

Chapter 3

Personal Health Assessment

The Health Assessment

The HEAL 370 student has learned that the health assessment is the basis to the health prescription. Health assessment results not only ascertain all or some part of personal health status, but just as importantly, identifies health determinants, risk factors and risky behaviors. Upon viewing the results of a health assessment, a person might have to make some inferences and speculations about general determinant explaining his/her state of health. That is, the individual would have to think about psychological, sociological and physiological variables at play. The health assessment results would be more likely to display modifiable risk factors and behaviors such as seen in the Living Well® assessment at the end of each chapter of this text. The risk factors and risky behaviors could act as targets for personal health strategies. Many health assessments would also furnish suggested resources for learning more about what can be done to “turn-around” these determinants of health. After the personal health prescription has been implemented, the person could readminister the health assessment and to see if there has been any change in health behavior and improvement in personal health status. The idea of repeated assessments or screenings to chart progress is a main feature to all health promotion and disease prevention programs (Miller, 2002).

Whereas a person can perform informal health assessments, such as intuitively ascertaining if things are okay with him/herself, this chapter will focus on formal health assessments. The latter comprises both objective and subjective measures of personal state of health. The primary example is the health risk appraisal although there are other similar assessments such as quality of life and health status survey. There are specific health assessments that center on parts or aspects of personal health status. There are also health screenings that can be performed by the self and complement health assessments.

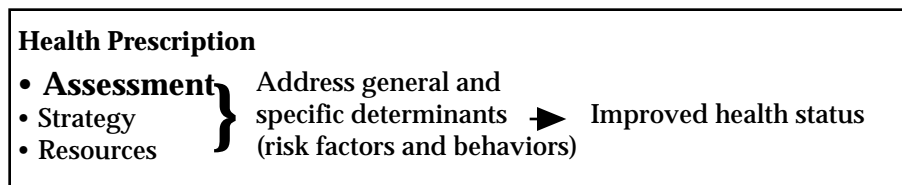


Figure 3.1: Health prescription model - assessment emphasized

Health Risk Appraisal

The health risk appraisal (HRA), in its paper/pencil or software formats, has been used by health promotion and disease prevention professionals since 1970. First developed by two Canadian physicians, Lewis C. Robbins, MD and Jack Hall, MD, it was deemed a diagnostic tool. Thereafter, it was more correctly classified as an assessment instrument that could be used for self-learning and self-care. As originally conceived, the HRA is a technique for estimating the odds that a person, with specified age, gender, risk factors and risky behaviors, will die from selected causes within a ten year period. As a health education tool, the HRA is used by professionals in their health promotion and disease prevention efforts. In its earlier paper/pencil version, the administrator of the HRA had to know how the data on 27 select items were gathered from the respondent and then perform the necessary calculations in order to appraise the respondent's health. Nowadays, HRAs are administered in electronic format

with software performing these tasks (Alexander, 2000). For the HEAL 370 Personal Health Prescription project, students complete the LiveScan® HRA.

It is important to realize that the HRA was an invention of *prospective medicine*, a field of professional study and practice in preventive health. Starting mid-20th century, physician, nurses and other health-related professionals began realizing the leading causes of death were explained through modifiable risk factors and risky behaviors. Prevention was being emphasized versus treatment as the primary way to address illness and disease. It was through the efforts of prospective medicine specialists along with epidemiologists that the following concepts were established:

- *Life expectancy* is the projected average number of years of living for a same age and gender cohort (group) if the mortality rates at that time continue.
- *Longevity* is the the actual number of years a person lives.
- *Appraised age* is a person's actual age adjusted to life expectancy of the cohort and projected longevity of someone who has specified risk factors and risky behaviors.
- *Achievable age* is a person's actual age adjusted to life expectancy of the cohort and projected longevity of someone who had reduced or modified specified risk factors and risky behaviors.

The HRA relies on life expectancy of the group and the projected longevity data of the person to calculate appraised and achievable ages. Recall the personal health prescription example from the first chapter:

Appraised age:	46
Actual age:	49
Achievable age:	44

The person is at low health risk because his/her appraised age is three less than his actual age. In other words, his/her life expectancy has been extended by three years. This means the person is behaving in such a way as to increase his/her health status. However, this person has the potential of “adding” two additional years of projected longevity if he/she would reduce or modify specified risk factors and risky behaviors. Looking at the numbers above, that’s a “swing” of 5 years.

