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A FEASIBILITY STUDY OF THE CULTURALLY ADAPTED SOLACE PROGRAM (STIGMA OF LIVING AS AN AUTISM CARER) TO REDUCE STIGMA IN MOTHERS OF CHILDREN WITH AUTISM IN PAKISTAN: A TWO-ARM FEASIBILITY TRIAL

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ABSTRACT
Background: Stigma tied to autism poses serious consequences for the mental well-being of caregivers. In collectivist societies like Pakistan, where family reputation and community perception carry substantial weight, this burden falls heavily on mothers who provide day-to-day care. The SOLACE (Stigma of Living as an Autism Carer) program—an eight-session psychosocial intervention originally piloted in the United Kingdom—targets caregiver mental health by strengthening resistance to stigma. The current study set out to evaluate whether a culturally adapted version of SOLACE is feasible, acceptable, and practical for Pakistani mothers raising children with autism.
Methods: A two-arm feasibility trial using 1:1 allocation took place between November and December 2024 in Lahore, Pakistan. Nine eligible mothers were randomized either to the adapted SOLACE intervention (n=5) or to a wait-list control condition (n=4). The program ran over eight face-to-face group sessions lasting 90–120 minutes each, held twice a week. Feasibility was gauged through recruitment and retention figures, attendance records, fidelity checks, and structured feedback from participants. Qualitative responses were examined through directed content analysis.
Results: Completers attended 91.7% of sessions on a per-protocol basis. Attrition stood at 33.3%, with both withdrawals stemming from personal circumstances unrelated to the program. Across every acceptability measure, participant ratings surpassed 96%. Fidelity remained intact throughout. Notable cultural modifications included an exclusive face-to-face delivery format, training in respectful assertiveness, two additional dedicated sessions designed exclusively for fathers, and compilation of Urdu-language psychoeducation resources. Mothers described heightened awareness of stigma, stronger self-advocacy, and shared their unanimous willingness to recommend the program to other parents.
Conclusion: The adapted SOLACE program proved feasible, well-received, and culturally resonant among Pakistani mothers of autistic children, warranting progression to a fully powered randomized controlled trial.

KEYWORDS: autism; caregiver stigma; cultural adaptation; feasibility trial; psychosocial intervention

1. INTRODUCTION

Autism spectrum disorder (ASD) encompasses a range of neurodevelopmental presentations marked by difficulties in social communication and interaction, coupled with restricted, repetitive behavioral patterns (American Psychiatric Association, 2022). Over the past three decades, ASD has moved from relative obscurity to the forefront of global public health discourse. Current estimates from the World Health Organization place the worldwide prevalence at roughly 1 in every 100 children (WHO, 2023). Data drawn from the Global Burden of Disease (GBD) 2021 initiative paint an even starker picture: prevalent cases rose from around 42 million in 1990 to over 61 million by 2021, and modeling projects a further climb to nearly 72 million by 2045 (Zheng et al., 2025). Such figures carry implications that stretch well beyond the individuals diagnosed—they signal an equally pressing need to support the families who shoulder the daily responsibilities of caregiving.

Pakistan presents a particularly challenging environment for autism care. No nationally representative prevalence study has been conducted, but the Pakistan Autism Society places the estimated number of affected children at approximately 350,000 (Khalid et al., 2020)—a figure widely considered conservative given how many cases go unreported. Pooled estimates from a recent South and Southeast Asian meta-analysis placed Pakistan-specific prevalence at around 0.3%, though substantial variability across study designs and regions was noted (Shrestha et al., 2024). Diagnostic and therapeutic services cluster in a handful of major cities, leaving families in smaller towns and rural areas with almost no formal support. Compounding this gap, surveys reveal strikingly low autism awareness not only among the general population but also among healthcare workers and educators—the very professionals who ought to serve as first points of contact (Anwar et al., 2018; Imran et al., 2011).

Within this landscape, the caregiving load falls primarily on mothers. Financial pressures, limited societal provisions, scarce coping resources, and the ever-present shadow of social stigma converge to create a deeply taxing experience (Ludlow et al., 2012). Mothers consistently report poorer psychological outcomes than fathers, carrying greater depression, anxiety, and feelings of isolation (Papadopoulos, 2021). Pakistani cultural norms reinforce this imbalance. Patriarchal expectations position mothers as the ones responsible for a child's upbringing and developmental milestones. In the joint-family households common across the country, a mother's parenting is constantly visible to—and evaluated by—in-laws, siblings, and extended kin. If a child falls outside the accepted bounds of typical development, it is the mother who tends to absorb the blame, amplifying her psychological distress.

