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mPareshan Project

Technology-Assisted Digital Intervention for Reducing Anxiety and Depression in Rural Sindh

Empowering Frontline Community Workers through Digital Innovation to Improve Mental Well-Being

EVIDENCE BRIEF

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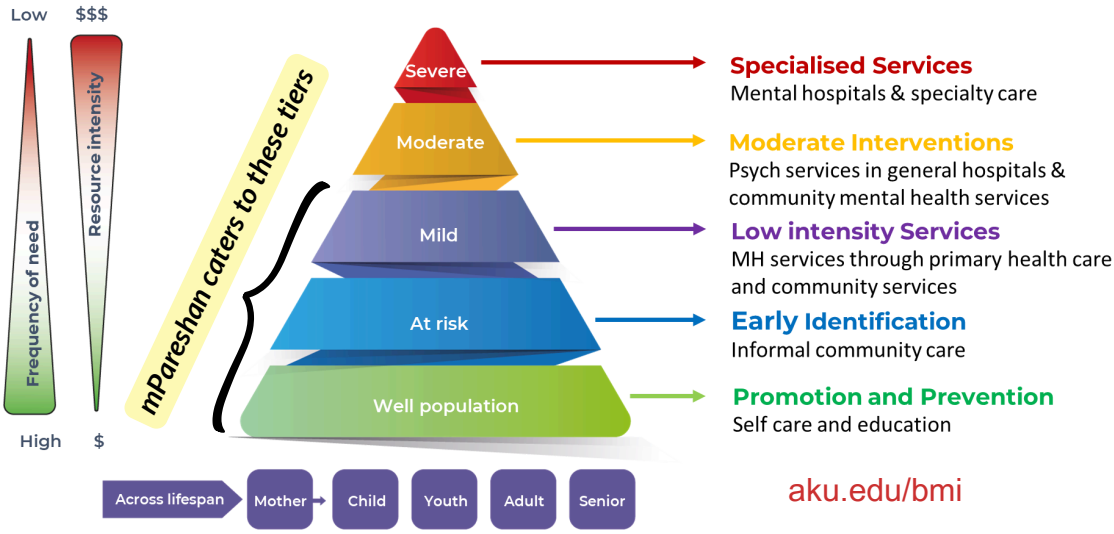
Introduction



Using AKU Brain & Mind Institute's *Integrated Mental Health Framework*

Providing right care, right time, right place!

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The **mPareshan Project** was a community-focused mental health initiative aimed at addressing anxiety & depression in rural flood-affected Pakistan through an innovative, technology-driven solution. The project leveraged the **Lady Health Worker Programme (LHW-P)** to deliver **app-based counseling intervention** at the community level, directly to individuals' doorsteps.

RATIONALE

With a population of 240 million—nearly 64% residing in rural areas—Pakistan bears a substantial psychiatric burden with one of the lowest psychiatrists to inhabitant ratio in the region. Mental health challenges in rural Pakistan are severe, with significant treatment gaps due to stigma, limited resources, and a lack of specialists. Pakistan's mental health burden includes high rates of anxiety and depression, exacerbated by poverty, social challenges, and disasters like floods. mPareshan sought to fill this gap by integrating digital mental health services into the primary care system and reducing stigma, improving accessibility, and promoting well-being.

METHODOLOGY

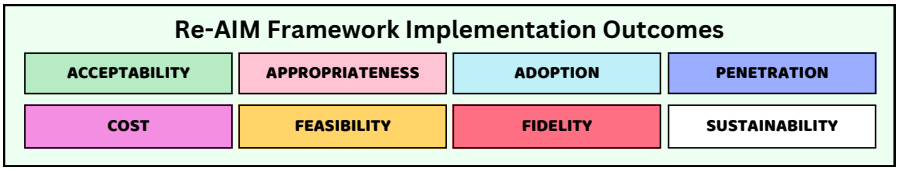
The project used a **hybrid implementation trial design**, combining **clinical** and **implementation** outcomes, assessed through qualitative and quantitative methods. Key components included:

- Screening and recruitment via baseline surveys using **Patient Health Questionnaire-9 (PHQ-9)** and **Generalized Anxiety Disorder-7 (GAD-7).**
- Delivery of six structured counseling sessions through the mPareshan app, featuring psychoeducation, breathing exercises, and coping strategies.
- Training of **Lady Health Workers (LHWs)** using the World Health Organization's Mental Health Gap Action Programme (**WHO mhGAP) guide 2.0**, enabling them to provide mental health support.
- Evaluation of intervention effectiveness by assessing changes in anxiety and depression scores and gathering stakeholder feedback to refine and scale the program.

