Using a co-design approach in designing and testing socio-behavioral intervention to counter COVID-19 related misinformation and its impact on potential COVID-19 vaccination in Karachi, Pakistan

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Outline

- Background
- Methods
- Results
- Recommendation
- Acknowledgement

Background

- Pakistan is one of the most populace country with more than 226 million population
- 43% of the population is < 15 years of age
- Literacy rate is only 62% with 60 million of the population are illiterate
- Routine immunization coverage is historically low
- Pakistan is one of the last two countries where Polio is still endemic

Background

- More than 1.5 million confirmed COVID 19 cases reported in Pakistan (Feb 18, 2022)
- More than 30,000 deaths attributed to COVID-19
- More than 17% of the population received booster dose
- More than 43% of the adult population received two doses of the vaccine
- More than 56% received a single dose of COVID 19 vaccine

Rationale

- Covid-19 misinformation widespread in Pakistan especially in marginalized population (informal settlements)
- Misinformation and rumors leads to poor compliance with preventive measures including COVID-19 vaccination
- Assessment of misinformation and developing tailor made interventions to dispel and improve vaccine uptake is essential
- Co-design method **“doing research ‘with’ or ‘by’ the public, rather than ‘to’, ‘about’ or ‘for’ the public”** is pragmatic and people centered, never used in studying misinformation and vaccine hesitancy before.

Objectives

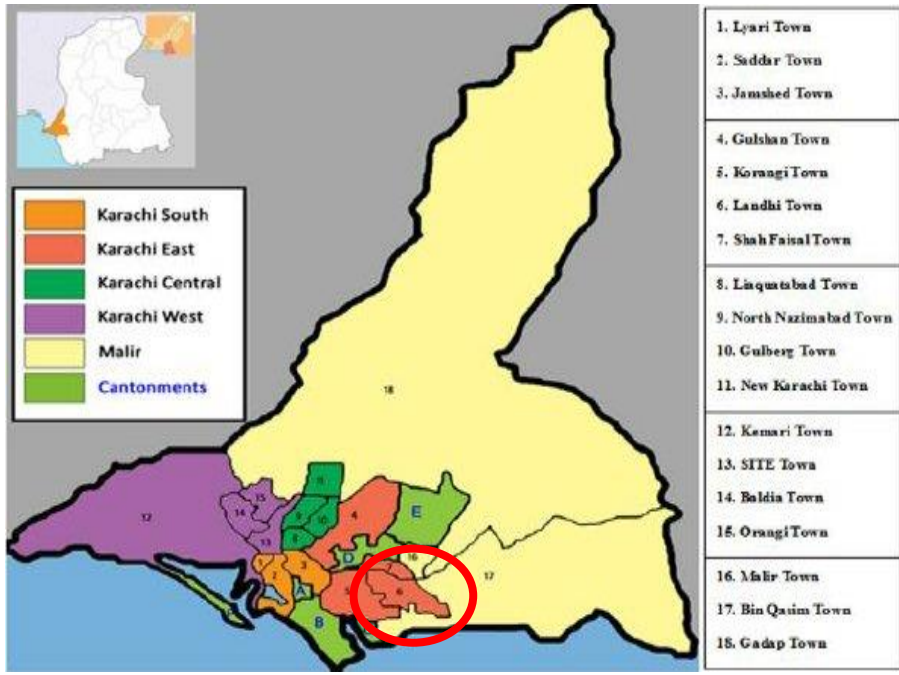
1. To explore the widespread infodemic regarding COVID-19 pandemic and related vaccines in marginalized population living in slums of Karachi, Pakistan

2. To co-design, test and evaluate the intervention designed to address the infodemic related to COVID-19 pandemic and vaccines in marginalized population living in slums of Karachi, Pakistan

Methods

- **Study duration:** January to Nov 2021
- **Study setting:** Muslimabad colony Landhi town Karachi
- Landhi is predominantly urban slum ~ 0.6 million population
- Muslimabad is one of the 12 UCs in Landhi with about 1.5 lac population
- Majority Pashtun ethnicity
- > 90% of the population access health from first level care facilities run by quacks

(Yousafzai et al. 2013)



