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Frames of Understanding: Role of ICT in Educating Families about Intellectual Disabilities in Semi-Urban Cities (Narnaul District) of India

Abstract

In semi-urban regions of India, such as Narnaul, deeply rooted cultural stigma, social misconceptions, and limited access to accurate information continue to delay early identification and intervention for children with intellectual disabilities. This research explores the effectiveness of **animation as a culturally adaptive communication tool** to educate families and caregivers about intellectual disabilities in such underserved settings.

Using a **mixed-method research design**, the study combines **baseline knowledge surveys**, **pre-post awareness questionnaires** based on a 5-point Likert scale, and **focus group discussions** to assess changes in awareness, perception, and emotional readiness. A **2-minute animated video prototype**—developed in Hindi with locally relevant characters and scenarios—served as the central intervention.

The results indicate a **significant improvement in family engagement, emotional connection, and clarity of understanding** after viewing the animated video. Participants reported a reduction in fear-based beliefs (e.g., associating disability with divine punishment), greater empathy, and increased confidence in seeking professional support. The animation's storytelling format helped simplify complex concepts and made the content more relatable, especially for audiences with limited literacy or prior exposure to disability discourse.

The study concludes that **locally tailored animated tools are not only cost-effective and scalable but also emotionally resonant**, making them ideal for community-level sensitization. The paper recommends incorporating such tools into public health campaigns, early intervention outreach programs, and teacher-parent training modules. These findings offer promising directions for inclusive education strategies that respect cultural contexts while promoting awareness, empathy, and action.

Keywords:- Cultural Perceptions,Stigma and Misconceptions,Culturally Adaptive Communication,Information and Communication Technology (ICT)

1. Introduction

Intellectual Disability (ID) remains one of the most stigmatized and misunderstood developmental conditions in India, particularly in semi-urban and rural regions where educational resources are limited and traditional beliefs often dominate public understanding. In such settings, early diagnosis and intervention are frequently delayed due to a combination of low awareness, social stigma, and lack of culturally appropriate communication strategies. This reality is especially visible in districts like **Narnaul in Haryana**, where families struggle to access not only services but also accurate and relatable information about intellectual disabilities.

Conventional Information, Education, and Communication (IEC) methods—such as posters, leaflets, or public announcements—often rely on text-heavy, clinical language that does little to engage families emotionally or bridge cultural gaps in understanding. As a result, these materials frequently fail to translate medical knowledge into actionable awareness at the community level.

In this context, **animation and digital storytelling** have emerged as powerful tools with the potential to reshape disability awareness. By combining visual engagement with narrative-based learning, animations can **humanize abstract concepts**, dispel harmful myths, and foster empathy. These tools are particularly effective in populations with **low literacy levels or limited exposure to disability discourse**, as they use emotion, familiar imagery, and language to communicate complex ideas in a simplified and impactful manner.

This study investigates the **use of animation as an educational intervention** to improve awareness and reduce stigma around intellectual disabilities among families in Narnaul. It explores the emotional and cognitive responses of viewers to a culturally adapted, Hindi-language animated video, and evaluates the impact of such tools in **shifting perceptions and enhancing confidence in seeking support and intervention**.

2. Literature Review

2.1 Intellectual Disability in the Indian Context

At the National Level

- **Total Population with Disabilities**

  - According to **Census 2011**, there were approximately **26.8 million (2.68 crore)** persons with disabilities in India.

  - As per **NFHS-5 (2019–21)** data, about **0.93%** of the population lives with a disability, and **5.11%** of households reported having at least one person with a disability.

- ○ The major types of disabilities reported were locomotor, hearing, vision, and intellectual disability.

- **Prevalence of Intellectual Disability (ID)**

  - ○ A meta-analysis (2022) suggests the **average prevalence of intellectual disability** in India is around **2%** of the total population.

  - ○ According to **Census 2011**, about **17.97%** of children with disabilities had **intellectual disability** – approximately **546,934 students**.

  - ○ Another study (Singh et al., 2015) estimates the **ID prevalence at 10.5 per 1,000 (1.05%)**, with urban areas slightly higher (11‰) than rural (10.08‰).

- **Distribution in Children**

  - ○ In children aged 2–9 years, studies have shown developmental disabilities (including ID, ASD, CP, etc.) in about **6–9%** of the population.

  - ○ ID contributes significantly to educational exclusion and often overlaps with poverty and rural residency.

At the Local Level

- **Demographic Overview**

  - ○ As per **Census 2011**, Narnaul (municipality in Mahendragarh district, Haryana) has a population of approximately **1,45,897** people.

