Review article

Community based health literacy interventions in India: A scoping review

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ABSTRACT

Background: Low levels of Health Literacy (HL) are a global concern as it is unrecognized and widespread. The objective of this review was to identify various community interventions that improved HL rates among the Indian population and to document their health outcomes as reported.

Methods: The scoping review was guided by Arskey and O'Malley scoping review methodology. The search was conducted in six databases. Articles were screened at title-abstract and full-text and data was abstracted by two individuals independently. The review was reported according to the (PRISMA- ScR). Intervention data was captured according to the TiDER checklist.

Results: A total of nine studies were included from the searches conducted in databases. Of these, five focused on the change in behaviour and four identified the importance of education in improving HL among people in the community. The interventions included: traditional interventions, art-based interventions, interactive learning-based interventions, and technology-based interventions.

Conclusion: There are few community-based interventions to improve the health literacy of the population. It is essential to empower communities in making well-informed health decisions. It is important to include healthcare workers in designing and implementing health literacy interventions to improve the outcomes.

1. Introduction

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition. Literacy plays a central role in health care. The ability to understand the complexities of the healthcare system and engage in health-related behaviours are both influenced by a person’s level of Health Literacy (HL). Health literacy is “The degree to which the individuals can obtain, process, and understand basic health information and services needed to make appropriate decisions”.

People can protect and promote their health by adopting healthy behaviours and adhering to recommendations when they have access to accurate, simple-to-use information. Health status is improved, and the use of, and expenses associated with, healthcare services are decreased when one is proficient in HL. Negative effects may result from interactions between established determinants of poor health and low literacy levels. Inadequate HL results in lower adherence to preventive behaviors, weaker compliance with health interventions, and poor self-care. Low HL increases the risk of readmission after lengthy hospital stays, as well as the need for unnecessary emergency care.

In India, at least nine out of ten individuals lack health literacy. Additionally, India has a high rate of general illiteracy and extreme poverty, both of which have a negative impact on HL. Frequent hospital visits are a result of an unhealthy lifestyle. Most people would not be able to afford the cost of the services or the drugs that were prescribed, if paid out of pocket, even if they had the money for transportation. Poor health insurance coverage in India is one of the main effects of low HL. Despite an increase in the proportion of insured people over the past five years, there is still a sizable gap in coverage across the nation, particularly in rural areas. Except for Andhra Pradesh, Telangana, Assam, and Kerala, all major states and Union Territories have less than 50% of
households with one member covered by a health scheme, according to the fifth round of the National Family Health Survey (NFHS). The health and wellbeing of the Indian healthcare system are at risk today because of low levels of HL.

The interventions that aim to increase people’s knowledge, self-efficacy, behavioural intent, health skills, and behaviour capacity to obtain, process, and comprehend basic health information and services required to make wise decisions are known as HL interventions. Community-based health literacy interventions are organized activities to help a group of people find, understand, use, or communicate about health information, services, or issues for themselves or their communities. Community-based health literacy interventions that used traditional methods, multi-media approaches, face-to-face communication, and technology-based and web-based interventions have shown improved communication between patients and providers. The use of creative and innovative health interventions has been found to improve health outcomes in low- and middle-income countries.

Evidence suggests the need to address the issue of low HL in India. Various media and news briefs have further supplemented the claim. It is essential to empower communities in making well-informed health decisions. A person’s HL is influenced by the literacy of the community in which they thrive. Furthermore, lingual diversity in India warrants experienced healthcare interpreters to help individuals understand the answers in a language they understand. This highlights the need for clear and concise communication, and it is the responsibility of the government and health professionals to ensure this.

Community-based health literacy interventions emphasize the development of sustainable actions at the individual and community level. They bring people together, offer the opportunity to share knowledge and experiences, and create common understandings. Such approaches aim to empower participants and their communities through their roles as active agents throughout the whole process. This review aims to identify various community interventions that improved health literacy rates among the Indian population and to document their health outcomes as reported. The existing literature has focused on educational interventions to improve HL among adults and adolescents, and we could not find any systematic reviews focusing on the Indian context on interventions to improve HL in India. We believe that this will be the first scoping review of community-based interventions to raise the health literacy of the population in the Indian context.

1.1. Objectives

1. To identify and map the interventions that improved HL rates in the Indian population using a scoping review approach.
2. To document the health outcomes that were assessed on implementing these interventions.