Stigma lies at the heart of many of these difficulties. Goffman (1963) described stigma as an attribute that profoundly discredits a person, transforming their social identity from whole to diminished. When applied to autism, the stigma extends to those around the diagnosed individual. Goffman's own term for this phenomenon—"courtesy stigma"—captures how relatives and close associates come to share in the devaluation directed at the stigmatized person (Birenbaum, 1970). Subsequent scholarship has refined the concept under the label "affiliate stigma," which describes the process by which caregivers absorb and internalize public prejudice, resulting in shame, avoidance of social situations, concealment of the child's diagnosis, and reluctance to seek professional help (Mak & Cheung, 2008). A twelve-study systematic review by Papadopoulos et al. (2019) confirmed that stigma's toll on caregiver mental health is not only statistically significant but multifaceted, shaped by both modifiable factors—like social support and active coping—and more entrenched ones, such as the cultural milieu in which families are embedded. That finding carries a clear implication: interventions capable of strengthening caregivers' defenses against stigma could meaningfully improve their mental well-being.

Cross-cultural evidence reinforces how widespread and damaging these dynamics are. In South Asia, parents describe acute emotional upheaval at the point of diagnosis, made worse by financial strain, sparse services, low community awareness, and judgmental attitudes from those around them (Tathgur & Kang, 2021). Research from the Middle East documents comparable patterns, with maternal stress and family disruption intensified wherever societal stigma is pronounced (Omar et al., 2017). Pakistani mothers, specifically, shoulder greater depression, stress, and perceived stigma than fathers (Neoh et al., 2022), and routinely encounter dismissive or blaming responses from both community members and, at times, professionals (Furrukh & Anjum, 2020). Zahra et al. (2025) added a further layer to this picture by demonstrating that anxiety mediates the link between stress and depression in Pakistani mothers of autistic children—a chain of effects that points toward the necessity of early, targeted psychosocial support.

Within Pakistan itself, a systematic review covering 46 locally conducted studies from several major cities documented widespread ignorance about autism among parents, educators, clinicians, and the broader public (Salman et al., 2024). Deeply rooted myths—that autism results from spiritual affliction, the evil eye, or parental wrongdoing—were found to fuel stigma and deter families from pursuing diagnosis or intervention. The toll of this stigma on caregivers is now well-catalogued: it erodes self-worth, raises stress levels, and narrows quality of life (Liao et al., 2019). Families face social exclusion and stereotyping, especially when their children display challenging behaviors in public settings (Kinnear et al., 2016; Swaab et al., 2023). Chan and Lam (2018) demonstrated that self-stigmatizing beliefs actively predict worsening mental health and weaker self-efficacy in caregivers, while data from Saudi Arabia indicate that roughly one in three parents of autistic children report both experienced and internalized stigma (Alshaigi et al., 2020). Taken together, these lines of evidence make a compelling case that effective interventions must tackle stigma on multiple fronts—external and internal alike.

Yet a striking gap separates the scale of the problem from the availability of solutions. The majority of psychosocial programs designed for autism caregivers originate in high-income, Western contexts and concentrate on behavioral management or general parenting skills rather than on the stigma that so powerfully shapes caregivers' day-to-day reality (McConkey, 2022). The disparity is even more glaring in low- and middle-income countries (LMICs), where more than three-quarters of people needing mental health care receive none (WHO, 2023). For autistic children in these settings, the treatment gap has been described as approaching 100%, driven by shortages of trained professionals, negligible policy infrastructure, and social stigma that suppresses demand from families who might otherwise seek services (Naithani et al., 2022). Importing Western interventions wholesale into collectivist societies is unlikely to succeed; differences in household structure, communication conventions, and the social meaning of disability call for careful, culturally grounded adaptation.

