

The Geriatric Patient in Ecological Perspective

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A hallmark of family medicine is the concern for the individual in the context of family and local community. For the geriatric patient in particular, these concerns far exceed the capabilities of the traditional biomedical model. A problem-solving approach to clinical problems is proposed which extends beyond pathophysiology to include biographical and ecological considerations. A case of an older couple is presented that serves to illustrate the importance of a multilevel approach to patient care and management.

A hallmark of family medicine is the concern for the individual in the context of the family and the community. The family physician is charged with concerns far exceeding the traditional disease orientation of modern biomedicine. Frequently, the family physician is required to assess and treat psychosocial problems related to sickness, problems that are neither adequately conceptualized nor managed within the constraints of the biomedical model dominant in clinical practice. The multiplicity of expectations placed upon the family physician in providing health care to families requires a problem-solving approach that extends beyond pathophysiology to include biographical and ecological considerations. This approach is particularly valuable with the aging patient and family.

Currently, in the United States the elderly over age 65 years number 24 million and comprise 11

percent of the population.¹ The National Ambulatory Health Care Survey in 1977 revealed that family physicians and general practitioners were the primary source of care to 41.1 percent of the elderly over 65 years of age living in the United States.² In addition, a recent study of the practice composition of American family physicians showed that elderly patients over 65 years of age represent 23.3 percent of practice populations.³ Of necessity, a family physician must be adept at assessing and managing the problems presented by the elderly patient and his or her family. Many authors have pointed out the inadequacies of the biomedical model as the sole guide for patient care.⁴⁻⁶ Medalie et al⁷ have proposed an ecological model for clinical practice and decision making: The Family Epidemiological Model (Figure 1). In this model the conceptualization of and solution to clinical problems includes the interaction of host (individual and family) with the environment (geophysical, psychosocial, cultural, and economic) and agents (diseases, life events, and health promotion). This model is especially useful in understanding and managing the complex problems presented by the elderly patient and his or

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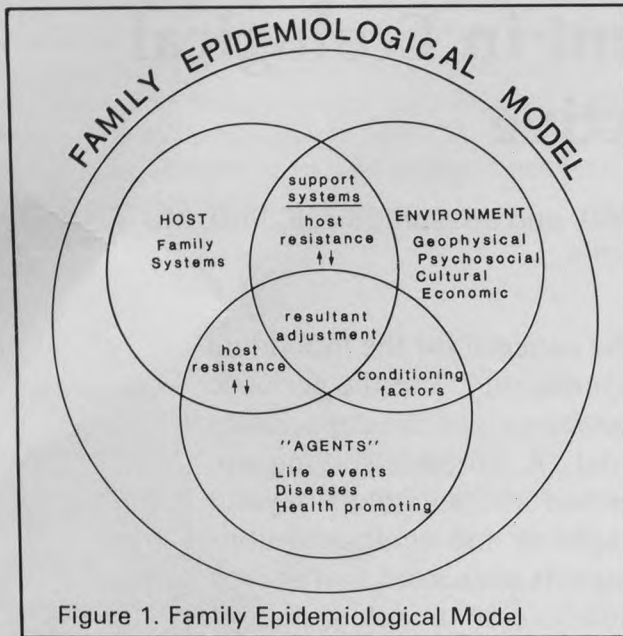


Figure 1. Family Epidemiological Model

her family. The purpose of this paper is to illustrate the value of an ecological approach in caring for the geriatric patient.

Person-Environmental Relations and the Older Patient

The special relationship of older persons to their social and physical environment has ramifications for disease and illness management. There exists no comprehensive theory of how individuals interact with their environmental circumstances; however, several paradigms are relevant for the geriatric patient.^{8,9} Kahana⁸ has proposed that behavior varies as a result of individual and personal needs and the capacity of environmental resources and pressure to gratify or inhibit such needs. This being the case, the "optimal environment" is person specific, and its characteristics are defined by the degree of congruence it shares with the needs of the individual. In assessing person-environment congruence or "fit," aspects of individual competencies in areas of biological health, sensations, perception, motor behavior, and cognition must be weighed in relationship to environmental pres-

sure, that is, the demands of everyday life. Optimal situations involve a balance between the demands of the physical and social environment and the social, physical, and emotional status of the individual at any given time. As competencies decrease, quality of outcome becomes increasingly determined by environmental pressure. As the level of pressure increases beyond a certain point, no level of personal competencies allows for a positive outcome. In terms of the ecological model presented by Medalie and his colleagues, change in the physical or social environment will have an impact on the individual. The effect of a new stressor on the health and well-being of an elderly patient will alter the "fit" between the person and the environment. The concept of "fit" is dynamic and must be continually assessed and evaluated.

The following case is presented to illustrate these points in a clinical context.

