

DAGUSIBU EDUCATION FOR HOUSEHOLD MEDICINE MANAGEMENT AMONG WOMEN IN BEJI, DEPOK, INDONESIA

Devi Shafitri Pratiwi¹, Retno Shafitri², Roselyn Maleke³, Jenny Pontoan⁴, Siswati⁵, Teodhora^{6*}

¹Professional Pharmacist Study Program, Faculty of Pharmacy,

Institut Sains dan Teknologi Nasional, Jakarta, Indonesia

E-mail: c.teodhora@istn.ac.id

Received: 14/07/2026 | Revised: 20/07/2026 | Accepted: 04/08/2026 | Published: 05/09/2026

Abstract

Unsafe household medicine management can compromise treatment, facilitate misuse, and contaminate the environment. This community service activity delivered DAGUSIBU (Obtain, Use, Store, and Dispose) education to 33 women aged 35-70 years in RT 01/RW 01, Kemiri Jaya, Beji, Depok, Indonesia, on 9 July 2026. The two hour program comprised a 17item true/false pre-test, interactive counseling supported by a leaflet and banner, discussion, a post test, and blood pressure screening. Baseline findings showed marked gaps: 96.97% did not interpret twice daily dosing as approximately 12-hour intervals; 90.91% did not identify the correct eye-drop technique; 90.91% would automatically refrigerate liquid medicines rather than follow the label; and 60.61% disposed of medicines in domestic waste. The source report documented corrected understanding after education across all four domains, including antibiotic access, dosing intervals, original container storage, and disposal preparation. However, item level posttest counts, paired total scores, instrument validity, and inferential statistics were unavailable; therefore, the magnitude and statistical significance of change could not be established. The activity identified concrete household medicine safety gaps and provided a locally relevant pharmacist led response. Future programs should retain anonymized paired scores and assess whether correct practices are sustained.

Keywords: community education; DAGUSIBU; household medicines; medication safety; pharmaceutical waste

INTRODUCTION

Medicines kept and used at home are an essential part of self care, yet preventable harm can occur when a product is obtained from an inappropriate source, used without adequate instructions, stored under unsuitable conditions, or discarded unsafely. The World Health Organization's Medication Without Harm initiative emphasizes that patients and families are active partners in medication safety, not passive recipients of instructions (World Health Organization, 2017). Household medicine management is therefore a practical patient safety issue that begins before a dose is taken and continues until the product and its packaging are safely discarded.

The Indonesian context makes this issue especially urgent. A nationally representative analysis of 616,110 respondents from the 2023 Indonesian Health Survey found that 86.7% discarded unused or expired medicines in household trash and fewer than 2% returned them through appropriate collection systems (Alfian et al., 2026). Earlier household studies likewise documented widespread improper disposal and limited awareness of its health and environmental consequences (Alfian et al., 2021; Insani et al., 2020). The Indonesian Food and Drug Authority also warns that expired or damaged medicines and their packaging can be misused and can contaminate the environment when handled incorrectly (Badan Pengawas Obat dan Makanan Republik Indonesia, 2019).

DAGUSIBU is an Indonesian public education framework that organizes household medicine management into four memorable actions: obtain medicines from authorized sources, use them according to valid directions, store them in accordance with product specific requirements, and dispose of unusable products safely. Official guidance stresses prescription control for prescription only medicines, correct timing and technique, retention of original packaging, label-directed storage, and consultation with pharmacists when instructions are unclear (Kementerian Kesehatan Republik Indonesia, 2023). A quasi experimental study in West Java reported improved community knowledge after DAGUSIBU education, supporting its use as a structured counseling framework (Noviani et al., 2024).

Against this background, the Professional Pharmacist Study Program of Institut Sains dan Teknologi Nasional conducted an interactive DAGUSIBU activity for women in RT 01/RW 01, Kemiri Jaya, Beji, Depok. This article aims to describe the implementation, present the participant profile and documented baseline knowledge gaps, interpret the post education findings within the limits of the available report, and formulate improvements for future community service evaluation.

