DETERMINANTS OF HEALTH LITERACY AND HEALTH BEHAVIOUR OF ADULT POPULATION IN KANYAKUMARI DISTRICT

1 D.R.SAMJI  2 Dr.M.GANESHBABU
1 Research Scholar, 2 Assistant Professor
Department of Management, Rajagiri Dawood Batcha College of Arts & Science, Papanasam – 614205, Tamilnadu.

Abstract : Health literacy has been defined as the degree to which individuals have the capacity to obtain, process, and understand the basic health information and services needed to make appropriate health decisions. Currently, few studies have validated the causal pathways of determinants of health literacy through the use of statistical modelling. The purpose of the present study was to develop and validate a health literacy model at an individual level that could best explain the determinants of health literacy and the associations between health literacy and health behaviours even health status. Skill-based health literacy test and a self-administrated questionnaire survey were conducted among 600 Kanyakumari district adult residents. Friedman test analysis was applied to validate the model. This model explains the determinants of health literacy and the associations between health literacy and health behaviours well. It could be applied to develop intervention strategies to increase individual health literacy, and then to promote health behaviour and health status.

Key words: Health literacy, Health behaviour, Social factor, Determinants

1. INTRODUCTION
Health literacy has been defined as the degree to which individuals have the capacity to obtain, process, and understand the basic health information and services needed to make appropriate health decisions. Over the last decade, health literacy has become a hot spot of research. With a deeper understanding of health literacy in academic circles, more and more researchers find that a lack of health literacy can cause some adverse effects for individuals and society. Low literacy is associated with a variety of adverse health outcomes, including increased mortality, hospitalization, and in some cases poorer control of chronic health conditions. Additionally, limited health literacy impacts on the prevention and screening of diseases, health behaviour, the taking of patients’ history and the interpretation of diagnoses. Knowing little about preventive care, people with low health literacy tend to use more medicines and more expensive healthcare services, including hospitalization and emergency service.

Some investigators have elucidated explained the relationship of between limited health literacy and socioeconomic indicators, health behaviours, and health outcomes. Researchers have focused on explaining the potential mechanisms between these variables. Aging, the language barrier, low education, bad socio-economic status and suffering from chronic diseases were all regarded as risk factors of limited health literacy.

Though limited health literacy has been shown to be associated with worse health outcomes and some socioeconomic characteristics, the causal pathways are not entirely known. Several researches have focused on explaining potential mechanisms. The conceptual model by Baker illustrates these hypothesized relationships by highlighting individual capacities that are associated with literacy skill, the complexity of both printed and spoken health information and other factors such as cultural norms that are relevant to health outcomes.

“A conceptual model to explain associations between limited health literacy and health outcomes. In their model, socioeconomic indicators are the basic factors influencing health literacy. These include level of education reached, ethnicity, age, occupation and income. Their model distinguishes three different types of health action that mediate the impact of health literacy on health: access to and utilization of health care, patient-provider interaction, and self-care. Each of these domains is defined not only by patient factors but also by external factors that can be attributed to the health care provider or the health system. The pathways are particularly useful in highlighting the role of health actions and providing a useful taxonomy of behavioural domains”.

2. REVIEW OF LITERATURE
“Wagner’s review introduced a framework drawing on ideas from health psychology and proposing that associations between health literacy and health outcomes could be mediated by a range of health actions involving access to and use of health care, patient–provider interactions, and the management of health and illness”. The framework outlines ways in which health literacy
might affect either health actions themselves or their motivational and volitional determinants, which have been identified in social cognition models.

McCormack “established a conceptual framework for individual health literacy. The framework illustrates how health literacy functions at the level of the individual, while acknowledging that factors external to the individual (including family, setting, community, culture and media) influence all the relationships represented in the model. The framework is organized into four primary elements: (1) health-related stimulus; (2) factors that influence the development and use of health literacy skills, including socio-demographic characteristics, resources, prior knowledge and capabilities; (3) health literacy skills needed to comprehend the stimulus and perform the task; and (4) mediators between health literacy and health outcomes including motivation, attitudes, emotions, and self-efficacy. The health related outcomes include behaviours and status”.

