

FUZZY DELPHI HIERARCHY PROCESS AND ITS APPLICATION TO IMPROVE INDIAN TELEMEDICAL SERVICES

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ABSTRACT

Telemedicine promises to be one of several possible solutions to some of the medical dilemmas facing India and other developing countries. The use of communication technology in the practice of medicine may change the face of health care in India by improving access to dispersed expert medical information, diagnostic tools, and consultations. Increasing demand on practitioners' time and the increasing complexity of patients' education and management has created a demand for creative solutions. Telemedicine incorporates telecardiology, teleradiology, telepathology, tele-ophthalmology, teledermatology, telesurgery. The selection of different mitigating or preventive alternatives often involve competing and conflicting criteria, which requires sophisticated multi-criteria decision making methods. However the nature of the real world problems often relates to fuzziness and ambiguousness which initiates by the unprecedented environment conditions, human factors, incomplete information, etc. In order to model this kind of uncertainty in human preference, fuzzy sets could be incorporated with pair wise comparison as an extension of AHP.

This paper presents Fuzzy Delphi Hierarchy Process (FDHP), a new Futuristic Multi Criteria Decision Making Methodology for solving unstructured futuristic decision problems with multi-criteria. The Methodology aggregates criteria, sub-criteria, etc. into unique hierarchical level and applies a total integral method for comparing futuristic decision alternatives. The proposed Methodology is also applied for computing the Global Futuristic Judgment Weights, W_i^{JL} , for improving Telemedicine Services in India. Telemedicine will help in improving the inadequate quality health services of the rural and remote population of India.

Keywords: Telemedicine Services, Fuzzy Logic, Multi Criteria Decision Making, Future Scan

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