

Health literacy interventions for reducing the use of primary and emergency services for minor health problems: a systematic review

Alicia O’Cathain,^{1*} Alexis Foster,¹
Christopher Carroll,¹ Louise Preston,¹
Margaret Ogden,² Mark Clowes¹
and Joanne Protheroe³

¹School of Health and Related Research, University of Sheffield, Sheffield, UK

²Patient and public involvement member

³School of Medicine, Keele University, Keele, UK

*Corresponding author a.ocathain@sheffield.ac.uk

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Scientific summary

Reducing the use of primary and emergency services

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Scientific summary

Background

Health literacy is the ability to find information, understand information, know how to act on information, and know which services to use and when. Having higher levels of health literacy may help patients to look after minor problems themselves (self-care). It may also reduce patients' perceived need for contacting health services, reduce the perceived urgency of problems, or improve patients' ability to identify and choose from the range of available services. By improving health literacy, it may be possible to reduce people's need to seek advice and care from primary care and emergency services for minor health problems.

Objectives

The key objectives were (1) to construct a typology of health literacy interventions that aim to reduce primary care or emergency care service use, (2) to synthesise evidence of the effectiveness of different types of interventions and (3) to consider how stakeholders in the UK could operationalise the evidence.

Design

This study was designed as a multicomponent systematic review to identify and synthesise the evidence concerning relevant interventions and outcomes, with stakeholder input. The first stakeholder event guided the systematic review. The second stakeholder event considered how to interpret the findings.

Methods

A meeting with 14 stakeholders (including patients, carers and members of the public) was conducted to guide the systematic review. A multicomponent systematic review of quantitative and qualitative research was then undertaken. The systematic review was conducted and reported according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. The review included studies of any design, published in English between 1990 and 2020, that evaluated health literacy interventions aimed at reducing health-care service use. Database literature searches were undertaken in MEDLINE, The Cochrane Library, EMBASE, Cumulative Index to Nursing and Allied Health Literature, PsycINFO, Web of Science and Sociological Abstracts. Grey literature sources were also searched. The risk of bias and risk to rigour in the evidence base were assessed using appropriate, design-specific tools, and a narrative synthesis was performed. The review findings were then considered in a second meeting with 16 stakeholders, and the implications of the evidence base were explored with reference to existing and potential health literacy interventions. A patient and public involvement (PPI) panel met throughout the review.

Results

Characteristics of studies

Sixty-seven articles (reporting 64 studies) were included: 37 from the USA, 16 from the UK, 12 from the rest of Europe and two from the rest of the world. The 67 articles were published between 1990 and 2020, with almost half published in 2010 or later ($n = 32$). The interventions were delivered in

primary care ($n = 35$ articles), emergency care ($n = 12$ articles) or the community/other (e.g. workplace) ($n = 20$ articles). Around half were aimed at parents of young children ($n = 32$), and half at adults/the general population ($n = 35$). Most of the interventions delivered in emergency care (11/12) and community/other settings (15/20) were from North America.

The authors used a range of study design. 30 of the articles reported randomised controlled trials (RCTs) and 33 articles reported single-arm or controlled cohort studies. Four articles reported qualitative or mixed methods research. Quality assessment determined that the quantitative evidence base was generally at high risk of bias: 20 out of 30 RCTs were judged to have a high risk of bias and 17 out of 33 cohort studies were assessed as weak.

The interventions

The interventions were described using Template for Intervention Description and Replication guidelines. The team identified multiple mechanisms for each intervention: education about managing minor health problems ($n = 53$ articles), raising awareness about the range of services available to people ($n = 23$), tailoring to individuals' contexts ($n = 21$), empowerment to make decisions and manage health problems ($n = 15$), persuasion to use or not use a specific service ($n = 12$) and anxiety reduction ($n = 8$). Each intervention was either targeted at a specific group of people who had used emergency or primary care for a minor health problem ($n = 26$) or made available to the general population ($n = 40$); one qualitative study of five interventions did not fit this classification.

The team constructed a novel typology of interventions based on the aim of the intervention (navigation, education or self-triage), delivery format (e.g. written, person, digital) and when it was delivered (when a patient had used a service for a minor health problem, or offered to everyone). The team allocated articles to this typology. There were seven common intervention types: navigation tools to guide people to different services ($n = 7$ articles); written education about managing minor health problems, in paper or website format ($n = 17$); person-delivered education ($n = 5$); written education with a person delivering part of the intervention ($n = 17$); multicomponent interventions of written education, person-delivered education and mass media campaign ($n = 5$); self-triage tools ($n = 9$); and other ($n = 7$).

