory level of adjustment. Many of these ex-patients have physical problems which have grown out of chronic emotional tensions. A few will have invested certain physical symptoms with special meanings. Such patients will often develop bizarre "conversion" symptoms from time to time, in response to exacerbating exogenous pressures, which will not respond to medical therapy.

Another "stop item" is number 177: "Do people usually misunderstand you?" A "Yes" answer here may indicate a sense of isolation in the patient. Such a feeling would not be unusual in a sensitive adolescent who lacks good channels of communication with his parents, in a housewife who feels neglected by her husband, or in a schizoid individual who has never felt safe enough to develop a close emotional relationship with another person. Such patients often respond to simple emotional support and attentive listening on the part of the physician. They can come to feel that here is one person willing to bridge the gap which they have felt between themselves and others. The results can be quite therapeutic.

Question 186, "Do you often get into a violent rage?" and question 181, "Do you go to pieces if you don't constantly control yourself?" are interesting stop questions which show severe difficulty with impulse control. Such individuals may be passive-aggressive personalities, aggressive type, that is, individuals who allow rage to build up inside themselves until they must act it out impulsively and suddenly. Following their acting out, they are often contrite and remorseful. Patients who mark such items in a positive way could also be persons who are given to impulse gratification with little feeling

of conscience. Such is the so-called sociopathic personality disturbance. They tend to remind one of little children who cannot stand the frustration of waiting for what they want or of controlling their feelings of anger when they do not get their way.

In dealing with any expression of hostility, one must keep in mind that these feelings develop from a sense of frustration. A situation which is quite frustrating for one patient will not be for another. A good history of previous adjustment will greatly aid in the evaluation of the patient, his anger, and his impulse control.

Not all anger is turned outward. Much of it can be directed inward or converted into unusual muscular tension which can result in such difficulties as stuttering, sleep walking, and even bed wetting (enuresis). Questions 93 through 95 of the C.M.I. deal with these complaints. Such patients tend to have a strong underlying sense of anger which is not acceptable to their self-concept, that is, to the way they have been trained to see themselves.

These patients tend to operate under a considerable amount of tension at all times. The sleep walker is often the victim of some conflict he cannot resolve. He figuratively "walks out" on the situation in his sleep. The stutterer utilizes his symptoms, unconsciously and without conscious purpose, to punish his listener, to restrain his own inner anger which might well out through his mouth, and to limit his interaction with others. The enuretic gains attention, covertly expresses his hidden anger in a graphic acting out of a common phrase that combines disgust and urination, and demonstrates his childishness, his need to be free from responsibility and parental expectations.

Another relatively obvious stop question is 90, "Did you ever have a fit or convulsion?" Here is a warning light, pointing up the need for considerable history taking in this area and possibly elaborate diagnostic evaluation. Of course, some "fits" are simple childish temper tantrums. One should keep in mind that some adults have never outgrown the temper tantrum in their struggle to have their way.

Another stop question is, "Has a doctor ever said you had stomach ulcers?" Many persons with a history of ulcers are not "neurotic" in the usual sense of the word. Rather, they are angry men who recognize their feelings of anger and resentment. They tend to be impatient with themselves and others. When confronted with a situation which is "too much" for them, they are quite likely to say or to think or at least to feel, "Doesn't that get you right in the gut?" And, for them, so it does.

One is almost forced to classify every item on the last page of the C.M.I. as a "stop item" in itself. After reading the questions, the answer will be obvious. If one's patient if from a middle-class background, he will find the items on the last page to be descriptive of emotional weakness, a weakness which he has been taught to conceal.

Clinical judgment • In interpretation of the C.M.I. responses, one is forced to rely mostly upon one's basic clinical judgment. In daily practice, the physician soon learns that muscle and joint pain is often set off or even caused by chronic emotional tension. The anxious, tense patient will tense his muscles, usually quite unknowingly, so much and so long that the result is eventual pain. Even the individual who is holding back an unacceptable anger will tend to have an unusual number of musculoskeletal complaints. Such complaints are often the high cost for his self-control and his self-frustration of angry feelings and impulses.

