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Review

Health literacy and infectious diseases: why does it matter?

Enrique Castro-Sánchez [a,*], Peter W.S. Chang [b], Rafael Vila-Candel [c], Angel A. Escobedo [d], Alison H. Holmes [a]

[a] NIHR Health Protection Research Unit in Healthcare Associated Infection and Antimicrobial Resistance at Imperial College London, Hammersmith Campus, Du Cane Road, London W12 0NN, UK
[b] National Taipei Hospital, Ministry of Health and Welfare, Taiwan, Taipei Medical University, Taipei, Taiwan
[c] Department of Obstetrics and Gynaecology, Hospital Universitario de la Ribera, Alzira, Valencia, Spain
[d] Academic Paediatric Hospital "Pedro Borrás", Havana City, Cuba

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SUMMARY

Objectives: Multifactorial interventions are crucial to arrest the threat posed by infectious diseases. Public involvement requires adequate information, but determinants such as health literacy can impact on the effective use of such knowledge. The influence of health literacy on infectious diseases is examined in this paper.

Methods: Databases were searched from January 1999 through July 2015 seeking studies reporting on health literacy and infections such tuberculosis, malaria, and influenza, and infection-related behaviours such as vaccination and hand hygiene. HIV was excluded, as comprehensive reviews have already been published.

Results: Studies were found on antibiotic knowledge and use, the adoption of influenza and MMR immunizations, and screening for sexually transmitted and viral hepatitis infections. There was a lack of investigations on areas such as tuberculosis, malaria, hand hygiene, and diarrhoeal diseases.

Conclusions: Limited or insufficient health literacy was associated with reduced adoption of protective behaviours such as immunization, and an inadequate understanding of antibiotics, although the relationship was not consistent. Large gaps remain in relation to infectious diseases with a high clinical and societal impact, such as tuberculosis and malaria.

1. Introduction

The planetary scale of the threat presented by infectious diseases to human health and society has been well described.[1] An intricate arrangement of clinical, societal, and ecological determinants powers the emergence of new infectious pathogens such as Ebola virus, and the resurgence of others previously considered to be under control. These same factors drive the unsustainable use and consumption of antimicrobials,[2] sketching the looming prospect of a 'world without antibiotics' reflected upon by many,[3] and without new therapeutic agents likely to be developed at a sufficient rate and periodicity to provide a significant counterbalance.

Equally, effective responses to the challenge posed by infectious diseases require multifactorial components, including not only the obvious availability of adequate clinical care but also improvements in the living conditions of citizens and access to education.[4] Indeed, enhancing the self-efficacy of citizens to adopt recommended preventive behaviours such as vaccination, and encouraging their engagement in similar public health interventions, has been recognized as crucial.[5] Such public involvement, to be successful, requires that adequate information and advice be provided so individuals know what they need to do. However, different factors influence the ability of citizens to understand the information provided, follow health instructions and guidance, and ultimately make effective decisions related to their health and care. Whilst some of the key aspects seem logical, such as education and socioeconomic status, other influences such as health literacy have received limited attention until now. Health literacy (HL) refers to the ability of people to access and use information to make decisions related to their health.[6] Conceptually, HL has evolved from incorporating functional skills in a medical setting to being a multidimensional notion that involves

* Corresponding author. Tel.: +44 (0)203 313 2732; fax: +44 (0)208 383 3394.
E-mail address: e.castro-sanchez@imperial.ac.uk (E. Castro-Sánchez).

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advanced skills, such as the capacity to influence the health system and others,[7] distinguishing between proficiency in 'functional', 'interactive', and 'critical' facets. Other authors have further described the HL terrain across health systems in order to identify similarities and divergences.[8]

Regardless of the definition selected, it seems unquestionable that a large proportion of citizens do not have adequate or effective levels of HL to successfully navigate the increasingly complex healthcare landscape.[9] Several studies have already described the consequences of such inadequate levels of skills, including a more limited knowledge of health and social care preventive and curative services,[10] and a higher frequency of hospital admissions with increased morbidity and mortality.[11,12] The mounting evidence demonstrating the impact of inadequate HL has naturally led to an increasing interest in developing interventions to provide support for citizens and reduce the resulting inequalities. Current perspectives, on the other hand, suggest that concentrating on identifying those with low HL should be avoided and that instead, health and social care services should be designed and provided in a way that ensures that all individuals, regardless of their abilities, are able to make use of the information and opportunities available and be empowered to make effective decisions.[13,14]