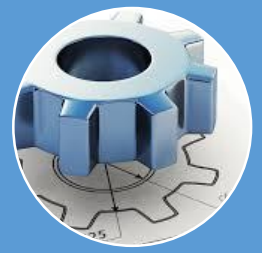
Methods

Community need assessment

Empathy

Define

Ideate



Prototype

Test

Co – Design Process

Post evaluation

Empathize

- Immersion and engagement of the investigators and research staff with community, local stakeholders and influential people
- Informal meetings and discussions
- Hiring local staff, engagement of local volunteers
- Observing culture, norms, behavior, approaches, and underlying factors which influence perception of the community
- Need assessment

Empathize

Need assessment – Quantitative

- Baseline cross sectional surveys (Feb/March 2021)
- Social mapping of catchment area
- N = 470 randomly chosen households
- Random selection of every 5th household using the social map
- Anonymized interviews using questionnaire in Urdu
- Representation of youths, elderly, women, teachers, healthcare workers, local political and religious leaders

Empathize

Need assessment - Qualitative

- N = 20 IDIs (n = 12 male; 8 female) with local stakeholders
- N = 4 FGDs (2 male and 2 female) with general population in Jan 2021
- Using semi-structure interview guide and cues
- Audio recording and note taking
- Urdu and Pashtu (local language)

Define

- Analysis of baseline data and derivation of actionable problem statements
- Self portrait and description of strengths and experiences relevant to the problems

Sr. No	Level of action	Key actionable problem statements
1.	**Individual/family level**	- Poor health literacy resulting in susceptibility to rumours & mis or disinformation - Lack of females' involvement in decision making (poor female empowerment) - Lack of trust in government hospitals and doctors, considered them as party in global COVID-19 hoax - Inherently vaccine hesitant population with hardcore refusal for polio
2	**Community/society level**	- Informal healthcare workers as major providers of health - Faith based trust (more trust in religious leaders), strong influence of religious leaders in the community - School teachers and schools influential and respected by the community where literacy is less than 50% - Poverty, lack of civic facilities and healthcare by the govt created lack of trust and negative feelings against the government
3	**Service level**	- No COVID-19 vaccination centre in close proximity - WhatsApp, YouTube, and Facebook as major source of acquiring information - Local informal healthcare providers, religious leaders, schoolteachers and school going youth considered as knowledgeable regarding COVID-19 pandemic & vaccination

Ideate

- Brainstorming and mind mapping exercises
- Refine and integrate the collection of ideas into cohesive applicable concepts and solutions
- Listing of ideated interventions
- A total of eight potential interventions listed

Prototype

- Consultative zoom meetings – one male and one female
- Stakeholders including EPI, religious leaders and informal healthcare workers, and community beneficiaries
- Further assessment and discussion on appropriateness of the interventions, delivery strategies etc.
- Contextual interventions and communication material with delivery strategy finalized
    - Schools
    - Clinics
    - Mosques
    - Youth WhatsApp groups

Infographic 1: preventive measures

Infographic 2: COVID-19 symptoms

Infographic 3: COVID vaccination registration steps

Infographic 4: COVID myths & facts

Short 2 minutes videos addressing COVID 19 myths, and importance of vaccination by community volunteers

Test

- ✓ School and social media-based communication started in April 2021
  - Four secondary schools and two madrassah (one male and one female)
  - Two WhatsApp groups moderated by youth
- ✓ Mosques and clinics-based communication started in June – August 2021

Evaluation

- Cross sectional survey Oct/No 2021
- N = 401 randomly selected households
- 20 IDIs (13 male; 7 female) local stakeholders
- 3 FGDs (2 male; 1 female) community beneficiaries

