Enhancing Medication Safety: Evaluating Prescription Label Readability Among the Elderly

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ABSTRACT

This study examines the critical relationship between aging, declining visual acuity, and the readability of prescription labels among older adults. As vision deteriorates with age, the ability to read small-print medication labels becomes increasingly compromised, raising the risk of medication misuse and accidental overdose. The growing number of prescribed medications, coupled with reduced reading capacity, underscores the urgency of addressing this issue. The primary objective of this research is to improve medication safety by enhancing the readability of prescription labels for the elderly. Key focus areas include optimizing label design through the use of legible fonts, clear warning indicators, and comprehensive yet accessible medication information. A survey-based methodology was employed, with questionnaires distributed to respondents aged 45 to 65 across five participating clinics. Participants were selected based on self-reported low vision and difficulty reading standard printed materials without assistive devices. This targeted sampling provides valuable insights into the visual and cognitive challenges faced by older patients. The anticipated outcomes include immediate improvements in safe medication use and long-term enhancements in labelling practices within local healthcare settings. By prioritizing label readability, this research aims to foster safer medication practices and improve the overall healthcare experience for the aging population.

Keywords: Medication Safety, Prescription Label Readability, Elderly Patients, Visual Impairment, Healthcare Communication

INTRODUCTION

Poor eyesight is a significant concern associated with aging, as it directly impacts the ability of elderly individuals to read printed materials [1]. One critical area where this becomes a safety issue is in the interpretation of prescription medication labels. As visual acuity declines with age, many older adults struggle to read small fonts, unclear instructions, or densely packed information on medication packaging. At the same time, older adults are often prescribed multiple medications, further compounding the risk of misunderstanding dosage instructions or warnings. This intersection between reduced reading ability and increased medication use poses a substantial threat to medication safety among the elderly.

The motivation for this study arose from personal observations involving elderly relatives who frequently required assistance in reading their prescription labels. Similar patterns were observed in public settings such as banks and government agencies, where older individuals often needed help with reading printed documents and identifying areas requiring signatures. These everyday challenges reflect broader issues of accessibility and raise concerns about whether essential information—particularly related to health—is being communicated effectively to older populations.

Research has reported numerous cases involving medication misuse, including suicide attempts, accidental overdoses among children, poisoning, and medication abuse [2-4]. While these incidents are not always directly linked to label readability, they highlight systemic issues in how medication information is delivered

and understood. Evaluating the readability of medicine labels provided by local clinics is therefore a crucial step in identifying potential barriers to safe medication use among elderly patients.

This research aims to assess the readability of prescription labels among elderly individuals in Malaysia and explore how label design elements—such as font size, layout, and clarity of information—affect their understanding. By identifying design shortcomings and user difficulties, this study seeks to contribute to improved labeling practices that promote safer and more effective medication use among the aging population.

BACKGROUND OF THE STUDY

Readability tests were conducted among members of the local community in Cheras, Kuala Lumpur, as a preliminary assessment to determine whether elderly individuals face challenges in reading prescription medication labels. The primary aim of these tests was to verify the extent of visual difficulty experienced by older adults and to identify suitable font sizes and types that could enhance the readability of medication labels.

A total of 30 participants, aged between 45 and 65 years, were recruited for the study. This age range was selected based on the common onset of age-related visual deterioration, which is often accompanied by chronic health conditions such as diabetes, hypertension, and stress—factors that may further affect one's ability to read clearly.

As is well-documented, visual acuity tends to decline with age, often necessitating medical attention or the use of visual aids. Starting from the mid-40s, individuals may begin to experience symptoms of presbyopia and other conditions that impair their ability to read small print. In light of this, participants were asked to complete a reading task involving four sets of label instructions. The instructions were presented in two font types: a plain sans serif font and a more stylized serif font, both in regular and boldface. Font sizes ranged from 5 to 16 points.

To simulate real-world conditions, the tests were conducted in participants' homes under existing lighting, and participants were instructed not to use any visual aids such as reading glasses. This approach was intended to assess their natural ability to read prescription labels unaided, and to evaluate the effectiveness of various typographic elements in supporting legibility.

Preliminary Test Result

After the readability tests were conducted, the data were collected and analysed to assess participants' ability to read various font sizes, thereby determining the readability levels within the elderly community. Preliminary results, as presented in Table 1, suggest that font sizes between 5 and 8 points could still be read by some respondents. This indicates that cautionary and advisory warning labels on medicine boxes or bottles—typically printed in smaller fonts—were somewhat legible to this group. Font sizes between 9 and 12 points allowed respondents to read prescription labels, but not necessarily the cautionary or advisory texts, as those tend to be printed in smaller sizes. However, respondents who could only read font sizes between 13 and 16 points were generally unable to read either the prescription labels or warning texts currently used on medicine packaging.

A noticeable trend was the increased readability of bolder font styles. Several respondents also reported that they did not consistently read the instructions printed on medicine labels. Instead, they relied on verbal instructions provided by nurses and memorized them for later use. Additionally, more than half of the participants indicated they were able to read the expiry dates printed on medicine boxes or containers, suggesting that some aspects of labeling may already be adequately visible, while others require improvement.

