


# Call for Improved Health Literacy Strategies in the ERA of COVID-19: Identified Problems and Proposed Solutions in Health Crises

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## Abstract

The novel SARS-CoV-2 (COVID-19) virus is an ongoing threat that has led to unprecedented change and long-lasting impacts on global health. Health Literacy (HL) is an integral public health tool, empowering individuals to access knowledge, develop sound understanding of relevant health material and utilise health information to make informed decisions. During a health crisis, uncertainty, dynamic changes in knowledge and inequalities and variation in HL rates globally can have a direct impact on health behaviour. Due to these factors an individual's ideas, concerns and expectations (ICE) regarding health practices in a crisis can vary.

Using COVID-19 as a case study, this report will outline how the components of ICE in a health problem correspond to different levels of HL which can be addressed in an organisational and individual level. By adopting integrated approaches encompassing 'literacy sensitive' information, community care and a culture of transparency and solidarity in a time of health crisis may help to bridge gaps in HL and empower individuals to make timely, effective and informed health choices in ongoing and future health crises.

**Keywords:** *Health Literacy, COVID-19.*

## Introduction

The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has led to over 6.9 million deaths worldwide. Knowledge and understanding surrounding COVID-19 have constantly evolved; complicating effective communication and advice channelled to the public [1]. Health literacy (HL) is an effective tool assisting individuals on how to process health information, make informed decisions about their health as well as adapt their health behaviours [2]. Public health information regarding management of a health crisis is often difficult to reconcile with individual's own views, and concerns surrounding prevention strategies which must be adequately addressed through initiatives such as HL to mitigate the burden of a health crisis.

## HL Definition

The term HL was first coined in 1974 to describe health education and its subsequent effect in the population defined as the ability to 'obtain, process and understand health information and services to make appropriate health decisions' [2,3]. HL also refers to adequate access to health information that empowers people to actively participate and improve their health and those of others by "changing personal lifestyles and living conditions"; a characteristic aspect of responding to the threat of a health crisis such as a pandemic [2]. As outlined in the Alma Ata, 1978, 'health' is a state of "physical social and mental wellbeing...a fundamental human right" reiterating the vital importance of universal, and equal standards of care worldwide

[4]. This ideal is hindered by a complex interplay of socioeconomic factors contributing to health inequalities, and consequently resulting in HL variability and reduced ability of individuals to respond to a health crisis [2,3]. Sorensen et al 2015., reported that over half of the population in Europe struggle to comprehend and utilise health information and make decisions about their health; [5,6] and later studies have identified that approximately 20% of individuals in the US and nearly half Australia also showed lower levels of HL [6,7]. In a systematic review, Berkman et al 2011., identified that low levels of HL correlate with reduced health prevention strategy compliance, responsiveness to health promotion and management of chronic conditions [8,9]. As described by Nutbeam 2000., HL can be broadly sub-categorised as 'functional', 'interactive' and 'critical' [10,11]. Functional HL is the basic acquisition and use of knowledge in a limited range of health behaviours [11]. In contrast, interactive HL describes the ability of an individual to derive sense and make informed decisions through multiple forms of communication e.g., healthcare professionals, government, and media [10,11]. Finally, critical HL describes the ability to consolidate large amounts of knowledge and make more complex health decisions considering a person's social, environmental, and economic standing [10,11]. Furthermore, adequate access to healthcare information, facilitated understanding and utilisation of resources into actionable behaviour are identified factors necessary for effective HL [12].

Cangussu et al 2020., referred to HL as a 'silent epidemic, amidst the pandemic' [13,14]. Closely intertwined with each health

decision, are an individual's own ideas, concerns and expectations (ICE), routinely addressed in medical clerking to better understand the patient's perspective and areas they wish to discuss and explore. This report will identify common examples of preventative measures illustrating variability in ICE during the COVID-19 pandemic which highlight gaps in types of HL which merits from further investigation and improvement.

## **Covid-19 & Variability on ICE**

The WHO dually referred to COVID-19 as an 'infodemic' [7]; a statement highlighting the plethora of information which became available in efforts to understand and contain the novel virus. As outlined by Paakkari et al 2020., multiple sources of information which are often targeted to different levels of HL can be difficult to navigate perpetuating the difficulties in navigating an 'infodemic' in the background of an epidemic [15,16].

