Developing information literacy in dependent and disadvantaged circumstances: a transitional approach in the digital health context

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Introduction

- This paper contributes to our understanding of appropriate approaches to information literacy development in disadvantaged (socio-economic) and dependent (support) circumstances.

- Part of ongoing work with young mothers (age <25) from areas of multiple deprivations (e.g. employment, education, health, crime), seeking to better understand their information behaviours, and the factors influencing their selective and infrequent engagement with state and voluntary sector information services.

- Identifying a persistent digital divide amongst a high risk group, we report on the development of a digital resource to provide tailored access to trusted online sources to encourage digital access and use, and in turn, facilitate development of information literacy skills.

Introduction

- Our approach to intervention guided by Eisenberg[1], who reminds us that for information literacy programs to be successful, they must be meaningful, and highlights three key interwoven components:
    - Tasks based on real needs.
    - Technology in context.
    - Appropriate information process.
- In practice, this raised three key research questions:
    - What are the information needs of young disadvantaged mothers?
    - What are the appropriate online sources to meet these information needs?
    - What would be an appropriate design and approach to access and use of online sources?

Introduction

- Our work responds to calls for "person-based" and "persuasive" approaches to digital health interventions"[2] and recognition that "more work is needed to create successful engagement strategies"[3].

- We illustrate the role of human information behaviour investigations in informing meaningful interventions in the problematic context.

- Our overarching theoretical framework brought together theories and models of information behaviour and social capital to better understand shared aspects of social integration (understood as access, participation, engagement) in the socio-economic context.

Background

- UK teenage pregnancy rate amongst highest in Western Europe, with conception rates correlated to multiple deprivation indexes.
- At risk groups disadvantaged and disengaged, with significant health and wellbeing issues reported for both mother and child:
  - Young mothers more likely to be single parents, to have experienced family conflict/trauma, not to be in employment, education, or training, and to be at risk of short and long term mental health issues[4];
  - Infant mortality rates higher than for older women[5], and babies at greater risk of poor nutrition and childcare[6], and impaired development[7].
  - Stress and anxiety heightened, as are rates of depression[8].
  - Low literacy levels[9].
- Beyond parenting needs, broad support is considered key to long-term success and social mobility[10-11], with calls for holistic care[12], tailored information[13-15], and increased digital provision[16-17].

Background

- However, our work examining the information behaviours of mothers[18-19] reports limited progress in providing tailored support, and identifies a number of information issues amongst young mothers[19]:
  - Information overload
  - Low literacy
  - Misinformation
  - Information comprehension
  - Practical access barriers

- Support available, but few young mothers attend library-based support groups and/or formal learning programmes more broadly due to issues of stigma and confidence[19].

- Many young mothers dependent upon health workers as information intermediaries, particularly when seeking information from external (non-interpersonal and/or digital) sources[19].

Background

- In summary, a persistent digital divide is evident amongst a high-risk group with an immediate need for meaningful and persuasive intervention in the problematic context.

- Reasoning that a formal information literacy program was unlikely to succeed due to complex access and internalised behavioural barriers, our first priority was to develop a tailored digital resource that might encourage digital access and use, and that in turn, might facilitate information literacy development.

Methodology

1. Information needs (research question one (RQ1)) identified from synthesis of information needs data from previous work[18-19], with meaningful categories identified via cross-study thematic analysis and iterative pattern coding and checking[20-21].

2. Appropriate online information sources to meet needs (RQ2) identified via service directories and online searches, and systematic top-down website content analysis[22];
    –   UK non-commercial state and voluntary sector websites.
    –   Redundant sites (mirrored content and/or link) removed.
    –   Shortlisted sites mapped to information needs (via matrix), and assigned one or more values: 3. Parent tailored; 2. Primary source; 1. Secondary source.
    –   Selected sites provided the underlying architecture (info sources) for the resource.