Also, it usually does not take the physician too long to learn that gastrointestinal difficulties have an unusually high degree of emotional or psychic overlay to them. All sorts of stomach pains, bloating, "heartburn," belching, and indigestion tend to develop when the patient is in the midst of a crisis he feels that he cannot handle but which he feels he must attempt to deal with. Fear and anger can well up and precipitate gastrointestinal disturbances.

Fatigue and exhaustion are rarely merely the result of anemia, infection, or overwork. Fatigue often grows out of inner conflict, a mixture of love and hatred, fearfulness with regard to inner desires, dislike for one's activities, or simply boredom. The middle-aged woman may use exhaustion as an attention-getting device to divert her husband's attention from work or hobbies back to her. The sexually dissatisfied or frigid spouse may utilize fatigue as a means for avoiding sexual relations. The dissatisfied worker can use exhaustion as a lever for transfer from a distasteful job to one which is more pleasant and rewarding. The husband may utilize after-work fatigue as an unconsciously motivated excuse for not disciplining his children, for not taking a more active part in community affairs, for not taking his wife out so that she can enjoy a respite from household duties, and so forth.

The physician finds that anxiety can show up in his patients in the form of fear of heart failure, complaints of a racing heart and difficulty in breathing, mild gastrointestinal disturbances, over-reactive reflexes, cold sweats, difficulty in sleeping, inability to make up one's mind, and frightening dreams, just to name a few.

Hostility also proves to be protean, showing itself along a continuum from obvious rage and irritation to more subtle forms such as fatigue, headaches, stuttering, enuresis, and even diarrhea. The hostility turned inward becomes depression, a force which can increase susceptibility to illness, accident proneness, exhaustion, and a wide variety of vague physical aches and pains.

We find patients utilizing illness as attention-getting devices. Others are punishing themselves, developing physical and emotional handicaps as a form of unconscious expiation for a sense of sin. Some patients are utilizing physical symptoms as a cry for help to the physician. Others simply find illness a handy escape from responsibility. This could include marriage, community and social obligations, or even the possible realization of one's own weaknesses.

Considering the high degree of variability in illness from patient to patient, one cannot help but wonder at the vast problems of diagnosis and treatment which face the physician in his practice. Clinical judgment is usually sufficient, but an objective, standardized method of estimating the degree of "psychic overlay" or emotional factors in physical disease would be helpful to most physicians. I feel that the C.M.I. can be quite valuable in practice as a rather crude measure which alerts the physician to possible trouble ahead.

Conclusions

As one comes to know psychodynamics better, one cannot help but develop an increasing appreciation for the complexities of human behavior. There are obviously no single "causes" for different behaviors. Rather, one comes to see a many-layered interplay of factors, any one of which can be crucial. They can be compared to an onion. There is the outer, obvious layer. And, with much effort, one can gradually work through to some of the inner layers, just as one would peel an onion.

In this process of seeking out the delicate facets of human psychodynamics, I have found the *Cornell Medical Index-Health Questionnaire* to be a useful, though coarse sieve, a rough screening device which can alert one to significant areas of psychologic difficulty in a patient.

The C.M.I. has numerous advantages as a psychologic screening device. It is usually acceptable to patients. They are willing to complete it and answer consistently on it. It is inexpensive, requires little time, is easy to interpret at a screening level, and has behind it considerable research with regard to its usefulness in different settings. It has been found to be a very useful adjunct to clinical interviews, since it tends to gather a considerable amount of medical and psychologic data about the patient in a consistent, standardized manner.

Of course the C.M.I. has its weaknesses. It is not a subtle instrument. The sophisticated patient can easily present the sort of self-picture he wants. It differentiates best between extremes, that is, the very "good" and the very "bad." Its real value seems to depend mostly upon the ability of the user rather than its inherent validity.

However, I recommend the C.M.I. to the physician who is concerned with improving his ability in evaluating the psychologic factors in his patient's illness. It is hoped that the reader will consider the *Cornell Medical Index-Health Questionnaire* as a standard psychodiagnostic screening procedure in his daily practice.

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