When copies of the materials were available (for 13 interventions used in 20 articles), an assessment was made of the readability (ease of reading and required reading age) of interventions. Eight out of 13 were assessed as having been written in plain English. Two of the website interventions had the worst scores. The team developed a supplementary User-Friendliness Assessment Tool with PPI colleagues to assess aspects such as formatting and trustworthiness. Scores ranged from 10 to 37 out of a maximum of 42, where a higher score indicated better user-friendliness. Some interventions aimed at parents of young children were scored as having the best user-friendliness.

Impact on service use overall

Nineteen out of 30 (63%) articles reporting impact on emergency department (ED) attendances showed a reduction in the number of attendances; 16/27 (59%) articles reporting impact on general practice consultations showed a reduction in the number of consultations.

Impact on service use by intervention type

Navigation tools

Seven articles reported eight interventions. These interventions tended to use the mechanisms of 'raising awareness' and 'persuasion'. Five of the six studies measuring impact on EDs reported a reduction in use: people could be persuaded to use their primary care provider rather than EDs. However, the quality of the studies was not high and the evidence base was context specific (all the studies were based in the USA, which has an insurance-based health-care system).

Written education type

Seventeen articles focused on written education in paper or website format. The common mechanism was 'education'. Leaflets or booklets varied in size and in the range of minor conditions addressed. There is a reasonable evidence base for booklets or leaflets, but limited evidence for digitally available written information. Fourteen articles reported impact on service use. Six of the nine articles reporting impact of written interventions on general practice consultation rates reported a reduction, but the two good-quality UK RCTs had conflicting results. Five articles of written education interventions measured impact on ED attendances, with two reporting a reduction. Overall, there was a reasonable amount of evidence from the UK and Europe, but some inconsistency in findings, and the overall quality of studies was not high.

Person-delivered education

Five interventions focused on this approach. The mechanisms included both 'education' and 'empowerment' because patients were trained in self-care by a health professional. Of the three articles measuring impact on ED attendances, two found a reduction. The evidence base was small, of poor quality and context specific (USA only). Few conclusions could be drawn.

Written education with a person-delivered component

Seventeen articles assessed leaflets/booklets delivered during an interactive session with a person, most often a health professional, seven at a specific time in a patient's care (during or after an episode of care for a minor health problem) and seven at a non-specific time (e.g. during prearranged well-child visits). The evidence base for interventions given at a specific time was largely from Europe, whereas interventions offered at a non-specific time were mainly from the USA. The mechanisms of 'tailoring', 'anxiety reduction' and 'empowerment' were common. Five of eight studies measuring impact on ED attendances reported a reduction; and 7 of 11 studies measuring impact on general practice consultations found a reduction. Even though this type of intervention had additional mechanisms to the written education type, the conclusions from the evidence base were similar.

Multicomponent

Five articles reported interventions involving more than written information and training components, such as the addition of mass media advertising and patient navigation. The mass media components included public education campaigns within a specific geographical area, or the use of posters to promote training workshops. The mechanisms tended to include 'empowerment' and 'tailoring', as well as 'education'. Three out of three articles measuring impact on ED attendances reported a reduction; one of the two studies measuring impact on general practice attendances also reported a reduction. The cohort studies in this type were generally of moderate quality, but the RCTs were assessed as being at high risk of bias. The findings for this type of intervention were essentially the same as for the combination of written information and person-delivered training.

Self-triage

Nine articles reported self-triage-type interventions; seven were digital self-triage interventions. The paper-based self-triage evidence base was small and limited to a scoring system for very young children. For digital self-triage, three studies were conducted in the UK and four in the Netherlands. The common mechanisms were 'education' and 'tailoring', with some interventions also offering attention to 'anxiety reduction'. Only four studies presented sufficiently robust findings for analysis, all of which assessed general practice consultations. The trend was for a reduction in general practice use, but this was rarely statistically significant.