TABLE I Preliminary Result of Reading Ability Test

Text Size (point)	Number of Respondents Who Able to Read the Text	% of Respondent Who Able to Read the Text
5 - 8	3	10 %
9 - 12	10	33.4 %
13 - 16	17	56.6 %

Results from the readability tests led to the conclusion that there would be a benefit to patients especially for elderly person in designing a medicine label using larger fonts. The preliminary tests results will not use for evaluation of the new propose medicine label and will not use as results on which conclusions and recommendations will be made for the proposed research project. The tests will be included in the research report to give a research background and factors which led to the proposed research project of prescription medication labels.

LITERITURE REVIEW

The prescription medication label is the fundamental and core communication medium which identify the medication that has been prescribed by the doctor and records the intended manner in which the prescriber has instructed the patient to take or use their medication. The dispensing and label provided by the pharmacist transmits that information to the patient. When the patient is at home and unable to contact their doctor about how to take their medication, it is the label which informs them. If patients are unable to read and understand their labels, then the value of the label becomes insignificant.

The ability by consumers to read prescription medication labels is not solely determined by the print size on the label, their ability to interpret the information is also important [5]. Andrus and Roth note in a review of health literacy in the US that up to 48% of English-speaking patients do not have adequate functional health literacy. They state that patients are often unable to correctly interpret dosing instructions. Citing a number of studies which illustrate that pharmacists and healthcare professionals cannot assume that written instructions or verbal messaged are consistently clear and understandable, or that they will be implemented as intended. The authors suggest strategies for improving patient education and amongst the general heading of written materials suggest the use of simple large font with a mixture of upper and lowercase letters. They do not however, specify font sizes. The conclude that because reading and comprehension of information form part of the daily life of most health professionals there is a tendency to assume patients can read and understand information adequately but there is the need to identify that health literacy problems do exist and attempt to address these.

A literature search revealed more articles that tend to report research associated with consumer medicine information, comprehension of information, compliance and labelling of non-prescription medication, and research into the use of auxiliary labels [6]. They detail the protocol for a review they are conducting on written information about medicines for consumers. The effect of difficulties in reading and understanding prescription labelling on non-compliance with drug treatment amongst seniors but concluded they were unable to demonstrate an association between the two was measured [7]. The quality of instructions on prescription drug labels: effects on memory and comprehension in young and old adults were investigated [8]. They found that older adults consistently manifested poorer recall of prescription information than young adults and both young and old adults had substantial difficulty comprehending drug information as it is presented from a pharmacy.

In a report considering factors influencing consumer use of written drug information, the readability and presentation were amongst factors which may potentially influence the use of such information [9]. They tabulate a list of features of well-presented drug information which includes font size of 10 (1.5mm) and 12 point (2mm) for older persons.

TGA consultation report lists some findings from research and states that most prescription drugs are used by the elderly [10]. About 43% of people aged 65-74 had very poor reading skills; vision generally deteriorates in the elderly, as 11lighttransmission is reduced. Older people have difficulty in reading smaller print.

A report in the British Journal of Ophthalmology in 2004 (Drummond et al, 2004) noted that although medical information is often communicated in writing, little attention is given as to whether patients can read it. The study focused on the ability of patients to read the printed manufacturer's instructions on the side of an eye drop bottle box. They found that patients with visual acuity worse than 6/18 would benefit from larger font size as they were unable to read eye drop bottle instructions.

The influence of pictorials on prescription medication instructions was investigated by Sojourner and Wogalter, (1997). They found that there was a strong preference for text only instructions compared to pictorial only instructions. If both forms were used, a greater preference was shown for medication instructions sheets that include a full set of pictorials.

The research conducted by Wolgarter and Vigilante 2003 examined the effects of available surface area, print size and white spacing on knowledge and preference for drug labels. The researchers used print sizes of 4 point, 7 point and 10 point with 10 point being considered large. They compared two groups of adults, over 65 years of age and average ages of 21. The researchers found that perceived readability ranks showed that both groups preferred larger print size and white space, with the larger print size being more strongly preferred by the older adults than the younger ones. The white space effect was smaller than for print size, particularly for older adults.

A. Poisoning, Overdoses of Medicine Cases in Malaysia

The international health report by WHO for total death by cause in 2002 shown the death causes by poisoning and drug use disorders in Malaysia are 200 and 100 respectively (http://www.who.int/healthinfo/statistics/bodgbddeathdalyestimates.xls). However, the numbers are only for causes with significant case fatality. Information on incidence or prevalence of non-fatal causes is not available.

Annual report of pharmaceutical services programme in 2006 (http://www.pharmacy.gov.my) shown a clinical pharmacokinetic service (CPS) cases from the year 2000 to 2006 for toxicological monitoring as shown in Figure 1. The programmes were run through the pharmacy clinical pharmacokinetic service provided by 82 hospitals throughout the country. Data on adult risk factors associated with poisoning or overdoses of medicines in Malaysia are scarce. However, numbers of cases overdoses paracetamol (PCM) are available.