3. To explore an appropriate design and approach to access and use of information sources (RQ3), a digital resource developed and trialled with 12 young mothers from areas of multiple deprivation.
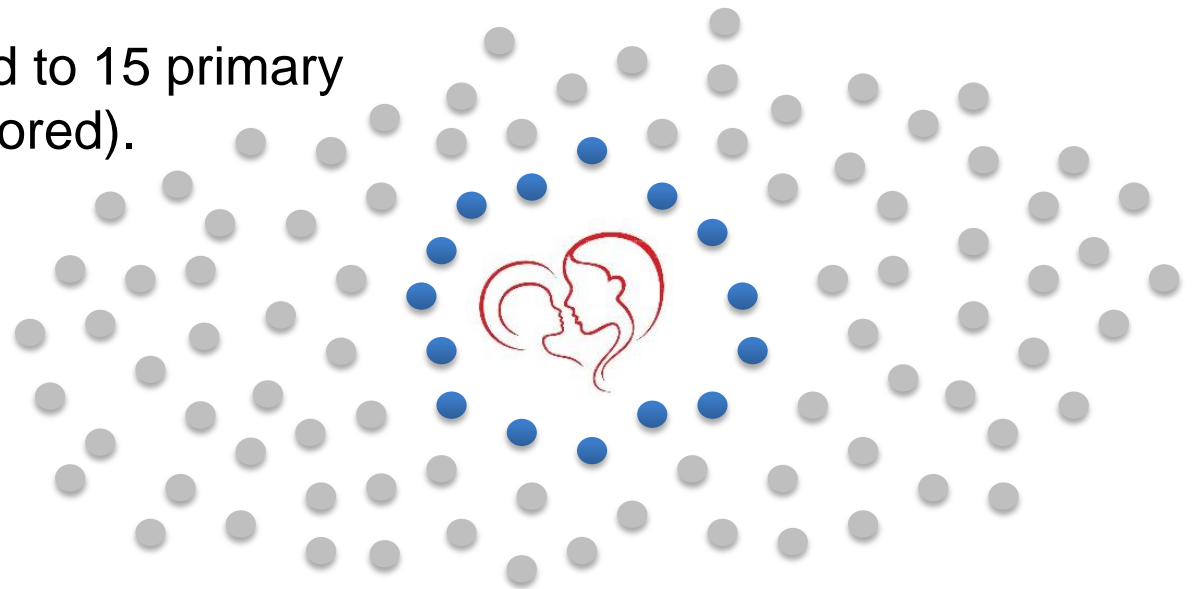
Information needs

- Young mothers have multiple, complex information needs often within sensitive situational contexts.

- In comparison to the needs of older general population mothers (avg age 29), the needs of young (<25) disadvantaged mothers extend beyond shared parenting needs to issues of poverty and personal development.

  - pregnancy
  - labour and birth
  - child development
  - child health
  - parent health
  - playtime activities
  - childcare
  - family relationships

  - housing
  - money
  - legal advice
  - work
  - education and training
  - domestic abuse
  - helplines
  - stress

- Highlights the importance of situational understanding of needs, and the potential risks involved in assumptions of homogeneity.

Information needs

- A high level of element interactivity evident amongst needs. For example[19]:
    - Financial money needs routinely encompassed accessing and understanding state benefit, maternity grant and food and vitamin voucher entitlements; and were often closely linked to housing needs and the fundamental need to provide their child with a habitable home that in situations of sub-standard accommodation or homelessness could present significant health needs for both mother and child, and could supersede attachment and bonding needs.
- High element interactivity known to be cognitively demanding requiring systematic and/or simplified learning processes to understand[23].
- Informed later design decisions…

Information sources

- Cognisant to literacy and cognitive load issues, we considered it important to mitigate for issues of information overload common in the initial stages of information seeking[24].

- Sought to provide simplified meaningful direct access to single primary sources of trusted information for each need.

- An initial list of 98 sources (website) was reduced to 36 when redundant sources were removed.