The standard HRA consists of items related to demographics, personal/family health background, medical screening practices, lifestyle, and biomedical measures (i.e., blood pressure and cholesterol levels). Once entered into a computer, these data are compared to normative data (similar data on the respondent's age and gender cohorts) a 10-year risk is projected. Most HRAs present not only the person's life expectancy, appraised age and achievable age but also the chances of dying within the next 10 years for leading causes of death.

Now, over 30 years later, the HRA continues to be a common component in health promotion and disease prevention programs in a variety of settings, such as worksites, clinics, and hospitals. The HRA is often one of the services offered through a wellness program. It serves a promotional role by heightening participants' awareness of the program's existence. It can also act as an inexpensive organizational health needs assessment since individual results can be summed into an profile of all persons taking the assessment. Last, it can be used in program evaluation, mostly likely in a pre- and post measurement of participants in a health promotion program.

The personal health prescription project in this course requires HEAL 370 students completing the LiveScan® online health risk appraisal. Looking at the items, there are measurements of risk factors and risk behaviors (Hettler et al., 1996a) (see Table 3.1).

Physical/Hereditary Factors

- Age
- Gender
- Race/Origin
- Height and weight
- Body frame
- Blood pressure
- Cholesterol level
- Diabetes
- Family member with diabetes
- Age at *menarche*, which is first menstruation
- Age when first child born
- Whether or not had a *hysterectomy*, which is the surgical removal of the uterus
- Number of women in natural family (mother and sister only) having had breast cancer

Environmental Factors

- Miles traveled annually in a motor vehicle
- Type of motor vehicle driven

Risky Behaviors

- Tobacco involvement
- Alcohol involvement
- Percent of time using a seatbelt
- Exceeding the speed limit while driving
- Driving/riding when driver was alcohol involved.
- Length of time since last mammogram which is a breast x-ray
- Length of time since last pap smear which is a screening for cervical cancer
- Infrequency of breast self examination by health care professional
- Length of time since last rectal/prostate exam.
- Physical inactivity

Risky Behaviors Related to Nutrition (not in an HRA)

- Drinking less than a quart of water daily
- Infrequency of using waterless and grizzles cookware
- Infrequency consumption of bread and cereal servings, low or non-fat dairy products, and fruits/vegetables
- Infrequency of meatless meals
- Infrequency of eating a variety of foods
- Consumption of salt and sugar beyond recommended daily allowance

Risky Behaviors Related to Intentional/Unintentional Injuries (not in an HRA)

- Absence of a bloodline parent during an appreciable period of childhood (greater than 1 year)
- Being witness to or involved in a physical altercation in past month
- Not wearing helmet while driving/riding a motorcycle or all-terrain vehicle

Table 3.1 Risk factors and risky behaviors measured in an HRA

General Wellness Assessments

Related to the HRA are a variety of general wellness assessment available for personal use and professional practice. A good example is the Living Well® health assessment (Hettler et al., 1996b) which is a part of the HEAL 370 projects. Sections of the wellness assessment are presented at the end of each chapter (ten items on physical nutrition are at the end of this chapter). Living Well represents a general wellness assessment because it comprises ten sections of a person's general health and responses to items in each section are merely tabulated in order to present a general profile of the respondent. Health risk is not calculated. Living Well as well as other general wellness assessment are useful in displaying a "report card" on health. From

the results, the respondent can ascertain a better sense of his/her present state of health while also glean general and specific determinants to health. More is explained about LivingWell and other general wellness assessments in Chapter 8.

Other Formal Health Assessments

Two other widely used formal health assessments are quality of life and health status survey. Both procure objective and subjective information in order to identify risk factors and behaviors, and ascertain personal health status. *Quality of life* is an overall sense of well-being when applied to an individual and a pleasant and supportive environment when applied to a community. A variation is called the health-related quality of life measure since it focuses on the strong relationship between a person's health perceptions and ability to function. QOL is determined by assessing a person's standard of living (e.g., income level), activities of daily living, and freedom from limiting conditions and disabilities. The essence to QOL is the freedom one has to pursue what he/she thinks is important, productive and enjoyable in life (Moriarty, 1996). The *health status survey* is one of the most widely used surveys in the world for assessing health status from the patient's point of view. The object is to assess change in health over the past year. The survey contains eight scales. Each scale contains two to ten items. Responses to each item are: not at all, slightly, moderately, quite a bit, and extremely (Wetzler, 2000). More will be discussed about both of formal health assessments in chapter 8.