2. Methods

This scoping review was conducted to answer the following research question:

What are different community-based interventions to improve health literacy in India?

2.1. Protocol design

A scoping review methodology proposed by Arskey and O’Malley was adopted to answer the research question since health literacy is an emerging topic in India, scoping review would give a comprehensive overview of the topic. The ScR will be reported according to the PRISMA extension for scoping reviews (PRISMA-ScR) 2018 checklist and is presented in appendix 3. The ScR protocol was developed a-priori by NG and EM, all the authors were involved in the development of the protocol. This scoping review was conducted in five stages.

2.1.1. Stage 1. Defining and Aligning the objective/s and question/s

The research question was identified by NG and EM and all other authors contributed to the finalization. This review aims to identify and map the interventions that improved HL among the Indian population and document the outcomes that were assessed on implementing these outcomes. The change in the rate of HL among the Indian population is one of the primary goals of this scoping review. The secondary goal concentrated on health information-seeking behaviour, health-seeking behaviour, adherence to treatment, knowledge, attitude, and tools used to capture the change.

2.1.2. Stage 2. Developing and Aligning the inclusion criteria with the objective/s and question/s

The Population (P) - Intervention (I) - Context (C) - Concept (C) - Outcome (O) framework (PICCO) was used to determine the selection of the articles. Munn et al. have documented various ways to determine the selection criteria to enhance flexibility and adaptiveness based on the type of research question.

2.2. Types of participants

Studies on young adults (18–45 years), middle-aged adults (46–60 years), and older adults (>60 years) from any cultural group who are part of the Indian population were included in this scoping review. We also focused on studies that included both adolescents and adults as subjects. Studies that included participants who have cognitive impairments were excluded as it would be challenging to measure health literacy outcomes. Interventions conducted on healthcare professionals were not included as they are inherently capable of demonstrating better health literacy levels owing to their training and experience.

2.3. Interventions

Studies that included interventions whose primary aim was to improve and enhance the health literacy rates of communities in India were considered. Some examples include brochures, print material, educational workshops, videos, and audio tapes or other mass media campaigns, e-health interventions, mass-mediated interventions, telecare education and support intervention, behavioural change interventions, and digital health and m-health interventions were included. Randomized controlled trials, quasi-experimental study designs were included in this review. This review was not limited to the person providing the interventions in the community.

2.4. Context

This review included studies that were conducted in the community setting. Interventions that are conducted on participants inpatient in the hospitals, nursing homes, or any other institutionalized settings were excluded, except for educational institutes. Community-based interventions delivered to the participants of various socio-economic groups were considered. Multi-country studies comparing the intervention were excluded.

2.5. Concept

The definition of health literacy is “the degree to which the individuals can obtain, process, and understand basic health information and services needed to make appropriate decisions.” Three major components make up the construct of health literacy: (1) knowledge of health, healthcare, and healthcare systems; (2) processing and application of information about health and healthcare in various formats; and (3) capacity to maintain health through self-management and collaboration with healthcare professionals. We included studies that have enhanced Digital HL (DHL) among the Indian population as it is imperative to map these owing to the launch of the Ayushman Bharat
Digital Mission (ABDM) in the latter half of 2021. For this review, we have used the definition of DHL from the European citizens digital HL report which defines it as “the ability to seek, find, understand and appreciate health information from electronic sources and apply the knowledge gained to addressing or solving a health problem.”

2.6. Outcomes

We captured the outcomes as mentioned in the studies as we have not restricted the review based on the outcomes. The outcomes were categorized based on the Berkman’s framework. The outcomes listed in Berkman’s framework are factors that influence the development of health literacy.

2.7. Type of studies

Studies that were eligible for inclusion included Randomized Controlled Trials (RCTs) and Quasi Randomized Controlled Trials (QRCTs) published from 01 January 2000 to May 31, 2022. Studies that have followed single group pre-test-post-test designs, systematic reviews, observational, cohort, and qualitative studies were excluded.

2.7.1. Stage 3. Searching for the evidence

The search strategy was designed by identifying the keywords and combining them using Boolean operators and truncations. Keywords were finalized based on literature and expert recommendations. First, a thorough search strategy was developed for MEDLINE (through PubMed (NCBI)) and later adapted to other electronic databases. Searches were carried out in EBSCO (through CINAHL Complete), MEDLINE (PubMed (NCBI), ProQuest Central (Clarivate), Web of Science (Clarivate), Medline (through Ovid), Scopus (Elsevier). We included studies published in the English language only as most of the evidence from the Indian setting is available in English. The searches were carried out during 27–28 June 2022 by EM and overseen by NG. The search strategy of all the databases is provided in Appendix (1).