Case Presentation

Jerry and Patricia are an elderly couple currently receiving their health care from the family practice center of an urban county hospital. They are not married but have lived together for 20 years. Jerry is 81 years old and Patricia is 92 years old. They live in an ethnically diverse area of a large midwestern city. The proportion of elderly individuals living in the area has increased over the years as a result of public housing construction for senior citizens. This area is marked by low income, high poverty, high unemployment, and high rates of persons receiving public assistance and Supplemental Security Income. The housing stock is old and its value low, with a large number of houses standing vacant or in disrepair. The population is mobile. Adult crime rates and juvenile delinquency are extremely high compared with the rest of the city.

Jerry and Patricia live on the second floor of an older frame house that has been converted into three apartments. The building is in fair condition and would be considered average for the neighborhood. Both Jerry and Patricia have major problems with their health.

Patricia suffered a left hemispheric cerebrovascular accident in 1967 with no current secondary neurologic deficit. An abdominal hernia was re-

paired in the late 1960s, which left her with occasional urinary incontinence. In 1974 she suffered a right tibia-fibula fracture, which has resulted in venous stasis ulcers and flexion contractures of this extremity. The remainder of her problems include congestive heart failure, a sensorineural hearing loss, mild dementia, chronic anxiety, diverticulosis of the colon, and arterial insufficiency of her lower extremities.

Jerry has a long history of osteoarthritis. He suffered from a left subtrochanteric hip fracture in 1977, when he fell from a chair on which he was standing. A total hip replacement was performed, but he never walked again. His course was complicated by a *Staphylococcus aureus* infection of the prosthesis and the surrounding bone. He was treated with antibiotics but currently has a chronic osteomyelitis with a draining sinus tract. His other medical problems include a traumatic amputation of the right third, fourth, and fifth digits at the proximal interphalangeal joints, which significantly interferes with his grasp. He is right handed. The remainder of his problems include congestive heart failure, decreased visual acuity due to cataracts, depression, tobacco abuse, poor nutrition, and a history of alcohol abuse.

Nutrition is a significant problem for them. When Patricia cooks, she does not spare the salt, despite their congestive heart failure. She has one known episode of a burn resulting from a grease spill while cooking. Jerry does not eat everything she prepares; in fact, his major source of nutrition consists of three to five packaged instant breakfasts per day. Neither Patricia nor Jerry has teeth or dentures that fit properly. Mobility is a problem for both, since they are wheelchair bound. They are able to manage transfers to bed and toilet without difficulty within their apartment. Since they live on the second floor, their contact with the outside world is limited.

Discussion

Applying an ecological framework to clinical practice permits the differential assessment and weighing of the patient, family, stressor(s), and environment. In the case of the elderly patient special attention must be given to the degree of congruence between individual capabilities and

Table 1. Disease Problems

Patricia

1. Cerebrovascular accident, 1967
2. Right tibia-fibula fracture, 1974
3. Venous stasis (secondary to No. 2)
4. Congestive heart failure
5. Malnutrition
6. Bilateral sensorineural hearing loss
7. Chronic venous stasis ulcers
8. Arterial insufficiency, bilateral lower extremities
9. Diverticulosis of the colon
10. Abdominal hernia repair, 1968
11. Stress incontinence
12. Anxiety, chronic
13. Dementia, mild
14. Flexion contracture right leg
15. Nonambulatory

Jerry

1. Osteoarthritis
2. Left hip fracture, 1977
3. Total hip arthroplasty, 1977, with secondary prosthesis infection
4. Chronic osteomyelitis secondary to No. 3
5. Traumatic amputation right 3,4,5 digits at proximal interphalangeal joints
6. Congestive heart failure
7. Decreased visual acuity secondary to cataracts
8. Nonambulatory (secondary to No. 3 and No. 4)
9. Malnutrition
10. Tobacco abuse
11. History of alcohol abuse

environmental pressure or demand in determining the effect of a new stressor on the system. Patricia and Jerry represent an elderly couple living together in an urban setting. From a purely medical point of view, this couple has very serious problems. Table 1 lists their medical problems. In addition to their medical problems they have significant illness problems. Illness problems refer to the experiential, family, economic, interpersonal, occupational, and daily life problems created by a disease and its treatment.¹⁰ Table 2 lists their illness problems. The disease and the illness problems are the result of the interaction between

Table 2. Illness Problems

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| <ol style="list-style-type: none"> 1. Financial problems created and worsened by sickness 2. Victimization created by lack of mobility and powerlessness to make changes in their living circumstances 3. Issues of safety related to disease 4. Activities of daily living and attendant problems 5. Changes in patients' personal identity because of disability 6. General worries created by sickness |
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stressors (agent) and individual and family. To understand the full impact of these problems, the demands and resources of the physical and social environment must be considered. This can best be understood by assessing the physical and social environment from an ecological perspective.

