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RESEARCH ARTICLE

Profile of glibenclamide prescription services at pharmacies in Nagan Raya: A simulated patient study

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ABSTRACT

Background: Prescription service in pharmacies involves two stages: prescription screening by pharmacists (administrative, pharmaceutical, and clinical requirements) and drug preparation (compounding, labeling, packaging, dispensing, drug information, counseling, and monitoring). The goal is to ensure that dispensed drugs are correct administratively, pharmaceutically, and clinically. This study aimed to investigate the profile of glibenclamide prescription services at pharmacies in Nagan Raya.
Method: A descriptive study was conducted using a simulated patient method. Ninety pharmacies were selected by simple random sampling. The researcher acted as a patient's family member visiting pharmacies to obtain glibenclamide with a prescription. Four instruments (prescription, scenario, protocol, and checklist) were validated and tested for reliability. After each visit, the researcher recorded information obtained from pharmacy staff into the checklist.
Results: Of 90 pharmacies, 85 (94.4%) had the prescribed drug available. Information asked from patients included: for whom the drug was intended (7.1%), patient address (18.8%), patient phone number (4.7%), information already given by the doctor (1.2%), previous use (2.4%), and whether the patient knew how to use the drug (1.2%). No pharmacy asked about patient age, symptoms, symptom duration, prior actions, therapy goals, other medications, or allergy history. On average, only 0.4 of 13 possible assessment questions were asked. Drug information provided included: frequency of use (64.7%), amount per use (30.6%), timing of use (15.3%), drug name (4.7%), indication (4.7%), total amount (2.4%), adverse effects (1.2%), and adverse effect symptoms (1.2%). On average, only 1.2 of 16 possible information items were provided. Labels were given by 65.9% of pharmacies.
Conclusion: Pharmacy staff performance in glibenclamide prescription services was low across information gathering, drug information provision, and labeling. Improvement is urgently needed.

Keywords: prescription service, glibenclamide, patient assessment, drug information, simulated patient

Introduction

With the advancement of science, technology, education, and socioeconomic status, pharmaceutical care has shifted its orientation from drug-centered to patient-centered services. According to the Indonesian Minister of Health Regulation (PMK) No. 73 of 2016, pharmaceutical care is a direct service and responsibility provided by pharmacists to achieve definite outcomes that improve patients' quality of life.[1] This shift requires pharmacists to continuously enhance their clinical knowledge, communication skills, and professional behaviors to interact directly with patients.[2]

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One manifestation of this care is the prescription service in community pharmacies. Based on modern regulatory standards, prescription service consists of clinical screening—encompassing administrative requirements, pharmaceutical suitability, and clinical considerations—followed by precise drug preparation.[1] Drug preparation itself mandates compounding, clear labeling, packaging, drug dispensing, and the delivery of comprehensive drug information, counseling, and clinical monitoring.[3] The ultimate goal of prescription service is to prepare and dispense prescribed medications while ensuring rigorous administrative, pharmaceutical, and clinical correctness to eliminate dispensing errors.[4]

Patient information gathering is a critical baseline step in prescription service, aiming to identify existing or potential drug-related problems (DRPs), thereby enabling pharmacists to tailor the exact information provided to the patient.[2] Basic demographic data must include the patient's name, address, phone number, age, and sex. Additionally, clinical details related to the patient's primary disease, comorbidities, drug allergies, and concurrent medications or medical devices must be meticulously compiled.[3] Before final delivery, the drug must be enclosed in appropriate packaging with correct, clear, and legible labeling that contains all essential instructions needed by patients for proper compliance.[1] Fulfilling these steps explicitly prevents drug therapy problems that can otherwise compromise therapeutic outcomes.[4]

The epidemiological burden of diabetes mellitus (DM) in Indonesia continues to escalate dramatically, far exceeding older historical projections, with recent national surveys confirming an ongoing rise in prevalence across both urban and rural populations. Local institutional statistics mirror this national crisis; for instance, data from regional health offices highlight diabetes as a leading chronic condition driving outpatient morbidity. Crucially, type 2 diabetes mellitus (T2DM) accounts for more than 90% of all recorded diabetes cases nationwide.[5]