2.7.2. Stage 4. Selecting and extracting the evidence

Records form the search were imported to Rayyan, and a de-duplication was carried out. The remaining records were subjected to two sequential stages of screening: Title-abstract (Ti-Ab) and FT. The screening was carried out by two sets of authors in different teams (EM, VSD, JK, and NG). Any disagreement between the two reviewers was resolved in consultation with (NG) through a consensus building approach. All articles included for the FT stage were screened by two reviewers independently (EM, VSD, JK). Appendix (2) contains a list of the excluded articles at the FT stage. The PRISMA flow diagram was used to illustrate the study selection process at each stage. A data extraction form was created in Microsoft Excel based on the preliminary scoping phase and pilot tested for two included studies. Information was extracted for the following domains: study characteristics (year, objective, site, design, methodology, interventions, results). Since the goal of the scoping review was to provide an overview of the topic, a quality assessment of the included studies was not performed. The data was tabulated, and narrative synthesis was carried out. Based on the Template for Intervention Description and Replication checklist, the intervention data were extracted (TIDieR).

2.7.3. Stage 5: Analysis of the evidence and presentation of the results

The data from the included studies are reported using a narrative approach.

3. Results

Searches were carried out using Medline (through PubMed) = 156, EBSCO (CINAHL) (n = 14), ProQuest Central (Clarivate) (n = 4970), Web of Science (Clarivate) (n = 01), Medline (OVID) (n = 38), Scopus (Elsevier) (n = 145). We retrieved 5324 records and removed 164 duplicates using Rayyan and screened 5160 articles at the Title-Abstract (Ti-Ab) stage. We excluded 5132 articles, and 28 articles were found eligible for full-text screening. Of these 28 articles, 22 were excluded due to different publication type (n = 13), different design (n = 4), different outcome (n = 1), and different population (n = 4). The results of the search and the study inclusion process are reported and presented in the PRISMA flow chart (Fig. 1). The reference list of the articles was then searched and three articles were included in this review.

4. Characteristics of the included studies

4.1. Study setting

One study each was conducted in Delhi and Uttar Pradesh. Two studies each were conducted in Maharashtra and Karnataka. One study was conducted in Jharkhand and Odisha. One study was conducted in Jharkhand. One study was conducted across India. Three studies were conducted in slums. Five were from rural areas of the community.

4.2. Study design

This review included six randomized controlled trials and two quasi-experimental studies. One study included youth as the participants and a study by Braich et al. included mixed group of participants (see Table 1).

4.3. Population

The population in this review varied. Seven studies included women as the key respondents. One study included youth as the participants and a study by Braich et al. included mixed group of participants (see Table 1).

4.4. Data collection methods

Studies opted different modes to collect information from the respondents. Three studies collected data through face-to-face interview with a trained interviewer. Various data collection tools were used in five studies. One study used Likert scale another study by Kumar et al. used a semi-structured questionnaire to collect data from the participants. Data entry was performed by observing the participants in a study conducted by More et al. A modified Stillman scale was opted in a study conducted by Rao et al. The prevalence of stillbirths, maternal and perinatal mortality were noted by referring the data that was available in the birth records. (Table 2).

4.5. Outcomes

In a study conducted by Harrel et al. identified that there was a decline in the prevalence of tobacco use among youths. Enhancement of new-born-care practices were observed in a study conducted by Kumar et al. An increase in the number of live births, decline in the number of stillbirths, and maternal deaths were identified in a study conducted by More et al. Raj et al. identified a decline in the proportion of unprotected marital sex among women. Improvement in the competence in carrying out breast self-examination was emphasized in a study conducted by Rao et al. Two studies discussed on decline in neonatal mortality among the population. Improvement in knowledge regarding use of postoperative medication among cataract surgery population was reported in a study conducted by Braich et al. Decline in the anaemia rate among pregnant mothers and improvement in the knowledge scores were identified in a study conducted by Noronha et al. Increased access to contraceptive use among women were observed in a study conducted by Leon et al. Further, the outcomes are categorized