Against this backdrop, the SOLACE (Stigma of Living as an Autism Carer) program holds particular promise. Designed by Lodder et al. (2019) at the University of Bedfordshire in the United Kingdom, SOLACE is—to our knowledge—the first psychosocial intervention built specifically to help autism caregivers resist stigma. Its eight group sessions combine psychoeducation, cognitive reframing, peer support, and practical stigma-response strategies. When tested in a UK feasibility trial, the program yielded measurable improvements in mental health, self-esteem, and self-compassion, alongside strong participant retention and positive feedback (Lodder et al., 2020). Translating these gains to a Pakistani context, however, required more than linguistic translation. Family dynamics, communication norms around hierarchy and respect, and the particular forms stigma takes in a collectivist, joint-family society all demanded systematic attention.

To guide this adaptation, we employed the Intervention Mapping–Adaptation (IM-ADAPT) framework (Escoffery et al., 2019). The full six-step process—described in a separate publication (Salman et al., in preparation)—drew on three complementary sources of evidence: a systematic review of indigenous Pakistani caregiving research (Salman et al., 2024), structured feedback from expert clinical psychologists, and iterative piloting with mothers from the target population. The present study addresses the final step in that framework: a feasibility trial. Rather than testing efficacy, feasibility trials ask whether a newly adapted intervention can actually work on the ground—can participants be recruited and retained, do they attend and engage, is the content acceptable, and is delivery faithful to the manual? (Orsmond &

Cohn, 2015; Eldridge et al., 2016). This approach is well-established in the adaptation literature; several published feasibility evaluations have relied exclusively on process outcomes, omitting pre–post outcome measures in favor of examining whether the adapted program can function as intended under real-world conditions (Simpson et al., 2019; Cartwright et al., 2025).

In keeping with this methodology, the present study evaluated the culturally adapted SOLACE program among Pakistani mothers of autistic children. Three objectives guided the trial: (a) to document recruitment and retention rates, (b) to assess participant engagement and session adherence, and (c) to determine whether the intervention content and delivery format were acceptable to the target population, thereby establishing the groundwork for a subsequent full-scale randomized controlled trial.

2. METHODS

2.1 Study design

The study adopted a two-arm feasibility design with participants allocated in a 1:1 ratio to either the adapted SOLACE intervention or a wait-list control condition. Prospective registration was completed with the UMIN Clinical Trials Registry (ID: UMIN000056113). The Advanced Studies and Research Board (AS&RB) at the University of the Punjab, Lahore, Pakistan, granted ethical approval. Each participant gave written informed consent, meanwhile measures to protect confidentiality and anonymity were maintained throughout the pilot study.

2.2 Participants

Recruitment targeted mothers of children diagnosed with mild-to-moderate autism, as verified through the Childhood Autism Rating Scale (CARS; Schopler et al., 1988). Participants were drawn from inclusive schools, Montessori centers, and special education institutions in Lahore between October and November 2024. The research team identified potential sites via online directories and then visited each in person; formal written authorization was secured from institutional heads before any contact with prospective participants. To be eligible, mothers needed to score in the moderate-to-high range on the Perceived Autism Related Stigma by Association Scale (PARSA; Rizvi & Batool, 2020), be currently married, possess a smartphone enabling participation in the online support component, and have a spouse willing to join two father-focused sessions. No sample size calculation was performed, in line with accepted feasibility trial practice (Orsmond & Cohn, 2015).

Eighteen mothers underwent initial screening. Of these, nine were excluded: four fell below the eligibility thresholds, four declined for personal reasons, and one never returned the screening materials. The remaining nine entered randomization via coin toss—5 assigned to the SOLACE group and 4 to the wait-list control. Among the five intervention participants, three attended the full program; two withdrew partway through (after Sessions 2 and 4, respectively)—one because her family relocated and the other following a family bereavement. In the control arm, three mothers completed the wait-list period and one dropped out. Final analyses therefore drew on data from six mothers, three in each group.

2.3 Intervention

Eight group sessions, each running 90 to 120 minutes, formed the core of the adapted SOLACE program. Sessions took place twice weekly across four weeks in a quiet classroom at a Montessori school, all delivered face-to-face. The principal researcher—a trained clinical psychologist—facilitated the sessions, with a co-facilitator on hand to manage logistics and monitor treatment fidelity. Both professionals held clinical psychology specializations and had prior experience supporting parents of autistic children.