Specific Health Assessments

Just as there are health assessments of our overall health status, there are those that ascertain parts of a person's state of health. Here is a selected list of specific health assessments.

- **Assessment of Fitness.** *Fitness* is a set of attributes that persons have or achieve that relates to the ability to perform physical activity. Fitness is determined through a series of fitness performance tests and anthropometric measurements (Fitness Staff, 2000). The *fitness performance tests* are primarily directed at cardiorespiratory, muscle strength and endurance, and flexibility fitness areas. Specific tests involve the 3-minute step test, the sit-up test, sub-max bench press, sub-max leg press, and the V-sit and reach flexibility test. More advanced tests would be the sub-maximum oxygen uptake test (sometimes called the "stress" test) as well as determining maximum repetition in muscle strength and endurance. There is also a series of range of motion tests for determining flexibility of various body sites. Other tests are of agility, balance, coordination, power, and speed. These tests generally measure *physical activity* which is bodily movement that is produced by the contraction of skeletal muscle and that substantially increases energy expenditure (Surgeon General, 1996). *Anthropometrics* involve measurements of height-weight, body composition, and other specific ascertainments. Common measurements are height-weight to determine body mass index, body composition through a 3 site skin fold body-fat test, waist/hip ratio, resting heart rate, and blood pressure. The data are normalized (compared and adjusted to expected performance and measures based on a standard population) and the results are used to determine the person's fitness level or status.
- **Body Volume, Composition and Frame.** It might seem obvious how height-weight are taken with measurements referenced to the Metropolitan Life Height Weight Chart®. This information is entered into an HRA. A popularly used measure of body volume is the *body mass index* (BMI). To calculate BMI is done by weight (in kilograms) divided by the square of height (in meters), or weight (in pounds) divided by the square of height (in inches) times 704.5. Because it is readily calculated, BMI is the measurement of choice as an indicator of healthy weight and composition. The mini-health prescription presented in Chapter 2 provides the HEAL 370 student an opportunity to calculate body

composition and healthy weight. The Living Well® chapter 2 activity presents understand risk factors and risky behaviors commonly measured when assessing physical fitness.

- **Assessment of Nutrition.** The primary nutrition assessment involves dietary recall during which the respondent reports food intake by amount in the recent and/or far past. The information is logged and entered into a software program that calculates various outputs--usually profiling the respondent in terms of recommended daily allowances of nutrients. Caloric intake and expenditure are also factored into the data analysis. The calculations are based on Dietary Guidelines for Americans, U.S. Department of Agriculture and U.S. Department of Health and Human Services. The personal health prescription in this chapter centers on nutrition. So does the Living Well® chapter activity.
- **Assessment of Safety.** Most assessments of safety actually measure the presence of *human factors*, inappropriately or incorrectly practiced skills and abilities that comprise misactions which lead to unintentional or intentional injuries. The misactions and related injuries or deaths can be categorized according to site: home, school, work, community, and road. This information is addressed in a chapter 10 activity. Some safety assessments focus on *adverse events*, undesirable incidents resulting from the use of a medical products (e.g., adverse drug reactions). Still other safety assessments fall in the category of *threat assessment and harm reduction*, a branch of forensic mental health in assessing and managing danger (McCann, 2001).
- **Assessment of Mental Health.** The whole basis to mental health is asking persons to self-assess, heed the constructive observations of others, and strive toward self-improvement. Assessments usually measure signs and symptoms of anxiety or mood disorders. Popularly used assessments focus on stress and its management. A brief formal or informal assessment is conducted to identify persons who have mental health problems or are likely to develop such problems. The screening process helps determine whether a person has a problem and, if so, the most appropriate mental health services for that person. The HEAL 370 student will find a knowledge test on mental health terminology in chapter and an example of a professional health prescription in chapter 8.
- **Assessment of Substance Involvement.** Assessments of tobacco substance involvement usually ask the respondent to indicate amount consumed as well as motives for being tobacco involved. Some push for the respondent to indicate intentions of quitting. Assessments of other psychoactive substance (e.g., alcohol, dry drugs, etc.) involvement rely on identification of signs of symptoms of misuse or abuse. Typically, the respondent is asked to indicate if problems are occurring that are either associated with or caused by the psychoactive involvement. Substance abuse-related terminology and a sample personal health prescription are found in chapter 5.
- **Assessment of Spiritual Health.** There is a variety of assessment instruments on spiritual health. The variable measures range from personal wonderment and religiosity, through moral reasoning, to forgiveness and searching for joy. Two common variables have to do with interrelatedness with others and transcendence, relating to a greater source of supreme power. An example of a professional health prescription in spiritual health is presented in chapter
- **Assessment of Environmental Responsibility.** Assessments regarding environmental or “eco-” responsibility primarily center on appropriately using natural, cultural and historical resources. The results of these assessments are often used in the course of *interpretative services*, programs meant to encourage a better understanding and appreciation of recreational resources. Other related assessments determine to what degree the respondent is trying to reduce air, water and land pollution. Some assessments specify indoor versus outdoor environments. There are assessments specific to the work environment such as an *ergonomic hazard appraisal*. This assessment accounts