- Shortlisted 36 distilled to 15 primary sources (8 parent tailored).

Appropriate design and approach to access and use of information sources

- GUI design mirrors ubiquitous tablet and smartphone design with each icon representing a category of identified information need with a direct link to a primary source of trusted information.

- In cognitive science our categories of information need can be considered as schemas which "can be treated as a single element in working memory and thus heavily decrease cognitive load associated with the performance of later tasks"[25].

- In Big6 terms, we sought to simplify initial steps of:
  - task definition
  - information seeking
  - location and access.

- Flesh-Kincaid 6 score

Trials

- Comments regarding design were mixed.

- Simplified direct links valued, avoiding "unnecessary" and "tedious" navigation that can "take forever".

- Links to trusted sites also valued, one mother commenting that it was "good to have all the trustworthy sites in one place", and another that the resource "guarantees the information is reliable"

- Some mothers described the design as "plain" and "boring", and suggested that it "could be a bit more colourful and not just white".

- Positive pictures of parenthood suggested.

- Some mothers also suggested having a page beneath each icon providing more links for each topic and additional context and direction such as "general summaries" of the information available.

Trials

- The resource name was disliked. It was suggested that mother needs to be replaced with a gender neutral term encompassing carers, and that gateway might be replaced with "help book" or "helpful info for parents".

- Discussions encompassed a dislike of the term young parent as it "kind of makes you feel like your less… or making you seem less valuable as a parent than older mums".

- Stigma an important consideration as a known issue amongst mothers[26] known to influence information behaviours[18,27].

- Comments highlight sensitive issues of self-identity, and remind us of the importance of positive constructive communication in progressive situations (i.e. parenthood).

Trials

- Overall, mothers appeared to intuitively understand the resources purpose and provided positive feedback regarding need categories.

- Trial could also be seen to increase awareness of online sources amongst participants. For example, one mother while exploring the website under family relationships commenting, "I quite like this one – family lives – I've never seen that one before."

- However, in general discussion the majority of participants also confirmed a low use of online sources. For example:

  - Many unaware of *ReadySteadyBaby* website (NHS Scotland's main online guide to pregnancy and the first 12 months);

  - Although all knew of Young Scot (Scotland's national online information and citizenship resource for young people aged 11-25), none used the website or knew of any peers who did.

  - One participant commented, 'I don't think many people look online for information', a comment supported by another who replied 'I know I don't'.

Conclusion

- Young mothers from areas of multiple deprivations have multiple, complex, interwoven, and competing information needs, extending beyond parenting to issues of poverty and personal development.

- We have demonstrated the role of information behaviour investigations in identifying information needs, and learning needs; to inform meaningful interventions in the problematic context, and to develop a tailored resource to facilitate digital access and use.

- Our young mothers provided positive feedback regarding usability and usefulness of the digital resource, but are unlikely to use it due to complex access and behavioural issues.

- Returning to Eisenberg's[1] three components of effective IL programs, the resource is clearly focused on real information needs, and in meeting those needs helps place technology in purposeful context. It is the third component, process, that requires careful consideration, raising questions of *who* and *how*?

Conclusion

- Given access and behavioural issues, it is evident that interventions will need to begin in the physical space, and be intermediary led:
    - Young mothers don't use librarians, but support workers play a key information intermediary role[19].
    - Support workers ideally placed to utilise the resource in their everyday interactions with young mothers, encouraging use of trusted information sources; and developing IL skills in a practical interactive manner.
- However transitions to self-efficacy require there to be an agreed and understood information process in place, not yet evident, that:
    - tasks and actions can be related to, and that encourages reflective practice, and develops metacognitive skills;
    - and is adaptable to semi-structured everyday situations, and implementable by non-information professionals.
- Next stage research exploring above information process aspects as part of field trials with outreach NHS family nurses.

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Notes

The launched version of the digital resource for young mothers can be accessed at: http://yoyo.cis.strath.ac.uk/