A systematic review of the effectiveness of community-based interventions aimed at improving health literacy of parents/carers of children.

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Co-authors Dr M. Husted, Dr. S. Fraser, Dr. S. Patel, Prof. J. Faulkner,
Overview

- Background
- Research Aim
- Methods
- Results
- Discussion
- Strengths & Limitations
- Conclusion
- Recommendations
- Questions
Inadequate health literacy amongst parent/carers is associated with:

- Ineffective (and decreases in) preventive behaviours  
  (Vandenbosch et al., 2016)
- Worse child health outcomes  
  (Harrington et al., 2015)
- Increase in emergency care utilisation  
  (Morrison et al., 2014)

- Many community-based interventions have been developed to increase parental health literacy, yet no systematic review of their effectiveness has been published.
The aim of the present study was to conduct a systematic review to examine the effectiveness of community-based health literacy interventions in improving health literacy of parents/carers.
Methods

A review of the literature was conducted using the following databases: MEDLINE, PsycINFO, CINAHL, Cochrane Library, Embase, Education Source.

- Risk of bias assessed
- Standardised mean difference calculated
- Effect size determined based on Cohen’s d
- Synthesised effect size reported as median & interquartile range

- Study findings were reported following the Synthesis Without Meta-analysis (SWiM) guidelines.
Results

PRISMA flow diagram of study identification, screening, and selection process

Identification of studies via databases and registers

- Records identified from:
  - MEDLINE (n = 2797)
  - Embase (n = 2755)
  - ProQuest/ProQuest Education Source (n = 4468)
  - Cochrane Library (n = 371)

- Records removed before screening:
  - Duplicate records removed (n = 4511)

- Records screened (n = 5361)

- Reports sought for retrieval (n = 142)

- Reports assessed for eligibility (n = 142)

- Reports excluded:
  - Studies published in abstract form only (n = 20)
  - Protocol papers (n = 29)
  - Systematic reviews (n = 10)
  - Scoping reviews (n = 5)
  - Commentary (n = 1)
  - No HL outcome measure (n = 23)
  - No pre/post HL measure (n = 12)
  - Non-validated HL measure (n = 11)
  - Not HL intervention (n = 2)
  - Non-parent population (n = 8)
  - Residential setting (n = 1)

- Reports not retrieved (n = 6)

Identification of studies via other methods

- Records identified from:
  - Websites (n = 1)

- Reports sought for retrieval (n = 1)

- Reports not retrieved (n = 1)

Studies included in review (n = 11)
## Results

### Included Studies

<table>
<thead>
<tr>
<th>1st Author</th>
<th>Country</th>
<th>Year</th>
<th>Sample Size</th>
<th>Study Design</th>
<th>Study Setting</th>
<th>Health Domain</th>
<th>Health Literacy Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chu et al.</td>
<td>New Zealand</td>
<td>2019</td>
<td>221</td>
<td>RCT</td>
<td>Text messages</td>
<td>Mental Health</td>
<td>Mental Health Literacy Scale</td>
</tr>
<tr>
<td>Lotto et al.</td>
<td>Brazil</td>
<td>2020</td>
<td>104</td>
<td>RCT</td>
<td>Text messages &amp; audio narrations</td>
<td>Oral Health</td>
<td>eHEALS</td>
</tr>
<tr>
<td>Güven et al.</td>
<td>Turkey</td>
<td>2020</td>
<td>70</td>
<td>RCT</td>
<td>Web-based education programme</td>
<td>Epilepsy</td>
<td>eHEALS</td>
</tr>
<tr>
<td>Otsuka-Ono et al.</td>
<td>Japan</td>
<td>2019</td>
<td>171</td>
<td>RCT</td>
<td>Outpatient clinic</td>
<td>Immunization</td>
<td>Health Literacy Scale (adapted)</td>
</tr>
<tr>
<td>Abdollahi et al.</td>
<td>Iran</td>
<td>2017</td>
<td>80</td>
<td>Non-randomised with comparison</td>
<td>Community health care centre</td>
<td>Physical activity</td>
<td>Short Test of Functional Health Literacy in Adults</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>group</td>
<td></td>
<td></td>
<td>Rapid Estimate of Adult Literacy in Medicine</td>
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<tr>
<td>Azevedo et al.</td>
<td>Portugal</td>
<td>2018</td>
<td>189</td>
<td>Non-randomised with comparison</td>
<td>Web-based gamification programme</td>
<td>Nutrition</td>
<td>Nutritional Literacy Assessment Instrument (adapted)</td>
</tr>
<tr>
<td>Hurley et al.</td>
<td>Australia</td>
<td>2018</td>
<td>66</td>
<td>Non-randomised with comparison</td>
<td>Sports club</td>
<td>Mental Health</td>
<td>Mental Health Literacy Scale (adapted)</td>
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<td>Australia</td>
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<td>Non-randomised with comparison</td>
<td>Sports club</td>
<td>Mental Health</td>
<td>Mental Health Literacy Scale (adapted)</td>
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<tr>
<td>Nye &amp; Robinsonia</td>
<td>USA</td>
<td>2019</td>
<td>75</td>
<td>Non-randomised without comparison</td>
<td>Oral health fair</td>
<td>Oral Health</td>
<td>Oral Health Literacy Assessment Survey</td>
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<tr>
<td>Jimenez et al.</td>
<td>USA</td>
<td>2021</td>
<td>14</td>
<td>Non-randomised without comparison</td>
<td>Telephone based</td>
<td>Traumatic Brain Injury</td>
<td>Short Form Health Literacy Scale</td>
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### Results