for factors or exposures that may adversely affect health and are related to the interaction between persons and their total working environment, including the organization of work, tools, equipment, and the social and behavioral elements of the workplace. These hazards also can apply to work performance capabilities and limitations of workers. The HEAL 370 can learn more about occupational health and safety in chapter 6.

In each chapter of this text there are mini-prescriptions that utilize one of the above specific health assessments.

Chapter Resources

At the end of this chapter are web-based resources that the HEAL 370 student could use while completing mini-prescriptions as well as the personal and professional health prescription projects. For instance, the Galaxy website (<http://galaxy.einet.net/galaxy/Medicine.html>) is actually the original searchable Internet directory.---check out its sub-directory on medicine.. MedLine Plus (www.nlm.nih.gov/medlineplus) allows you to search for professional literature related to health and medicine.

Personal Health Screenings

A health screening is clinical assessment of some aspect of an individual's physical health. A health screening can be routine or prescribed for special purposes such as at times of perceived need. Health screenings can be performed by the individual, the minimally trained, the college prepared as well as by the licensed practitioner. Here are some of the common health screenings that can be performed by the person (self-screening) who wants to identify personal risk factors and risk behaviors. Like the health assessments, results of personal health screenings can be used to determine parts of ones overall health status.

- *Cancer Screening.* Individuals are encouraged to perform self-examination for the seven major warning signs of cancer. Specific self-examination skills for breast and testicular cancer are provided by the American Cancer Society. There is assistive equipment for the detection of warning signs such as the *fecal hemocult* test for cancer of the lower intestine.
- *Blood Pressure.* Blood pressure is the force of the blood pushing against the walls of arteries. Blood pressure is given as two numbers that measure systolic pressure (the first number, which measures the pressure while the heart is contracting) and diastolic pressure (the second number, which measures the pressure when the heart is resting between beats). Blood pressures of 140/90 mmHg or above are considered high, while blood pressures in the range of 130–139/85–89 are high normal. Less than 130/85 mmHg is normal. High blood pressure or *hypertension* is a systolic blood pressure of 140 mmHg or greater or a diastolic pressure of 90 mmHg or greater. With high blood pressure, the heart has to work harder, resulting in an increased risk of a heart attack, stroke, heart failure, kidney and eye problems, and peripheral vascular disease. In recent years, the stethoscope and sphygmomanometer have been replaced by electronic blood pressure monitoring devices. With a little training most anyone can conduct this kind of screening. In fact, many persons now perform it on their own. Acceptable blood pressure falls within a range and hypertension is considered equal or greater than 140 mm of mercury (Hg) and/or diastolic pressure is equal to a greater than 90 mm Hg for extended periods of time. Once detected this risk factor to cardiovascular and cerebral vascular disease is modifiable which is fortunate considering about 25% of Americans are *hypertensive*. Blood pressure can be measure via electronic blood pressure monitoring devices located at most major supermarkets with pharmacies. The blood pressure scores are used in the HRA.
- Other home health tests

Considering the Health Determinants

With health assessments in hand, the person can target specific aspects of his/her health that need attention. But what is the explanation for the appearance of these risk factors? Why doesn't appraised age match actual age? Why does the person possess specific characteristics and conditions (e.g., greater than expected nonlean body fat, elevated blood cholesterol levels, stress symptoms, etc.)? Why does the person perform behaviors that place his/her health at risk (e.g., poor eating decision, lack of physical activity, poor use of natural resources)? The answers can be summed up in one expression, health determinants.