Adaptation was carried out within the Intervention Mapping–Adaptation (IM-ADAPT) framework (Escoffery et al., 2019), a structured six-step process for tailoring evidence-based programs to new populations (a full account of the adaptation procedure appears in a separate publication). Session materials were rendered in Urdu, with bilingual delivery used where needed. Cultural examples and local nuances—informed by a review of 46 indigenous studies on Pakistani autism caregiving (Salman et al., 2024)—were woven into the content and subsequently refined through feedback from consulting clinical psychologists. The sessions covered psychoeducation (drawing on DSM-5-TR criteria), myth-busting, cognitive reframing via the ABC model, respectful assertiveness training, strengths-based activities, social support mapping, self-care planning, and facilitated group sharing. The principal culturally driven modifications were: (a) an entirely face-to-face format, adopted after mothers reported unreliable internet connections, insufficient privacy within joint-family homes, and discomfort using video platforms; (b) an added orientation session for rapport-building, norm-setting, and alleviating uncertainty about what the program involved; (c) two evening Zoom sessions directed at fathers, timed to work around employment schedules; (d) new content addressing sensory processing concerns relevant to crowded multigenerational households; (e) expanded psychoeducation targeting maternal denial about an autism diagnosis; (f) curated YouTube testimonials from families of similar cultural backgrounds, replacing the originally planned self-recorded facilitator videos; (g) “respectful ready-made answers”—rephrased stigma responses designed to uphold family harmony rather than provoke confrontation; and (h) printed Urdu handouts and worksheets for every session, including myth-busting fact sheets, an ABC cognitive chart, and a social support mapping exercise. A WhatsApp group for peer support ran alongside the formal sessions.

2.4 Wait-list control group

Mothers allocated to the control arm (n=3 completers) underwent baseline assessments identical to those in the intervention group. Once the eight-session SOLACE program concluded for the experimental participants, the wait-list mothers received the full resource package, consistent with ethical obligations.

2.5 Measures

Perceived Autism Related Stigma by Association Scale (PARSA; Rizvi & Batool, 2020). This 21-item instrument captures perceived stigma among Pakistani parents of autistic children along three dimensions: Attitude of Community, Behavior

of Community, and Emotional Burden. Scores exceeding 50 signal elevated stigma. Internal consistency across subscales ranges from α = .69 to .82, and both convergent and discriminant validity have been confirmed.

Childhood Autism Rating Scale (CARS; Schopler et al., 1988). A clinician-administered tool comprising 15 items (total score range: 15–60), employed here to verify autism diagnosis and gauge severity.

Feasibility Feedback Forms (Bowen et al., 2009). Purpose-designed forms combining Likert-scale items with open-ended questions, covering perceived effectiveness, clarity of delivery, content relevance, engagement, practicality, psychological safety, and willingness to recommend the program. Open-ended responses allowed participants to articulate practical barriers and experiential nuances that quantitative items alone would not capture (Patton, 2015).

Intervention Fidelity Checklist (Breitenstein et al., 2010). Adapted for this trial, the checklist rated facilitator competence—participant engagement, respectful communication, idea reinforcement, and group management—on a 3-point scale (1 = rarely demonstrated through 3 = consistently demonstrated). Protocol adherence items (attendance tracking, agenda coverage, ground-rule enforcement, session closure) were scored dichotomously (Yes/No).

Facilitator Supervisory Log and Intervention Implementation Log (Papadopoulos et al., 2019). Originally developed for the UK SOLACE trial, these logs captured session topics, any deviations from the manual, facilitator reflections, emerging challenges, and observations of participant engagement. The implementation log also recorded punctuality, topic adherence, and time spent on each activity.

2.6 Data analysis

Quantitative feasibility indicators—recruitment figures, attendance rates, and attrition—were entered into IBM SPSS Statistics version 27 and summarized using frequencies, means, and percentages. Qualitative material, drawn from participants' written feedback, the researcher's handwritten field notes, intervention logs, and supervisory debriefing records, was examined through directed content analysis. Analytic categories were set in advance around the feasibility dimensions proposed by Bowen et al. (2009): demand, acceptability, practicality, and fidelity.

