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WhatsApp video education improves farmers' understanding of pesticide labels in Akkar, Lebanon

Submission date	Recruitment status	[_] Prospectively registered
05/09/2024	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
12/09/2024	Completed	[X] Results
Last Edited	**Condition category**	[X] Individual participant data
21/10/2026	Other	

Plain English summary of protocol

Background and study aim
This study focuses on improving the interpretation of pesticide labels and enhancing safety practices among farmers in the Akkar Governorate, Lebanon. Pesticides, when not used correctly, can pose significant risks to both human health and the environment. Therefore, farmers must understand how to read and follow the safety instructions on pesticide labels. This research aims to determine whether a traditional educational session or a digital video is more effective in educating farmers on safe pesticide usage to reduce health and environmental risks.

Who can participate?
The study involves agricultural farmers aged between 18 and 70 years old practising in the coastal villages of Akkar Governorate, north of Lebanon

What does the study involve?
Participants are randomly assigned to one of three groups: a control group that receives no intervention, a group that attends a traditional, in-person educational session on pesticide safety, and a group that watches a short educational video about pesticide safety, which is sent via WhatsApp. The farmers' knowledge and practices are assessed before and after these interventions to evaluate which method is most effective in improving their understanding of pesticide labels and safety practices.

What are the possible benefits and risks of participating?
Participants may benefit by gaining a better understanding of how to safely use pesticides, which can help reduce health risks and environmental impact. The risks of participating are minimal and mainly involve the time commitment required to attend the educational session or watch the video.

Where is the study run from?
Lebanese University

When is the study starting and how long is it expected to run for?
February 2024 to August 2024

Who is funding the study?
Investigator initiated and funded. A conference room was provided by the Safadi Foundation NGO for free to facilitate parts of the study.

Who is the main contact?
Mrs Nisreen Akkouch, nisreen.akkouch@ul.edu.lb, nisreenakkouch@gmail.com

Contact information

Type(s)
Public, Scientific, Principal investigator

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Study information

Scientific Title
Randomized controlled trial on improving pesticide label interpretation among farmers in Akkar Governorate, Lebanon: the impact of a WhatsApp-delivered educational video

Study objectives
The WhatsApp-delivered educational video will be as effective as a traditional in-person educational session in enhancing farmers' pesticide handling knowledge, practices, and interpretation of pictograms and color codes.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 04/06/2024, The Ethics Committee of The Azm Center for Research in Biotechnology and its Application (Tripoli- Lebanon- El Mitein Street., Tripoli, 1300, Lebanon; +9616213252; centre.biotechnology@ul.edu.lb), ref: CE-EDST-6-2024

Primary study design
Interventional

Study design
Parallel-assigned-group three-arm randomized controlled trial

Study type(s)
Prevention

Health condition(s) or problem(s) studied
The study focuses on improving pesticide label interpretation and safety practices among agricultural farmers to prevent pesticide-related health risks and environmental contamination.

Interventions
This study is a parallel randomized controlled trial (RCT) with three arms: a traditional educational session, an educational video sent via WhatsApp, and a control arm receiving no intervention. The trial will be conducted among agricultural farmers practising in the coastal villages of Akkar Governorate, north of Lebanon. Blinding will not be used in this study.

The randomization for this trial was conducted using the RAND function in Excel. Here are the details of the process:
1. The 133 phone numbers of the participants were listed in one column in Excel.
2. The RAND function was applied to generate random numbers for each participant.
3. These random numbers were sorted in ascending order (smallest to largest).
4. Participants were allocated to the three groups as follows:
• The first 44 participants were assigned to the Control Group.
• The following 44 participants were assigned to the Traditional Educational Session Group.
• The final 45 participants were assigned to the Digital Video-Based Learning Group.

The control group receives no intervention and serves as a baseline for comparison. The traditional educational session group participates in an in-person session where farmers are educated on pesticide safety, health impacts, and proper label interpretation using PowerPoint presentations and discussions. The video-based learning group receives a 4-minute educational video via WhatsApp, covering the same topics as the traditional session, with visual aids and a voice-over in Arabic.

Baseline assessments are conducted to evaluate participants' existing knowledge, practices, and understanding of pesticide safety labels. Following the interventions, a post-intervention assessment is administered to measure changes in knowledge and practices across the three groups. The study is designed to compare the effectiveness of traditional in-person education versus digital video-based learning in improving pesticide safety and label interpretation among farmers. (A structured questionnaire is used for the baseline and the post-intervention assessment.)

Intervention Type
Behavioural

Primary outcome(s)
The following primary outcome measures are assessed using a structured questionnaire at baseline and post-intervention:
1. Ability to correctly identify and interpret Food and Agriculture Organization (FAO) pictograms

on pesticide labels
2. Knowledge of health risks associated with pesticide use
3. Understanding of the environmental consequences of pesticide misuse

Key secondary outcome(s)
The following secondary outcome measures are assessed using a structured questionnaire at baseline and post-intervention:
1. Awareness of the importance of personal protective equipment (PPE) usage
2. Reported changes in pesticide practices and PPE compliance

Completion date
09/08/2024

Eligibility

Key inclusion criteria
1. Aged 18 years old and over
2. Engaged in agricultural activities in the coastal region of Akkar
3. Actively using chemical pesticides
4. Access to WhatsApp on a personal or family member’s device

Participant type(s)
Employee, Healthy volunteer

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
70 Years

Sex
All

Total final enrolment
105

Key exclusion criteria
Not meeting the participant inclusion criteria

Date of first enrolment
10/06/2024

Date of final enrolment
25/06/2024

Locations

Countries of recruitment
Lebanon

Study participating centre
Lebanese University
Doctoral School of Sciences and Technology, Mitein Street, Fakhreddine Building
Tripoli
Lebanon
1300

Sponsor information

Organisation
Lebanese University

ROR
https://ror.org/05x6qnc69

Funder(s)

Funder type
Other

Funder Name
Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are/will be available upon request from Mrs Nisreen Akkouch, nisreenakkouch@gmail.com. Information related to the trial's outcomes will be shared after the RCT results are published. No personal details, such as participants' names or phone numbers, will be shared. Consent for data sharing was obtained, and participants were informed that no personal identifiers would be published. All data will be fully anonymized to protect privacy. The exact timing of data availability will be after the trial results are published.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		18/09/2025	23/09/2025	Yes	No
Dataset	The anonymized raw data used to generate the study results		21/10/2026	No	No
Participant information sheet	Consent form		10/09/2024	No	Yes
Participant information sheet	Consent form		10/09/2024	No	Yes