Results

Misconceptions	Baseline N = 470 (%)	Post intervention N = 401 (%)
Misconception regarding Spread		
COVID-19 only spread to elderly people	148 (31.5)	80 (19.9)
COVID-19 spread through mosquito bites	74 (15.7)	15 (3.7)
COVID-19 spread through COVID-19 testing	51 (10.9)	5 (1.2)
All returning migrants carry COVID-19	214 (45.5)	165 (41.1)
COVID-19 is transmitted only to non-religious or less religious people (those not cleaning themselves, offering prayers etc)	147 (31.3)	50 (12.5)
COVID-19 is transmitted only to people who practice “socially unacceptable activities” e.g., drinking, sex, drugs etc	164 (34.9)	25 (6.2)
Misconception regarding prevention		
Wearing mask outside is not important to prevent COVID-19	58 (12.3)	5 (1.2)
Social distancing is not important to prevent COVID-19	80 (17)	10 (2.5)
Handwash is not important to prevent COVID-19	43 (9.2)	6 (1.5)
Drinking water can prevent COVID-19	226 (48.1)	100 (24.9)
Nutritious food can prevent COVID-19	278 (59.2)	150 (37.4)
Everyone should wear PPE when go out to prevent COVID-19 especially mask	289 (61.5)	350 (87.3)
It is not important for all COVID-19 patients to quarantine	84 (17.9)	5 (1.2)
Misconception regarding treatment		
Doctor can cure COVID-19	290 (61.7)	55 (13.7)
Traditional healer can cure COVID-19	59 (12.6)	5 (1.2)
Antibiotic can cure COVID-19	59 (12.6)	6 (1.5)
Misconception regarding vaccination		
COVID-19 vaccine is unsafe	121 (25.7)	61 (15.2)
COVID-19 vaccine includes a tracking device	55 (11.7)	8 (1.9)
COVID-19 vaccine has severe side-effects	83 (17.7)	61 (15.2)
People with chronic disease should not get COVID-19 vaccine	119 (25.3)	20 (4.9)

Qualitative results

Two themes derived from IDIs and FGDs

1. Impact of intervention in dispelling myths and misconceptions

A quote from one of the community leader; *“Some people are saying that vaccinated people will die within couple of years, I don’t trust them but, in this regard, I strongly believe on the information provided by our local doctor”*

Many participants said that they stopped trusting hearsay for information and they developed a habit of cross-checking the information with the local doctor.

A quote from a female participant; *“Before I used to believe in community people’s information but nowadays first, I check what’s the level of education of the person and ask to provide the source of information. If they fail to do so, I just tell them—don’t spread hoax – it is forbidden in holy Quran”*

Qualitative results

2. Importance of co-design research

- Many female participants reflected empowerment and improvement in self-esteem. A quote from a female respondent; *"in our society females are given less priority in decisions. The thing we like about this study was our active involvement from day one and respecting our culture, autonomy and giving us opportunity to decide and act along with other stakeholders and researchers. This was the reason why this approach is greatly needed in our community"*

- Several religious leaders and community healthcare workers narrated; *"we don't need shields or certificates or few hundred rupees from the outsiders who used to come to our community, dictate us what to do and what not to do and consider us as brainless, we can take decisions for ourselves and solve our problems as we have proven in this study"*

- Nearly half of the respondents in IDIs reported the importance the involvement of influential people; *"In a country like Pakistan where people are strongly guided by religious faiths, delivery of information from Imams and head of the family members was truly a great approach to improve the COVID-19 specific health literacy. This helped in dispelling myths and misconception related to COVID".*

Qualitative results

- Positive emotions resulting from participation in co-design; *“We are here not for shields or lunch; the happiest aspect is that I am proud of sharing my duty to make our people aware of the necessity to vaccinate themselves for corona”.*

- Increased confidence; *“Even having little schooling my daughter is registering her uncle, grandfather and women in our other neighborhood for vaccination through her mobile”*

- A sense of pride and accomplishment; *“because of our counseling people are going for vaccination”*

Recommendations

1. Engagement of all local stakeholders essential for trust and value of the evidence
2. Developing pragmatic interventions acceptable to the community (user-friendly, and contextually relevant) essential for success
3. Engagement and empowerment of females equally important however local values, traditions and cultural practices needs to be kept in mind
4. **A large force of informal HCWs (Quacks) is an untapped resource, completely ignored, unregulated – needs basic training & healthcare education to reach the unreached marginalized communities**
5. Demand generation for vaccines needs to be kept in mind and properly addressed

Acknowledgements

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- ✓ Local Healthcare workers and religious leaders
- ✓ Participants
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