3. RESULTS

3.1 Participant characteristics

Table 1 summarizes the demographic profile of the six mothers who completed the study. All were married. Educational attainment was at secondary level or higher for most. Children in the experimental arm tended to carry moderate-level diagnoses, whereas children in the control arm more often fell in the mild range. Joint-family living arrangements predominated—universal in the experimental group and present in two-thirds of the control group. In both arms, two out of three mothers reported receiving no caregiving assistance from their spouse. The children's mean age was 3.17 years (SD = 1.07), and the average age at which they had received their diagnosis was 2.33 years (SD = 0.82).

Table 1. Demographic Characteristics of Participants (N = 6)

Variable	Experimental (n=3)	Wait-List (n=3)	Total (N=6)
Marital Status (Married)	3 (100%)	3 (100%)	6 (100%)
Diagnosis: Mild	33.3%	66.7%	
Diagnosis: Moderate	66.7%	33.3%	
Joint Family System	100%	66.7%	
No Spousal Assistance	66.7%	66.7%	
Child Age, M (SD)	2.33 (0.58)	4.00 (1.00)	3.17 (1.07)
Age at Diagnosis, M (SD)	1.83 (0.29)	2.83 (1.04)	2.33 (0.82)

3.2 Demand and engagement

Attendance was calculated two ways to give a balanced picture. On an intent-to-treat (ITT) basis—counting all five mothers originally assigned to the intervention regardless of whether they finished—mean attendance was 5.6 out of 8 sessions (70%). Among the three who completed the full program, per-protocol attendance reached 7.33 out of 8 sessions (91.7%), pointing to high engagement once practical barriers were managed. Neither dropout was connected to dissatisfaction with the program: one mother's family relocated, and the other experienced a bereavement. All sessions took place in person at a Montessori school classroom. The shift away from the originally planned online component followed early reports from participants about poor internet reliability, scheduling conflicts at home, and interruptions from extended-family members. After the trial concluded, the SOLACE resource materials were made available to the wait-list group; one mother took up the offer (Table 2).

Table 2. Session Attendance and Attrition Rates

Feasibility Indicator	Measure	Result
Attendance (Per-Protocol)	Mean sessions attended (completers)	91.7% (7.33/8)
Attendance (ITT)	Mean sessions attended (all allocated)	70% (5.6/8)

Attrition	Withdrawals from intervention group	33.3% (2/6); unrelated to intervention

3.3 Acceptability

Feedback ratings ran high across every acceptability dimension, uniformly exceeding 96%. Specific scores were: perceived usefulness 98.2%, presentation clarity 99.1%, multimedia satisfaction 99.1%, handout usefulness 99.1%, video relatability 96.6%, activity effectiveness 96.6%, WhatsApp group benefit 98.1%, and psychological safety 98.2%. Every participant said she would recommend SOLACE to other mothers, and 77.8% singled out myth-busting content, multimedia presentations, the WhatsApp peer group, and open group sharing as the program's strongest elements.

The qualitative data told a consistent story. Mothers described gaining the ability to talk about autism with relatives in ways that avoided conflict. As one participant put it: "Before, I used to feel blamed for my child's condition, but now I have answers that make sense and can be said respectfully." The peer-support dimension resonated powerfully; another mother noted, "Hearing from other mothers made me feel I am not alone." Participants were particularly drawn to the predominantly Urdu delivery, the myth-busting material that tackled misconceptions like autism being a form of divine punishment, and the printed handouts—tangible resources they could take home and share with skeptical family members.

3.4 Fidelity

Treatment fidelity was tracked through multiple channels: the implementation log and supervisory log from the original SOLACE developers (Papadopoulos et al., 2019), and the Intervention Fidelity Checklist adapted from Breitenstein et al. (2010). The co-facilitator occupied a deliberate dual role—handling session logistics while simultaneously serving as a clinical fidelity observer. Guided by established fidelity principles (Bellg et al., 2004; Borrelli, 2011), she used a structured checklist each session to assess whether core components were covered, whether the session flowed as planned, and whether the facilitator used the recommended language. This arrangement allowed for real-time monitoring and prompt corrective feedback, keeping delivery drift to a minimum. Across all eight sessions, every planned component was delivered according to protocol, and quantitative fidelity scores stayed above 95%. Qualitative observations corroborated the quantitative data, confirming that the intervention was implemented as designed (see Table 3).

