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Improve Quality of Urban Pavements with Emphasis on Components of Health

Mohammad Rahim Rahnama[1], Nona Mesgarani[2*]

1. Faculty member and Associate Professor, Department of Geography, Ferdowsi University of Mashhad, Mashhad, Iran, rahnama@um.ac.ir

2. Faculty Member and Lecturer, Department of Urban Planning, Ferdowsi University of Mashhad, Mashhad, Iran, PhD Student in Geography and Urban Planning, International Campus of Ferdowsi University of Mashhad, Mashhad, Iran, mesgarani@um.ac.ir

Abstract

Public places of cities in generally and pedestrian in specifically are paths of citizens and consequently physical effects have essential role on healthy of the environment. Thus, we were trying to investigate relationship between physical environment also identify to find a way in order to evaluate healthy of environment city and try to improve health of pedestrians. Thus, we used qualify methods and research was descriptive and analyzing. First, we designed a checklist of environment's health based on concepts and various dimensions of health basis of expert's suggestions. Following , ingredients, and parts of pedestrians were identified and divided into two parts of soft and hard and explained detailed. Finally, Efdah Sharivar Street was identified as sample, because this street is one of the most important and crowded parts of Mashhad and it have unsuitable health and quality. Statical sample was 200 people and included 150 users and 50 people were experts. Results which originated from Likeart test condition of Efda Shahrivar was bad and it is a risk of decreasing satisfactions of users, decline of using environment and decrease quality. In order to improve health of pedestrians, we must consider physical strategies like healthy, sport applications and activities relate to health and entertainment and equipped pedestrian to infrastructures for bicycles, furniture, lightings and coverage plants.

Keywords: Health, Quality, Pavements, Mashhad, Structural Design

Introductions

Relationship between human and environment is dual and interactive. Methods of using this relationship depend on physical features of space and fundamental necessities of users. Pay attention to health is one of the most important needs of human needs and these days by increasing various types of physical and types of patients and environmental risks lead to one of challenges. New issues like healthy city, sustainable development, index of life quality have focused on their effects on development of healthy city. Improve quality of environment has effective impact on satisfaction of citizens and consequently amount of joy and healthiness. One of the most important urban spaces and more related to citizen is pavements. Outfitting pavements have effective on mental and spirit of people also improve healthiness of environment. Therefore, one of planning is outfitting and improving pavements. Thus, in this research, we are trying to investigate concept and theory of health and then investigate different dimensions of health in four dimension of physical, mental, social and spiritual health. Parallel to these studies, evaluation of pavement, pedestrians, components, and ingredients of pavements and by compelling results of these

packs develop checklists of urban pavements. Pavement of this study located at in Hefdah Sharivar Street. This street is one of the greatest street which plays role of entering to city center and this street is a way of pedestrians can get to holy shrine and it is proximity of Reza Market. Furthermore, incompatible application, including activities related to the service center for the automotive, trucking and transportation agricultural equipment leads to highly reduction of quality of this street.

Literature review

Designs of payment were based on the assumption that Rocla Ecoloc pavers would be used as the surface. These pavers were selected because their structural and hydraulic properties had already been extensively studied in the laboratories of the School of Civil and Environmental Engineering at the University of New South Wales (Shackel 1996 b, Shackel et al, 1996). In addition, there was a substantial history of their successful use both overseas, notably in Germany e.g. at the World Fair, Hannover, 2000, and around Sydney (e.g. Olympics Precinct, 1999, Sydney Sports Ground, Centennial Park, 1999, Kiama, 2000).

The pavements were designed using two computer programs written specifically for permeable eco-paving.

These comprised:

- LOCKPAVE-PRO 2001 for the Structural Design of Interlocking Concrete Block Pavements. This program has been described in detail elsewhere and includes provision for the structural design of permeable eco-paving (Shackel, 2000)
- PC-SWMM for Permeable Pavements developed by Professor W James of the University of Guelph, Canada. This program is for the hydraulic design of eco-pavements and is derived from the well-known SWMM program widely used around the world.

A geotechnical investigation established that, beneath the original pavements of Smith Street, the sub grade comprised loose to medium dense sand overlain by silty sandy gravel or silty gravelly sand fills in thicknesses between 0.4 and 1.0m. Two in-situ constant head permeability tests of the subgrade gave coefficients of permeability, k, of 4.1 x 10-3 and 6.1 x 10-3 cm/s respectively, consistent with the values expected for clean sands.