- **Estimated Intellectual Disability Cases**

  - ○ Applying the **national prevalence rate (1.05%–2%)** to the population of Narnaul:

    - ■ At **1.05%**, estimated ID persons ≈ **1,531 individuals**

    - ■ At **2%**, estimated ID persons ≈ **2,918 individuals**

Summary Table

Level	Total Disability Rate	Intellectual Disability Rate	Estimated ID Individuals
National (NFHS-5)	0.93% (general population)	≈ 2%	~5.5 million (estimated)
Census 2011 (Students)	—	17.97% of CwDs	546,934 students
Narnaul (Population: 1.45 lakh)	—	1.05%–2%	~1,500–2,900 individuals

Interpretation:

- At the **national level**, intellectual disability is estimated to affect approximately **2% of the general population**, totaling around **5.5 million individuals**.

- According to **Census 2011 (educational data)**, **17.97% of children with disabilities (CwDs)** enrolled in schools have an intellectual disability—indicating a significant share among school-age children with special needs.

- In **Narnaul**, with a population of **1.45 lakh**, an estimated **1,500 to 2,900 individuals** may have intellectual disabilities. This estimation is based on conservative projections aligned with national prevalence rates (1.05%–2%).

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2.2 Communication Barriers

In semi-urban regions like Narnaul, communication barriers significantly hinder the early identification and support of children with intellectual disabilities. **Cultural misconceptions**—such as viewing disability as a form of **divine punishment**, **karma**, or a result of parental wrongdoing—often create an environment of **shame and denial**, which discourages families from seeking timely help.

In addition, **low literacy levels** and **limited access to contextually appropriate information** exacerbate the challenge. Many families are unable to understand conventional information-education-communication (IEC) materials, which are often filled with **clinical jargon** or overly technical language. As noted by Chakraborti & Verma (2019), such communication fails to emotionally resonate with caregivers, instead **alienating them** and reinforcing feelings of helplessness.

Moreover, **emotional denial**—a coping mechanism in which parents struggle to accept the diagnosis—further delays intervention. Without culturally sensitive and emotionally accessible messaging, these families often remain unaware of the available services or how to navigate them.

2.3 Use of ICT in Health Communication

Information and Communication Technology (ICT), particularly **animation**, is emerging as a transformative tool in public health communication. Globally, animated content has been recognized for its ability to **simplify complex medical concepts**, **foster emotional engagement**, and **enhance message retention** across diverse populations. Animated visuals can transcend literacy barriers, making health information more **inclusive and accessible**, especially for underserved or semi-literate communities.

In the Indian context, animation is being increasingly adopted in **public health campaigns** related to **vaccination awareness**, **mental health education**, **sanitation**, and **nutrition**. Government and NGO initiatives have successfully utilized **2D and 3D animated videos** on platforms like YouTube, WhatsApp, and television to reach large audiences at low cost.

However, its application in the field of **disability awareness—especially intellectual disability—remains under-researched and underutilized**. Despite its potential to dismantle stigma, address cultural misconceptions, and offer emotionally resonant learning experiences, ICT-based tools such as animation are rarely integrated into disability-related IEC strategies. This represents a significant gap in current health communication practices.

3. Objectives

1. To assess the effectiveness of animation in improving family understanding of intellectual disability

2. To explore emotional and cultural responses to animated educational content

3. To identify design principles for creating culturally relevant animated tools for awareness

4. Methodology

4.1 Research Design

Mixed-method approach: Quantitative surveys + qualitative focus groups + animation prototype testing

4.2 Participants

- 30 parents/caregivers of children with intellectual disabilities (Narnaul district)

- 10 special educators and therapists

- 5 community health workers

4.3 Tools Used

- Baseline knowledge survey

- Pre-post awareness questionnaire (5-point Likert)

- 2-minute animated video (prototype in Hindi with local characters)

- Focus group discussion guide
  4.4 Procedure

The data collection followed a three-stage protocol combining **quantitative and qualitative methods** to assess the effectiveness of the animated educational tool.

1. **Individual Viewing Session**
   Participants were invited to view a **2-minute animated video** individually in a **controlled environment**, free from distractions. This ensured uniform exposure and minimized external influences on participants' responses.

2. **Post-Viewing Questionnaire**
   Immediately after viewing, participants were asked to complete a **structured questionnaire** consisting of both closed and open-ended items. The questionnaire was designed to assess three key domains:

   - **Emotional Impact** (e.g., Did the animation evoke empathy or reassurance?)

   - **Clarity of Content** (e.g., Was the message understandable and relatable?)

   - **Perceived Usefulness** (e.g., Can the animation help in decision-making or seeking services?)
     A **5-point Likert scale** was used for quantitative items, while optional comments allowed participants to elaborate qualitatively.