Table 3. Summary of Feasibility Outcomes Across Indicators

Feasibility Domain	Measure	Rating	Qualitative Finding	Conv.	Feasible
Effectiveness	Perceived usefulness	98.2%	Increased stigma awareness	Yes	Yes
Clarity	Presentation clarity	99.1%	Multimedia preferred over whiteboard	Yes	Yes
Content	Handout usefulness	99.1%	Tangible Urdu handouts valued	Yes	Yes
Engagement	Activity effectiveness	96.6%	Interactive exercises valued	Yes	Yes
Social Support	WhatsApp group benefit	98.1%	Safe, accessible; preferred over Facebook	Yes	Yes
Practicality	Skill application & mode	98.2%	Face-to-face preferred; privacy concerns	Yes	Yes
Safety	Environment trust	98.2%	Safe space for sharing	Yes	Yes
Acceptability	Willingness to recommend	100%	Universal endorsement	Yes	Yes

3.5 Practicality, barriers, and key adaptations

Practical obstacles surfaced despite the program's overall warm reception. Three issues stood out: patchy internet service that ruled out online sessions, clashing household schedules, and the absence of a private space at home for uninterrupted virtual participation—a direct consequence of joint-family living. Relocating the program entirely to a community-based, face-to-face format resolved the attendance difficulties for those who stayed in the trial and highlighted how much delivery mode matters when working in low-resource, collectivist contexts. Mothers voiced a clear preference for in-person group sessions, pointing to the immediacy of peer support, the solidarity of shared experience, and the comfort of a judgment-free environment.

Session 4 prompted the most substantive content revision. The original SOLACE manual encourages caregivers to prepare and rehearse ready-made answers to stigmatizing remarks. In practice, Pakistani mothers raised a concern the UK developers had not anticipated: that blunt or direct replies, however justified, could trigger conflict with in-laws—often the primary source of stigma within joint-family households. One mother captured the dilemma: "If I answer directly, they will say I am disrespectful. I have to choose words very carefully, so the relationship stays intact." Another added: "We cannot burn bridges; we have to live with these people every day." In response, the research team introduced guidelines for culturally sensitive communication and a companion handout mapping out respectful phrasing strategies—equipping mothers to stand their ground while preserving family cohesion.

Two further adaptations merit note. Professionally produced YouTube testimonials featuring diverse family members—mothers, fathers, siblings—were substituted for the self-recorded facilitator videos prescribed in the original manual; participants found these more engaging and relatable. An orientation session was also inserted before the structured curriculum began, giving participants a chance to meet one another, understand the program's aims, and settle into the group dynamic before substantive content commenced.

4. DISCUSSION

This trial set out to determine whether a culturally adapted version of the SOLACE program could feasibly be delivered to mothers of autistic children in urban Pakistan. Across every indicator examined—demand, acceptability, practicality, and fidelity—the answer was affirmative. Quantitative ratings and qualitative accounts converged: participants found the program useful, relevant, and safe, and the intervention was delivered faithfully against the adapted manual.

The 91.7% per-protocol attendance rate closely mirrors what Lodder et al. (2020) reported in the original UK trial, suggesting that the adapted program can achieve comparable engagement once structural barriers are addressed. Among the mothers who stayed enrolled, every session was attended in full. That the two withdrawals reflected life events—a relocation and a bereavement—rather than disenchantment with the intervention is itself an encouraging signal: when logistical hurdles are cleared, these mothers are willing and motivated to participate. The transition to an entirely face-to-face format was essential to making that possible. Online delivery, while practical in many Western settings, ran headlong into Pakistani realities: unreliable broadband, the absence of a private room in multigenerational homes, and unfamiliarity with video platforms. This shift echoes broader findings that in-person formats often remain the more effective choice in collectivist, lower-resource environments where trust and rapport are built through physical presence.