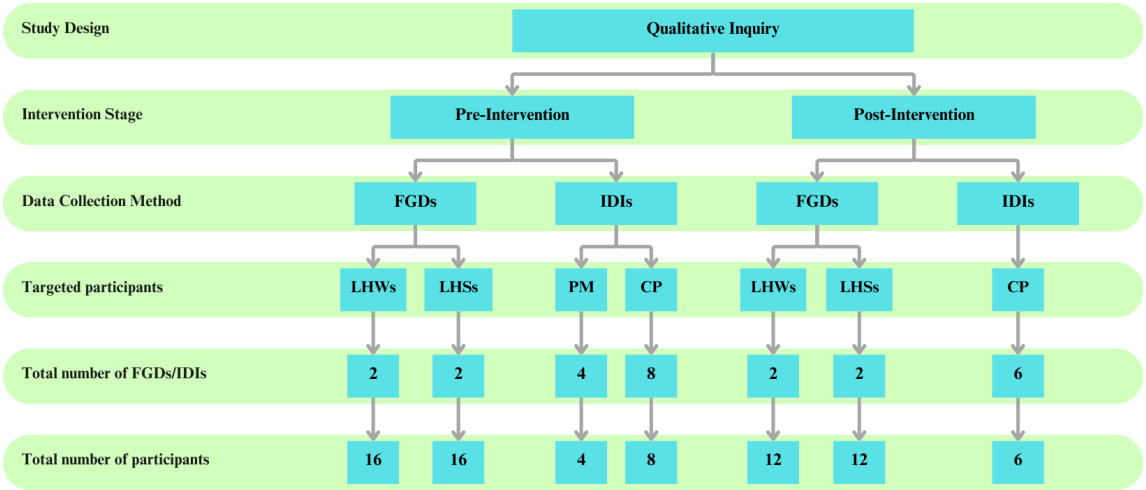
Study Setting: mPareshan was executed in District Badin (a coastal district in Pakistan's southern province of Sindh) which has a population of 1.9 million and has one of the highest suicide rates in Sindh province with a poor mental health care infrastructure. It has also remained in the grip of natural disasters in one form or another (most significantly the 2022 floods).
Study Duration: mPareshan Project was conducted between 2021 to 2023.

Work Package 1: Assessing Feasibility Using RE-AIM Framework

The RE-AIM framework (**reach, effectiveness, adoption, implementation, maintenance**) provided a comprehensive structure for evaluating the feasibility of the mPareshan intervention by addressing its **implementation outcomes**.



Feasibility was assessed through pre- and post-intervention qualitative interviews including **8 focus group discussions** and **18 in-depth interviews**. Stakeholders included LHWs, Lady Health Supervisors (LHSs), policymakers and community participants. All participants who took part in the interviews before (N=44) and after (N=30) the intervention consented for the interviews.



Abbreviations: FGD: Focus Group Discussion, IDI: In-depth Interview, LHW: Lady Health Worker, LHS: Lady Health Supervisor, CP: Community Participant, PM: Policy Maker

Stakeholder's perceptions about feasibility

Burden of mental health and its perceived determinants

"About 70-80% of the people are mentally ill in Badin. We don't even have a government hospital at the district. Private doctors visit on Sundays, but their fees are unaffordable." (Community Participant, IDI, Baseline)

"In some cases, people reach a point of extreme desperation, and this may result in suicidal actions. I believe that depression can lead to changes in behaviour towards family and friends." (LHW, FGD, Baseline)

Acceptability and appropriateness of delivering and receiving a mental health intervention

"LHSs/LHWs are highly regarded in the community, considered almost like doctors." (Community Participant, IDI, Baseline)

"If (LHWs) are assigned to care for a mentally ill person, they would excel at it because they are already familiar with our community and household." (Community Participant, IDI, Baseline)

