

Can a Building's Orientation Affect the Quality of Life of the People Within? Testing Principles of Maharishi Sthapatya Veda

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Maharishi Sthapatya Veda recommends aligning buildings with the north/south poles and the east/west path of the sun to connect the life of the people within the buildings to the larger cycles of nature. Individuals living in properly oriented houses, according to Maharishi Sthapatya Veda, enjoy a higher quality of life. Two studies investigated this prediction. First, burglary incidents were significantly higher in houses with south entrances compared to those with east entrances. Second, mental-health levels and financial status were significantly lower in individuals in houses with a south entrance, or who slept with their heads to the north. These preliminary findings support the predictions of Maharishi Sthapatya Veda and suggest that future studies are warranted in order to probe this system of architecture.

In recent decades, architectural theory and social research have considered the effects of modern architecture on physical health and on individual and social behavior (Abarbanel, 1972; Alexander, Ishikawa, & Silverstein, 1977; Ellis, 1989; Nasar, 1988; Sommer, 1983). New applications in architectural design and city planning have emerged (Jencks, 1986), advocating sustainable ecologically sound buildings and cities that carefully consider space, pollution control, energy efficiency

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and the promotion of cohesiveness in the social sphere (Ivy, 1999). More new buildings are emphasizing natural materials, good ventilation, and daylight instead of artificial lighting (Ivy, 1999). The governments in Germany and the Netherlands have established standards of “intelligent” buildings that place stringent regulations on ventilation, daylight and energy consumption (Bevington & Rosenfeld, 1990). These regulations promote more economically and socially viable architectural practice (Barreneche, 1996).

Sthapatya Veda, a holistic science of architecture from the Vedic tradition in India,¹ expands the definition and range of architecture and design beyond recommendations for using natural building materials and ecologically sound design and construction. It includes consideration of the connection of the functioning of the individual with the functioning of the larger environment (Bonshek, 2001; Fergusson, Bonshek, Norman, & Norman, 1990). The principle texts of Sthapatya Veda, the Manasara and Mayamata (Acharya, 1995; Dagens, 1994), are held to unfold the relationship between individual and “cosmic” intelligence (Nader, 1995). Maharishi Sthapatya Veda constitutes the recent revival of the ancient system of architecture, as inspired and guided by Maharishi Mahesh Yogi (Maharishi Mahesh Yogi, 1998). Maharishi Sthapatya Veda is part of a comprehensive framework of classical Vedic knowledge that includes health care and other disciplines related to articulating standards and means for promoting an optimal quality of life (Maharishi Mahesh Yogi, 1994).

An important design principle in Maharishi Sthapatya Veda is to align buildings with the earth’s magnetic field (north/south) and the movement of the sun (east/west). This principle is based on the understanding that as the sun follows a path from east to west (due to the west-east rotation of the earth), it generates different qualities of intensity of light (Maharishi Mahesh Yogi, 1998). Maharishi Sthapatya Veda recommends that the entrance of a building should face east—the direction of the rising sun. When the house is oriented to the east, a favorable, life-supporting influence is predicted to occur. Other design principles cover:

- the placement of the rooms within a built structure, i.e. kitchen, study, or bedrooms,
- the proportions of the building, i.e. the wall thickness or ceiling heights,
- the slope of the land or site,
- the shape of the land,
- the location of bodies of water, and
- the proper orientation of the head for sleep (to the east).

In contrast to the beneficial influence of an eastern orientation, a southern orientation of the entrance or sleeping with the head to the north is held to create negative influences, including anger and aggression, constant fear, poverty, lack of vitality and success, and chronic diseases (Maharishi Mahesh Yogi, 1998).

Physiological research supports the possibility that humans and animals are sensitive to their orientation in space. Extensive research on migratory birds has found that the sun and the earth's magnetic field are the two main navigation aids that birds use to fly thousands of miles (Ranvaud, Gasparotto, & Britto, 1996; Wiltschko, Wiltschko, & Munro, 2000). A pulsating magnetic field, which disrupts the local magnetic field, diverts the southerly migratory pattern of these birds by 60–90 degrees (Wiltschko, Munro, Ford & Wiltschko, 1998). Pulsating magnetic fields (.01 Hz) are also reported to lead, in animals and humans, to: (a) elevated restlessness and disorientation (Rajswari, Satyanarayana, Narayan, & Subrahmanyam, 1985), b) decreased peripheral blood flow, and (c) increased concentrations of dopamine, noradrenlin, and 5HIAA, a metabolite of serotonin (Narayan, Sybrahamanyam, Satyanarayana, Raheswari, & Srinivasan, 1984). In addition, distinct firing rates are reported in the anterior thalamus and subiculum of rodents relative to the orientation of their heads in space (Taube, 1995). Finally, in humans as well as in other mammals, spatially selective firing patterns have been reported in hippocampal "place fields" that are sensitive to salient sensory cues in the environment (Knierim, Kudrimoti, & McNaughton, 1995). If the physiology of animals and humans is sensitive to magnetic fields and orientation in space, then it is reasonable to investigate whether there are behavioral effects from living and working in buildings with different orientations.