METHOD

Design, setting, and participants

This was a descriptive report of a community service activity with a one group pre education and post education sequence. The activity was held on 9 July 2026 from 09:00 to 11:00 at Jl. Kemiri Jaya, RT 01/RW 01, Beji, Depok, Indonesia. All 33 attendees who completed the activity were women aged 35-70 years. The report did not describe a probability sampling procedure, so the participants are reported as activity attendees rather than a representative sample of the wider community.

Educational procedure

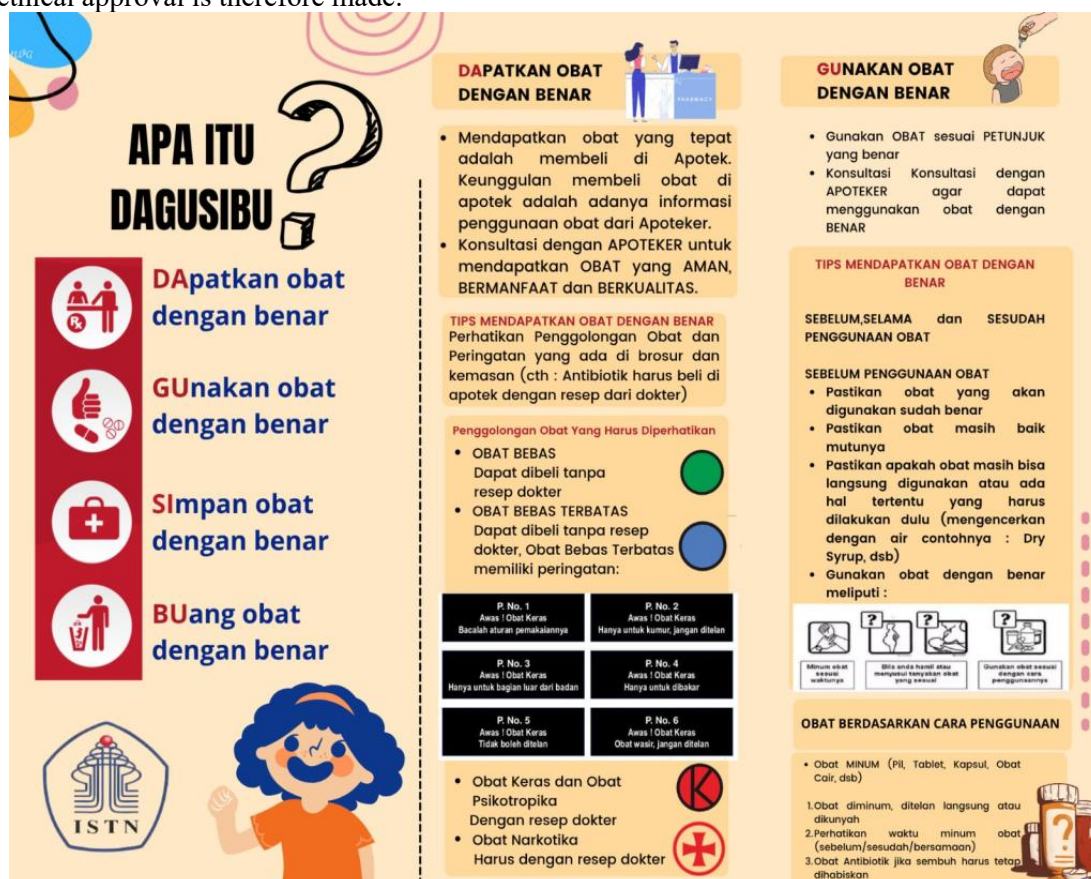
The documented sequence comprised registration, pre test administration, two interactive education sessions, questions and discussion, post-test administration, evaluation, blood-pressure screening, and closing. The core content addressed authorized sources of medicines and antibiotics; dosing instructions and selected administration techniques; original container and label-directed storage; and preparation of damaged, expired, or unused medicines and packaging before disposal. A leaflet, banner, and direct explanation were used. Blood pressure screening was an additional service and was not included in the knowledge analysis.