As mentioned, the relationship between HL, health outcomes, and the use of healthcare resources has already been well established. Some documents have also briefly highlighted the significance of HL for the outcomes of infections and infectious diseases. The European Centre for Disease Prevention and Control (ECDC) has described the role that HL can play regarding infectious diseases.[15] However, and with the exception of HIV/AIDS, there is a paucity of data and experiences on the relationship and impact of HL on a variety of clinical and social outcomes from infectious diseases. This paper reviews the existing evidence on the interaction between HL and infection, including preventive behaviours such as vaccination, with the aim of highlighting research gaps and facilitating the advancement of this emerging field.

2. Methods

A scoping review of the literature was carried out to identify the nature and extent of the existing evidence. Scoping reviews, unlike other types of review, do not attempt to exhaustively assess or formally evaluate the quality of available research, but rather seek to identify the contribution of existing literature to an area of interest.[16]

2.1. Search strategy

Databases were searched from January 1999 through July 2015. AMED, Excerpta Medica Database (EMBASE), Health Management Information Consortium (HMIC), British Nursing Index (BNI), Medline, PsycINFO, CINAHL, and Health Business Elite databases were interrogated for relevant studies in the English language. The search items used were tailored to the requirements of each database, and included combinations of 'health literacy' with terms such as 'tuberculosis', 'chlamydia', 'gonorrhoea', 'bacteraemia', 'blood stream infection', 'clostridium', 'dengue', 'influenza', and 'sexually transmitted infection'. Figure 1 provides details of the search strategy used.

2.2. Study inclusion and exclusion criteria

Studies were included if they reported primary research into the influence or relationship of HL on infectious diseases or self-care behaviours related to infection avoidance (such as vaccination), or if they described the impact of interventions to increase or support HL in people diagnosed or treated with infectious diseases. As infectious diseases are a global health concern, studies conducted on any healthcare system were included. Studies focusing on aspects of HIV management and care were excluded, as recent comprehensive reviews have already been published.[17,18] Figure 2 presents the study selection flowchart.

2.3. Data extraction

The data extraction procedure was conducted in two phases: (1) by title and abstract, and (2) by full text. Following the assessment of title and abstract, the primary reviewer (ECS) and secondary reviewer (RVC) performed the full-text evaluation. A third reviewer (AAE) acted to resolve any disagreements. A standardized electronic form was used to record the data.

3. Results

Seven hundred and eight references were initially obtained with the search strategy across all databases, resulting in 505 unique papers after removing duplicates. The screening of titles and abstracts identified 117 papers suitable for full-text evaluation. Twenty-seven studies were finally included in this review.

3.1. Behaviours and knowledge

3.1.1. Antibiotic use

Several studies have reported parental decision-making to be associated with antibiotics received by children. A 2009 study in the USA established the relationship between parental HL level, as measured using two standardized screening tools, and knowledge and beliefs about upper respiratory infection (URI) care.[19] A large proportion of the 154 Latino parents participating in the study had inadequate HL levels (between 83% and 35% of parents, depending on the screening test used to report results). The findings

((health AND literacy) AND ((antibiotic OR antimicrobial) OR bacteraemia OR (blood AND stream AND infection) OR brucellosis OR campylobacter OR chickenpox OR chlamydia OR Clostridium OR cholera OR dengue OR escherichia OR giardia OR gonorrhoea OR hepatitis OR herpes OR influenza OR leprosy OR leptospirosis OR lice OR listeria OR lyme OR lymphogranuloma OR malaria OR measles OR mumps OR norovirus OR pneumococc* OR polio OR rabies OR rubella OR salmonella OR (sexually AND transmitted AND infect*) OR shigella OR syphillis OR tuberculosis OR tetanus OR vaccin*)).ti,ab

Figure 1. Search strategy.