

Psychosocially Supportive Design

– Scandinavian Healthcare Design

Alan Dilani, Ph.D.

The major purpose of this paper is to discuss the basic ideas and criteria underlying contemporary healthcare design. Special attention is given to the growing shift in biomedical attitude from a largely pathogenic concept of disease to a more salutogenic perspective. This shift should not only lead to a stronger integration of building design and care philosophy but also result in an enhanced quality of medical care and strengthened health processes.

Traditionally, the pathogenic perspective has tended to consider patients as objects and concentrated on individual “sick parts” of the human body, which were further and further divided into smaller parts and separately treated. Consistent with this perspective, healthcare facilities have been interpreted as medical-technical environments oriented toward the physical needs of the treated body part. From this perspective the main requirement placed on healthcare facilities has often been interpreted narrowly as the reduction of the risk of exposure to disease. Comparatively little priority has been given to calming the patients and making them feel relaxed in spite of traumatic hospital experiences and starkly institutional care environments.

Other consequences of the pathogenic perspective have been that psychological, social and spiritual needs of patients have been largely disregarded in the design of healthcare facilities, and often marginalized in the philosophy of delivering care. The emphasis on functional efficiency, together with the pathogenic conception of disease and health, has often produced healthcare facilities that are not psychosocially supportive.

In recent years, however, a different perspective has emerged leading to a new paradigm. The modern disease concept is no longer narrowly pathogenic; rather, disease is seen as multifaceted

and having a variety of causes or elements. The salutogenic perspective, which focuses on health promoting processes, has become much more central to the consideration of care philosophies and in the creation of new healthcare facilities. In this new paradigm, the focus is on the patients: along with their physical health needs the patients’ psychological and social health needs are given major emphasis in the delivery of care activities and in the design of health care environments.

Future research needs to develop care philosophies that focus on a broader concept of health, thus creating an awareness of the importance of psychosocially supportive design.



Alan Dilani, Ph.D.

Dr Dilani is a lecturer and researcher at the Karolinska Institutet, Swedish National Institute for Psychosocial Factors and Health. He is an architect who has designed various healthcare facilities and conducts scientific research on the impact of physical environment on healthcare activities. Dr Dilani has developed evaluation guidelines and criteria for good design in hospital planning. His current research, based on a multidisciplinary approach, concerns the impact of physical environment on health (Health outcomes), on the healing process (Disease outcomes). He is author of the book: “Design and Care in Hospital Planning” and editor of the book “Healthcare Facilities as Supportive Environments.” Dr Dilani is one of the founder of the International Academy for Design and Health (IADH).

Key words: healthcare design, psychosocially supportive design, salutogenic perspective, wellness factor, and health promotion.

Introduction

The hospital environment was a great problem for healthcare during the 19th century. Florence Nightingale wrote in her notes on hospitals in 1859 that the mortality in large city hospitals was considerably higher than for patients with the same illness who were treated in other places. She showed that design, air, lighting and ventilation were important health-promoting elements in hospital buildings. She presented her own proposal for ward design with extensive floor-to-ceiling heights in the wardrooms, large windows and good ventilation.

The new hospitals of the 19th century were built as freestanding entities, which were well ventilated. Patients could visit the hospital garden straight from the low pavilions. In contrast, during the last century issues in healthcare design tended to be limited to functionality and accommodation of new technologies. The principal focus was on utilitarian planning and maximum efficiency of healthcare operations. Environmental qualities of buildings that could promote the health process were largely neglected.

In the history of Swedish Health care the planning and building of hospitals was most extensive during the 1960s and '70s. The building of hospitals was also of political importance since the development of community services was seen to contribute to regional growth. Responding to the need for cheaper and more rationalized healthcare, more hospitals with an increased number of beds were built at the lowest possible cost. In 1970 Huddinge Hospital became the largest hospital ever to be built in Scandinavia. Designed to accommodate 1,600 beds and serve 1,200 outpatients per day. Huddinge Hospital covers an area of more than 500,000 m², an area as large as the Old Town in Stockholm (Dilani, 1994, 1998, 2000).