## **Functional HL and variability in Ideas**

Similar outbreaks to COVID-19 such Severe Acute Respiratory Syndrome (SARS) in 2002 and Middle-East Respiratory syndrome (MERS) in 2012 have been studied extensively to aid understanding of COVID-19. All belonging to the coronaviridae family has been shown to have a similar genome as well as similar zoonotic origin and mode of transmission; principally spread through respiratory droplets [14]. The use of face coverings; also used in previous pandemics have attenuated the spread of numerous viral infections including COVID-19 correlating with instructional advice consistent with Functional HL. However, the use of face coverings has fluctuated from compulsory to advised to optional depending on the rate and spread of the virus at any given time Abbasi et al., 2021 highlighted that failure to make face masks obligatory in the UK until July 2020, resulted in increased hospital admissions and potentially avoidable deaths. In effect, this suggests that without the compulsory condition of the preventative practice, many individuals elected not to abide by the suggestive measures which may be due to lack of understanding regarding the purpose of the face-coverings, variability of ideas surrounding how to wear them or scepticism on their efficacy [17-21]. Neuwirth et al 2021., reported that 31% of individuals in a study showed face mask errors. Common errors and those also observed in the community include wearing face-coverings the wrong way, constant adjustment or incorrectly wearing the face-covering below the nose, re-using without the proper precautions and disposing it incorrectly all of which may spread infection [22]. Some individuals opt not to wear face-coverings in crowded spaces despite government advice and opting not to wear them in public if they are asymptomatic [23]. In effect this indicates that personal ideas regarding the use of some preventative measures are variable and further input is required to understand reasoning behind such practices.

## **Interactive HL and Concerns regarding preventative measures**

Lockdown implementation has undoubtedly saved countless lives, limiting face-to face interaction. However, the public has expressed concerns regarding the timing that lockdowns have been implemented compared to other European countries [24]. For example, in the UK, investment in testing in and other preventative measures such as vaccination led to delays in lockdowns which may have helped relieve pressure from the National Health Service (NHS) and allow more beds to become available for patients requiring hospital treatment [20,23-24]. The benefit and risk of these

decisions were not clearly communicated to the public and focus on improving HL surrounding the virus and adopting aforementioned prevention strategies may not have been emphasised fully suggesting failings in interactive HL. There were also concerns raised that governments focused more on past influenza epidemics rather than SARS, MERS which are more closely related to COVID-19. Consequently, there were concerns that there were delays in implementing preventative measures to contain the virus and did not adequately implement lessons learnt from previous years [25,26]. Nevertheless, it must be noted that despite the genomic similarity between COVID-19, SARS and MERS did not have the same degree of mortality and infectivity as COVID-19. In effect the influenza may have been studied more closely due to the global burden it had. Despite these differences didactic lessons from previous viral outbreaks have been integral to respond to COVID-19 more readily.

Despite testing becoming more accessible, reporting of results has decreased due to relaxing of measures once lockdown restrictions were lifted [20]. In addition to limiting face-to face interactions, the health crises has led to transition of a large emphasis on digital information to interact with and navigate. Moreover, the deletion of tracing apps following lockdowns such as the NHS Test and Trace by the public made it difficult to contain and notify relevant contacts [20,25]. Newer methods to obtain tests such as pre-ordering lateral flow tests and obtaining digital codes makes them more difficult to access and there were periods where calls for increased testing were met with instances where supply does not match demand [25]. In addition, individuals that travel abroad often have to navigate international government websites for travel and understand multiple and dynamic policies to understand restrictions in each country and comply with relevant testing measures and regulations which is especially challenging given variability in HL rated for different countries. Distancing measures and fear of the uncertainty surrounding the virus reduced and deterred access to healthcare. Elective operations were cancelled and individuals requiring essential referral were met with delay in intervention, diagnosis and management. Dually, unprecedented circumstances have led to an increase in mental health concerns [19].