Diabetes mellitus is defined as a heterogeneous group of chronic metabolic disorders characterized by persistent hyperglycemia resulting from defects in insulin secretion, insulin action, or both, which leads to abnormalities in carbohydrate, fat, and protein metabolism. Over time, this chronic metabolic disruption causes progressive microvascular, macrovascular, and neuropathic complications. Modern clinical guidelines classify diabetes into type 1 diabetes, type 2 diabetes, specific types due to other causes, and gestational diabetes mellitus.[6] Management protocols emphasize structured non-pharmacological interventions, such as medical nutrition therapy and physical exercise, supplemented by oral antidiabetic drugs (OADs) or injectable therapies when target glycemic control cannot be maintained [7]

Available oral antidiabetic agents comprise several distinct classes: insulin secretagogues (including sulfonylureas and meglitinides), biguanides, thiazolidinediones, alpha-glucosidase inhibitors, dipeptidyl peptidase-4 (DPP-4) inhibitors, and sodium-glucose cotransporter 2 (SGLT2) inhibitors.[6] First-line pharmacological management commonly utilizes metformin (a biguanide) either as monotherapy or combined with cost-effective secretagogues like glibenclamide (a sulfonylurea).[7] Glibenclamide exerts its therapeutic effect via three main mechanisms: stimulating insulin release from pancreatic beta cells by closing ATP-sensitive potassium channels, reducing serum glucagon concentrations, and potentially increasing peripheral tissue sensitivity to insulin.[8]

To ensure maximal therapeutic efficacy and safety, correct administration timing is mandatory. Glibenclamide should ideally be administered 15 to 30 minutes before breakfast or the first main meal of the day.[8] This precise timing stimulates a timely insulin response capable of counteracting postprandial blood glucose spikes.[6] The most profound and serious adverse effect associated with glibenclamide is severe hypoglycemia, which can lead to cognitive impairment, loss of consciousness, or hypoglycemic coma.[8] Autonomic symptoms of developing hypoglycemia include diaphoresis, tremors, pallor, palpitations, and intense hunger; while mild episodes can be self-treated with rapid-acting oral carbohydrates, severe episodes necessitate urgent intravenous dextrose intervention.[7] To minimize these profound drug-related risks, pharmacists must actively provide comprehensive counseling on glibenclamide use to safeguard patient safety and preserve quality of life.[3]

To objectively evaluate these pharmacy practices, the simulated patient (mystery shopper) method is widely accepted as a superior tool because it captures actual, unvarnished counseling behaviors without causing Hawthorne effects or social desirability bias among pharmacy staff.[9] This methodology has been validated globally and within Indonesia to measure real-world performance regarding history-taking, regulatory compliance, and the quality of information provided during product selection.[3] The current study focused heavily on newly prescribed therapies, where comprehensive information gathering, clear labeling, and direct counseling are paramount to reaching HbA1c targets and averting toxicities. The research was

strategically deployed in Nagan Raya to address identified regional gaps in community-based diabetic care and counseling quality.

Method

This was a descriptive study using a simulated patient method. The goal was to describe the profile of glibenclamide prescription services. The study was conducted at pharmacies in Nagan Raya from May to July 2024. The population was all pharmacies in Nagan Raya. Sample size was 90 pharmacies selected by simple random sampling. Inclusion criterion: pharmacies located in Nagan Raya. Exclusion criteria: pharmacies selected for pilot visit, pharmacies no longer operating during data collection, and pharmacies where staff became aware they were interacting with a researcher.

