ISRCTN90589498 https://doi.org/10.1186/ISRCTN90589498

Teachers empower sight: building a teacher-led myopia prevention system for rural children

Submission date
21/11/2025

Recruitment status
Recruiting

Registration date
01/12/2025

Overall study status
Ongoing

Last Edited
01/12/2025

Condition category
Eye Diseases

[_] 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
Many schoolchildren in rural China suffer from uncorrected refractive errors, a vision impairment that remains inadequately addressed despite its profound impact on educational outcomes. Building on prior evidence linking myopia correction to academic gains. This study aims to bridge implementation gaps through a dual-phase approach: (1) replicating findings via a multi-province RCT while integrating teacher-led vision screening and referral optimization, and (2) employing mixed methods to analyze teachers' role in fostering eye care behaviors. The intervention package combines capacity building for rural healthcare providers, subsidized services, and dynamic referral pathways. Guided by implementation science's MOST framework, this study will iteratively refine a cost-effective, context-specific prevention model prioritizing scalability and policy integration. Anticipated outcomes include reduced myopia prevalence, improved eyeglass adherence, and evidence-based pathways for sustainable rural vision health promotion.

Who can participate?
Children aged 8-13 enrolled in randomly selected rural public elementary schools within economically disadvantaged peripheral regions of major northwestern Chinese cities, characterized by significant migrant populations.

What does the study involve?
Schools are randomly allocated into one of four groups.
Children in group 1 schools receive regular screening by hospital staff and free eyeglasses.

Teachers in group 2 will undergo a 2-day structured training covering standardized vision screening protocols , after which trained teachers will conduct 5-minute vision assessments for all students at school. Those students whose basic vision test indicates a problem will be referred to hospital for further diagnosis. If the hospital diagnosis indicates that students need eyeglasses, they will receive a free, high-quality pair of glasses.

Children and teachers in group 3 are treated in the same way as those in group 2, but the screening teacher needs to be trained in the delivery of student/parent-focused vision health education. Screening teachers are then asked to give a training session to students and their parents in which they will learn about the importance and proper vision care practices.

Children and teachers in group 4 are treated in the same way as those in group 3, screening teacher will receive an incentive to ensure students who fail the vision screening obtain and wear prescribed eyeglasses as required.

What are the possible benefits and risks of participating?
The potential benefits for children include receiving a high-quality vision screening, identifying any vision issues, and obtaining a customized prescription and glasses at no cost - resources they might not otherwise access independently. These interventions are supported by extensive clinical evidence demonstrating the functional and developmental advantages of corrective eyewear for individuals with refractive errors.

Regarding risks, a small number of participants may experience mild adverse reactions to the dilating eye drops. Doctors in the hospital will be present to manage these reactions promptly and effectively, ensuring all risks remain within acceptable parameters.

Where is the study run from?
Schools in a rural area of northwestern China. Planning is carried out from our office at Shaanxi Normal University.

When is the study starting and how long is it expected to run for?
September 2025 to December 2028.

Who is funding the study?
Shanghai United Foundation, China.

Who is the main contact?
Professor Hongyu Guan, guanhongyu_ceee@snnu.edu.cn

Contact information

Type(s)
Public, Scientific, Principal investigator

Contact name
Prof Hongyu Guan

ORCID ID
https://orcid.org/0000-0002-0659-3527

Contact details
No. 620 West Chang'an Street, Chang'an District
Xi'an, Shaanxi Province
China
710119
+86-029-81530873
guanhongyu_ceee@snnu.edu.c

Additional identifiers

Study information

Scientific Title
Optimization of myopia prevention and control pathways and construction of service systems for rural children based on implementation science

Acronym
OMPCS-RCIS

Study objectives
Principal Aim
The principal aim of this study is to develop and rigorously evaluate a scalable, teacher-led model for myopia prevention and control in rural Chinese schools. Guided by the Implementation Science framework, the study seeks to generate evidence-based strategies that can be integrated into public health policy to sustainably improve vision care and reduce the burden of uncorrected refractive errors among children in underserved communities.

Study Objectives
The key objectives of this cluster-randomized controlled trial are:
To determine the effectiveness of a multi-component intervention package (including teacher-led screening, optimized referral pathways, health education, and incentives) on increasing the rate of regular eyeglass wear among rural schoolchildren.
To identify the most cost-effective and context-appropriate intervention pathway by comparing the incremental benefits of different intervention combinations.
To assess the impact of the intervention on children's non-cognitive skills, including school interest, mental health, and self-confidence.
To analyze the implementation process, including barriers and facilitators, to inform future scaling and policy integration.