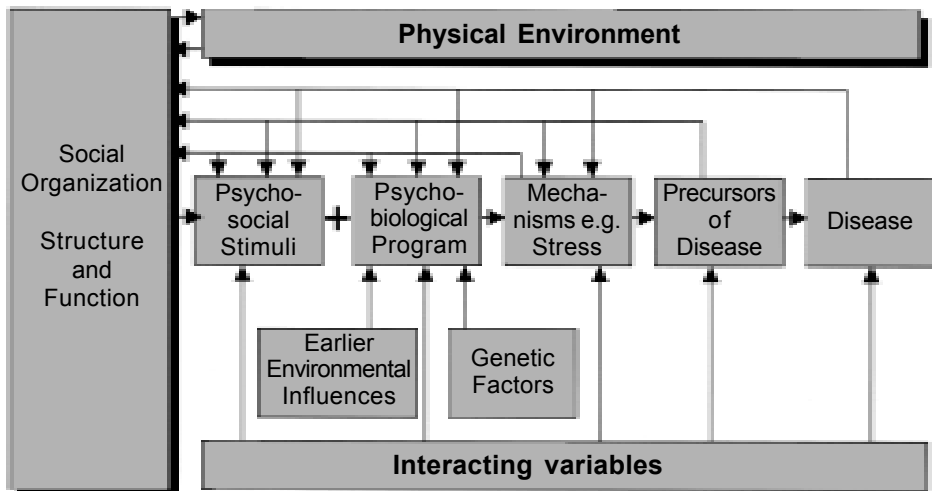
While not directly influenced by airport design, the hospital had to solve a similar kind of problem – first receiving a large number of people and then distributing them to their various destinations. The enormous size of Huddinge Hospital attracted public debate and the hospital became the subject of several novels and films where it was presented as a factory for the production of Health care.

There is a growing awareness internationally of the need to create functionally efficient facilities that are also human-centered environments aimed at enhancing and initiating health processes. In the new millennium, we will also take a step away from the conveyor-belt principle, functionalism, standardization and rationalization in building production. More and new multi-factor illnesses such as chronic fatigue syndrome and burn-out will develop. Hospitals and health care services must change in order to be able to meet the new requirements. A large number of hospitals currently in use in Scandinavia will not satisfy those needs. These facilities, which were mainly built during the 1960s and '70s, were often influenced by the prevailing principles of time management with a strong pathogenic orientation in their care philosophies.

Design and Stress

As we have just taken the step into a new millennium, new ideas about healthcare design are developing, in which interior and exterior design are to give the patient a feeling of security and control. Research has shown that people need to have control over their physical environment. Feeling in control is an important factor affecting stress levels and health conditions. People who do not have control over their environments often suffer from various kinds of stresses.

The stress theory indicates the physical environment as a point of departure that creates social organization, structure and function. A theoretical model for psychosocially mediated disease. A combined effect of psychosocial stimuli and psycho-biological programs determines the



A theoretical model of L. Levi for psychosocially mediated disease.

psychological and physiological reaction (mechanisms, e.g. stress) of each individual. These may, under certain circumstances, lead to precursors of disease and disease itself (Levi, 1972). By providing wellness factors and creating a psychosocially supportive environment can counteract the sequence of this process.

Psychosocially supportive environments could enhance people's capability to better cope with stress if we can identify and eliminate stress factors in the environment. Beyond stress-reducing characteristics, the quality of the physical environment also affects many aspects of people's psychological and social wellbeing.

Scientific research during the last decade has proved the link between poor physical environments, or psychologically inappropriate physical environments, and symptoms of poor health such as anxiety, depression, high blood pressure, sleeplessness and an increased need for analgesic drugs.

Design and Health

The modern disease concept is no longer narrowly pathogenic; rather disease is seen to be multifaceted, orientated to systems rather than "sick parts", and having a variety of causes or ele-

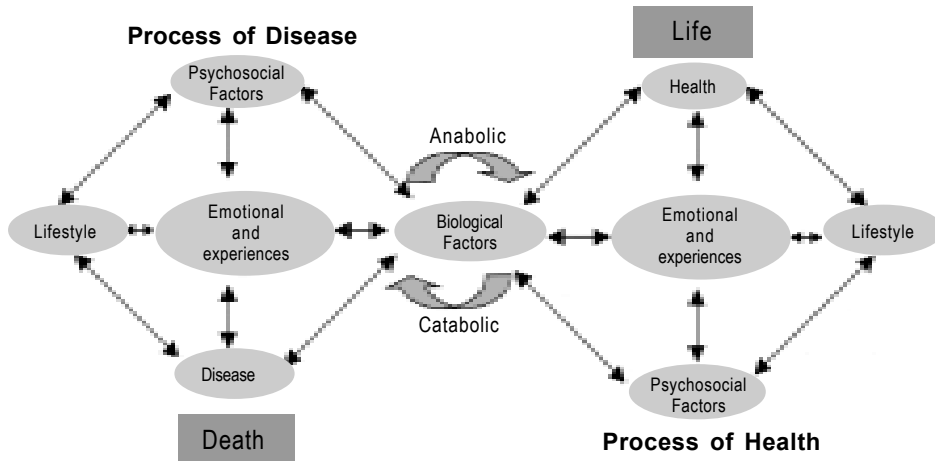
ments. The World Health Organization defines good quality of healthcare as :