Adoption and task-technology shift of an mHealth mental health intervention

"If LHWs use mobile devices, it should work smoothly. We've already established WhatsApp groups, and since they (LHWs) are using touchscreen phones, they can easily perform tasks. They also use their phones to share videos." (LHS, FGD, Baseline)

"We can understand English and operate mobile devices since its the era of mobile technology. Main video content should be in Sindhi for the sake of clarity." (LHWs, FGD, Baseline)

Experiences regarding uptake of intervention

"We are completely satisfied with the app. It has effectively addressed mental health concerns within our community. There's been around a 70% improvement due to this app." (LHWs, FGD, Endline)

"As I gradually committed myself, I realized its inherent benefits. The initial difficulties faded as I recognized the value it brought to me." (Community Participant, IDI, Endline)

Barriers in implementation roll-out & sustainability

"We encountered some initial difficulty accessing the app segments during the first two sessions, but these issues gradually subsided." (LHWs, FGD, Endline)

"She (the LHW) is extremely occupied. She's been engaged non-stop since the start of the pandemic. We need a comprehensive strategy to maximize productivity (of this intervention)." (LHS, FGD, Endline)

Factors facilitating implementation roll-out

"Working as a team (with LHWs and LHSs together) was a more effective approach than going alone. This collaboration allowed for immediate supervision if anyone needed motivation or had queries during the sessions." (LHW, FGD, Endline)

"The video counselling was particularly helpful, guiding us to alleviate anxiety. We diligently followed the advice presented in the videos, which were further reinforced by visits from the LHS and LHW." (Community Participant, IDI, Endline)

For reference: Akhtar, S., Rabbani, F., Nafis, J. et al. A qualitative study assessing acceptability and appropriateness of a technology-assisted mental health intervention by community frontline workers: mPareshan implementation research in rural Pakistan. BMC Psychiatry 25, 16 (2025). https://doi.org/10.1186/s12888-024-06459-8

Work Package 2 - Digital Intervention Design & Delivery

mPareshan is a technology-assisted mental health intervention developed as part of a broader initiative to address the significant gaps in mental health care in Pakistan, particularly in rural and underserved areas. The mPareshan app has been designed based on stakeholder feedback received from stakeholders during the pre-intervention feasibility interviews. The app aimed to reduce anxiety and depression in rural flood-affected Pakistan through a community-based approach, leveraging the existing network of LHWs.

Key Features of mPareshan app

Tracking segment
- For participant recruitment, consent, follow-up, and feedback
- Has separate interfaces for LHWs, LHSs, and SC interaction

Counseling segment
- Six sessions for 6 months, session delivered during routine LHW visit
- Session duration: 20 minutes
- Delivered through videos, audios, and pictures
- LHW to display content on cellular device, participant to watch and listen

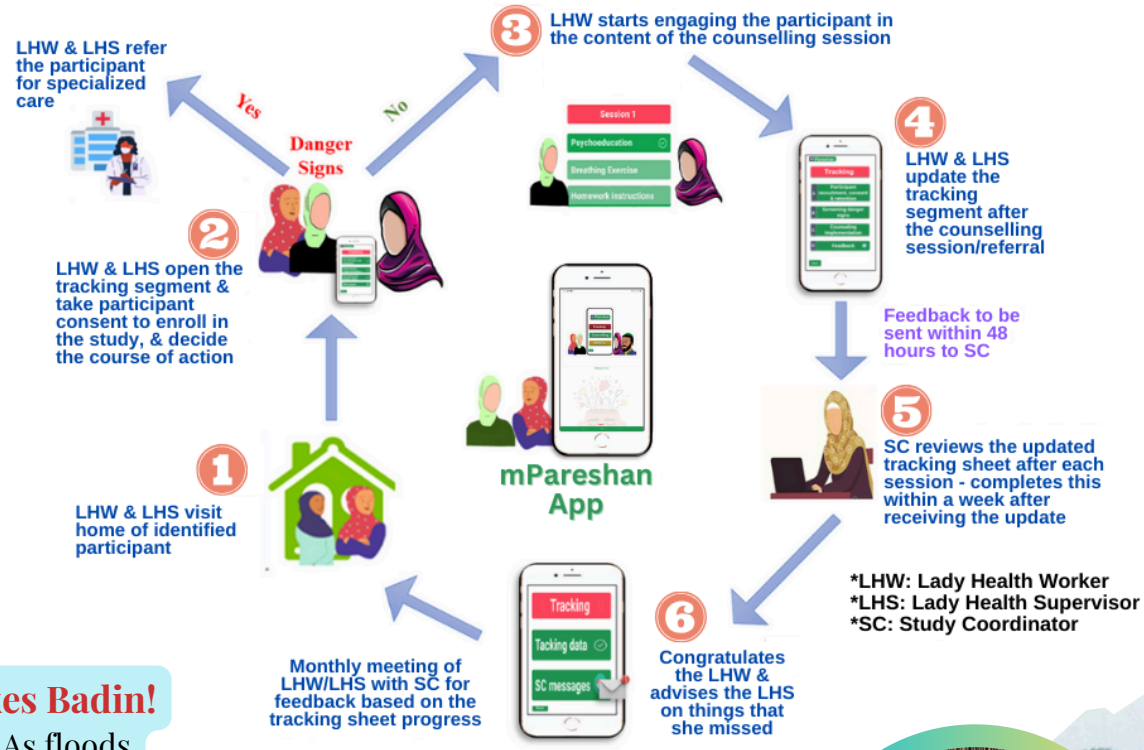
Referral segment
- Screening for danger signs will be done on each visit before giving counseling
- If participant shows any danger sign, LHW will make referral to nearest mental health facility
- Danger signs: self-harm, harm to others, and suicidal ideation