Structural Design

For the sub grade, in-situ CBR values measured by DCP tests ranged from 10% to 38%. Four day soaked CBR values measured in the laboratory ranged between 12% and 16%, again consistent with the values expected for compacted clean sands. Based on these data a CBR value of 10% was selected for pavement thickness design.

The design traffic was based on traffic counts conducted in December 2000. For a 20-year design period and no traffic growth, the cumulative design traffic was calculated to comprise just 53000 commercial vehicles.

The LOCKPAVE-PRO 2001 program showed that, for the subgrade and traffic conditions listed above, the thickness of unbound granular base required beneath 80mm Ecoloc pavers was 100 mm.

This is the minimum thickness of base normally permitted for use under traffic. In other words, the structural design requirements for the Smith Street pavements were nominal.

Methodology

We use qualify methods and research was descriptive and analyzing. First, we designed a checklist of environment’s health based on concepts and various dimensions of health basis of expert’s suggestions. Following, ingredients and parts of pedestrians were identified and divided into two parts of soft and hard and explained detailed. Finally, Hefdah Sharivar Street was identified as sample, because this street is one of the most important and crowded parts of Mashhad and it have unsuitable health and quality. Statical sample was 200 people and included 150 users and 50 people were experts. Results which originated from

Likeart test condition of Hefda Shahrivar was bad and it is a risk of decreasing satisfactions of users, decline of using environment and decrease quality.