Although all these models or frameworks have given the relationship between socio-demographic characteristics, prior knowledge, health literacy, health behaviour/action and health outcomes, they are all theoretical explanations. Few studies have tried to validate them through the use of statistical modelling. So this study aimed to develop a health literacy model and to statistically validate it using path analysis.

Risk factors for low health literacy have been a basis for research that seeks to understand how to improve and promote health literacy. Thus, previous research has focused on specific socio demographic and personal characteristics that have been noted to influence health literacy. Older age is acknowledged as a significant risk factor for low functional health literacy (Howard, Sentell, & Gazmararian, 2006). Cultures in transition, as in the case of immigrants, migrants, and refugees (Wångdahl, Lytsy, Mårtensson, & Westerling, 2015), may be at higher risk for health complications, mainly because of services that are not culturally appropriate (Levin-Zamir & Wills, 2012; Pelikan & Krajic, 2007). Nearly all of the aforementioned studies (Curtis et al., 2015) focused more on functional aspects of health literacy, specifically on individual skills necessary for performing in the clinical setting.

Rootman and Gordon El-Bihbety (2008) were among the first to explore the need to examine health literacy on a national population level. Acknowledging the need for a more comprehensive measure, the Health Literacy Survey of Europe (HLS-EU) was conducted at the population level in eight countries using a 47-item questionnaire (Sørensen et al., 2015). Based on the questions included in this survey instrument, a Health Literacy Survey-Europe-16 (HLS-EU-16) was tested and applied among various populations (Röthlin, Pelikan, & Ganahl, 2013; Wångdahl et al., 2015) but not in a national study. To date, health literacy in Israel has been evaluated in two separate studies. The Hebrew Health Literacy Test was developed based on the readability comprehension test Short Test of Functional Health Literacy in Adults (STOFHLA; Baker, Williams, Parker, Gazmararian, & Nurss, 1999) and tested among Hebrew-speaking and -reading adults regarding a specific health issue in a specific area of the country (Baron-Epel, Balin, Daniely, & Eidelman, 2007).

3. HYPOTHESIS – A HEALTH LITERACY MODEL

With the models of Baker, Paasche-Orlows, von Wagner and McCormack for reference, we proposed a “health literacy model at an individual level. In this model, socio-demographic indicators, including age, gender, level of education reached, occupation and income, are the basic factors influencing other variables. Besides socio-demographic indicators, prior knowledge also influences the development of health literacy skills. Then health literacy has direct effect on health behaviour, meanwhile, as a mediator between prior knowledge and health behaviour. Finally, health behaviour influences health status”.

Figure 1

Hypothesis of a health literacy model at an individual level

A skill-based health literacy tool was recognized using Ratzan and Parker’s (2000) definition of health literacy: “The degree to which individuals can obtain process, understand, and communicate about health-related information needed to make informed health decisions. The instrument included sixteen stimuli materials involving the distribution of epidemics, immunization programs, early symptoms, means of disease prevention and individual’s preventative behaviour. The tool included five different subscales: print-prose, print-document, print-quantitative, oral and internet. The print-prose scale measured the knowledge and skills needed to search, comprehend, and use information from texts that were organized in sentences or paragraphs, while the print-document scale measured from non-continuous texts in various formats. The print-quantitative scale measured the knowledge and skills needed to identify and perform computations using numbers embedded in printed materials.
McCormack residential a more complete measure of health literacy, named the Health Literacy Skills Instrument. Similar to other studies, this tool measures print literacy. However, it was innovative in that it also uses non-print stimuli and examines oral and internet-based information seeking skills. In this study, “oral literacy was tested though six questions from three pieces of audio or video. We too used non-print stimuli and measured oral and internet-based skills, but we did so using a series of questions to test the ability of internet-based information seeking rather than having the participants actually seeks information online”.

4. RESEARCH METHODOLOGY

Research design
The study was a cross-sectional national survey. The study was approved by the three townships of Kanyakumari district population survey area of health literacy in Tamil Nadu.