Instrument and data extraction

The questionnaire shown in the report contained demographic questions and 17 true/false statements: three Obtain items, five Use items, four Store items, and five Dispose items. The report did not provide a validation study, reliability coefficient, scoring thresholds, individual response matrix, or total pre-test and post test scores. Consequently, this article reports only the aggregate participant characteristics and item level percentages explicitly documented in the report. Counts were reconstructed only where a reported percentage mapped unambiguously to an integer out of 33.

Analysis and data integrity

Results were summarized as frequencies and percentages. No p value, effect size, or confidence interval was calculated because paired post test data were unavailable. One complementary percentage in the report was written as 27.72% alongside 72.73%; with $n = 33$, the corresponding count was nine and the mathematically consistent percentage is 27.27%. This arithmetic correction is disclosed in the table note; all other reported proportions were retained or expressed as their exact count-based percentage. Only aggregate, deidentified data were used, and the attendance sheet containing names, student numbers, and signatures was not reproduced. The source report stated that questionnaire information would be kept confidential, but it did not provide an ethics-approval number; no claim of formal ethical approval is therefore made.



DAGUSIBU leaflet used during the community education activity

RESULTS AND DISCUSSION

Participant profile

The activity involved 33 women across a broad adult age range. More than half had completed senior high school, 69.70% were not employed, and 69.70% had never previously received information about DAGUSIBU. Among the ten participants who had received prior information, the report identified health professionals as the source. The absence of prior exposure among approximately seven in ten participants supports the local relevance of a structured medicine-management session.

Table 1. Participant characteristics (n = 33)

Characteristic	Category	n	%
Sex	Women	33	100.00
Age	Range, years	35-70	-
Education	Primary school	6	18.18
	Junior high school	7	21.21
	Senior high school	18	54.55
	Higher education	2	6.06
Employment	Not employed	23	69.70
Previous DAGUSIBU information	No	23	69.70
	Yes	10	30.30

Baseline medicine management gaps

The baseline pattern was uneven rather than uniformly poor. Participants already showed relatively strong recognition of original container storage and several disposal preparation steps, yet major gaps remained in dose interval interpretation, eye drop technique, liquid medicine storage, and the final route of disposal. This mixed profile is educationally important: repeating information that is already familiar is less useful than concentrating demonstration and teach back on the few high-risk actions where errors cluster.

Table 2. Documented baseline responses by DAGUSIBU domain (n = 33)

Domain	Indicator	Correct n (%)	Gap n (%)
Obtain	Recognized that not all medicines may be bought at stalls/supermarkets	24 (72.73)	9 (27.27)
Obtain	Recognized that antibiotics should not be obtained or used casually	23 (69.70)	10 (30.30)
Obtain	Recognized that antibiotics should not be sold freely at stalls/supermarkets	27 (81.82)	6 (18.18)
Use	Interpreted twice-daily dosing as approximately 12-hour intervals	1 (3.03)	32 (96.97)
Use	Identified the correct eye-drop administration technique	3 (9.09)	30 (90.91)
Store	Kept medicines in their original containers	30 (90.91)	3 (9.09)
Store	Would follow the label rather than automatically refrigerate liquid medicines	3 (9.09)	30 (90.91)
Dispose	Would damage primary and secondary packaging before disposal	32 (96.97)	1 (3.03)
Dispose	Would crush solid dosage forms before disposal	31 (93.94)	2 (6.06)

Domain	Indicator	Correct n (%)	Gap n (%)
Dispose	Recognized that medicines should not be discarded in intact packaging	26 (78.79)	7 (21.21)
Dispose	Recognized that syrup should not be put directly in the trash	17 (51.52)	16 (48.48)
Dispose	Did not report discarding medicines in domestic waste	13 (39.39)	20 (60.61)

Interpretation by DAGUSIBU domain

Obtain. Baseline recognition that antibiotics should not be freely obtained was moderate to high, but 30.30% of participants were documented as obtaining or using antibiotics from friends or family. This residual gap is clinically important because shared or casually obtained antibiotics bypass assessment of indication, dose, duration, contraindications, and interactions. The session therefore emphasized authorized medicine sources and pharmacist or prescriber guidance, consistent with national DAGUSIBU information (Kementerian Kesehatan Republik Indonesia, 2023).