"Each patient should receive the diagnostic and therapeutic health services which are most likely to produce the optimal achievable healthcare outcome for the patient, consistent with the state of medical knowledge, with the minimal expenditure of resources necessary to accomplish this result, at the lowest achievable risk of additional injury or disability as a consequence of the treatment, and with maximal patient satisfaction (WHO 1983)."

According to WHO's criteria for good quality of healthcare, hospitals require professional caregivers within an environment in which the patient feels calm and secure. Emphasis should thus be placed on the adequacy of the physical environment that could meet these requirements.

The generally accepted definition of health is a state of complete physical, psychological and social wellbeing that is highly dependent on our lifestyle. Therefore health cannot be explained, as freedom from disease rather as a state of balance between health process and disease processes (Theorell 2000).

According to Konarski human beings are creative, innovative and unpredictable. There are



Health processes and diseases processes according to Konarski 1992.

two parallel ongoing processes in our daily life; disease processes and health processes and we should focus on health processes that cause health and wellbeing. The placebo effect is an example of a health process.

In this circumstance we should highlight the inadequacy of the pathogenic orientation that has dominated biomedical and social science and which has often produced healthcare facilities that are predominantly institutional in character and do not provide good psychosocial support for the patients.

From a pathogenic viewpoint, healthcare emphasizes the work of looking for risk factors. A great amount of research has been conducted to identify the risk factors, which are the causes of our most common diseases. Consistent with this perspective, healthcare facilities have been interpreted as medical-technical environments aimed at the physical needs of the treated part of the human body. This view of healthcare reflects a narrow functional emphasis, resulting in the disregard of the psychological, social and spiritual needs of the patients. Another requirement placed on healthcare facilities has often been interpreted narrowly as the reduction of risk of exposure to disease.

From a pathogenic viewpoint, one attempts to explain why people become ill, i.e. one searches

for a cause of the disease or for risk factors that lead to illness. Rather than starting with the pathogenic question – why do people become ill? –Antonovsky’s salutogenic model starts from the opposite side – why do people maintain good health in spite of all the strain? This approach, which accumulates knowledge about the conditions for health, investigates the reason why some people remain in good health in spite of being exposed to risk factors (Antonovsky, A. 1996). Instead of doing research about risk factors that cause illness the focus is on identifying factors that cause good health.

It is worth thinking about how much of medical science has been devoted to illness rather than wellness. Understanding the conditions for health and the salutogenic perspective lead us to develop design criteria that foster wellbeing. Well-designed physical environments tend to foster wellness, whereas poorly designed environments tend to make people frustrated and thereby contribute to the possibility of illness.

Wellness factors (the causes of health) should be clearly identified in the design of healthcare facilities in order to become an integral part of the therapeutic process.

The physical environment affects our behavior; well-designed and positively experienced environments enhance the ability to cope with



The new project of RIT 2000.

stress. We react constructively and find better ways to resolve problems if we have a good experience of our surroundings. But inappropriately designed psychosocial environments may be a source of stress and frustration, and thereby affect our health.

The effect of such stress may cause physiological reactions like high blood pressure, increased levels of stress hormones, blood lipids, serum cortisol and decreased levels of sexual hormones. This could lead to psychological or physiological reactions or combinations of both, like drinking more alcohol, irritability and negative reactions. These reactions could develop into pain in different parts of the body in the long term (Theorell, Arnetz, 2000).