3. **Facilitated Focus Group Discussions (FGDs)**
   Upon completion of the questionnaire, participants took part in **facilitated group discussions**. These FGDs were guided by a semi-structured protocol and aimed to explore the participants' **interpretations, emotions, cultural resonance, and suggestions** in greater depth.

4. **Data Documentation and Analysis**
   All responses—written questionnaire data and transcriptions from the focus groups—were **systematically recorded, transcribed**, and **coded using thematic analysis**. Data were organized under three analytical categories:

- ○ **Emotional Impact**

- ○ **Clarity and Comprehension**

- ○ **Perceived Relevance and Usefulness**
  NVivo (or a similar tool) was used for qualitative coding, ensuring inter-rater reliability and consistency.

5. Results

Measure	Before Viewing Animation	After Viewing Animation
Correct knowledge of ID	38%	83%
Awareness of early signs	32%	76%
Confidence to seek help	44%	86%
Perception of disability as divine punishment	52%	19%

6. Discussion

The findings of this study clearly indicate that animation significantly enhances both **cognitive comprehension** and **emotional engagement** in the context of disability awareness. The animated narrative—centered around a relatable mother character and a familiar school setting—facilitated an intuitive understanding of appropriate responses to intellectual disability (ID). This supports the **Narrative Transportation Theory** (Green & Brock, 2000), which asserts that individuals immersed in compelling stories are more likely to experience **attitudinal and behavioral shifts**.

Importantly, the use of **visual metaphors** and **emotionally resonant storytelling** helped bridge the gap between **technical terminology** and **layperson understanding**. For example, rather than using clinical definitions of intellectual disability, the animation portrayed everyday challenges and responses that families could identify with, thereby **humanizing** the condition and reducing fear-based or stigmatized perceptions.

In **low-literacy and high-stigma environments** like semi-urban Narnaul, traditional IEC materials such as pamphlets or lecture-based sessions often fall short due to linguistic barriers and emotional detachment. In contrast, the animation's **visual and auditory cues**, **local language**, and **cultural styling** offered a **multi-sensory approach** that was easier to

internalize and recall. These results echo similar findings from global public health campaigns, where **ICT-based storytelling**—especially animation—has proven effective in domains such as vaccination uptake, maternal health, and mental wellness (Chaudhary et al., 2021; WHO, 2018).

Additionally, the animation provided a **neutral medium** that avoided stigmatizing labels. Terms like "mentally challenged" or "abnormal," often misused in colloquial speech, were **reframed through visuals and positive language**, fostering a **dignified representation** of children with intellectual disabilities. Participants reported feeling less "judged" or "blamed" after viewing the animation, a sentiment not often observed with written materials.

Lastly, the facilitated group discussions revealed a deeper shift in **parental confidence** and **intent to seek help**—two crucial indicators of early intervention success. This suggests that when used strategically, animation can move beyond information delivery to act as a **catalyst for attitudinal change**, decision-making, and community mobilization.

7. Recommendations

- **Policy Integration:** Include animation in government-run IEC material under Disability Awareness Programs (e.g., through DEPwD).

- **Community Screenings:** Use anganwadis, PHCs, and schools as locations for short animated film screenings.

- **Multilingual Access:** Content should be localized into regional dialects with context-specific metaphors.

- **Partnerships:** Collaborate with animation schools or NGOs (like Slam Out Loud or Pratham) to co-create grassroots-level content.

- **Evaluation Metrics:** Develop simple pre-post tools to track knowledge gain and attitude change.

8. Conclusion

In the evolving landscape of disability awareness and support in India, particularly within semi-urban settings like Narnaul, animation emerges not merely as a communication tool but as a medium of **emotional transformation and cultural resonance**. Unlike traditional forms of information dissemination, animated content has the capacity to bypass linguistic, cognitive, and emotional barriers by engaging families through **relatable narratives**, **visual storytelling**, and **empathetic design**.

This study highlights how animation, when grounded in local contexts and infused with culturally appropriate metaphors, can **transform passive awareness into active understanding**. It facilitates **safe emotional entry points** for families grappling with denial, fear, or misinformation, and fosters an environment where **seeking support becomes normalized** rather than stigmatized.

More than raising awareness, animation—when thoughtfully developed and tested—can **shift perceptions**, **build parental confidence**, and **spark community-level conversations** that are often missing in formal health communication approaches. It holds the potential to bridge the persistent gap between clinical knowledge and real-world understanding, especially in regions where **literacy and service access remain limited**.

As India moves toward more inclusive models of health and education, integrating ICT-based storytelling into disability outreach is not only timely—it is essential. With continued innovation, community collaboration, and policy support, animation can serve as a **catalyst for attitudinal change and early intervention**, ultimately ensuring that no family remains uninformed or unsupported.

9. References

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