➤ **User-Friendly Design:** Adapted for easy use by LHWs, incorporating audiovisual aids for engagement. App used contextualized avatar-based characters like Fatima and her story of resilience to make the psychoeducation sessions more accessible.

➤ **Offline Accessibility:** Operated without an internet connection to ensure usability in remote and resource-limited areas.

➤ **Feedback Mechanism:** Allowed health workers to document session details and monitor progress effectively.

mPareshan workflow during implementation roll out



Climate Disaster Strikes Badin!

Extreme Flooding in 2022: As floods swept away homes and livelihoods, LHWs in Badin stood strong above waters, harnessing technology to provide a lifeline of mental health support through mPareshan!

For reference: Rabbani F, et al. Technology-Assisted Mental Health Intervention Delivered by Frontline Workers at Community Doorsteps for Reducing Anxiety and Depression in Rural Pakistan: Protocol for the mPareshan Mixed Methods Implementation Trial. JMIR Res Protoc 2024;13:e54272. doi: 10.2196/54272
mPareshan climate change case study: https://hub.connectingclimateminds.org/research-and-action/case-studies/14

Work Package 3 - Capacity Building

Overview of the Program

mPareshan project also included a structured training initiative tailored to equip frontline workers with the necessary skills to identify, counsel, and refer individuals experiencing anxiety and depression. This program was developed in response to the alarming burden of untreated mental health issues in low- and middle-income countries (LMICs), where specialized mental health services are scarce, particularly in rural areas. These trained health workers then participated in the delivery of the mPareshan intervention in the field.

Adaptation from WHO's mhGAP 2.0

The program's curriculum was adapted from the WHO mhGAP 2.0. This guide, designed for non-specialist settings, was customized to the local cultural, linguistic, and systemic context of Pakistan's LHW-P. Specific modules, such as those addressing anxiety, depression, and psychosocial counseling, were simplified to match the educational background and operational scope of LHWs and LHSs.

Outline of mPareshan training curriculum

Module 1

Introduction
- Mental health definition & its importance
- Burden of mental health in the community

Module 2

Essential care & practices
- Understand and practice effective communication skills in interaction with people having poor mental health

Module 3

Anxiety & Depression
- Identify the symptoms of anxiety & depression
- Recognize the difference between anxiety & depression
- Familiarize with factors contributing to anxiety & depression

Module 4

Counselling Strategies
- Identify the danger signs of common mental health problems
- Familiarize with psychosocial interventions for people with poor mental health
- Recognize the need for appropriate referral