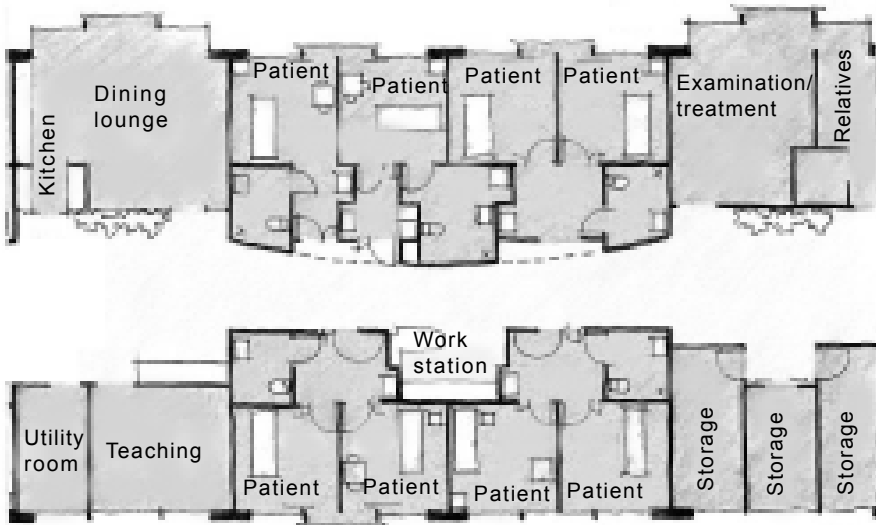
Psychosocially supportive design

The quality and character of the designed environment should be considered to be a powerful instrument capable of improving and strengthen-

ing health processes. The question how health care environments could promote the patient's health should be a major issue for designers and planners.

The basic requirements in healthcare design are that physical environments must be part of healing process and promote health outcomes. Since the new care philosophies (Salutogenic-based perspective) involve both the human body and its psychosocial context the interaction between the nursing staff and the patients will become increasingly important in the future (Langius 1999).

One of the conditions for health promotion in hospitals is to create an organization that provides the major parts of care services as close to the patient as possible, within the patient's familiar environment. Additionally, patient-focused organization requires individualized care services according to the needs of the patient rather than the traditional routine-based care services (Clyne N, Pettersen IM, Lönnberg H, Mallmin A. A



The ward in the new project of RIT 2000.

multidisciplinary team and individualised care of hemodialysis patients seems to improve p-albumin and morbidity and mortality (JASN, nov, 2000).

An emphasis on patient-focused care presupposes a different building structure, as it requires a decentralization organization. Instead of the traditional grouping structure the new model for RIT 2000 (University Hospital in Trondheim), in Norway, has been organized around the patient and his/her disease. The RIT 2000 will be the largest hospital in Scandinavia, yet will consist of a series of comparatively small, human-scale and non-institutional buildings arranged as city blocks and well integrated into the urban structure. The planning for RIT 2000 has broken important new ground by integrating and extending concepts such as a patient-centered care philosophy and environmental design, and multi disciplinary care teams.

By integrating the hospitals into the city and into the urban social structure this innovative organizational model will simplify the complex hospital structure and create an environment familiar to the users. The integration of hospitals

into the city and its social structure could be considered a new trend in health care design. By emphasizing the relationship between the hospital and the city, we start to consider the hospital as a kind of service like any other service the city may provide for its inhabitants.

Traditional wards where the staff is based somewhere in a room far away from patient rooms will disappear. In modern wards, there will no longer be a nurse station but a centrally placed workstation, which is easy to reach, and where the staff is always available. From there, the staff should be able to survey and watch a group of patients within a very short walking distance. This arrangement is called a "cluster". A ward can consist of two or three clusters which can easily be coordinated and flexibly used depending on the patients' demand for care. Communication and contact between staff and patients is made easier in this way, creating a feeling of security for both staff and patients.

In a safe environment, the patient is stimulated to use his or her mental strength to get well. For the staff, this means a safe and comprehensible working environment and a pleasant job.

Work tasks become easier, more result-oriented and thus more satisfying.

Research has shown that access to nature, daylight and other wellness factors like art and music can result in the patient using fewer drugs and spending less time in the hospital. Nature can affect our emotions positively. It can easily catch a person's attention or interest and in turn can stop or reduce anxiety while bringing about desirable psychological changes. It can reduce blood pressure, ease pain and stimulate our senses positively. For more information about the therapeutic benefits of nature see the contribution of Clare Cooper Marcus in this book and the comprehensive research that has been carried out by John Zeisel on Alzheimer (Zeisel, J. 1999).

The basic function of architecture, art and design is to challenge our minds and to start a mental process about who and where we are. Architecture and design directly affects our minds and senses but what we consider to be beautiful is dependent on our culture, tastes, knowledge and background. That means we should create environments that are more familiar to our background and appropriate to our culture. It is important cross-culturally to be able to survey our surroundings in order to feel secure. Surroundings with harmonious and cheerful colors can reduce stress. Environments combined with music are an important factor for health promotion.