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5. Details of intervention

5.1. Type of intervention provided

In a study by Harrel et al.\textsuperscript{26} a 2-year multiple-component intervention was provided to reduce tobacco use among youth (10–19 years old) in slum communities. Essential new-born care practices were educated to the people in the community to reduce neonatal mortality.\textsuperscript{27} More et al.\textsuperscript{28} focused on community mobilization interventions on perinatal outcomes. Raj et al.\textsuperscript{29} identified the impact of RHANI intervention on unprotected sex among wives. Breast health awareness programme was delivered to the rural women to reduce breast cancer.\textsuperscript{30} In a study by Tripathy et al.\textsuperscript{32} participatory learning and action was conducted among women to reduce neonatal mortality. Effect of pictogram on educating use of postoperative medication among cataract surgery population was observed in a study conducted by Braich et al.\textsuperscript{34} In a study by Leon et al.\textsuperscript{33} the family planning intervention to test the effects of program efforts to increase access, contraceptive use confounds access to contraception with fertility desires and risk of pregnancy among women. Planned education on anemia in pregnancy and its prevention, iron and folic acid supplementation and deworming was performed in a study conducted by Noronha et al.\textsuperscript{31}

5.2. Person delivered the intervention

In a study conducted by Harrel et al.\textsuperscript{26} the intervention was delivered by project staffs, adults, and youth leaders. Community-based health workers, the Saksham Sahuyak, new-born stakeholders with 12 years of experience were responsible in delivering the intervention.\textsuperscript{27} In a study by More et al.\textsuperscript{28} a Sakhi (friend) was a local woman with secondary education and leadership skills, preferably married with children was responsible. Four studies reported that the intervention was provided by the health care workers.\textsuperscript{29–31,34} Accredited Social Health Activists (ASHAs) played a major role in delivering the intervention in a study conducted by Tripathy et al.\textsuperscript{32} In a study conducted by Leon et al.\textsuperscript{33} health care workers and public and private providers were involved in delivering the intervention.

5.3. Modes of intervention delivery

- **Traditional method**

  Based on the available data, it appears that most health literacy interventions concentrated primarily on improving knowledge and cognitive understanding of health-related issues. Traditional interventions such as didactic lectures and interactive sessions, the distribution of posters, and the use of chalkboards, and projectors for teaching participants were commonly used.\textsuperscript{30,31} The objective of these interventions was to raise public awareness of illness prevention and treatment options. Traditional methods improved using both individual and group interventions improved the health literacy among the population.

- **Art Based Intervention**

  Health literacy knowledge and awareness were delivered through unconventional and creative methods, such as picture cards, street theatre and puppet show, posted signs, wall paintings, storytelling in art-based interventions.\textsuperscript{32,33}

- **Interactive Learning-Based Interventions**

  Participants were encouraged to actively take the initiative and ownership to improve their health outcomes through interactive-learning HL interventions like group discussions and peer-support initiatives. The health literacy interventions included role-playing,\textsuperscript{34} picture pamphlets,\textsuperscript{2} posters,\textsuperscript{29} question-and-answer session,\textsuperscript{29} demonstration, tape-recorded instructions, and pictograms\textsuperscript{34} were used. The participant’s perceptions of their communication skills and all three constructs of civic responsibility showed a significant improvement in the pre- and post-assessments.
behaviour among study population was identified among five studies: A
study by Harrel et al. concluded that comprehensive community-based
interventions that engage youth can be effective in reducing smoking among disadvantaged youth in India. Improvements in essential new-born care were seen among population those who received the
intervention. There was evidence of behaviour change among people
empowering the package in terms of health information and home care and care seeking practices. Adherence to postoperative cataract regimens.

Table 1
Characteristics of the included studies.