Change in health workers' knowledge & skills' scores after mPareshan training

Group	Variable	Pre-test Mean (SD)	Post-test Mean (SD)	Diff (P-value)
Overall (n=69)	Knowledge	4.36 (1.42)	8.17 (1.44)	3.81 (p<0.01)
	Skill	8.25 (2.17)	9.84 (0.63)	1.59 (p<0.01)
LHS (n=33)	Knowledge	4.60 (1.51)	8.27 (1.32)	3.66 (p<0.01)
	Skill	8.18 (2.49)	9.96 (0.17)	1.78 (p<0.01)
LHW (n=36)	Knowledge	4.14 (1.31)	8.08 (1.55)	3.94 (p<0.01)
	Skill	8.30 (1.86)	9.72 (0.84)	1.41 (p<0.01)

For reference: Samina Akhtar, Fauziah Rabbani, Javeria Nafis et al. Where there is no specialist – Improving Mental Health Literacy of Frontline Community Health Workers in a Rural District of Pakistan: The mPareshan Project, 10 December 2024, PREPRINT (Version 1) available at Research Square [https://doi.org/10.21203/rs.3.rs-5571403/v1]

mPareshan Tri-lingual Trainer Manuals available here: https://www.aku.edu/bmi/research/Pages/mpareshan-app.aspx

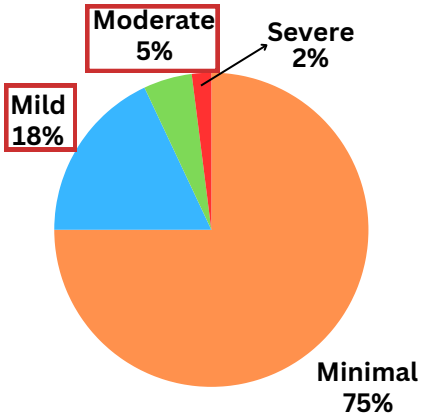
Work Package 4 - Intervention Delivery and Outcomes

mPareshan Intervention Delivery

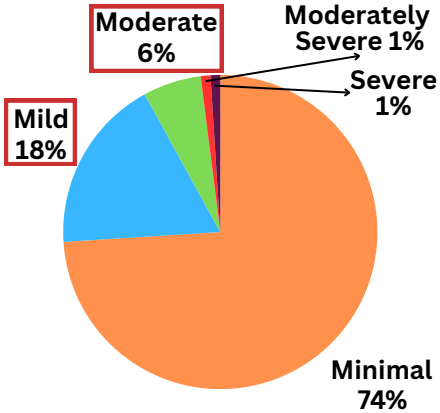
Target Population:
A baseline survey using validated psychometric instruments PHQ-9 and GAD-7 assessed the burden of anxiety and depression amongst **n=366** adult residents (aged 18 and above) of District Badin, Sindh, Pakistan. Those having mild or moderate symptoms of anxiety and depression based on PHQ-9 and GAD-7 scores were eligible for receiving the six counseling sessions of mPareshan delivered through LHWs (**n=98**). They were referred to as Screen Positive (SP) participants.

Baseline Prevalence (N=366)

Anxiety Categories (GAD-7)



Depression Categories (PHQ-9)



N=98 Screen positives, SPs, with mild and/or moderate depression and anxiety.

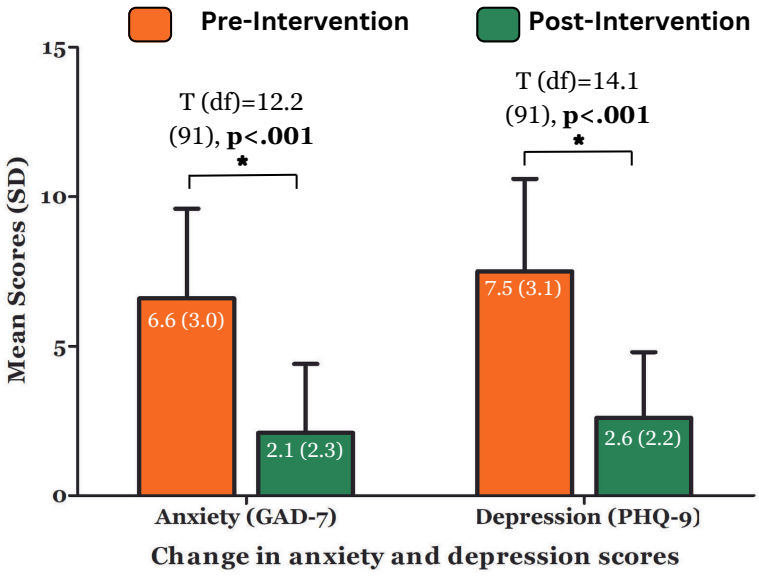
46% ♀ **54%** ♂

Reduction in Anxiety and Depression:

- SPs (n=92) showed significant improvements in mental health, with reductions in PHQ-9 and GAD-7 scores post-intervention.
- Pre-post mean differences indicated that the app-based intervention successfully mitigated mild to moderate symptoms.

