ISRCTN36874964 https://doi.org/10.1186/ISRCTN36874964

A therapy program to improve language and communication skills for Jordanian children with language delay

Submission date
24/02/2026

Recruitment status
No longer recruiting

Registration date
05/03/2026

Overall study status
Completed

Last Edited
05/03/2026

Condition category
Mental and Behavioural Disorders

[ ] Prospectively registered
[X] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
Language delay is a common problem in young children. It can make it hard for them to communicate with others, learn at school, and make friends. Children with language delay need effective help, but there are very few Arabic language programmes that have been properly tested. This study aims to fill that gap.

Who is this study for?
Children aged 3 to 8 years living in Jordan who have been diagnosed with language delay.

What does this study involve?
The study compared two groups of children. One group took part in a new intensive training programme designed by the research team. The programme included 140 individual sessions over 48 weeks (about one year), with each session lasting 30 minutes. The sessions focused on five key areas: listening skills, thinking skills (like memory and attention), language understanding and use, clear speech, and exercises to strengthen the mouth muscles used for talking. Parents were also trained to help their child practice these skills at home.

The other group continued to receive the usual speech therapy services available at their local centre. This allowed the researchers to see if the new programme was more helpful than the usual care.

What are the possible benefits and risks of participating?
The children who took part in the new programme showed very large improvements in their language and communication skills. No serious risks were reported.

Where is the study run from?
The study took place in speech and language centres in Amman, Jordan.

When is the study starting and how long is it expected to run for?
March 2024 to June 2025.

Who is funding the study?
Zarqa University, Jordan.

Who is the main contact?
Dr Dhia'a AbuEswailem, dabueswailem@zu.edu.jo

Contact information

Type(s)
Public, Scientific, Principal investigator

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Study information

Scientific Title
Efficacy of a multi-domain training program (auditory, cognitive, linguistic, articulatory, and oral motor skills) compared to standard care on language and speech outcomes in Jordanian children aged 3–8 years with language delay: a randomized controlled trial

Acronym
MULTI-LING

Study objectives
Primary objective: To evaluate the efficacy of a multi-domain training programme (targeting auditory rehabilitation, cognitive skills, language, speech, and oral muscular strength) compared to standard care in improving language and speech capabilities among Jordanian children aged 3–8 years with language delay.

Secondary objectives:
1. To assess the programme's effectiveness on specific subdomains: auditory rehabilitation, cognitive skills, language, speech, and muscular strength.
2. To evaluate improvements in articulation skills using the Amayreh Articulation Test.
3. To assess changes in oral motor function using a structured Oral Motor Assessment Protocol.

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 01/03/2024, Ethics Committee for Scientific Research (ECSR) at Zarqa University (Zarqa University, Zarqa, 13222, Jordan; +962 5 382 1100 (ext. 1112); nfareed@zu.edu.jo), ref: 1/3/2024

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Blinded (masking used)

Control
Active

Assignment
Parallel

Purpose
Treatment

Study type(s)

Health condition(s) or problem(s) studied
Language Delay

Interventions
Multi-domain training program (auditory rehabilitation, cognitive skills, language development, speech production, and oral motor skills)

Intervention: Multi-domain Language Training Programme (MULTI-LING)
The Multi-domain Language Training Programme, known as MULTI-LING, is designed as an integrated therapeutic approach that simultaneously targets several developmental areas. Its theoretical rationale is grounded in a sensory–language integration model, which proposes that coordinated stimulation across multiple developmental domains can produce synergistic and more robust gains in communication skills.

The programme is delivered using a manualised protocol that outlines structured activities across five developmental domains. Materials include picture cards, auditory stimuli, oral motor exercise tools, and parent handouts. These materials support consistent delivery while allowing the therapist to adapt activities in response to each child’s developmental profile.

MULTI-LING involves a series of individual therapeutic sessions that systematically address auditory rehabilitation, cognitive skills, language development, speech production, and oral

motor skills. The full programme consists of 25 auditory rehabilitation sessions, 30 cognitive skills sessions, 45 language development sessions, 25 speech production sessions, and 15 oral motor skills sessions.

Intervention sessions are provided by a certified speech–language pathologist who has completed more than 300 hours of specialised training in multi-domain therapeutic methods. All sessions are delivered face to face to ensure close monitoring of progress and accurate modelling of therapeutic techniques.