Use. The largest documented knowledge gaps were operational: 32 of 33 participants did not interpret a twice-daily instruction as an approximately 12-hour interval, and 30 of 33 did not identify the correct eye-drop technique. These are suitable targets for demonstration followed by participant teach-back, because recognition of a slogan alone does not establish the ability to perform a medicine-use task. The report stated that participants understood the intended interval and eye-drop technique after the session, but did not provide item level post test counts.

Store. Most participants understood the value of original packaging, which preserves the medicine name, strength, expiry date, directions, and warnings. In contrast, 90.91% would automatically store liquid medicine in a refrigerator. The correct counseling point is product specific: participants should follow the label or pharmacist's instructions rather than assume that all liquids require refrigeration. Official guidance similarly states that liquid formulations should not be frozen and may require different conditions when specified on the label (Kementerian Kesehatan Republik Indonesia, 2023).

Dispose. Knowledge of damaging packaging and crushing solid dosage forms was high, yet 60.61% still reported disposal through domestic waste and 48.48% considered direct disposal of syrup in the trash acceptable. This knowledge-practice mismatch mirrors Indonesian evidence. In Surabaya, 57.9% of respondents disposed of medicines incorrectly (Savira *et al.*, 2020), while the 2023 national survey found household trash disposal in 86.7% of respondents (Alfian *et al.*, 2026). The percentages are not directly comparable because populations and instruments differed, but all indicate that disposal pathways remain a structural and educational problem. Education should therefore be coupled with clear local instructions on where unwanted medicines can be returned or safely handled.

Documented post education response

According to the source report, the post-test showed corrected understanding in each domain: participants recognized that not all medicines and antibiotics can be obtained freely; understood the intended dose interval and eye drop technique; recognized original container and label directed storage; and understood that packaging and dosage forms require preparation before disposal. This direction of change is plausible and consistent with a West Java study in which DAGUSIBU education was followed by a significant shift in knowledge categories (Noviani *et al.*, 2024). Nevertheless, the present activity cannot be described as statistically significant because its post test numerators, denominators by item, paired scores, and test results were not preserved in the report. The defensible conclusion is therefore that the report documented improved responses, not that a quantified effect was proven.

Program implications and limitations

The next implementation should retain an anonymous code linking each participant's pre test and post test, publish the complete 17 item answer key, report domain and total scores, and use a paired analysis such as the Wilcoxon signed rank test when score assumptions warrant it. A delayed follow up after four to twelve weeks should assess behavior, for example storage location, retention of original packaging, antibiotic sharing, and disposal route. Demonstration stations for eye drops, label reading, medicine cabinet review, and simulated disposal would strengthen the skills component. Partnerships with community pharmacists or health facilities could also connect education to feasible medicine take-back or disposal pathways.

The findings must be interpreted within four limitations: participants were 33 women from one neighborhood; recruitment and non-participation were not documented; the questionnaire's validity and reliability were not reported; and quantitative post test data were unavailable. The results therefore describe the attendees and cannot be

generalized to all residents of Beji or used to estimate a causal intervention effect. Their value lies in identifying concrete local errors and improving the design of the next service cycle.

CONCLUSION

The DAGUSIBU activity reached 33 women in RT 01/RW 01, Kemiri Jaya, Beji, Depok, and identified specific household medicine management gaps. The most prominent baseline problems involved interpreting twice daily dosing, applying eye drops correctly, avoiding automatic refrigeration of liquid medicines, and preventing disposal through domestic waste. The source report documented corrected understanding after interactive education across Obtain, Use, Store, and Dispose; however, the absence of item level paired post test data means that the size and statistical significance of change cannot be determined. The program is relevant and reproducible, but future cycles should combine demonstration and teach back with complete paired scoring, instrument quality assessment, delayed behavioral follow up, and an accessible local disposal pathway.