At this point in the personal health prescription, the individual has to face possible explanations for his/her riskiness. The explanations most likely have to do with direct and indirect influences from a variety of psycho-socio-physio factors and variables. Although the exact pattern of influence would be difficult to establish, the person will benefit by at least considering these determinants since this will act as the basis to the promotion of healthy behavior.

Mini-Prescription for Body Composition

If a HEAL 370 student wanted to improve his/her body composition, the following personal health prescription could be designed:

Health Assessment

The HEAL 370 student could take the following two online assessments at Dr. Everett Koop's website (see Quizzes and Tools link): <http://www.drkoop.com>

- Body Mass Index (BMI) - Rather than relying simply on the bathroom scale, you should know your BMI, a figure that takes into account not just weight but height to indicate body fat. Desired BMI is between 18 to 25.
- Ideal Body Weight Calculator - Rather than going to the Metropolitan Life height-weight charts, you can determine if you are in the ideal weight range by using this calculator. This is a newer, more accurate way to calculate what is truly a healthy weight range for you.

The results of these assessments should help you determine body composition and weight, two specific aspects of health status. While taking the assessment and examining the results, you might be able to discern determinants of your body composition and weight. If your scores are not within the desired range, perhaps you can identify risk factors and risky behaviors (e.g., unmanaged body weight, unhealthy eating decisions, physical inactivity) preventing you from staying within this range. What are these factors and behaviors? Why do you possess them?

Health Strategies

The next step is to select and implement one or more appropriate personal health strategies:

- *Self-learning* could be reading, talking with family, referring to a professional source about body composition and weight how it can be modified through weight management, healthy eating decisions, and physical activity. The information gathered and learned by the you might not be from a professionally recognized source (e.g., a friend) but still it is information that you might be able to use to not only learn more about factors and behaviors contributing to poor body composition but also what you can turn to "turn-around" these factors and behaviors.
- *Self-regulation* is monitoring your body to control any factor or behavior that might contribute to undesirable body composition or weight. What you'd be doing is using your body as a barometer of desirable body composition. You would have to establish

objective (e.g., how your clothes fit) and subject representations (e.g., self-image) of your body composition--tangible indicators of how you feel both mentally and physically. Then as you undertake efforts to manage your weight, eat healthily, and/or become more physically active and/or to manage your body composition, you can rely on these indicators as positive (or negative) reminders of how well you are doing.

- *Self-management* would be like behavioral modification. Like self-regulation, you can use positive and negative reinforcers to condition factors and behaviors related to body composition and weight. It would be best to select factors and behaviors of which you have more control. Then you would have to come up with a scheme for offsetting their influence. For instance, if physical inactivity appears to be a direct determinant of your body composition, you would have to come to grips with the underlying reason for your inactivity (e.g., tendency toward procrastination, need for convenience, desire for immediate gratification, etc.). Then you would have to offset this influence by either: stop doing it, finding a substitution, or adding a positive influence to your lifestyle.
- *Self-care* such as medical self-care during which you would take an active part in the assessment, care and recovery from being overweight or obese. Medical self-care relies on decision-trees--choices in action based on presented signs and symptoms. If your BMI is over 30, this is indicative of being obese. The body weight calculator will indicate if you exceed your healthy weight range. Self-care comes into play when you make the decision if you are going to take better care of yourself or to go to a professional such as a registered dietitian for needed health counseling and consultation.
- *Self-help* such attending meetings with others who are concerned about their body composition or weight. Self-help comprises step-work or graduated efforts at admitting to personal crisis and need for help, atoning for past misgivings, and striving toward personal goal achievement while helping others do likewise. Self-help for body composition or weight concerns can be an alternative from seeking professional counseling and consultation or it can act as a post-rehabilitative strategy.