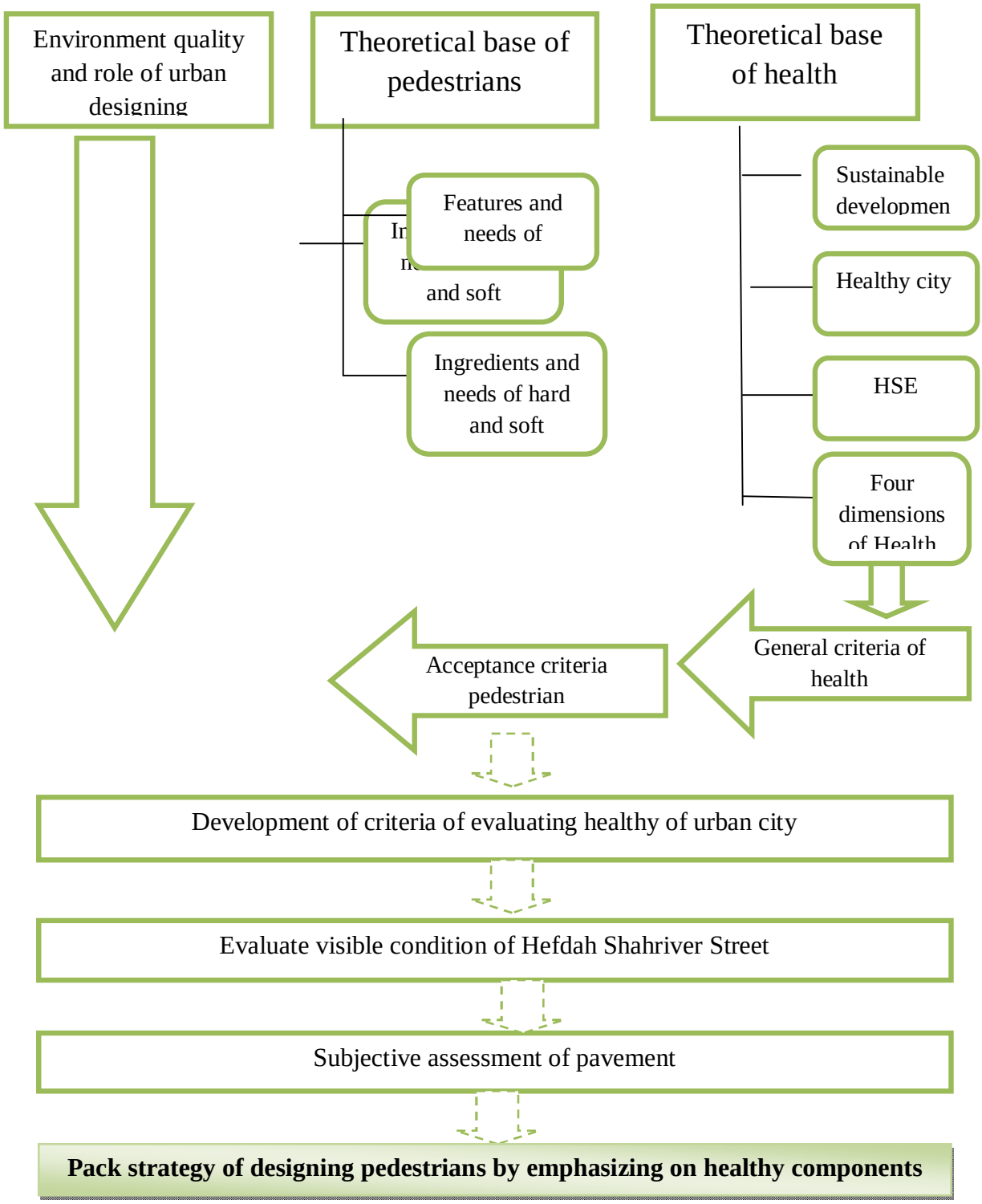

Fig 1: Process of research

Concepts of Health

English dictionary of Oxford describe health as security of body and mental means condition have effective and on time performance. Balance between body and performance is originated from success dynamical principle against forces to disrupt it. Definition of WHO about health is "health describes as welfare state of complete physical, mental, social and free of disability and illnesses. Furthermore, having high health of standards is one of fundamental rights of each person from each age, religion and politics vision and economical and social condition (Barton and Tsourou, 2007). Furthermore, analyzing of international institutions indicate that healthy of people is fundamental factors of assessing sustainable development.

Sustainable development of health

Concepts of sustainable in 1970s can be originated from mental growth of fresh awareness to global problems of environment and development. Increasingly growth of development program transfer to environmental, economical, and social warnings. In respond to problems and crisis of the events describe new concepts and patterns for future development. In Brantland commission (1978) expressed global commission of environmental and development called (our common future). Sustainable development describe as a type of development for meeting our needs and without decreasing ability of posterity for providing their needs. Earth meeting in Rio (1992) emphasize on "development is for providing needs of people, health, welfare and environmental condition and it is our need to have access to secure condition which has healthy water, food and house.

Health and quality of life

Improvement quality of life is one general aim of international development. Therefore, identifying related criteria and basic concepts are difficult and complex (Steven, 2000). Quality of life is product of interactions among environmental, economical, social, and healthy conditions and it is effective on social and humanity development. Evaluate quality of life is a tool for developing society and it can aware vital keys include environmental, healthy, social and economical dimensions quality of life (Sengupta, 2004). Mitchel (2001) believed, quality of life is a set of healthy ingredients, physical environment, natural resources and individual boom and security.

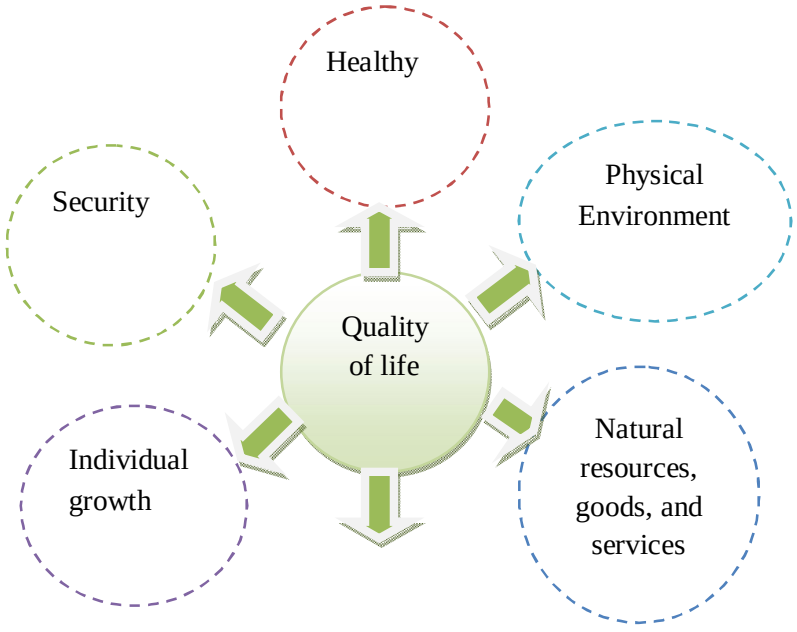

Fig 2: Ingredients and dimensions of quality of life

Health and quality of Life

Ideas of healthy city expressed for the first time in conference of professor Dehlder (1986) in Toronto. Project of healthy city is divided into three phases. In each phase, WHO introduce several of cities as European network of WHO. Selection of these cities were based on provide prerequisite and necessities of cities basis on healthy and performance Barton, H., tsourou, C. (2000). Healthy city is city where people can manage continue their life, can have house and suitable food and can travel safely. Generally, they can live freely. Healthy city means different concept for various people of various cities and diverse cultures in different parts of the city (Barton and Tsourou, 2000).