One of the most important wellness factors in the environment is the use of music. There is both an active and passive part of the music and its effects to our health. Music can be used as an integrated part of healing process like music therapy as an active part when the therapist is trying to manipulate the patient's condition by exposing the patient to music. We are also exposed to music in different environments, like public spaces, shopping malls, advertisements, cinema and TV, that have other goals, but which also could influence our health which is the passive part of music's effect (Theorell, 1997).

Music can be used during a variety of treatments and operations in the hospital, for example during orthopedic surgery, X-ray and in

waiting rooms and the main entrance of many kind of facilities in order to reduce stress (Robertson, P. 1999).

Of course not every kind of music is good, there is a hypothesis concerning Mozart, that early exposure to classical music may accelerate the cognitive development in children. By such stimulating music could have profound effects on our emotional development. This is very important for our social functioning and prevents psychosomatic illness (Konarski, K. 1999).

Conclusion

Clearly, more research is needed to fully identify the impact of the physical environment, and more specifically hospital environments, on health outcomes. This consideration is necessary in order to determine particular environmental qualities that are not only supportive for the healing process but are also able to promote health processes.

Health-promoting processes are becoming much more central as factors in the creation of new healthcare facilities. In this new paradigm, the focus is on the patients: along with their physical health needs the patients' psychological and social health needs are given major emphasis in the delivery of care activities and in the design of health care environments.

In this new millennium we will take a step away from the pathogenic perspective, functionalism, standardization and rationalization of building production. The term wellness factor should inspire planners to develop design criteria that stimulate wellness. Well-designed physical environments tend to enhance wellness whereas poor design tends to frustrate people and thereby foster illness. We need further research in order to create physical environments that are psychosocially supportive and, thereby, create health processes.

The "soft" knowledge about human beings should be combined with the latest developments in technology, biomedicine etc. in order to understand how healthcare facilities of the future

or health promotion environments should be designed. An increase in the consideration of wellness factors within design could have beneficial effects on well being and health processes and thereby creates environments that are not only functionally efficient but also highly psychosocially supportive.

REFERENCES

- Antonosky, A. 1979.** *Health, Stress and coping: new perspectives on mental and physical well-being*. Jossey-Bass, San Francisco.
- Antonosky, A. 1996.** *The salutogenetic model as a theory to guide health promotion*. Health promotion international, vol. 11, no 1, pp. 11-18.
- Arnetz, B. 2000.** *På jobbet, Stress i (vård) vardagen (In working place, Daily stress)* (in Swedish). Karolinska Institute. (in Swedish).
- Dilani, A. 2000.** *Architecture and Design, Healthcare Buildings as Supportive Environments*. World Hospitals and Health Services, IHF, Vol. 36, nr. 1.
- Dilani, A. 2000.** *Design and Care in Hospital planning*, Karolinska Institutet, Institute for Psychosocial Factors and Health, Design and Health. Stockholm.
- Konarski, K. 1999.** *Ideologiska överväganden, Arbetsmaterial till Nationella folkhälsokommittén (Report to National Health Committee)*. Kapitel 3, Karolinska Institutet, IPM. (in Swedish) Stockholm.
- Konarski, K. 1992.** *Jordmån för ett gott liv, (Fertile soil for good life)*, Karolinska Institutet. (in Swedish) Stockholm.
- Langius, A. 1999.** *Känslan av sammanhang- viktig för behandlingsresultatet. (The sense of coherence- important for the result of treatment)*. Medicine Sciences 4/99, Karolinska Institutet. (in Swedish) Stockholm.
- Levi, L. 1972.** *Psychosocial Factors in Preventive Medicine*. In background papers to Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention. Washington, D,C, US Public Health Service.
- Theorell, T. 2000.** *På jobbet, Stress ur ett Medicinsk Perspektiv (In working place, Stress from a medicine perspective)*. Karolinska Institute. (in Swedish) Stockholm.
- Theorell, T. 2000.** *Hälsa på lika villkor- Nationella mål för folkhälsan. (Health for equal condition, the national goal for public health)*. Social department 2000:91 and Karolinska Institute. (in Swedish) Stockholm.
- WHO, 1983.** *The principles of Quality Assurance. Euro reports and studies 94. Report of a WHO meeting in Barcelona May 17-19, 1983*. Copenhagen: World Health Organization. Technical Report on Quality 1983:1.
- Zeisel, J. 1999.** *Alzheimer's Treatment Gardens*, chapter nine in the book of *Healing Gardens*, by C. C. Marcus and M. Barnes (Ed.), New York: Wiley, pp. 437-504.