

**Title:** Impact of family income on sanitation, hygiene and diseases in Sultanate of Oman:A systematic Review, Meta-analysis and Data analysis

**Proposal ID:** BFP/RGP/HSS/18/092

**Type of project application:** Research Grant Program

**Current Status:** Approved For Funding

### **Sector Name**

Health and Social Services

### **Principal Investigator**

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### **Co-Investigators**

### **Other Team Members**

Team members not specified

### **Technology Readiness Level (TRL)**

1 – 3: Knowledge Development (usually public organizations) e.g. basic research & lab-based experiments

### **Priority Area**

Other

### **Executive Summary**

Introduction and the statement of the problem/project: Does income make a difference for wellbeing? Correspondingly, a population of the nation who are having high level of income imbalance could have poor health and hygiene conditions. In inquiring as to whether income matters, two sorts of proof are significant: the connection of salary to wellbeing between and inside nations, and the connection of pay disparity to wellbeing. I note that there is proof that wellbeing can influence by salary, however, that it is not the real clarification of the connection among pay and wellbeing. I presume that a portion of the strategy questions may not be so extraordinary. At the result level, we would be able to find the impact of family income and family diseases and submit the report to the concern person/authority, which will be useful for them in improving the health sector in Oman. Now in our project we will take the public opinion at large scale about their hygiene, social life and income in region wise, place wise etc. to get result that is more accurate and then we will analyse these result for the improvement to make it more useful for health sector in Oman. In this research proposed, we will use systematic review and meta-analysis.

## **Introduction and Statement of the Problem / Project**

Does income make a difference for wellbeing? Correspondingly, a population of the nation who are having high level of income imbalance could have poor health and hygiene conditions. In inquiring as to whether income matters, two sorts of proof are significant: the connection of salary to wellbeing between and inside nations, and the connection of pay disparity to wellbeing. I note that there is proof that wellbeing can influence by salary, however, that it is not the real clarification of the connection among pay and wellbeing. I presume that a portion of the strategy questions may not be so extraordinary. At the result level, we would be able to find the impact of family income and family diseases and submit the report to the concern person/authority, which will be useful for them in improving the health sector in Oman. Now in our project we will take the public opinion at large scale about their hygiene, social life and income in region wise, place wise etc. to get result that is more accurate and then we will analyse these result for the improvement to make it more useful for health sector in Oman.

In this research proposal, we will use systematic review and perform the meta-analysis. In addition, of the said analysis, Big Data analytics will be implemented to get the multiple insights and data visualization through the appropriate tools and technology.

## **Literature Review and Analysis of Related Work**

Annette Prüss-Ustün ,Jamie Bartram ,Thomas Clasen ,John M. Colford Jr ,Oliver Cumming ,Valerie Curtis ,Sophie Bonjour ,Alan D. Dangour ,Jennifer De France ,Lorna Fewtrell in their publication on “Burden of disease from inadequate water, sanitation and hygiene in low- and middle-income settings: a retrospective analysis of data from 145 countries” have explained in his paper For estimating the impact of water, sanitation and hygiene on diarrhoea, they have selected exposure levels with both sufficient global exposure data and a matching exposure-risk relationship. Global exposure data were estimated for the year 2012, and risk estimates were taken from the most recent systematic analyses. They have estimated attributable deaths and disability-adjusted life years (DALYs) by country, age and sex for inadequate water, sanitation and hand hygiene separately, and as a cluster of risk factors. Uncertainty estimates were computed based on uncertainty surrounding exposure estimates and relative risks. This estimate confirms the importance of improving water and sanitation in low- and middle-income settings for the prevention of diarrhea disease burden. It also underscores the need for better data on exposure and risk reductions that can be achieved with provision of reliable piped water, community sewage with treatment and hand hygiene.[1]

Ricard Giné-GarrigaabÓscar Flores-BaqueroabAlejandro Jiménez-Fdez de PalenciaacAgustí Pérez-Foguetab in his research paper “Monitoring sanitation and hygiene in the 2030 Agenda for Sustainable Development: A review through the lens of human rights” have worked on the international monitoring of drinking water and sanitation has been jointly carried out by WHO and UNICEF through their Joint Monitoring Programme (JMP). With the end of the Millennium Development Goals (MDGs) era in 2015, This article discusses how each element of the proposed sanitation target and corresponding indicators can be understood from a human rights perspective. In doing so, they might ultimately help sector stakeholders in the realization of this right.[2]

Peal, AJ, Evans, BE and van der Voorden, C (2010) Hygiene and Sanitation Software: An Overview of Approaches. In his research paper, was published in Water Supply and Sanitation Collaborative

Council , Geneva,has worked on the state of the art in methods and techniques for sanitation and hygiene behavior change, and other non-hardware aspects of sanitation programming. Includes introductory text and detailed entries on more than 20 approaches and techniques, with key references, summary information on effectiveness and implementation and an assessment of when different approaches should be used.[3]

Lenka Benova ,Oliver Cumming ,Oona M. R. Campbell in his research work “Systematic review and meta-analysis: association between water and sanitation environment and maternal mortality” that was First published: 10 February 2014 has find out the There is evidence of association between sanitation and maternal mortality and between water and maternal mortality. Nevertheless, there are plausible pathways through which such associations may operate.[4]