## **Critical HL and expectations**

The global impact and burden of the pandemic placed pressure and expectation from the public for the rapid development of vaccines, treatments and cures which dually raised concerns over the accelerated development of new resources and the financial interest of pharmaceutical companies taking precedent over the safety and long-term consequences of novel resources and the public's health [27,28]. This is illustrated by the Astrazeneca vaccine trial which was temporarily halted due to concerns over thrombosis. Investigations and safety assessment have shown that the efficacy of the vaccine is strong against COVID-19 and the benefit this confers outweighs the rare risk of potential thrombosis and low platelets, however, this temporarily negatively influenced public perception and uptake of the vaccine [29,30]. Abdel-Latif 2020., summarised that the main reasons for resistance against vaccinations consist of previous controversies such as the Andrew Wakefield scandal and resistance and reduced uptake of vaccines such as the annual flu vaccination [6,30-31]. However, these concerns remain unaddressed and as a result, misconceptions and resistance against this type of vaccine still exists such as adverse events and long-term implications following the vaccines as sufficient longitudinal studies have not yet been completed. A secondary problem contributing to vaccine resistance is the phenomenon of 'free riders', when individuals choose not to comply with advised health practices and

benefit from the compliance from others [16]. The misconception of total indefinite immunity following vaccination still persists. COVID-19 has the potential to mutate, as seen in the delta and omicron variant. As seen in previous pandemics such as the influenza pandemic in 1918, variants of the virus led to infections for years before the cessation was declared in 1920. In effect, the efficacy of the vaccine may not offer the same protection to all variants of the virus. Consequently, individuals must reconcile with the fact that as with the annual flu vaccines may be required to combat COVID-19 in the long term. In addition, vaccines have become available in less economically developed countries much later than more economically developed regions of the world such as Europe and the USA. In effect, those most vulnerable to infection with reduced ability to implement restrictive measures and social distancing have received less doses of the vaccine. Moreover, due to lower HL rates the uptake in developing countries has been slower

and further highlights global health inequalities which need to be addressed especially when a health problem reaches global status [5,32].

## Proposed solutions

Abel and McQueen., 2020 described that a collective effort is needed to help empower people to critically appraise and act on information from health messages [33]. Due to the urgent need for action to combat the virus the need to act on health messages is prioritised and adequate access to information and understanding are often overlooked. This article proposed that the components of ICE correlate with increasing levels of HL complexity and that organisational and individual HL strategies can be implemented to improve access, understanding and use of health information and improve HL (Figure 1).