SPs (N=92)✣

✣ Endline scores available for 92 out of 98 SPs



For reference: Fauziah Rabbani, Javeria Nafis, Samina Akhtar et al. Home-based digital counselling by frontline community workers for anxiety and depression in rural Pakistan: piloting mPareshan - a task-shifting primary mental health care intervention, 17 December 2024, PREPRINT (Version 1) available at Research Square [https://doi.org/10.21203/rs.3.rs-5621643/v1]
mPareshan Youtube Video: https://youtu.be/KRSv5Ko_7yg

Conclusion

The mPareshan project highlighted the powerful potential of **empowering LHWs** to bridge the mental health treatment gap in rural Pakistan. Through their dedicated efforts, participants experienced significant relief from anxiety and depression, with notable reductions in **PHQ-9** and **GAD-7** scores, underscoring the intervention's transformative impact.
The integration of **WHO's mhGAP 2.0**'s guidelines into the LHW capacity-building training not only enhanced their ability to recognize and manage mental health challenges but also equipped them with counseling skills tailored to the unique cultural and social context of their communities. This approach has become particularly crucial in regions like Badin District, where frequent climate-related events such as flooding exacerbate existing vulnerabilities. The intervention's design accounted for these realities, ensuring that LHWs were prepared to address the compounded psychosocial impacts of climate-induced crises.

The use of a digital app proved instrumental, allowing LHWs to deliver **technology-assisted psychoeducational counselling** during home visits, even in areas with limited healthcare infrastructure. By breaking the barriers of stigma and resource constraints, mPareshan demonstrated how technology, compassion, and training can come together to provide hope and healing.

Policy Recommendations

Institutionalizing Mental Health Training:

- Integrate mental health into primary healthcare (PHC).
- Incorporate mental health modules into the national LHW curriculum permanently, using resources like the tri-lingual mPareshan training manuals and mhGAP guidelines.
- Provide continuous capacity-building and supportive supervision for LHWs and their supervisors (LHSs) to maintain quality.

Strengthening Digital Health Infrastructure:

- Improve internet connectivity
- Develop multilingual, culturally adapted versions of the mPareshan app for broader reach.

Expanding Coverage:

- Scale the intervention to additional districts, prioritizing areas with high mental health burdens, such as regions with high suicide rates or those affected by climate change disasters.

Policy-Level Endorsements:

- Advocate for mental health policies that support community-based interventions through LHWs, including technology-assisted interventions.
- Secure funding for sustainable implementation from government and international health agencies.

For reference: Rabbani, F., Akhtar, S., Nafis, J., Khan, S., Siddiqi, S., & Merali, Z. (2023). Addition of mental health to the lady health worker curriculum in Pakistan: now or never. Human resources for health, 21(1), 29. https://doi.org/10.1186/s12960-023-00814-8

Team for developing evidence brief:
Fauziah Rabbani (PI), Amna Siddiqui, Hafiza Nabi, Zul Merali

Acknowledgements to mPareshan project team:
Samina Akhtar, Javeria Nafis, M. Shahid Khan, Saleem Sayani

The mPareshan Project was executed through the Department of Community Health Sciences, with funding provided by the Brain and Mind Institute (BMI), Aga Khan University, Pakistan (Grant Brain & Mind-FR-11E-mPareshan App 83000). The study was approved by the Ethical Review Committee of Aga Khan University (ERC# 2021-6570-20015).

For more information on the project, please contact the Principal Investigator, Dr. Fauziah Rabbani
fauziah.Rabbani@aku.edu

Please visit the BMI website for further resources on mPareshan:
https://www.aku.edu/bmi/research/Pages/mpareshan-app.aspx
Or scan the QR code:

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