To help make this selection, you should consider the determinants of the very behaviors that contribute to body composition and weight: healthy eating decisions, weight management tactics, and physical activity.

Health Resources

To secure more information about body composition and weight, try doing a search at Dr. Koop's website:

Koop, E. (2002). Tests and tools.

<http://www.drkoop.com>

Health Status Improvement

After you have implemented your personal health strategy for a few weeks, you should retake any one of Dr. Koop's body weight and composition calculators to ascertain whether or not there has been an improvement in this aspect of your overall health.

Summary

In this chapter the HEAL 370 student has learned about personal health assessment with the primary example being the health risk appraisal. The background to the health risk appraisal was reviewed as well as how it is currently used. Through the HRA, risk factors and risky behaviors that can affect health status are measured. There are other formal health assessments such as quality of life and health status survey which are covered in greater detail later in the text. Specific health assessments of fitness, nutritious behavior, safeness, etc. were described and will be used throughout the text. There are also health screenings which are clinical assessment of our physical health. Selected health screenings that can be performed by the self were described.

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Chapter Review

1. What is the relationship of the health assessment with the health prescription? What is an informal versus a formal health assessment?
2. What is the background to the health risk appraisal (HRA)? What does it mean the HRA is a tool of prospective medicine? Can you distinguish the terms life expectancy, longevity, and appraised age? What is standard HRA format today? How it is used in conjunction with wellness programs?
3. Can you identify risk factors and risky behaviors measured in an HRA?
4. Could you use an HRA to identify factors affecting health behaviors and then prescribe ways to change the behaviors to improve health status?
5. What is a quality of life measure? Health status survey?
6. There are several specific health assessments in fitness, nutrition, safety, mental health, substance involvement, spiritual health, and environmental responsibility--could you briefly describe each?
7. What is a personal health screening? Could you identify and briefly describe examples of health screenings that could be conducted by a person?
8. If given an example of a personal health prescription for body composition and weight management, could you identify the parts of the prescription?
9. Can you identify examples of risk factors and risky behaviors that are being measured in the Chapter Activity - Living Well® - Nutrition?
10. Do you know the definitions of terms in *italicized* print?

Website Resources

Medical Information on Diseases

<http://galaxy.einet.net/galaxy/Medicine.html>

MedLine Plus

<http://www.nlm.nih.gov/medlineplus/>

Chapter Activity

Living Well® - Nutrition

As a part of the Personal Health Prescription project, each HEAL 370 student is expected to complete the Living Well® health assessment. Here is the second section of that health assessment,

Directions: Review each of the following ten items from the Physical Nutrition section of Living Well® and then answer these questions:

- Did your response to any of the following items represent a risk factor or risky behavior? If yes, can you identify psycho-socio-physio determinants to these risk factors/risky behaviors?
- If you wanted to reduce the influence of any risk factor or change a risky behavior to a healthy behavior, which personal health strategy would you use: self-learning, self-regulation, self-management, self-care or self-help? Why? Please describe.
- Can you identify any personal health resources to help you while implementing your personal health strategy?

<u>Nutrition</u>	almost always	very frequently	occasion frequently	ally	almost never
1. When choosing non-vegetable protein, I select lean cuts of meat, poultry, and fish.	5	4	3	2	1
2. I minimize my salt intake.	5	4	3	2	1
3. I eat fruits and vegetable fresh and uncooked.	5	4	3	2	1
4. I eat breakfast.	5	4	3	2	1
5. I include fiber in my diet on a daily basis.	5	4	3	2	1
6. I drink enough fluid to keep my urine light yellow.	5	4	3	2	1
7. I plan my diet to insure an adequate amount of vitamins and minerals.	5	4	3	2	1
8. I minimize foods in my diet that contain large amounts of refined flour (bleached white flour, typical store bread, cakes, etc.)	5	4	3	2	1
9. I minimize my intake of fats and oils including margarine and animal fats.	5	4	3	2	1
10. I avoid adding sugar to my food and I minimize my intake of pre-sweetened food such as sugar-coated cereals, syrups, chocolate milk, and most processed and fast foods	5	4	3	2	1