<table>
<thead>
<tr>
<th>Author &amp; State</th>
<th>Study design</th>
<th>Study setting</th>
<th>Disease</th>
<th>Sample size</th>
<th>Data collection tools</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harrel et al. [26] Delhi, India</td>
<td>Cluster randomized controlled trial</td>
<td>Slums</td>
<td>Tobacco users</td>
<td>Interview: 3488, Control:3466</td>
<td>Interview method (Participant and trained interviewer) Likert scale</td>
<td>Primary: Prevalence of tobacco use Secondary: Risk factors for tobacco use</td>
</tr>
<tr>
<td>More et al. [28] Maharashtra</td>
<td>Cluster randomized controlled trial</td>
<td>Six municipal wards (Slums)</td>
<td>Perinatal care</td>
<td>24 intervention clusters &amp; 24 control clusters. 2,83,000 women of all ages, pregnant and non-pregnant</td>
<td>Observation &amp; Questionnaire</td>
<td>Live births, stillbirths, neonatal deaths, and maternal deaths.</td>
</tr>
<tr>
<td>Raj et al. [29] Mumbai, Maharashtra</td>
<td>Randomized Controlled Trial</td>
<td>Community based (Slums)</td>
<td>HIV</td>
<td>2,83,000 women of all ages, pregnant and non-pregnant, 220 women; Intervention:118 and control 102</td>
<td>Self-reported frequency of performance modified Stillman scale</td>
<td>Proportion of unprotected marital sex during the previous 30 days. Primary: Competence in carrying out breast self-examination Secondary: Barriers to self-examination</td>
</tr>
<tr>
<td>Braich et al. [32] Across India (Tamil Nadu, Chennai, Uttar Pradesh, Punjab)</td>
<td>Multicenter, single-blinded, randomized controlled trial</td>
<td>Community based (vision-screening outreach camp)</td>
<td>Cataract</td>
<td>140 patients (Intervention: 75, Control: 75)</td>
<td>Jennings JS-V dual-mode scale 10-point oral exam</td>
<td>Adherence to postoperative cataract regimens.</td>
</tr>
<tr>
<td>Leon et al. [33] Jharkhand, India</td>
<td>Quasi-experimental study</td>
<td>Community based (rural)</td>
<td>Family planning (Use of contraception)</td>
<td>Intervention: 76,000 Control: 77,000</td>
<td>Questionnaire</td>
<td>Evaluate the effect of women’s decision-making power on contraceptive behaviour</td>
</tr>
<tr>
<td>Noronha et al. [34] Karnataka, India</td>
<td>Quasi-experimental pretest-posttest control group design</td>
<td>Community based (rural)</td>
<td>Pregnant women with anemia</td>
<td>225 anaemic pregnant women: experimental (n = 75), control group A (n = 75) and control group B (n = 75)</td>
<td>Structured Knowledge Interview Schedule (SKIS) The food selection ability checklist Hemoglobin level (systronic photo calorimeter)</td>
<td>Effectiveness of a health information package in terms of empowering the pregnant women to modify their health-care behaviour and take appropriate action to combat anemia in pregnancy.</td>
</tr>
</tbody>
</table>