The physical environment can be defined as the bounded geographic territory inhabited by an individual and family. In its basic form it consists of home and extends to the block, neighborhood, and community. In the case of Jerry and Patricia, their home environment is of considerable importance. Their apartment is a second-floor flat consisting of 450 sq ft of bedroom, kitchen, bath, and living area. In assessing the physical environment, it is important to remember that the environment acts simultaneously as a resource and a pressure. Since Jerry and Patricia are both wheelchair bound, their contact with the outside world is limited by their apartment being located on a second floor. On the other hand, they are able to negotiate this environment with relative ease, since it is compact and barrier free. Within their apartment their level of functional adequacy is sufficient to meet basic activities of daily living and personal self-maintenance. Conversely, their physical environment also exerts pressure on them. For example, Jerry fears that Patricia may fall down the stairs. As well, the neighbor on the first floor tends to lock the main entrance door to the house to protect against intruders. While this provides needed security, it also locks out service providers, thus making them captive to their apartment. Seasonal pressures include vermin in the

summer and limited heat in the winter. The latter necessitates the use of the stove as a source of heat, which creates a safety hazard. Hazard of fire is further complicated by Jerry smoking in bed and using a paper bag for an ash tray.

The social environment includes the interactive social network that provides physical support and sustenance. As does the physical environment, the social environment too acts simultaneously as a resource and a pressure. From a financial point of view, Jerry and Patricia are somewhat better off than many older persons living in the United States. Together their monthly income averages \$900. Their income flows from Social Security and Jerry's Veterans Administration pension. Their annual income of \$11,000 is considerably above the poverty level set by the Federal government. Together they do quite well, but alone Patricia would face serious financial hardship, since her income would be limited to a meager Social Security payment. They complain that inflation continually erodes their income. Since 1973 the monthly rent for their apartment has increased from \$68 including utilities to \$150 plus utilities. The cost of having medications and other supplies delivered has also increased dramatically.

Another social pressure is victimization brought on by their inability to effect change in their environment. One area in which they feel victimized involves tenant-landlord responsibility. Their home is in poor repair and is vermin infested, yet their rent continues to rise steadily. The landlord simply ignores their complaints with the attitude that they can move if they do not like it. In reality, they would find it very difficult to move. Another incident of victimization occurred when Patricia was enticed into purchasing a hearing aid for \$500 that failed to improve her sensorineural hearing loss.

One additional aspect of the social environment is the social network that provides supports and services necessary to meet basic human needs. While the above scenario might lead one to despair, Patricia and Jerry have put together an infrastructure of supportive services that allows them to live independently. These supports help in those areas in which the couple cannot function adequately. For example, a friend purchases groceries for them once a week. Laundry is sent out and delivered. Hair cuts are done by a barber friend who visits them monthly. They purchase

clothing through a mail order catalogue, and medicines and sundries are delivered by a local drug store. Primary medical care is provided in the home by the family physician, with regular monitoring by a visiting nurse.

Jerry and Patricia demonstrate an impressive ability to put together a group of individuals and organizations to meet their basic needs. Without this network of friends and organizations, their ability to live independently in the community would be seriously threatened. This system, however, is fragile and delicate in that there are few back-up resources for support. Some of the services are time limited as well. Unlike some older adults, neither of them receives any appreciable support from an extended family.

From an ecological viewpoint the present balance of environmental demands placed on them seems to fit capabilities. Overservicing or underservicing would affect the level of environmental pressure. For example, in spite of this rather precarious support system, Jerry insists that they have all the services they need. He says "right now we are pretty much covered, no complaint." From an objective viewpoint they appear not to need any more services. Additional services may even prove disruptive in the sense that overservicing may undermine their feelings of independence. An anecdote reinforces this point. During a home visit, Patricia had to get from the kitchen to the bathroom in a hurry and had some difficulty getting over a hump in the floor between the two rooms. She declined an offer of a push, stating that "If I get help once, then I'll need it all the time." The task for the health care team is to help maintain the optimal balance between environmental demands and individual capabilities, provide care to meet their medical needs, and to help them maintain their independent functioning.

Conclusions

For the family physician the geriatric patient and family represents a challenge. The elderly patient and family cannot easily be viewed in strictly biomedical terms. As a result of multiple chronic problems, the physician cannot cure the patient's chronic disease problems but must try to manage them in a fashion commensurate with the wishes

of the patient and the bounds of good medical practice. To accomplish this, the physician must concern himself not only with disease problems but with illness problems as well. The overall framework for assessment must be ecological and include at least the individual, family, and local neighborhood. Assessment and treatment plans become multifactorial and complex, since the physician must evaluate the resources and demands at each level of the ecological model. In this process a team approach, incorporating behavioral, social, and biological information, is necessary. Treatment shifts from an emphasis on cure to control and management. Therapeutic actions become problematic, and their iatrogenic potential must be evaluated and weighed. A framework that considers agent, host, and environment as interactive phenomena can aid the physician in the provision of humane and effective management of the problems presented by the elderly patient and family.

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