Behavioral research has just begun to investigate the impact of a building's orientation on the well-being of the people within. These initial investigations—as initial investigations of any new phenomenon—have not attempted to establish cause-effect relations. Rather, they attempt to identify important variables to be investigated later in better-controlled studies. Two studies are reported here. The first investigation was a descriptive study of incidents of burglaries in Fairfield, Iowa categorized by the orientation of the entrance of the home burglarized. It tested the prediction that homes with south entrances would have higher incidents of burglaries. The second investigation was a comparison of the orientation of the entrance to one's home, the direction one sleeps, and quality of life variables. These studies tested the following hypotheses:

- H1 individuals whose homes have south entrances will experience more problems in life
- H2 individuals sleeping with their heads to the north will experience more problems in life

EXPERIMENT 1: DESCRIPTIVE STUDY OF BURGLARIES IN FAIRFIELD, IOWA

Incidences of burglaries are one objective measure of problems in life. This study observed the relation of burglaries over \$200 in Fairfield, Iowa and the orientation of the entrances of the burglarized homes.

Method

Participants and Procedure

All burglaries over \$200 in Fairfield, Iowa were recorded from the crime section of the local newspaper from April 1995 to April 1998. One hundred incidents of crime were recorded in this three-year period. The address of each incident was noted. After the 100 incidents were tallied, the researchers traveled to each location and assessed the orientation of the main entrance to the home. Fairfield is built on a grid that is within 7 degrees of the true north/south grid. Consequently, 95% of the entrances were unambiguously facing one of the four cardinal directions. Burglaries in these 95 homes with clearly defined entrances were included in the analysis.

Results

The burglaries were summed within each of the four cardinal directions. The results are presented in Figure 1. The four bars are the summed burglaries in each of the four cardinal directions. As seen in this figure, homes that have a south entrance had 75% more burglaries than homes with other orientations.

A chi square goodness-of-fit tested whether this observed pattern differed significantly from a chance distribution of events (equal number of burglaries in homes with entrances facing either of the four cardinal directions). This test revealed that the observed pattern differed significantly from chance ($\chi^2 = 199, p < .01$).

The homes burglarized were dispersed throughout the city. They did not appear to cluster into specific areas.

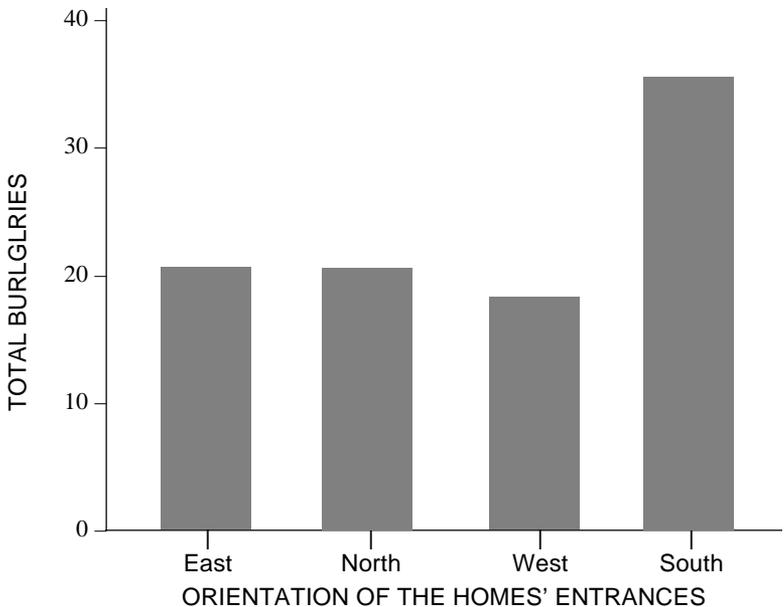


FIGURE 1 Total Burglaries from April 1995 to April 1998 in Fairfield, IA Categorized by the Orientation of the Main Entrance to the Home Burglarized

**EXPERIMENT 2:
RELATION AMONG A BUILDING'S ORIENTATION,
DIRECTION OF SLEEP AND QUALITY OF LIFE VARIABLES**

The second experiment compared several characteristics of the participants' current homes and their direction of sleep with emotional health, physical health, family coherence, and progress and success in life.

Method

Participants and Procedure

On arrival for a regular visit with their family physician at a private Family Practice in Ottumwa, Iowa, participants were asked whether they would like to complete a questionnaire of the characteristics of their homes, and of their quality of life. Participants were reimbursed \$5.00

for their efforts. One hundred sixty-seven patients volunteered to complete the questionnaire. All patients were blind to the hypotheses being tested and did not know the principles of Maharishi Sthapatya Veda.