6. Changes in behaviour and improvement in HL

6.1. The change in behaviour

After the community health literacy intervention, the change in
behaviour among study population was identified among five studies: A study by Harrel et al. concluded that comprehensive community-based
<table>
<thead>
<tr>
<th>Author &amp; year</th>
<th>Intervention</th>
<th>Objective</th>
<th>Materials used</th>
<th>Modes of delivery</th>
<th>Person providing intervention</th>
<th>Duration</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harrel et al.</td>
<td>2-year multiple-component intervention</td>
<td>To test the efficacy of an intervention to reduce tobacco use among youth (10–19 years old) in slum communities.</td>
<td>Interactive activities: Six peer-led, fun activities (e.g. films, street plays, games, and role plays). An awareness rally Three SMSs per week for 4 months were sent to those registered for the campaign.</td>
<td>Face to face</td>
<td>Project staffs, adult, and youth leaders</td>
<td>In Year 1 and Year 2, the intervention included six peer-led, fun activities In Year 2, an SMS (i.e., text messaging) campaign was also implemented.</td>
<td>Comprehensive community-based interventions that engage youth can be effective in reducing smoking among disadvantaged youth in India. The prevalence of tobacco use at baseline was 6.98% (95% CI, 6.66–7.29%) in the intervention group, compared to 6.12% (95% CI, 5.91–6.34%) in the control (p = 0.702). In the intervention group tobacco use declined by 0.73% each year (95% CI, 0.87 to 0.59%), versus a decline of 0.10% (0.24–0.04%) in the control condition each year (p = 0.203). Improvements in essential new-born care were seen in intervention arms. There was little change in care-seeking, compared with controls, neonatal mortality rate was reduced by 54% in the essential new born-care intervention (rate ratio 0.46 [95% CI 0.35–0.60], p &lt; 0.0001) and by 52% in the essential new born care plus Thermos pot arm (0.48 [95% CI 0.35–0.66], p &lt; 0.0001).</td>
</tr>
<tr>
<td>Kumar et al.</td>
<td>Essential new-born care Essential new-born care plus Thermos pot</td>
<td>Effect of community-based behaviour change management on neonatal mortality</td>
<td>One intervention group received a package of preventive essential new-born care, including skin-to-skin care between the infant and a family member, promoted through behaviour change management, layered on existing services available to the control group. The other intervention group received essential new-born care plus the use of a liquid crystal sticker that indicates hypothermia by changing colour (Thermos pot, Camborne Consultants, Dorset, UK)</td>
<td>New-born care stakeholders meeting- 4 activities, community meetings-3 activities, Folk song group meetings-3, community volunteer meetings-1</td>
<td>Community-based health workers, the Saksham Sahuyak, new-born stakeholders with 12 years of experience</td>
<td>3-monthly cycles of door-to-door household visits. An antenatal visit- 60 days before the expected date of delivery and another for 30 days before the expected date of delivery. -First postnatal visit within 24 h of the delivery and the second postnatal visit on day 3</td>
<td></td>
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<tr>
<td>More et al.</td>
<td>Community Mobilization</td>
<td>To identify the effect of community mobilization on perinatal care and outcomes</td>
<td>Building rapport, regular training for the women Focus group discussions, seven sets of questionnaires, seven role-play exercises, and interviews</td>
<td>Sakh (friend) was a local woman with secondary education and leadership skills, preferably married with children.</td>
<td>6 weeks intervention: Phase 1: Discovery meetings; Phase 2: Perception Meetings; Phase 3: Energy meetings; Phase 4: Dreaming meetings; Phase 5: Designing meetings; Phase 6: Delivery meetings; Phase 7: Evaluation meetings</td>
<td>Facilitating urban community groups was feasible, and there was evidence of behaviour change. No differences between trial arms in uptake of antenatal care, reported work, rest, and diet in later pregnancy, institutional delivery, early and exclusive breastfeeding, or care-seeking. The stillbirth rate was non-significantly lower in the intervention arm (continued on next page)</td>
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<tr>
<td>Author &amp; year</td>
<td>Intervention</td>
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<tr>
<td>Raj et al. 29</td>
<td>RHANI Wives intervention</td>
<td>Impact of RHANI intervention on unprotected sex</td>
<td>Individual (vs. group) sessions, Development of rapport via discussion, Building awareness among women regarding local programs and services available in the community.</td>
<td>Group discussion, counselling, and activities</td>
<td>RHANI Wives Counsellor (female with Masters’ degrees in social work or psychology and trained in HIV prevention, spousal violence, substance use and the RHANI Wives intervention)</td>
<td></td>
<td>The RHANI Wives intervention was adapted to include four household-based individual sessions and two small group-based community sessions delivered over 6–9 weeks.</td>
</tr>
<tr>
<td>Rao et al. 30</td>
<td>Breast health awareness programme</td>
<td>To determine the acceptability and effectiveness of an educational intervention programme on breast health awareness for rural women by trained female health workers.</td>
<td>Didactic lecture followed by interactive sessions, Audio visual aids such as chalk and blackboard, charts, posters, over-head projector, and CD ROMs, illustrated booklet.</td>
<td>Face to face</td>
<td>Health care workers</td>
<td>Comprehensive lesson plan was conducted. Two training sessions of 4 h each were conducted on two consecutive days, practice on breast model at clinical skill laboratory, micro teaching.</td>
<td>The educational intervention, a significant increase in overall awareness regarding breast cancer. Following the educational intervention, a significant increase in overall awareness regarding breast cancer ($z = 15.807$, $p &lt; 0.001$) as well as in the performance of self-examination of the breast 321/342 (93%) was observed. ASHAs can successfully reduce neonatal mortality through participatory meetings with women’s groups. The neonatal mortality rate during this period was 30 per 1000 livebirths in the intervention group and 44 per 1000 livebirths in the control group (OR 0.69, 95% CI 0.53–0.89)</td>
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<tr>
<td>Tripathy et al. 32</td>
<td>Participatory learning and action</td>
<td>The effect of participatory women’s groups facilitated by ASHAs on birth outcomes, including neonatal mortality</td>
<td>4 phases (picture cards, stories, discussion, learning and evaluation)</td>
<td>Face to face</td>
<td>Accredited Social Health Activists (ASHAs) Coordinators employed by Ekjut supervised about ten ASHAs each through bimonthly meetings in the first 3 months of the intervention, and meetings every month thereafter.</td>
<td></td>
<td>Intervention was delivered in 4 phases: Phase1-picture cards and a participatory voting game Phase2-stories with local motifs featuring the causes of their prioritized problems and potential solutions Phase3-groups implemented their chosen strategies and learned about other practical actions to improve maternal and newborn health (eg, how to prepare for emergencies in pregnancy Phase 4-groups evaluated the meeting cycle and progress against their strategies</td>
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</tbody>
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6.2. Improvement in HL