The intervention takes place at speech and language centres located in Amman, Jordan. Children attend a total of 140 sessions, with each session lasting 30 minutes. Sessions occur five times per week across a 48-week period. This intensive schedule aims to maximise learning and neurodevelopmental gains over the course of the programme.

Although the programme is manualised, activities are tailored according to each child's baseline assessment and developmental level. This ensures that each child receives developmentally appropriate challenges and that tasks are matched to individual profiles. No modifications were made during the trial period, as the version used represents the optimised form developed during the pilot phase.

Planned fidelity procedures included monitoring a random 20 percent sample of sessions through video recordings reviewed with a standardised checklist. This approach supported consistent adherence to the protocol. Actual fidelity was high, with adherence rates exceeding 90 percent across the full duration of the intervention.

Control Group Intervention: Standard Care
The control group received standard care, which reflects the usual speech therapy services available in Jordanian clinical settings. This approach represents routine practice and does not include any of the specialised multi-domain components that characterise the MULTI-LING programme.

Standard care involved conventional speech therapy delivered according to existing protocols within the participating centres. Sessions were provided by the centres' speech–language pathologists using the models and methods ordinarily employed in their clinical work.

Therapy was delivered face to face, following each centre's standard procedures. Children attended sessions at the same speech and language centres in Amman as the intervention group. Frequency and duration followed typical centre practices, which generally involve approximately three sessions per week.

Both the standard care and intervention groups completed follow-up assessments at 48 weeks to evaluate outcomes consistently across both conditions.

Randomisation Process
Randomisation was carried out using computer-generated random numbers created with SPSS software. This ensured that the allocation sequence was objective and free from systematic bias. Allocation concealment was achieved by preparing sequentially numbered, opaque, sealed envelopes that contained group assignments. These envelopes were assembled by an independent researcher not involved in participant recruitment.

The independent researcher generated the randomisation sequence, and centre staff enrolled participants. Once a participant was eligible and consented, the next envelope in the sequence

was opened to assign them to a study group. Blinding procedures ensured that outcome assessors remained unaware of group allocation throughout data collection. Due to the nature of the intervention, participants and providers were not blinded.

Intervention Type
Behavioural

Primary outcome(s)
1. Auditory rehabilitation, cognitive skills, language, speech and muscular strength measured using the Language and Speech Capabilities Scale (LSCS) total score at baseline (pre-intervention) and immediately post-intervention (48 weeks)

Key secondary outcome(s))
1. Accuracy of Arabic phoneme production measured using the standardized Amayreh Articulation Test at baseline and immediately post-intervention

2. Strength, range of motion, and coordination of the lips, tongue, and jaw measured using a structured Oral Motor Assessment Protocol at baseline and immediately post-intervention

Completion date
30/07/2025

Eligibility

Key inclusion criteria
1. Confirmed diagnosis of language delay through comprehensive assessment by a certified speech-language pathologist
Age between 3 and 8 years
2. Absence of comorbid neurodevelopmental disorders (e.g., autism spectrum disorder, intellectual disability, or global developmental delay)
3. No prior exposure to specialized language interventions similar to the experimental program within the past 12 months
4. No hearing impairments, neurological disorders, or significant physical disabilities that would interfere with program participation

Healthy volunteers allowed
No

Age group
Child

Lower age limit
3 years

Upper age limit
8 years

Sex
All

Total final enrolment
64

Key exclusion criteria
1. Presence of comorbid neurodevelopmental disorders (e.g., autism spectrum disorder, intellectual disability, or global developmental delay)
2. Hearing impairments
3. Neurological disorders
4. Significant physical disabilities that would interfere with program participation
5. Prior exposure to specialized language interventions similar to the experimental program within the past 12 months

Date of first enrolment
02/03/2024

Date of final enrolment
11/03/2024

Locations

Countries of recruitment
Jordan

Sponsor information

Organisation
Zarqa University

ROR
https://ror.org/01wf1es90

Funder(s)

Funder type

Funder Name
Zarqa University

Alternative Name(s)
ZU

Funding Body Type
Private sector organisation

Funding Body Subtype

Universities (academic only)

Location
Jordan

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol file	version 1.0	04/03/2026	04/03/2026	No	No