Theoretical basis of quality's environment of pavements

Pavement is the most important of urban network and because pavement a scale for human movement should be ease of movement. Ministry of Roads and Urban describes pavement as "Pedestrian walkways crossing is permitted." Then describe it "Pedestrian walking along a roadway parallel to but distinct from it." Pedestrain are individuals who walk, set, standing or using wheelchairs in public spaces and involves teenagers, children, elderly, disability, workers, residents, and buyers and so on.

Developing final indexes of pavement's health

In order to precious evaluate of health condition in pavements of street, it is necessary identify components and ingredients of pavements. Therefore, these components divided into two groups of hard and soft components and they evaluate relationship among various dimensions of health.

Four Dimensions of Health

Physical Health

Physical health or biological is health in performance of body and optimal way of performance of each part or minimal coordination among parts of the body (Clark, 1990). In study of WHO, health divided into two parts of physical and mental.

Social Health

Social health is a concept that is relationship between two concepts of health and society. In according to society is a credential concept and its fact relate to individuals of the society. In investigations of the society should investigate individuals. Factors like nutrition condition, environment, poverty, job condition, house, water and so on. One of the most important of determining of social health is studying of each factors and studying structural relationship among them.

Mental health

Concept of mental health based on WHO is not beyond lack of mental disorders and includes goodness of mental, perceived self-efficacy, autonomy, competence, potential intellectual and emotional (WHO, 2001). In according to ministry of health and human services of Unitesed States of America (1999), mental health is efficient activities, effective relations with individuals, ability of adoption with changes. A recent definition is conclusion of 40 years trying of experts in order to provide general definitions of mental health.

Spiritual health

Spiritual health is characteristics like stability of life, peace, close relationship with relatives, God, society and environment and coordination between mean and objective of life (Akaberi et al, 2009). Spiritual health has two dimensions of vertical (regional health) and horizontal (existence health). Regional health reflects relationship between God or unlimited power and existence health reflects our relationship with others and integration ability of different dimensions and choices.

Results and Discussions

In order to evaluate public views of citizen in questionnaire provided in three formats. We distributed questionnaire in among various groups in order to collect all votes and investigate idea of various audiences and views. Three groups are as following 1. Plagiarisms, citizens, and workers 2. Experts of urban planning and various organizations. 3. Urban experts. The questionnaire were distributed in among 200 people include 100 questionnaire in among people and 100 among experts. In among views of people specifically proximity workers. Views of the workers were beneficial and comprehensive and they help us to identify problems and limits. Following questioners were separated. 63% of respondents were men and due to existence of Workshop and repair Shops. Furthermore, 48% of respondents were between 20—30 years old and following 30-40 years. In according to job statues, 79% of respondents were working in private sector. We asked four kind of questions in order to evaluate limited audiences and amount of transportations. The most The most refers to the zone were daily and related to residents and local shoppers and then weekly refer has the second rank and the highest time of using this street is scattered in during day and afternoon more use for shopping.

In order to evaluate quality of pavements based on citizen view; we were using Likert. Results indicate that very bad condition of pavement for disability people and parking for bicycles and sufficient furniture, whereas, this street is clean and it has very good condition for Collect surface water and garbage collection. Citizen proposed following recommendation in order to improve quality of this street. Considering fountains and coolers, close path and motor bikes and considering motorbike parking, equipping the route for handicapped, Route equipped with sports and recreational facilities, using better quality of asphalts, lighting.