**Risk of bias plots for included studies**

<table>
<thead>
<tr>
<th>Study</th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>D5</th>
<th>Overall</th>
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</thead>
<tbody>
<tr>
<td>Chu et al., 2019</td>
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<td>-</td>
<td>+</td>
<td>x</td>
<td>+</td>
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<tr>
<td>Otsuka-Ono et al., 2019</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>x</td>
<td>-</td>
<td>x</td>
</tr>
<tr>
<td>Lotto et al., 2020</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>x</td>
<td>+</td>
<td>x</td>
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<tr>
<td>Tutar Güven et al., 2020</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>x</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study</th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>D5</th>
<th>D6</th>
<th>D7</th>
<th>Overall</th>
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<tbody>
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<td>Abdollahi &amp; Peyman, 2017</td>
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<td>+</td>
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<td>Azevedo et al., 2018</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>x</td>
<td>+</td>
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<td>x</td>
<td>+</td>
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<tr>
<td>Hurley et al., 2018</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
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<td>+</td>
</tr>
<tr>
<td>Hurley et al., 2020</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Nye &amp; Robinia, 2019</td>
<td>+</td>
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<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>x</td>
<td>+</td>
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<tr>
<td>Brown et al., 2020</td>
<td>+</td>
<td>-</td>
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<td>+</td>
</tr>
<tr>
<td>Jimenez et al., 2021</td>
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<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
### Results

#### Forest plot of effect sizes for individual studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Design</th>
<th>Intervention M (SD)</th>
<th>Control M (SD)</th>
<th>Standardized Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chu, 2019</td>
<td>RCT</td>
<td>17.40 (2.00)</td>
<td>16.60 (2.40)</td>
<td>0.36 [0.09, 0.63]</td>
</tr>
<tr>
<td>Otsuka-Ono, 2019</td>
<td>RCT</td>
<td>3.70 (0.70)</td>
<td>3.60 (0.60)</td>
<td>0.15 [-0.15, 0.45]</td>
</tr>
<tr>
<td>Güven, 2020</td>
<td>RCT</td>
<td>3.72 (0.49)</td>
<td>2.91 (0.70)</td>
<td>1.33 [0.81, 1.84]</td>
</tr>
<tr>
<td>Lotto, 2020</td>
<td>RCT</td>
<td>26.39 (10.10)</td>
<td>23.73 (9.79)</td>
<td>0.27 [-0.12, 0.65]</td>
</tr>
<tr>
<td>Abdollahi, 2017</td>
<td>NRS</td>
<td>29.18 (5.19)</td>
<td>25.55 (5.88)</td>
<td>0.65 [0.20, 1.10]</td>
</tr>
<tr>
<td>Azevedo, 2018</td>
<td>NRS</td>
<td>78.80 (15.60)</td>
<td>67.80 (16.10)</td>
<td>0.69 [0.40, 0.99]</td>
</tr>
<tr>
<td>Hurley, 2018</td>
<td>NRS</td>
<td>81.33 (6.67)</td>
<td>80.53 (8.27)</td>
<td>0.11 [-0.39, 0.61]</td>
</tr>
<tr>
<td>Hurley, 2021</td>
<td>NRS</td>
<td>8.63 (0.11)</td>
<td>8.25 (0.19)</td>
<td>2.65 [2.42, 2.89]</td>
</tr>
</tbody>
</table>
Discussion

Only five of the included studies described the theoretical underpinning of the intervention.

Appropriateness of health literacy measurement tools used to measure outcomes of intervention study.
Strengths & Limitations

+ Broad search strategy

Two reviewers

Limit on language

Potential for publication bias

Use of SWiM guidelines
Conclusion

Community-based, virtual and face-to-face health literacy interventions emerged as potential methods for enhancing parental health literacy.

Findings need to be interpreted with caution due to the limited number of included studies and risk of bias.

Need for more theoretical and evidence-based health literacy research which captures the long-term impact of interventions.
Recommendations

Research

- Methodologically stronger primary research
- Longitudinal
- Informed by theory
- Consider the suitability of using screening tools to measure change in health literacy post intervention

Practice

- Low cost of virtual interventions
- Benefits of brief interventions
Any Questions?
References


References