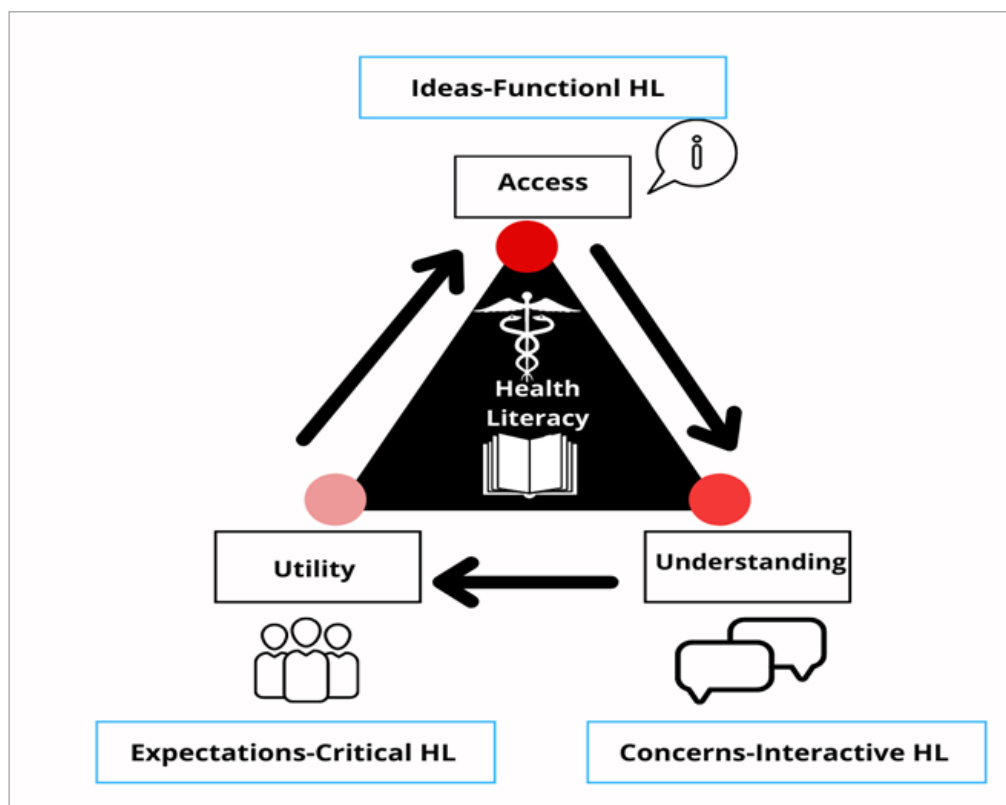


Figure 1: Types of Health Literacy.

## Access to Health Information

Capraro and Barcelo 2020., reported that emphasising reasoning behind restrictions such as face-coverings rather than relying on emotive language to convey health messages is more effective in encouraging people to adhere to preventative measures [34]. Therefore, increased calls for transparency and clarity regarding restrictions are needed to address concerns or unrealistic expectations the public may have. This element of interaction has the potential to empower the public to exercise judgement when given the full facts regarding a decision and consider the benefit and risk ratio when faced with a decision. However it must be noted that this proposal requires caution as complete transparency of knowledge at the wrong time may further exacerbate confusion and misunderstanding as well as public worry.

Due to the complexity of the pandemic, improving public health material to be more 'literacy sensitive' can help convey facts and changes in health policy in the management of a health crisis more effectively [35]. A cross-sectional stud outlined that the

readability of COVID-19 information on websites was longer than recommended levels, often with complex syntax [36]. It has also been shown that written and numerical facts can often deter individuals from reading health promotion and advisory material. In effect, personalised methods of conveying health information by including translations to health messages in different languages and those who are sight or hearing impaired may help improve access to health information [37]. Mani et al 2021., identified that the use of infographics may help improve clarity and actionability in health behaviours. Therefore, the use of illustrations of information through schematics or timelines may be used to convey health messages more effectively in a summary form in contrast to written or numerical form which may be more difficult for individuals who cannot read or write [38]. This method however, requires availability in print as well as digital form to target larger audiences. Mental health was shown to be adversely affected by the pandemic. Hermans et al. 2021., identified that higher HL levels were related with reduced rates of depression and anxiety disorders which have increased during the pandemic suggesting that efforts to attenuate

misunderstanding and concern has a benefit on physical and mental health [39]. In effect, investment in improving the delivery of health messages may help improve access to care for additional health concerns and dually reduce levels of stress and anxiety. This intervention is necessary to fulfil the definition of health as a state of 'physical social and mental wellbeing' as outlined by the World Health Organisation (WHO) [1].

## **Improving Understanding**

Strategies in clinical practice used to improve access to care include skill building and the input from community care [40]. Naisirin and Lionardo., 2020 described the integral role of nurses educating the community about COVID-19 in urban areas [41]. Codogan and Hughes, 2021, subsequently identified that community pharmacists have been integral in implementing infection control measures, notifying the public about updates, responding to shortages of medication and Personal Protective Equipment (PPE) as well as offering extended additional support to especially vulnerable individuals e.g. immunocompromised [42].

Farsalinos et al 2020., outlines the need for primary care intervention in COVID-19. The shift to online consultations can be extended to organising health information webinars and forums between healthcare professionals and patients to reinforce key messages and help individuals navigate through shifts in health information [43,44]. The 'teach back' and 'check and chunk' communication tools can be used to aid processing of health information and relevant signposting to reliable information sources from NHS England, WHO and CDC may be integrated on online platforms [45,46]. Encouraging people to download and keep the NHS COVID-19 app, as well as the (Centers for Disease Control and Prevention (CDC) [15] to keep up to date with new developments and advice is key as well as recording their COVID-19 status through regular testing. Furthermore, motivational interviewing may be used to help individuals identify barriers preventing the adherence to health behaviours and improve interactive health literacy facilitating introspection to identify solutions towards addressing these problems. Barriers in the aforementioned, that may hinder the feasibility of these suggestions include the potential on some individuals who may not be integrated in community care such as recent immigrants, asylum seekers, individuals who speak a different language and those who may not be eligible for NHS care. In effect, consideration and efforts need to be made to facilitate care in these circumstances during times of crisis.