Improve in health literacy was observed among four studies: The educational intervention regarding breast cancer significantly increased overall awareness of the population. ASHAs can successfully reduce neonatal mortality through participatory meetings with women’s groups. Taking the pictograms home proved to be the most effective way to educate patients who had low literacy levels. In a study conducted by Noronha et al., identified that health information package was effective in helping the pregnant women to significantly improve their knowledge regarding anaemia in pregnancy, improve their ability to select food rich in iron, protein and vitamin C which would further help in increasing their haemoglobin level.

by family planning programs that include attention to gender dynamics.

### Table 2 (continued)

<table>
<thead>
<tr>
<th>Author &amp; year</th>
<th>Intervention</th>
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<tr>
<td>Braich et al.</td>
<td>Effect of pictogram on educating use of postoperative medication among cataract surgery population</td>
<td>To examine the effectiveness of pictograms in educating low-literacy patients to improve adherence to postoperative cataract regimens</td>
<td>Verbal education on eye drop administration technique, dosing frequency, demonstration of medication administration</td>
<td>Face to face education, demonstration, Tape-recorded instructions were played in the patients’ native language, pictograms</td>
<td>Health care workers</td>
<td>On the day of surgery, and on postoperative day 7 and 28. Experimental group 1 was taught using the pictograms in the clinic. Experimental group 2 was taught in the same way as EG1 but was given the pictograms to take home. Each group was given three 10-point oral exams: on the operative day (Test 1); on postoperative day 7 (Test 2); and on day 28 (Test 3). During the patients’ final visit, medication bottles were measured to ascertain use.</td>
<td>2004–2007. Test 1 showed no significant difference in mean scores among groups. For Test 2, EG1 and EG2 scored similarly but significantly better than Control (control group, 5.77; EG1, 7.33; EG2, 7.62; p &lt; 0.001). For Test 3, EG2 scored significantly better than Control and EG1 (control group, 4.37; EG1, 5.44; EG2, 7.17; p &lt; 0.001). Higher test scores were significantly associated (p &lt; 0.001) with greater medication consumption.</td>
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Noronha et al. | Health information package program for pregnant women with anemia | To determine the effectiveness of a health information package in terms of empowering the pregnant women to modify their health-care behaviour and take appropriate action to combat anemia in pregnancy | Planned education on anemia in pregnancy and its prevention, iron and folic acid supplementation and deworming. Teaching learning activities such as lecture, discussion, and question answer session. | Health care workers | Planned education program was given to the experimental group subjects. The control group subjects were given iron supplementation | Health care workers | The proportion of women working increased in the control but not in the intervention site, since the difference between blocks at the pre-test was significant (χ² = 7.564, p < 0.000). The mean gain knowledge score in experimental group (28.8657) was higher than the control group A (28.3871) and control group B (22.2344). There was a difference in the mean pre-test (9.7463) and post-test (19.1940) food selection ability scores of experimental group subjects. |

7. Discussion

The findings of this review demonstrate how community-based interventions have the potential to address the CHL of adolescents and adults as well as their communities, providing insight into the concept of CHL at the community level. After the community health literacy intervention, the change in behaviour among study population was identified among five studies and improvement in health literacy was observed among four studies. The findings of this review demonstrate how traditional method, interactive learning, art-based interventions improved the community health literacy of the Indian population.

We included nine studies for this review. All the studies included in this review pointed towards positive improvement in the community health literacy of the population in India. This handful number of studies point towards the need for well-designed interventions for India as the country has an ever-rising population coupled with emergence of various diseases. The goal of public health policies and interventions is the improvement of population health. They have a significant impact on reducing health care costs and utilization of preventive activities.
The advancement of health equity will be facilitated by the community’s successful participation in health literacy activities. A review conducted by Meherali et al. among the LMICs included 23 studies of which five were from India. This review identified that written and printed health-education materials are easy to read and understand and improve the health awareness of children and adults. However, a challenge of the use of traditional methods is low literacy levels, which is a significant problem in LMICs that can lead to poorer health outcomes.