Satisfaction scores told an unambiguous story: every acceptability measure cleared 96%, and every mother said she would recommend the program to others. The Urdu handouts and context-specific myth-busting content drew particular praise. Mothers valued having concrete, culturally grounded explanations they could present to dubious relatives—resources that spoke to their own lived reality rather than to a generalized Western audience. The culturally tailored myth-busting material, designed specifically by the research team, was singled out as especially relevant. Session 4's assertiveness training, reframed around respectful communication, was regarded as one of the program's most important innovations, given that joint-family power structures so often serve as a conduit for stigma. Qualitative reflections also revealed that several mothers entered the program still partly in denial about their child's diagnosis, perceiving their child as merely shy or speech-delayed; the enriched psychoeducation helped them move toward acceptance. These patterns are consistent with earlier feasibility work demonstrating that culturally tailored materials sharpen participant engagement and perceived relevance (Simpson et al., 2019; Cartwright et al., 2025).

The reframing of stigma-response strategies—from direct confrontation to respectful assertiveness—constitutes perhaps the most theoretically significant adaptation. Pakistani mothers cannot simply "walk away" from in-laws who are their primary source of stigma; they share a household, a family economy, and a social network. Communication strategies that shield a mother's psychological well-being while keeping those relationships intact are therefore not optional embellishments but essential features of any workable intervention. Crucially, this modification preserves SOLACE's core mechanism—bolstering resistance to stigma—while reshaping its expression to fit local relational expectations (Lodder et al., 2019).

On the practicality front, the picture was more nuanced. The original plan had included online components, but participant feedback quickly exposed the mismatch between that design and on-the-ground conditions. Shifting entirely to face-to-face delivery solved the attendance problem and enabled richer group interaction. Mothers stated plainly that they preferred being together in a room—sharing stories, making eye contact, feeling physically present with women who understood their situation—over the mediated distance of a screen.

Fidelity data added a layer of reassurance. All core session elements were delivered as specified, therapeutic objectives were met, and quantitative fidelity ratings held above 95% throughout. Where minor adjustments were made in response to participant input, they did not compromise the program's theoretical underpinning—the intervention remained recognizably SOLACE, adapted rather than diluted.

The inclusion of father-focused sessions responds to a need identified in both the indigenous literature review (Salman et al., 2024) and the trial itself. Pakistani fathers are largely absent from autism caregiving research (Neoh et al., 2022), yet their attitudes and involvement shape maternal well-being in tangible ways. Offering two evening sessions via Zoom—a pragmatic accommodation to work schedules—represents a first step toward engaging fathers, and its effectiveness warrants closer examination in a full-scale trial.

4.1 Implications for future research

These findings supports and regards the adapted SOLACE program as both feasible and culturally compatible for mothers of children with autism in Pakistan. All core feasibility domains—acceptability, practicality, fidelity, and progression—were satisfactorily addressed, while the trial also surfaced context-specific issues that a definitive RCT will need to manage. Future work should retain the face-to-face delivery model, probe the potential of peer-led video content more deeply, and investigate whether involving spouses or extended-family members could amplify outcomes. Measurement should expand beyond process indicators to encompass validated scales of stigma reduction, self-esteem, and caregiver mental health.

4.2 Limitations

The sample was small (N = 6 completers), limiting generalizability—though such numbers fall within accepted norms for feasibility research (Orsmond & Cohn, 2015). Participants were all urban residents of Lahore; rural mothers may face a different constellation of barriers. Attrition, while not intervention-driven, still reduced the pool of completers. The study did not include pre–post outcome measures, so preliminary efficacy remains untested. Randomization by coin toss, though

pragmatic, is less rigorous than computer-generated sequencing. Even so, the trial yielded practical insights into delivery logistics, engagement patterns, and content acceptability that will directly inform the design of a powered RCT.

5. CONCLUSION

The culturally adapted SOLACE program met the benchmarks for feasibility, fidelity, and acceptability when delivered to Pakistani mothers of autistic children. These results demonstrate that stigma-focused interventions can travel across cultural boundaries—provided the adaptation process is systematic, driven by the voices of the target population, and attentive to the practical realities of the local context. The groundwork is now in place for a fully powered randomized controlled trial to evaluate whether the adapted program can reduce internalized stigma and improve caregiver mental health.

Declarations

Ethical approval: Granted by the Advanced Studies and Research Board (AS&RB), University of the Punjab, Lahore, Pakistan.

Trial registration: UMIN Clinical Trials Registry UMIN000056113 (November 11, 2024).

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Conflicts of interest: None exist

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