Primary Research Question
Does a teacher-led myopia prevention system, incorporating structured screening, referral, and free eyeglasses, significantly increase the rate of regular eyeglass wear among rural elementary school children in China compared to standard care?

Secondary Research Questions
Which specific combination of intervention components (e.g., health education, teacher incentives) constitutes the most cost-effective and scalable strategy for improving eyeglass adherence?
What is the effect of improved vision correction and the accompanying support system on students' non-cognitive skills, such as school engagement and psychological well-being?
What are the key implementation factors (e.g., teacher fidelity, systemic barriers) that influence the reach, effectiveness, and potential sustainability of the teacher-led model in rural school settings?

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 14/03/2025, Shaanxi Normal University Academic Committee (No. 620 West Chang'an Street, Chang'an District, Xi'an, Shaanxi Province, 710119, China; +86 029-85308047; jyxb@snnu.edu.cn), ref: GZK2025-142

Primary study design

Interventional

Allocation
Randomized controlled trial

Masking
Blinded (masking used)

Control
Placebo

Assignment
Parallel

Purpose
Diagnostic, Treatment

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Myopia

Interventions
The method of randomization will be computer-generated randomization. Schools (the clusters) will be randomly allocated to one of the four intervention arms using a computer-generated random sequence.

1. Control (no teacher screening training +Free eyeglasses)
2. Teacher screening training+Free eyeglasses
Teachers will undergo a 2-day structured training covering standardized vision screening protocols, after which trained teachers will conduct 5-minute vision assessments for all students at school. Those students whose basic vision test indicates a problem will be referred to the hospital for further diagnosis. If the hospital diagnosis indicates that students need eyeglasses, they will receive a free, high-quality pair of glasses.
3. Teacher screening training+Free eyeglasses + information schools
These schools will receive the same intervention as described above, and the screening teacher needs to be trained in the delivery of student/parent-focused vision health education. Screening teachers are then asked to give a training session to students and their parents, in which they will learn about the importance and proper vision care practices.
4. Teacher screening training+Free eyeglasses + information + teacher incentive schools
These schools will receive the same intervention as described above, and screening teachers in these schools will receive an incentive to ensure students who fail the vision screening obtain and wear prescribed eyeglasses as required.

Intervention Type
Behavioural

Primary outcome(s)
1. Adherence: The number of children wearing glasses regularly measured using a survey by self-report and direct observation at baseline and follow-up

2. School performance measured using standardized mathematics, chinese and reading tests developed and validated for the specific study context and student demographic at baseline and follow-up

Key secondary outcome(s))
1. Student interest in school measured using a survey filled out by the subjects at baseline

2. Student mental health measured using a survey filled out by the subjects at baseline

3. Student non-cognitive skills measured using a structured student questionnaire that incorporates adapted and validated scales from established psychological and educational research to ensure reliability and validity at baseline

4. Implementation outcomes measured using the RE-AIM framework (Reach, Effectiveness, Adoption, Implementation, Maintenance) through project records, follow-up surveys, and qualitative interviews with stakeholders. at one time point

Completion date
31/12/2028

Eligibility

Key inclusion criteria
1. Male and female fourth to sixth grade elementary school students
2. Ages 8 to 13
3. Attending public elementary schools in rural areas of northwestern China
4. Schools within economically disadvantaged peripheral regions of major northwestern Chinese cities, characterized by significant migrant populations.

Participant type(s)
Learner/student

Healthy volunteers allowed
Yes

Age group
Child

Lower age limit
8 years

Upper age limit
13 years

Sex
All

Total final enrolment
0

Key exclusion criteria
Students will be excluded from the trial if they have an ailment or condition that prevents them from being safely dilated (existing literature indicates this would be at most one percent of the sample population).

Date of first enrolment
01/09/2025

Date of final enrolment
31/12/2028

Locations

Countries of recruitment
China

Study participating centre
Shaanxi Normal University
No. 620 West Chang'an Street, Chang'an District
Xi’an
China
710119

Sponsor information

Organisation
Shaanxi Xueqian Normal University

ROR
https://ror.org/0146vv083

Funder(s)

Funder type
Not defined

Funder Name
Shanghai United Foundation

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated and/or analysed during the current study will be published as a supplement to the results publication

IPD sharing plan summary

Published as a supplement to the results publication

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol file			01/12/2025	No	No