Conclusion

Health component is one of the most important indexes of quality life and these days transfer to a main aim of urban planning. Evaluate of this criteria in urban space help to the most important challenges of health citizens. Evaluate this component in urban space help to identify the most important challenges of health citizen and potential and active components of improving this component identify and strengthen. This study tried to investigate pathology of urban spaces based on four dimensions of physical, social, spiritual, mental health in one of crowded streets of Mashhad and ingredients and parts of pedestrians were identified and divided into two parts of soft and hard and explained detailed. Finally, Hefdah Sharivar Street was identified as sample, because this street is one of the most important and crowded parts of Mashhad and it have unsuitable health and quality. Statistical sample was 200 people and included 150 users and 50 people were experts. Results which originated from Likeart test condition of Hefda Shahrivar was bad and it is a risk of decreasing satisfactions of users, decline of using environment and decrease quality results indicate that:

In order to improve health of pedestrians, we must consider physical strategies like healthy, sport applications and activities relate to health and entertainment and equipped pedestrian to infrastructures for bicycles, furniture, lightings and coverage plants.

- In Evaluating, health of pedestrians in a city four dimensions are involving like physical, spiritual, mental and social health and sub criteria of this research showed that there is a minimal difference among

each dimensions. Therefore, in order to increase health of the environment must pay attention to four dimensions.

- Results showed that from total point (240), Hefdah Sharivar street only achieve 114points. It means health and quality of pedestrian is lower than average.
- Criteria of evaluating health in differentiate of four dimensions show that the highest weight of measuring criteria of physical and mental health is belong to the four dimensions. They have priority for paying attention and then criteria of spiritual health and finally, social health.
- Main ingredients and components of pavements classified into two parts of hard and soft and each of dimensions has significant impact in amount of health of pavement.
- Furthermore, evaluate health of Hefdah Sharivar on basis of health criteria and basis on Likert show that condition of street based on physical health is bad and average basis on social health also average in according to spiritual health is good. Existence religious components Like holy shrine and several mosques and also identity components such as Reza Market have essential role in spiritual health.
- In according to results of Hefdah Shahrivar street in order to improve health of pavement's environment need physical strategies like equipped the streets with sports and healthy using .
- Improve health of pavements of streets specifically and urban spaces generally need strategic planning and evaluate health of urban spaces widely. In current research, in order to evaluate health of pavements, we used the criteria and they can be attributable.

Reference

Agha Mollaei, (2005), Principle and generality of Health services

Ahsan, Majid, (2005), a set of law and regulations of urban, First volume, Center for Architecture and Urban Studies

Akaberi and et al (2011), relationship between health and Quality of life, North Khorasan University of Medical Sciences

Amini rarani and et al (2011)Relationship between social capital and social health in Iran, Social welfare

Barton, H., tsourou, C. (2000), Healthy urban planning, London, Spon press.

Harahan, T.(2004), Urbanization and Mental Health in Developing Countries, A Research Role for Social Scientists, Social Science and Medicine, vol. 39.

Lafond, Leah Janss., Heritage, Zoe. Farrington, Jill L., Tsouros, Agis D (2003), National healthy cities networks: A powerful force for health and sustainable development in Europe, World Health Organization..

Lawrence, Roderick J (2004), Housing and health: from interdisciplinary principles to transdisciplinary research and practice, Futures, Elsevier Ltd, Volume 36.

Morgan, T, M (2003), Environmental Health. Canada,Wadsworth.

Price, Charles (1997), sustainable development and health: concepts, principles and framework for action for European cities and towns, European Sustainable Development and Health Series, No 1, Copenhagen, WHO Regional Office for Europe.

Shackel B. (1996), Permeable Eco-paving - An Environmental Option for Stormwater Management. Proc 4th Annual Conf. Soil and Water - Management for Urban Development. Sydney, pp 97-105.

Shackel B, Kaligis J. O, Muktiarto Y and Pamudji (1996), Infiltration and Structural Tests of Permeable Eco-Paving. Proc. 5th International Conf. on Concrete Block Paving. Israel.

Shackel B. (2000), Computer-Based Mechanistic Methods For Concrete Block Pavement Design, Proc. 6th Int. Conf. on Conc. Block Paving. Tokyo.

WHO, expert consultation (2004), Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies, The Lancet; 157-163

World Health Organization (WHO) (1997), City planning for health and sustainable development. European Sustainable Development and Health Series: 2.

World Health Organization report, (2001), Mental health: New understanding, new hope, Geneva, Switzerland: World Health Organization

World Health Organization, (2004), Women's Mental Health: An Evidence Based Review of World, Geneva

William L. Haskell, PhD, FAHA; I-Min Lee, MD, ScD; Russell R. Pate, PhD, FAHA, et al (2007), Physical Activity and Public Health: Updated Recommendation for Adults, the American College of Sports Medicine and the American Heart Association, Circulation.