## **Utilising Health Information**

Abel and McQueen., 2020 called for improved critical-HL during the pandemic to aid complex decision making. One of the principal prevention strategies against COVID-19 was vaccination [33]. Improving access and understanding using the aforementioned strategies may have the potential to aid in dispelling myths against vaccination and concerns over the safety of preventative medical interventions.

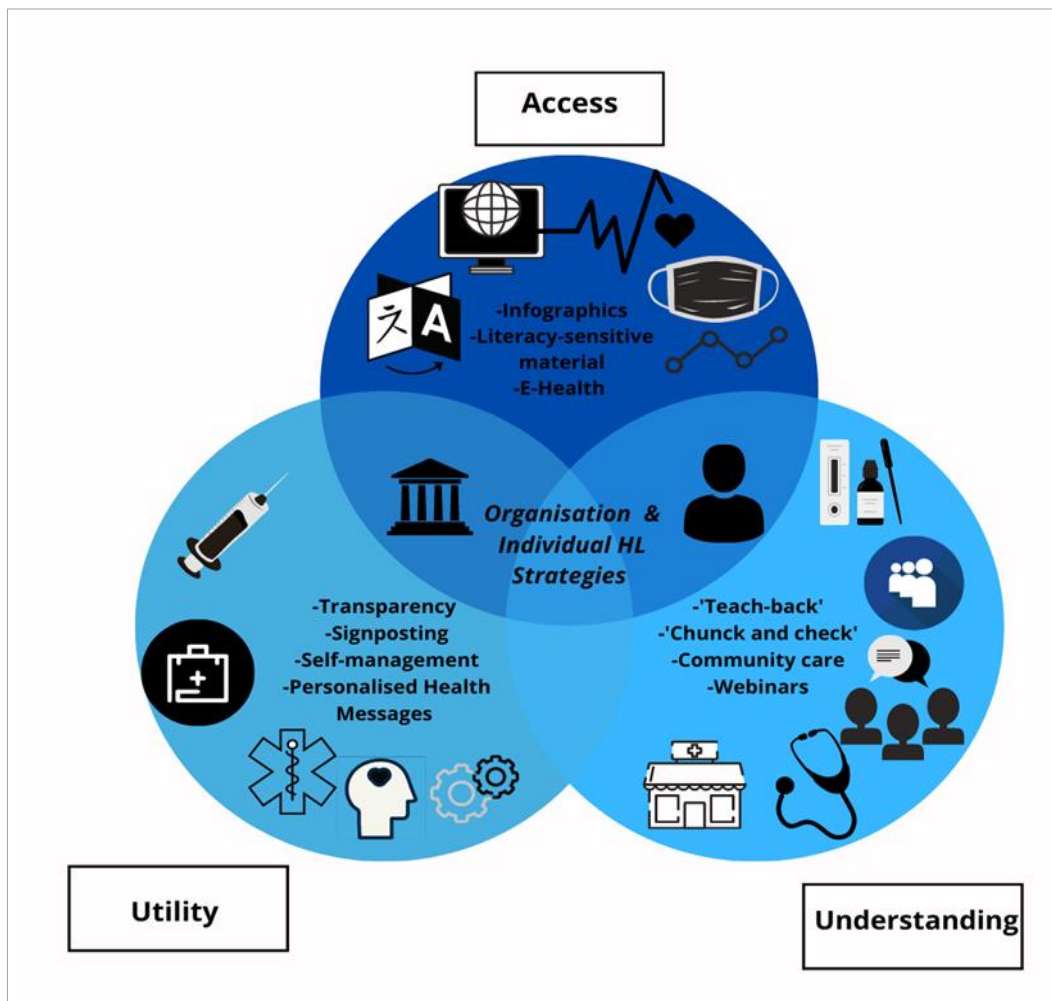
Organisational preparedness should focus on creating a culture of transparency and signposting to reliable sources of information such as the Medicines Healthcare and Regulatory Authority and Food and Drugs Association and circulated through

social media outlets and National Health websites to prevent misinformation. As described by Paakkari et al., 2020 the promotion of critical-HL can influence personal reflection on risk-taking behaviour and reduce the phenomena such as 'free-riders' during health crises and promote the principles of social responsibility and solidarity [16]. Vaccinations such as the influenza and pneumonia vaccine should be promoted especially in the vulnerable population. This can be monitored through GP records and encourage those that have not done so already to be protected against other life-threatening infections.