The simulated patient method was used. The researcher, trained to act as a patient's family member, visited pharmacies with a prescription for glibenclamide. After each visit, the researcher recorded all information provided by pharmacy staff into a checklist. Face validity was established by ensuring the scenario was realistic enough that pharmacy staff would not suspect they were being observed. Content validity was ensured by basing scenarios, checklists, and prescriptions on literature and expert review by a faculty advisor. Reliability was achieved through repeated training and pilot visits until the researcher could consistently perform the scenario and accurately record information (Watson et al., 2006).

Data were analyzed descriptively by calculating frequencies and percentages of information gathered from patients, drug information provided, and labeling practices. Results were presented in tables, graphs, and charts.

Results

Of 90 pharmacies sampled, 8 were excluded (1 pilot visit, 5 no longer operating, 1 staff aware of researcher, 1 outside Nagan Raya). These were replaced to maintain a sample of 90. Among the 90, 85 (94.4%) had glibenclamide in stock. None substituted the prescribed drug with another brand Prescriptions were returned to the patient by 33 pharmacies (38.8%). One pharmacy dispensed a reduced quantity due to limited stock but did not provide a copy of the prescription.

Table 1 shows the information asked by pharmacy staff. No pharmacy asked about patient age, symptoms, symptom duration, prior actions, therapy goals, other medications, or allergy history. The most frequently asked question was patient address (18.8%). On average, only 0.4 of 13 possible questions were asked per pharmacy (Table 2).

Table 1. Information gathered from patients (n=85)

Question asked	Yes n (%)	No n (%)
For whom is the medication intended?	6 (7.1)	79 (92.9)
Patient address	16 (18.8)	69 (81.2)
Patient phone number	4 (4.7)	81 (95.3)
Patient age	0 (0)	85 (100)
Information already given by doctor	1 (1.2)	84 (98.8)
What symptoms are present?	0 (0)	85 (100)
How long have symptoms been present?	0 (0)	85 (100)
What actions have been taken?	0 (0)	85 (100)
Has the patient used this drug before?	2 (2.4)	83 (97.6)
Does the patient know how to use it?	1 (1.2)	84 (98.8)
Does the patient know the therapy goal?	0 (0)	85 (100)
Is the patient taking other medications?	0 (0)	85 (100)
Does the patient have any allergies?	0 (0)	85 (100)

Table 2. Number of questions asked per pharmacy (n=85)

Number of questions asked	Number of pharmacies (%)
0	65 (76.5)
1	13 (15.3)
2	4 (4.7)
3	3 (3.5)
Mean	0.4 questions

Table 3 summarizes the drug information provided. The most common information was frequency of use (64.7%). On average, only 1.2 of 16 possible information items were provided per pharmacy (Table 4).

Information never provided included therapy goals, treatment duration, adverse effect management, drug interactions, dietary restrictions, follow-up monitoring plans, storage instructions, and advice (Table 5).

Table 3. Drug information provided (n=85)

Information item	Yes n (%)
Frequency of use	55 (64.7)
Amount per use	26 (30.6)
Timing of use	13 (15.3)
Drug name	4 (4.7)
Indication	4 (4.7)
Total amount dispensed	2 (2.4)
Adverse effects	1 (1.2)
Symptoms of adverse effects	1 (1.2)

Table 4. Number of information items provided per pharmacy (n=85)

Number of items provided	Number of pharmacies (%)
0	25 (29.4)
1	27 (31.8)
2	24 (28.2)
3	6 (7.1)
4	2 (2.3)
5	1 (1.2)
Mean	1.2 items

Table 5. Drug information never provided (n=85)

Information item	Never provided (%)
Therapy goals	100
Treatment duration	100
Adverse effect management	100
Drug interactions	100
Foods/drinks to avoid or limit	100
Follow-up monitoring plan	100
Storage instructions	100
Advice (risks of non-adherence, recommended diet, activity)	100

Labels were provided by 56 pharmacies (65.9%). Among these, one pharmacy (1.8%) used a blue label, which is intended for external use only. Table 6 shows the information included on labels.