Population
The study population consisted of a random sample of adult members 600 (18 years old or older) of Kanyakumari district Health Services; it is a largest nonprofit health service organization, which provides comprehensive health care for nearly 53% of the Kanyakumari district population in accordance legally. Under this law, universal coverage is provided for all rights to Kanyakumari district. It maintains a computer-based data system for maintaining health records and monitoring all of its members.

The Research Instrument
The research instrument used was based on components of the questionnaire from the health services. A qualitative methodology was used to validate and culturally adapt the tool to Israel; three focus groups and several in-depth interviews were performed. The participants offered feedback regarding the study questions as well as prioritized health knowledge areas in which they felt that the public should be competent. Questions making up the tool were adapted to reflect the feedback offered in the groups as well as the specific characteristics of the Israeli health care system.

Data Collection
Participants were recruited via their general practitioners (GPs) (49%), via participating family members (38%), or via self-registration (13%). All participants gave written informed consent before taking part in Life Lines. Baseline data collection was performed at the research site between November 2006 and December 2013. The complete baseline cohort consisted of 167,729 participants between the ages of 6 months and 93 years. For our analyses, we included the subset of participants aged 65 and over at baseline (n = 12,612) for whom health literacy data were collected (n = 3,241). Data from this group at the first follow-up measurement (follow-up rate: 76.8%) and at the second follow-up measurement (follow-up rate compared to baseline: 63.4%) were collected after an average of 17 and 31 months, respectively.

Measures
For our analyses we used data on health literacy, health behaviours, and social factors (loneliness, social support, engaging in social activities, number of social contacts, and living situation).

Health Literacy
Health literacy was measured during the second follow-up, using three self-report screening questions. These questions form a validated health literacy instrument.
1. “How often do you have someone help you read hospital materials?”
2. “How confident are you filling out medical forms by yourself?”
3. “How often do you have problems learning about your medical condition because of difficulty understanding written information?”

Statistical analyses
First we explored the health behaviours and characteristics of the sample and the associations of these characteristics with health literacy; we tested differences by using chi-square tests. Second, using logistic regression analyses, we assessed the associations between health literacy and all health behaviours, crudely and adjusted for age and gender. Third, to assess the main associations of health literacy with the social factors, we repeated the analyses using these variables as outcomes. Fourth, we conducted sensitivity analyses to check whether choices in our analyses might have influenced the results. Finally, we assessed how social factors potentially moderated the associations between health literacy and health behaviours by adding the various separate social factors and their interactions with health literacy to a model with health literacy, age, and gender. We repeated this procedure for all health behaviours. We performed all analyses using SPSS 20. We considered results to be statistically significant if p < 0.05.

5. DATA ANALYSIS

Friedman test for significant difference between mean ranks of health literacy and health behaviour of adult population in Kanyakumari district

Null Hypothesis: There is no significant difference between mean ranks towards the health literacy and health behaviour of adult population in Kanyakumari district.
**Alternative Hypothesis:** There is a significant difference between mean ranks towards the health literacy and health behaviour of adult population in Kanyakumari district.

**Table – 1**

<table>
<thead>
<tr>
<th>Health Literacy</th>
<th>Mean Rank</th>
<th>Chi-Square value</th>
<th>Degrees of freedom</th>
<th>Asymp. Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information regarding treatment of your health conditions</td>
<td>8.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information regarding coping with mental health situations such as depression and stress</td>
<td>8.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information regarding quality of life: meditation, physical activity, Pilates, yoga, etc</td>
<td>8.23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decide how reliable the risk information is that is conveyed through mass media</td>
<td>8.26</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician or pharmacist regarding medication taking</td>
<td>7.48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand information given by your family physician</td>
<td>7.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adhere to recommendations of physician or pharmacist</td>
<td>8.23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A physician for making decisions regarding a health condition</td>
<td>8.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To maintain the health from sources of information such as pamphlets and newspaper articles</td>
<td>8.20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need of professional help</td>
<td>8.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand health warnings—smoking alcohol, etc.</td>
<td>7.32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detection is necessary (mammography, Pap, etc.)</td>
<td>8.28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To prevent health problems based on information appearing in the mass media</td>
<td>8.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand health advice conveyed by family and friends</td>
<td>7.69</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily habits are associated with your health status</td>
<td>7.24</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Output generated from SPSS 20