Health literacy is recognized as a shared function of individual and social factors. Individual and system-level factors influence functional, interactive, and critical HL interventions among the general population. India is well known for its diverse cultural and linguistic practices. Studies in our review rarely explained the philosophy behind the intervention design and how they considered these realms. Designing the HL interventions by involving the community, incorporating equity, linguistic and socio-cultural lens will offer wider benefits to the population. A similar approach was utilized by Johnson et al. among the immigrant Alaskan population where individuals who received the HL intervention on health and wellness later emerged as peer leader navigators, thereby enhancing community uptake. Further this review concluded that Peer Language Navigator (PLN) program has had a beneficial effect on bringing easy-to-understand health information to several hard-to-reach, new English-speaking populations in Anchorage, Alaska.

Definition of health literacy and the domain have been emerging rapidly in the 21st century. The studies in this review lack the precise definition of health literacy, although health literacy interventions were introduced with the aim of behaviour change and education of the target group, they did not aim to additionally improve the overall health literacy of the entire community where the target group resided. A similar observation was made by Nutbeam et al. where they found a handful of studies actively using the definition of health literacy.

Use of both traditional and novel approaches to deliver health literacy interventions were found to be effective. Employing digital technology for delivering these interventions may aid in wider coverage, but the levels of digital literacy must be assessed before developing the interventions. The interventions must be developed with a theoretical underpinning along with indicators for measurement during the life cycle of the health literacy intervention. The Country Health Rankings Model would be an appropriate model to be considered while designing a multifaceted HL intervention as it offers various health factors to be considered such as existing health behaviours, clinical care, socio-economic factors, and physical environment.

Sustainability of a health literacy intervention is imperative to observing change in knowledge, attitude, and practises. Successful interventions should be handed over to the community enhance ownership and perpetuate the good practices learnt. A comprehensive understanding of HL interventions is required to determine whether these interventions meet the health information needs of community residents and to provide accessible and equitable services to all. Understanding the existing HL interventions will also aid in the development of new HL interventions that are particularly effective for those who reside in LMICs, enhance health outcomes, and lessen inequities.

Half of the included studies captured data at the different time points of the intervention. This highlights the need for shifting the focus from conducting small scale interventions to large scale interventions.
over longer time-periods to assess impact rather than limiting to outcomes.” Although studies included in our review represented the four regions of India, there were no studies from the North-Eastern region which is home to various tribes. Future research may be conducted in these settings to unearth the practices followed and how these HL interventions promote behavioural change and aid in better health-outcomes.

8. Strengths, limitations, and scope for future research

The strength of this review is a rigorous methodology that is followed to identify the relevant literature. We proposed a framework that was suitable to identify the right outcomes to answer our research question. We have not conducted a grey literature search and we acknowledge this as a limitation. We suggested that future research activities should assess the health literacy rates among the different populations (including vulnerable communities) as it forms the basis for designing the interventions. Various mobile applications are used for delivering health interventions and it is imperative to understand the digital health literacy levels of the population using established frameworks and tools adapted to the cultural context. Such efforts will play a vital role in fighting infodemics.

9. Conclusion

It is essential to empower communities in making well-informed health decisions. A person’s health literacy is influenced by the literacy of the community in which they thrive. Furthermore, linguistic diversity in India warrants experienced healthcare interpreters to help individuals understand the answers in a language they understand. Evidence from this scoping review has shown the influence of different community health literacy interventions among the population. It is important to include healthcare workers in designing and implementing health literacy interventions to improve the outcomes. Such an effort will necessitate significant effort, such as developing local content, coordinating governments and private organisations, providing funding to sustain the impact of health literacy projects, and empowering community members to take the initiative to improve their health.

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Data availability statement

All the data associated with the manuscript are presented in the tables and supplementary files.

Author contributions

Conceptualization: NG, EM.
Data Curation: EM, JK, VSD.
Formal Analysis: EM, JK, VSD.
Methodology: NG, EM.
Project Administration: NG, EM.
Writing- Original Draft: EM, JK, VSD, NG, SP, UR.
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Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Nachiket Gudi reports article publishing charges was provided by Prasanna School of Public Health. Nachiket Gudi reports a relationship with Prasanna School of Public Health that includes: employment.

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Appendix A. Supplementary data

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