Table 6. Information on dispensed labels (n=56)

Information on label	Yes n (%)
Patient name	53 (94.6)
Compounding date	51 (91.1)
Directions for use	56 (100)
Dosage form	48 (85.7)
Take before meals	2 (3.6)
Take after meals	5 (8.9)
Prescription number	32 (57.1)
Drug name	6 (10.7)
Total quantity dispensed	5 (8.9)
Take in the morning	2 (3.6)
Expiration date	1 (1.8)

Discussion

This study found that glibenclamide was available in 94.4% of pharmacies, which is expected as it is an essential drug on the National Essential Drug List.[3] However, 38.8% of pharmacies returned the prescription to the patient rather than retaining it. According to government regulations (Ministry of Health Regulation No. 73 of 2016)[1], prescriptions must be securely archived to enable traceability in case of future drug-related problems. Returning prescriptions directly violates this regulatory requirement.[10]

One pharmacy dispensed a reduced quantity due to limited stock but did not provide a prescription copy. This prevents the patient from obtaining the remaining medication, potentially compromising therapeutic outcomes.[3] The staff likely considered glibenclamide an over-the-counter drug rather than a

prescription-only medicine. Information gathering from patients was extremely low, with an average of only 0.4 questions asked. No pharmacy asked about age, symptoms, symptom duration, prior actions, therapy goals, other medications, or allergy history.[11] This is concerning because such information is essential for identifying drug therapy problems and ensuring safe use.[3] The most frequently asked question (patient address, 18.8%) is administrative rather than clinical.

Drug information provision was also inadequate. While frequency of use was provided by 64.7% of pharmacies, many gave unclear instructions such as "once a day" without specifying the exact time. Timing of use, crucial for glibenclamide to prevent hypoglycemia, was provided by only 15.3% of pharmacies. The correct timing (15–30 minutes before a meal) was rarely mentioned. Adverse effects and their symptoms were mentioned by only one pharmacy.[11] This is particularly dangerous because hypoglycemia can cause loss of consciousness. Patients must know the signs (sweating, tremors, palpitations, hunger) and how to respond by consuming fast-acting sugars.[12]

Labeling was provided by 65.9% of pharmacies, but the quality was poor. Blue labels (meant strictly for external use) were incorrectly used by one pharmacy. Critical information such as expiration date (1.8%), drug name (10.7%), and total quantity (8.9%) were often missing. Without proper labeling, patients may misuse medications or fail to recognize when to refill.[13] These findings indicate that pharmaceutical care principles have not been systematically implemented in most pharmacies in Nagan Raya. Pharmacy staff (including technicians) lack adequate training in patient assessment and drug information provision. This is consistent with studies from other developing countries that found low performance in simulated patient assessments.[11,14]

This study used the simulated patient method, which captures real-world practice without staff awareness, minimizing observation bias. However, limitations include the cross-sectional design (only one visit per pharmacy) and the fact that only glibenclamide was tested. The study did not assess whether a registered pharmacist was present or the precise qualifications of staff. The simulated patient scenario may not represent routine practice for all types of chronic prescriptions. Future studies should include multiple drugs and assess socioeconomic factors associated with low performance.

Pharmacists must ensure that pharmacy staff (technical personnel) receive adequate training in pharmaceutical care, including patient assessment, drug information provision, and proper labeling. The Nagan Raya District Health Office and professional organizations should develop policies and continuing education programs to improve prescription services. Specific interventions could include mandatory use of patient information leaflets for chronic medications and regular simulated patient audits.

Conclusion

This study found that information gathering from patients in glibenclamide prescription services at Nagan Raya pharmacies was very low, with only 18.8% asking for patient address and even fewer asking clinical questions. Drug information provided was also limited; frequency of use was the most common (64.7%), but critical information such as timing, adverse effects, and drug interactions was rarely or never provided. Labels were given by 65.9% of pharmacies, but often lacked essential information. Overall, pharmacy staff performance in prescription services for glibenclamide was low and requires substantial improvement.

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