Test Instruments

The questionnaire comprised 68 questions including four standardized instruments: (a) the Mental Health Inventory (38 items assessing subjective well-being or distress, including anxiety, depressed mood, loss of behavioral/emotional control, general positive affect, and emotional ties, Veit & Ware, 1983); (b) the Stress Impact Scale (11 items scored for frequency and severity of stressors in various areas of life, such as family, finances, etc., Jackson, 1988); (c) the SF-36 Short-Form Health Survey (36 items, measuring functional health and general health perceptions, Ware & Sherbourne, 1992); and (d) the Family Concordance scale of the Family Profile (20 items assessing cohesion and communication within a family, Halvorsen, 1992). Also included in the questionnaire were items assessing demographic variables (gender, marital status, education level, income bracket), physical exercise (hours per week), cigarette consumption (packs per day), and alcohol consumption. The questionnaire also asked for the orientation of the main entrance to the patient's home and direction in which he or she slept, in terms of the eight cardinal compass directions (north, north-east, east, south-east, south, south-west, west, and north-west).

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Statistical Analysis

Data were analyzed by two ANOVAs with orientation of the entrance as the grouping factor in one ANOVA, and the direction one slept as the grouping factor in the other. The variates in both ANOVAs were the quality of life variables. Planned comparisons were also conducted in both analyses. In the analysis of orientation of entrances, three direction categories were compared: (a) east, (b) north and north-east, and (c) south, south-east and south-west with weights of 1, 1, -2. (West was not included in this analysis because, according to Maharishi Sthapatya Veda, a western entrance is neither extremely positive nor negative.) In the analysis of head-direction during sleep, three direction categories were again compared: (a) north, north-east and north-west, (b) east, and (c) south, south-east and south-west with weights of -2, 1, 1.

Results

The means for mental health and financial stability scores are presented in Figures 2 and 3. Figure 2 presents mental health and financial stability scores categorized by orientation of the building's

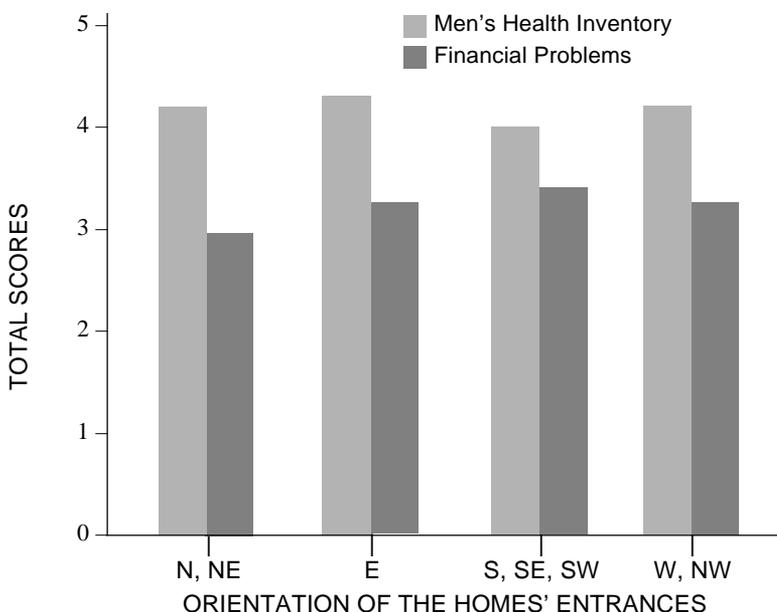


FIGURE 2 Scores on the Mental Health Inventory and Financial Stability Questions Categorized by the Orientation of the Main Entrance to the Participant's Home

entrance. Figure 3 presents mental health, categorized by direction of sleep.

Planned comparisons based on the ANOVA with orientation of the house's entrance as the grouping variable revealed: (a) Patients whose homes had south entrances had significantly poorer overall scores on the Mental Health Inventory than patients with north, north-east or east entrances ($F(1,154) = 4.51, p = .03$). (b) Patients whose homes had south entrances also reported more financial problems relative to those with north, north-east or east entrances ($F(1,154) = 4.18, p = .04$). This result remained significant even when controlling for level of income ($F(1,153) = 3.98, p = .05$).

Planned comparisons based on the ANOVA with direction of sleep as the grouping variable revealed that those individuals sleeping with their head pointing north had significantly lower scores on the Mental Health Inventory scores compared to patients who slept in other directions ($F(1,150) = 9.08, p = .003$).