Other types

Seven articles did not fit the types of interventions described previously. Each study measured the impact of the intervention on ED and/or general practice use. Two of the five studies showed a reduction in ED use. The single study that measured general practice use showed a reduction. The quality of the included studies was judged to be moderate or weak.

Multivariate regression

Variation in outcomes was not explained by characteristics of the study (e.g. the quality of research), context (e.g. whether or not the intervention was targeted at people in poverty/with a low level of health literacy) or intervention (e.g. type of intervention).

Other outcomes and processes

Users found the interventions helpful (18/20 articles), had improved knowledge (7/8 articles), felt enabled to look after themselves (6/7 articles) and perceived that the interventions changed their behaviour (16/16 articles). Qualitative research about facilitators and barriers to implementing interventions was limited to mainly digital interventions.

Cost-effectiveness

Fifteen of the articles reported cost data in the results, 11 of which conducted a formal analysis. Of the 11 with formal analysis, 10 studies reported cost savings from the interventions and one reported a substantial return on investment. The studies were too heterogeneous to synthesise as planned. We had concerns about this aspect of the review because the quality of the studies for measuring effectiveness was not high.

Safety

Only eight of the included studies assessed safety as an explicit outcome or compared surrogate outcomes, such as hospitalisation, across study arms. The explicit safety assessments included instances when patients should have accessed a service but did not do so on account of the intervention. Where assessed, no safety problems were identified. On the whole, any reduction in service use was perceived to be a success; there was usually no subanalysis to determine if some of that reduction was not appropriate.

Displacement of service use

The studies did not tend to measure whether or not reductions in general practice use were due to increased use of EDs, or whether or not people went to other EDs rather than the one where the intervention was delivered and where changes in service use were being measured.

Stakeholder events

At the first event, stakeholders identified issues that were important to consider when undertaking and reporting the review, for example being clear that health literacy was not the only issue and that sometimes patients had difficulty accessing their general practitioner or NHS 111. At the second event, stakeholders identified a range of issues about interpreting the results of the review. For example, they identified the need to have health literacy interventions in different formats and languages.

Relevance of evidence

Although half of the studies were undertaken in the USA, half of them were undertaken in the UK or Europe, with high relevance to the UK context. Almost all of the intervention types have equivalents currently in use in the NHS, such as educational booklets aimed at parents of young children and the self-triage service NHS 111 Online.

Limitations of evidence

The evidence base was extremely diverse, preventing statistical pooling of outcome data. Although the evidence base was generally recent, and approximately one-quarter of studies were conducted in the UK (16/67), a considerable proportion was generated in North America, where the health systems are different from that of the UK. Furthermore, the evidence was generally assessed as being of low quality.

There was an insufficient number of studies to determine why similar studies showed reduction in service use or no change in service use. Formal cost analyses were reported by only 11 studies.

Patient and public involvement

Members of the PPI panel raised pertinent issues about the evidence base and findings. These included the need to publicise the similar interventions currently in use in the NHS. They wanted interventions used in the NHS to be accessible in terms of being easy to read, easy to use, and available in different languages and formats. PPI members highlighted that digital literacy and access to technology are poor in some groups of society, so interventions still need to be available in paper format.

Conclusions

Health literacy interventions have potential to reduce emergency and primary care use. They need further rigorous evaluation to determine which work best and for whom.

Implications for health care

A number of health literacy interventions are used in the NHS currently, for example booklets and websites to help people manage minor health problems and decide where is best to go for care, and NHS 111 Online for self-triage. Rather than develop more interventions, assessing the quality of existing interventions and making good-quality ones more accessible to the general population might benefit people's ability to care for minor problems and seek health care from the most appropriate place. It is important to assess the readability and user-friendliness of these interventions, including websites, so they can be improved if necessary. It is also important to evaluate interventions currently in use in the NHS in terms of measuring impact on service use, safety and cost-effectiveness.

Recommendations for research (numbered in priority order)

1. Focus on understanding how to improve access to existing interventions (particularly those currently used in the NHS) rather than develop new interventions.
2. Continue to evaluate the effectiveness and cost-effectiveness of these types of interventions.
3. Measure the safety of these interventions.
4. Focus on understanding why an intervention did or did not work, rather than measuring only impact on service use, that is use mixed-methods evaluations of RCTs/quasi-experimental designs and process evaluations/qualitative research.

Study registration

This study is registered as PROSPERO CRD42020214206.

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