ACKNOWLEDGMENT

The author extends their gratitude to the Pharmacist Professional Program at the Faculty of Pharmacy, National Institute of Science and Technology; fellow students in the program—Nadya Fadillah Azzahra, Iis Istikomah, Andre Wynalda, Aisyah Zahra Nurul Putri, Aisyiah Nurul Radita, Alfiyati, Andika Nasrullah, Arnelita Gloryensha R., Herni Sulawati, Nur Halahabibah M., Tyas Moro Widowati, Villya Sukmaningsih, Nur Fadillah Venny R., and Irwan Hidayat, local community leaders and the residents of RT 01/RW 01, Kemiri Jaya, Beji, Depok, who participated in the activity.

REFERENCES

- Alfian, S. D., Griselda, M., Khoiry, Q. A., Pratama, M. A. A., Febriyanti, R. M., Saw, P. S., & Abdulah, R. (2026). Unsafe disposal of unused and expired medicines in Indonesia: Nationwide evidence on public awareness and disposal practices across urban-rural and island disparities. *BMC Public Health*, 26, 2102. <https://doi.org/10.1186/s12889-026-27672-y>
- Alfian, S. D., Insani, W. N., Halimah, E., Qonita, N. A., Jannah, S. S., Nuraliyah, N. M., Supadmi, W., Gatera, V. A., & Abdulah, R. (2021). Lack of awareness of the impact of improperly disposed of medications and associated factors: A cross-sectional survey in Indonesian households. *Frontiers in Pharmacology*, 12, 630434. <https://doi.org/10.3389/fphar.2021.630434>
- Badan Pengawas Obat dan Makanan Republik Indonesia. (2019). Pedoman mengenal obat kedaluwarsa dan/atau rusak di rumah tangga dan cara penanganannya. <https://standarobat.pom.go.id/sisobat/site/product/book/detail/pedoman-mengenal-obat-kedaluwarsa-danatau-rusak-di-rumah-tangga-dan-cara-penanganannya-1>
- Insani, W. N., Qonita, N. A., Jannah, S. S., Nuraliyah, N. M., Supadmi, W., Gatera, V. A., Alfian, S. D., & Abdulah, R. (2020). Improper disposal practice of unused and expired pharmaceutical products in Indonesian households. *Heliyon*, 6(7), e04551. <https://doi.org/10.1016/j.heliyon.2020.e04551>
- Kementerian Kesehatan Republik Indonesia. (2023, December 19). Dapatkan, Gunakan, Simpan, Buang (DAGUSIBU). https://keslan.kemkes.go.id/view_artikel/3024/dapatkan-gunakan-simpan-buang-dagusibu
- Noviani, L., Rachmawati, P., & Febrinella, C. (2024). The effects of DAGUSIBU education on the level of community knowledge in obtaining, using, storing, and disposing of drugs in West Java, Indonesia. *Pharmacy Education*, 24(2), 93-98. <https://doi.org/10.46542/pe.2024.242.9398>
- Pramestutie, H. R., Hariadini, A. L., Ebtavanny, T. G., Illahi, R. K., & Ilmi, S. N. (2021). Managing unused, damaged, and expired medications: Knowledge and attitudes among people of Malang, Indonesia. *Journal of Applied Pharmaceutical Science*, 11(9), 102-109. <https://doi.org/10.7324/JAPS.2021.110912>
- Savira, M., Ramadhani, F. A., Nadhirah, U., Lailis, S. R., Ramadhan, E. G., Febriani, K., Patamani, M. Y., Savitri, D. R., Awang, M. R., Hapsari, M. W., Rohmah, N. N., Ghifari, A. S., Majid, M. D. A., Duka, F. G., & Nugraheni, G. (2020). Praktik penyimpanan dan pembuangan obat dalam keluarga. *Jurnal Farmasi Komunitas*, 7(2), 38-47. <https://doi.org/10.20473/jfk.v7i2.21804>
- World Health Organization. (2017). Medication without harm: WHO global patient safety challenge. <https://www.who.int/publications/i/item/WHO-HIS-SDS-2017.6>