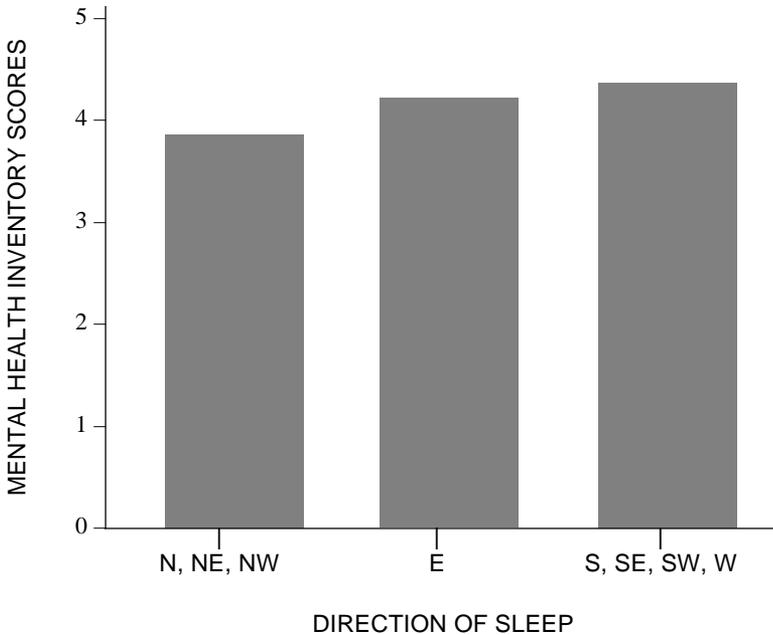


FIGURE 3 Scores on the Mental Health Inventory Categorized by Categorized by the Direction That the Participants Slept

GENERAL DISCUSSION

These preliminary findings support the predictions in Maharishi Sthapatya Veda that a building's orientation and the direction of sleep significantly affects the quality of life of people in those buildings.

Consideration of Alternative Hypotheses

The first experiment included all burglaries reported in a three-year period in Fairfield. The crime data were public data reported in the local newspaper, and were collected without knowledge of the orientation of the homes. Therefore participant and experimenter effects would not account for these data. In addition, since Fairfield is built on a Jeffersonian grid, the entrances of the homes are fairly equally distributed among the four cardinal directions, and they are oriented fairly unambiguously in one of the four cardinal directions. Thus, the higher proportion of crime in homes having south entrances would reflect a difference in number of homes with entrances facing the four cardinal directions. Finally, the

lighting is similar in all areas of the city. Consequently, differences in lighting cannot account for these findings.

The second experiment tested the relation of the orientation of the home and quality of life variables in a large cross-section of individuals. While the patients self-selected to fill out the questionnaires, virtually all of the patients who visited the clinic in the two months that the data were collected volunteered to participate in the study. None of these patients were familiar with the principles of Maharishi Sthapatya Veda. Therefore, neither self-selection nor participant-reactivity appeared to bias the data—the patients were blind to the hypotheses tested. The planned comparisons were decided before the data were analyzed. Thus, the findings do not represent “drawing-a-bull’s-eye” around the significant differences.

The most obvious alternative hypotheses do not seem to account for the observed findings in these two studies.

Consideration of the Magnitude of Effects

It is interesting, in both studies the p values for main effects of a building’s entrance ranged from $< .01$ to $< .05$, while the main effect of sleeping direction, in the second study, was an order of magnitude smaller ($< .003$). A p-value tests the chance-hypothesis, while the research design is the basis for cause/effect conclusions (Leavitt, 1991). A smaller p-value is not evidence for a stronger cause-effect relation. However, highly significant effects of sleeping-direction suggests that an act as simple as changing the direction one sleeps may have a profound effect on quality of life and should be investigated in it’s own right.

Possible Model to Explain the Observed Effects

Individuals do not live in isolation, but are part of a larger system. Maharishi Vedic Science details how individual thoughts and actions are embedded in a universal field of intelligence that gives rise to and administers the universe and all of life (Maharishi Mahesh Yogi, 1997). Maharishi Sthapatya Veda asserts that buildings and cities designed in tune with this larger field of intelligence connect activities within the buildings to this universal field of intelligence. In this way, a building sustains and promotes healthy and successful individual behavior. By utilizing “cosmic intelligence,” Maharishi Sthapatya Veda could bring a new understanding to the term “intelligent” buildings and cities.

This preliminary research is the first step in a research program to test the principles of Maharishi Sthapatya Veda. These are preliminary studies, and we can not draw strong cause/effect relations from these studies. However, the data patterns observed in these two studies suggest that future better-controlled research is warranted. Future research may

extend our understanding of the relation of the individual with his/her built environment. Qualitative research is needed to probe the subjective experience of living in homes built according to principles from Maharishi Sthapatya Veda, and random-assignment experiments are needed to demonstrate clear cause/effect relations.

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