Ruth Kennedy-Walker ,Barbara Evans ,Jaime Amezaga ,Charlotte Paterson In the Journal of Water, Sanitation and Hygiene for Development (2013) 4 (1): 1-14. Challenges for the future of urban sanitation planning: critical analysis of John Kalbermatten's influence published his paper in International Journal of Public HealthDuring the 1980s, John Kalbermatten and his colleagues at the World Bank revolutionized urban sanitation planning. This paper looks at a number of the most important urban sanitation planning approaches that have emerged post-Kalbermatten and seeks to trace the influence of Kalbermatten's work on their theoretical underpinnings and characteristics. The extent to which other ideas, such as the sanitation value chain, have increasingly been incorporated into planning approaches is discussed and some of the challenges affecting successful urban sanitation, which lie outside of planning, are considered. Final comments center on common themes occurring in practice, the future exploration of which offers potential to inform successful sanitation delivery in the future. Are hygiene and public health interventions likely to improve outcomes for Australian Aboriginal children living in remote communities? A systematic review of the literature Elizabeth McDonald,Ross Bailie, David Brewster and Peter Morris did Research which measures the effectiveness of hygiene interventions is complex and difficult to implement.[5]

J. Borghi ,L. Guinness ,J. Ouedraogo ,V. Curtis published his research work in 21 October 2002 To estimate the incremental cost-effectiveness of a large-scale urban hygiene promotion programme in terms of reducing the incidence of childhood diarrhoeal disease .[6]

## **Objectives**

The final goal of the research proposal is to analyze the role of the family income in wellbeing of the family members with the following objectives:

- Interview will be scheduled with the health officials in order to understand the problem and conduct the survey through online forms to collect the primary data.
- Historical data will be gathered from the National Center for Statistical Information (NCSI)
- Meta analysis will be performed to find the causes of disease among the different income groups. Proposed hypothesis will be tested during the meta analysis.
- Opinion mining will be performed on the primary data to get more insights to know the actual cause of disease and individual income clusters.
- Data visualtion will take place by using RapidMiner/appropriate application.

## **Research Methodology [Describe your Implementation Plan,Time-line and Milestones]**

## Research design

Systematic testing is a measurable strategy including the choice of components from an arranged examining outline. The most widely recognized type of methodical examining is an equiprobability strategy.

In this methodology, movement through the rundown is dealt with circularly, with an arrival to the best once the finish of the rundown is passed. Systematic surveys are a sort of writing analysis that utilizes methodical strategies to gather optional information, fundamentally evaluate investigate thinks about, and combine. They are intended to give a total, thorough outline of ebb and flow proof important to an examination question.

## Secondary data collection and Meta-analysis

A population is a complete set of people with a specialized set of characteristics, and a sample is a subset of the population. The study sample is the sample chosen from the society.

The following steps will be executed to perform the Meta analysis:

A meta-examination is a measurable method used to consolidate and abridge the after effects of a few autonomous investigations that tended to a similar speculation or clinical inquiry

In a Meta -examination the general impact of an intercession is determined utilizing weighted midpoints of the outcomes from various preliminaries.

Systematic analysis are a sort of writing survey that utilizes deliberate strategies to gather auxiliary information, fundamentally evaluate examine thinks about, and combine contemplates.

They are intended to give a total, thorough synopsis of momentum proof applicable to an exploration question.

## Selection of the sample

Sample is a various income groups of people that are taken from a larger population for measurement.

## Primary data collection and opinion mining:

Primary data will be collected from the constructed online forms to map the disease and income of the civilians. Opinion mining will take place on the primary data in order to produce the opinion mining results.

Visualize the outcome by utilizing suitable Big Data/ Mining application.

## Hypotheses:

Relationship between the income and sanitation, hygiene and diseases.

According to the literature review different researchers build different hypothesis to achieve the ultimate objective of the research. Those hypotheses are:

Ho: There is no relationship between income and sanitation, hygiene and diseases.

H1: There is relationship between income and sanitation ,hygiene and diseases

Time Line: This research will be conducted for a period of 12 months.

## Benefits to Oman

Project will be able to provide more information and preventive measures that can be useful for the government and social activist, NGOs who are working in Oman, want to help and work for the social wellbeing.

## Academic, Scientific and/or Innovation Significance

Search various areas of health issues ,like communicable diseases, endemic diseases, epidemic ,diseases, genetic diseases ,mental disorder, psychological disorders, vision disorder, Diabetes ,hypertension. We can get problems points and try to solve it and make survey that will be useful for the society and the government.

Research will provide the preventive measures for the future mode of actions related to the wellbeing of the community.

Data in social media is streaming at exceptional speed that must be dealt with in a well-timed manner .It would be interesting to explore this feature in social media analytics as this is one of the great challenges for many organizations.

Social media playing important role in information insemination so we can get many report and data from the social media This enormous information are simply holding on to be investigated and explore the valuable information's that could give new ideas

### **Is this project going to result in a patent?**

No

### **Patent Review (e.g. any previous similar patents in literature, the potential of this project to result in a patent ...)**

### **References**

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