Thematic analysis revealed that long-term 'self efficacy' and management is necessary to ensure good HL [47]. For individuals with a special interest in the topic, local healthcare professionals can encourage those who are interested to register and enrol in online courses to learn about the pandemic, through online platforms e.g. Coursera, EdX or E-Learning for Healthcare and related COVID-19 learning modules.

Due to social distancing restrictions, access to healthcare has been attenuated. Utilising online patient access portals and GP websites, signposting and integrated help services such as NHS 111, 119 can help prioritise cases which require face to face appointments and urgent referral. S-monitoring and awareness of 'red flag' symptoms are essential for patients to monitor their condition to reduce burden in hospitalisations [48,49]. These resources also have the potential to 'safety-net' individuals by having better understanding of the progression of the disease and the degree of management needed to treat their symptoms. Vindrola-Padros et al., 2021 have suggested the possibility of virtual wards for confirmed COVID-19 cases where updates would be monitored through numerous calls and paper based updates [50]. However, the systematic review failed to reach a consensus if this had a clinically significant and sustainable benefit and more studies are needed for this to be fully elucidated. Empowering individuals to adopt practices such as self-efficacy for their physical health is equally important for their mental health which has been shown to suffer in health crises such as the COVID-19 pandemic. In effect, relevant signposting to mental health services such as self-help strategies e.g. 'Five way to well-being' (connect, be active, take notice, keep learning, give) and anonymous services such as Samaritans, Mind UK and The Big White Wall can be promoted [51]. As well as highlighting the benefits of preventative measures such as vaccination, the feasibility of people adhering to public health recommendations is also acknowledgement of the gaps in knowledge surrounding a novel health problem such COVID-19 and empowering the public with ways they can assist in the effort to understand more about a disease. An analogous Yellow Card scheme could be initiated for COVID for all individuals to report unique symptoms, or long-term effect and observations after recovery. This will create a database to inform scientists about the nature of the virus as well as the longitudinal effects that may need further action to manage or prevent, to be integrated in the current management guidelines. In addition, community care providers should log patient ideas, concerns and expectations to generate a bank of frequently asked questions that public health messages should focus on and try to rectify using the strategies discussed.

Finally, as emphasised by Feinberg et al 2021, a culture of HL should be adopted in health crises and a spirit of social responsibility and solidarity is necessary to improve the ability of individuals to utilise health information [52] (Figure 2).



**Figure 2: Proposed organisation and individual HL strategies to improve access, understanding and utilisation of health information during health crises such as COVID-19**

**Conclusion**

This article proposes that HL is a useful tool to help the public navigate health crises. Variability in ideas, concerns and expectations, individuals may have on a preventative measure outlines a failure in functional, interactive or critical HL. By adopting strategies to improve access to knowledge, facilitate understanding of health behaviours as well as self-monitoring and signposting to reliable resources are suggestions to bridge the aforementioned gaps. A culture of social solidarity as well as empowerment in knowledge should be advocated in health crises with inputs on an organisational and individual level to better equip individuals to navigate uncertainty and better their health.

**Originality-contributor and guarantor information**

The concept, literature review, and guarantor is Kyriaki-Barabra Papalois. All work is original, accurate and honest, external sources of information have been cited and acknowledged.

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Available upon request

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**List of abbreviations**

- ICE: Ideas, Concerns, Expectations
- SARS-CoV-2: (COVID-19)
- HL: Health Literacy
- NHS: National Health Service
- WHO: World Health Organisation
- CDC: Centers for Disease Control and Prevention
- SARS: Severe Acute Respiratory Syndrome
- MERS: Middle-East Respiratory syndrome

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