From the above table, it is found out that all the variables related to the health literacy and health behaviour of adult population in Kanyakumari district had significance value less than 0.05 at 1 Per cent significance, thus the null hypothesis is rejected. Thus, it is concluded that there is significant difference between mean ranks towards health literacy and health behaviour of adult population in Kanyakumari district. Out of the fifteen health literacy and health behaviour of adult population in Kanyakumari district variables, the “To prevent health problems based on information appearing in the mass media” has the highest rank (8.67). So, that health literacy and health behaviour of adult population in Kanyakumari district is influenced by To prevent health problems based on information appearing in the mass media.

The result determines the fact that out of the 15 factors related to the health literacy and health behaviour of adult population factors with respect to Health literacy, Health behaviour, Health status and social factor aspects, the most influencing factor is identified as ‘To prevent health problems based on information appearing in the mass media’ of the respondents. This may be due to the reason that out of these variables, the above said factor affects the health literacy of adult activity by the customers. Hence among all other health literacy and health behaviour attributes, the above said factor alone is the most influencing variable.

**6. FINDINGS**

As far as we know, this study is the first to examine the associations between health literacy and a large range of health behaviours and social factors, as well as the possible moderating role of social factors, among older adults. We found low health literacy in older adults to be associated with insufficient physical activity, insufficient fruit consumption, insufficient vegetable consumption, lack of regular breakfast consumption, low alcohol consumption, and more obesity, but not with smoking behaviour. We also found low health literacy to be associated with loneliness, having few social contacts, and being engaged in few social activities, but not with social support and living situation (living alone vs. living with others). Results suggest that the associations between health literacy and health behaviours were generally not moderated by social factors. One exception was smoking, which was moderated by the number of social contacts.

The result determines the fact that out of the 15 factors related to the health literacy and health behaviour of adult population factors with respect to Health literacy, Health behaviour, Health status and social factor aspects, the most influencing factor is identified as ‘To prevent health problems based on information appearing in the mass media’ of the respondents. This may be due to the reason that out of these variables, the above said factor affects the health literacy of adult activity by the customers. Hence among all other health literacy and health behaviour attributes, the above said factor alone is the most influencing variable.

**7. SUGGESTIONS**

Low health literacy was associated with poor health behaviours and an unfavorable social situation, which may partially explain the associations between health literacy and health outcomes such as general health status, rates of hospitalization, and mortality.
This has important implications for research and practice. An explanation for the association between health literacy and health behaviours might be that people with low health literacy may be less aware of the importance of health behaviours. Interventions to mitigate the negative effects of low health literacy in older adults could then focus on improving the knowledge of this group regarding the benefits of health behaviours such as physical activity and fruit and vegetable consumption. Low health literacy was also associated with loneliness, engaging in fewer social activities, and a lower number of social contacts. Interventions among older adults could therefore also focus on social aspects, for example by including social activities. Our research has identified associations between health literacy, health behaviours, and social factors, but pinpointed no strong moderating effects of social factors on the association between health literacy and health behaviours. Future studies should further assess pathways between health literacy, health behaviours, and social factors, for example by focusing on social factors that may mediate the associations between health literacy and health behaviours. As the majority of participants in our analyses were between 65 and 70 years at baseline, further research should test the studied associations in those above the age of 75, to assess the generalizable ability of our findings.

8. CONCLUSION
We have found that a large range of unfavorable health behaviours are likely to be greater among older adults with low health literacy. This could partially explain the associations between low health literacy and negative health outcomes. Low health literacy is also associated with loneliness, engaging in fewer social activities, and having fewer social contacts. However, the associations between health literacy and health behaviours are not primarily moderated by social factors. The negative impacts of low health literacy on health behaviours among older adults are apparently not limited to those who are lonely, have low social support, have few social contacts, engage in few social activities, or are living alone. Much health can be gained by better addressing this group.

REFERENCES