Chapter 7
An Ontology-Based Indigenous Knowledge Management Portal for Subfertility of Females

Thenuka Yogarajah
Sabaragamuwa University of Sri Lanka, Sri Lanka

Kuhaneswaran Banujan
 https://orcid.org/0000-0002-0265-2198
Sabaragamuwa University of Sri Lanka, Sri Lanka

Shanmuganathan Vasanthapriyan
 https://orcid.org/0000-0002-0597-0263
Sabaragamuwa University of Sri Lanka, Sri Lanka

ABSTRACT

Subfertility in humans is the major problem in the technological world mostly by their habits and foods. There are many treatment methods for the subfertility of females, but the documentation in this field is mostly available in the local language, which cannot be understood by others, and time by time, this knowledge towards the future generation is diminished. The authors have depicted the knowledge using ontology and thereafter the knowledge management portal (KMP) for the indigenous knowledge was developed using the modeled ontology. They believe that the indigenous knowledge management portal (IKMP) will help future generations to get knowledge easily by using this system. They also strongly believe that the IKMP will serve as the experience-sharing tool for the subfertility-related indigenous knowledge.

INTRODUCTION

Subfertility is described as the inability to conceive after twelve months of unprotected and regular sexual activity. Males are screened first for causes of subfertility in the medical field. If males are not having

problems, females should investigate the cause of their subfertility. Female subfertility is a comparably vast area than male subfertility (Adamson & Baker, 2003). Knowledge Management (KM) about indigenous treatment methods for subfertility is a tedious task for people who are in the technical era. Therefore, we have planned to provide Indigenous Knowledge Management Portal (IKMP).

The main objective of the IKMP is to provide the most relevant information from the doctors' data to reduce decision-making errors. The proposed KMP is the very first established indigenous system that complies with the knowledge based on Sri Lanka's indigenous medicine treatment for the subfertility of females. This system adopts the rule-based technique using the current methods of indigenous knowledge about subfertility, which will help the future generation who does not have enough knowledge. This proposed system adopting to the rule-based technique, which is used for efficient decision-making for the subfertility treatment method (E. Kontopoulos, G. Martinopoulos, D. Lazarou, & N. Bassiliades, 2016).

This research aims to help ayurvedic hospitals handle awareness in the treatment of female subfertility by creating an ontology-based solution that identifies, organizes, and facilitates decision-making in the associated expertise by creating an ontology-driven solution that explains all treatment methods from the ground up (Shen, Colloc, Jacquet-Andrieu, Guo, & Liu, 2017). Decision-making and KM of the treatment method of subfertility are difficult concepts to grasp. To provide a solution for the above-mentioned problem, the creation of IKMP can be beneficial to ayurvedic doctors and medical students in terms of KM and decision-making. It will allow ayurvedic hospital doctors and medical students to gain knowledge of treatment options for female subfertility.

The above-mentioned points of inspiration that serve as the foundation for the female subfertility study. The following research questions are considered the research gaps for the selected topic or the analysis of the selected field. Many research questions about "An Ontology-based IKMP for female subfertility" must be investigated in detail to gain knowledge about how to develop ontology-based IKMP for female subfertility. There is currently no ontology-based IKMP for female subfertility. Our system is based on a newly established ontology of the indigenous treatment method of subfertility to improve the IKMP's reasoning ability and strengthen field understanding and data interconnection. The research gap is identified using the mapping study report.

- RQ1: In the sense of female subfertility, what is the actual state of indigenous treatment information dissemination?
- RQ2: How can an IKMP be used to know some information about female subfertility?
- RQ3: How can the evolved KMP's assessment process can be carried out?

This subfertility concept is often expressed using various terminologies, incomplete, unstructured, and different data formats, records, and expertise do not reach everything. Furthermore, computers must have a firm grasp of the information domain or semantics' meaning. Computer comprehension is possible because of semantic web technology. Ontologies are a powerful framework for representing knowledge implemented in the semantic web. As a result, the ontology could be used to find answers to specific questions in the field of female subfertility (Anbarasi, Naveen, Selvaganapathi, & Mohamed Nowsath Ali, 2013; C.-T. Bau, R.-C. Chen, & C.-Y. Huang, 2014a).

For better subfertility management, a deep concept of ayurvedic treatment method of subfertility is needed. Female subfertility can be caused by a variety of factors, including ovulatory complications, tubal disorders, uterine anomalies, endometriosis, and advanced maternal age. During the fertile period of the first six months, 80 percent of births occur with continuous intercourse. Doctors then conclude that 10%

Related Content

A Novel Meta-Heuristic Approach for Load Balancing in Cloud Computing
Subhadarshini Mohanty, Prashanta Kumar Patra, Mitrabinda Rayand Subasish Mohapatra (2018). *International Journal of Knowledge-Based Organizations (pp. 29-49).*
www.irma-international.org/article/a-novel-meta-heuristic-approach-for-load-balancing-in-cloud-computing/190601

Teaching Enterprise Information Systems in the United Arab Emirates
Tony Jewels (2013). *Information Systems Applications in the Arab Education Sector (pp. 322-337).*
www.irma-international.org/chapter/teaching-enterprise-information-systems-united/68687

An Algorithm for Transforming XML Documents Schema into Relational Database Schema
Abad Shah, Jacob Adeniyiand Tariq Al Tuwairqi (2005). *Transformation of Knowledge, Information and Data: Theory and Applications (pp. 171-189).*
www.irma-international.org/chapter/algorithm-transforming-xml-documents-schema/30445

The Evolutionary Model: Selection and Progress of Knowledge
Eliezer Geisler (2008). *Knowledge and Knowledge Systems: Learning from the Wonders of the Mind (pp. 153-165).*
www.irma-international.org/chapter/evolutionary-model-selection-progress-knowledge/24873

Mapping Methodological Issues in Knowledge Management Research, 2009–2014
Patrick Ngulube (2019). *International Journal of Knowledge Management (pp. 85-100).*
www.irma-international.org/article/mapping-methodological-issues-in-knowledge-management-research-20092014/218236