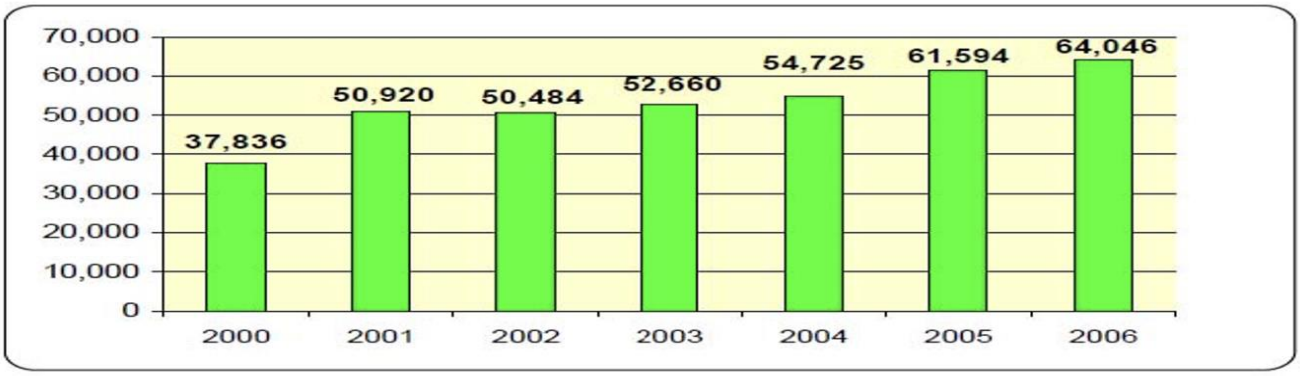

Fig. 1 Number of Clinical Pharmacokinetic Service Cases in 2000 to 2006

The number of confirmed overdoses of PCM cases for adult in 2005 and 2006 are reported as 2,530 and 3,665 respectively. Cases involves pediatric in 2005 and 2006 are 108 and 161 respectively. The figure shows a great increment of cases involved adults, yet the data do not provide the age of patients and factors contribute to the overdoses scenario.

Further literature research on overdoses medicine cases in Malaysia revealed that most research focused on poisoning associated on suicide attempt. A study [11] has reported on self-poisoning by drugs and chemical cases admitted to Penang General Hospital during the year of 2000-2004. The study has identified a unique ethnic variation in the choice of suicide attempts from toxic substances. A three-year retrospective review of 165 medical records of patients admitted to the Penang General Hospital for acute paracetamol poisoning were conducted [12]. The study concludes that acute paracetamol poisoning occurred in all major ethnic groups. About 70 percent of the patients were female. Admissions were more likely to be due to deliberate ingestions rather than accidental poisoning. Dr. Rozlan Ishak from Environmental Health Unit Disease Control Division Ministry of Health Malaysia had review cases on Epidemiological Studies of Chemical Poisoning in Malaysia [13]. The study shows that a total of poisoning cases in Malaysia in 1999 are 13133 and cases for patients aged between 45-year-old to 75-year-old are 2503 (19%). A study at University Hospital Sains Malaysia on drug and chemical poisoning on medical records of patients admitted during the period January 1987 to December 1995 [14]. The study revealed remarkable information where that of all cases of poisoning, 77.8% were unintentional, 12.6% intentional and 9.6% were undetermined.

A. Design of Current Prescription Medication Label

Interviews conducted with doctors whose clinics participated in the study revealed a lack of standardization in the labelling of prescription medications. In public hospitals, prescription labels typically display the generic name of the medication. However, in private clinics and community pharmacies, the labelling practice is far less consistent. Depending on several factors—including whether the prescriber used a generic or trade name, whether the pharmacist substituted a generic equivalent, and how the pharmacy's computer system was configured—patients may receive labels displaying varying drug name formats.

As illustrated in Figure 2, which shows sample prescription labels from both public and private healthcare facilities, it becomes clear that no unified system governs how medication names are presented. As a result, a consumer may receive a prescription label that displays the drug's trade name, its generic name, or a brand name variant. In some cases, patients may encounter multiple name types across different prescriptions for the same medication. This inconsistency can lead to confusion, particularly among elderly patients managing multiple medications, and underscores the need for a standardized labelling system to improve clarity, comprehension, and medication safety.

Fig. 2 Sample of current prescription medication label of Public and Private Clinics

Characteristic which can be observed from the sample prescription medication label provided are listed below:

- Prescription medication labels from public hospital and private medical centre labelled the name or generic name of the medicine on the label supplied to patients. None of private clinics labelled the name of the medicine on the label.

- Controlled Drug was labelled clearly on the Prescription medication labels from public hospital.
- None of prescription medication labels from private medical centre and clinics provide the expiry date of the medicine except for label from public hospital.
- Some private clinics does not write patients name on the prescription medication labels.

A press releases from Pharmacy Enforcement Division, Ministry of Health Malaysia Labelling requirements, dispensing and selling of Controlled medicines in 2008 stated that a total of 8 premises of pharmacies and private clinics were found not labelling the name of the controlled medicines on the container supplied to patients. The Pharmacy Enforcement Division, Ministry of Health Malaysia will take appropriate actions for prosecution purposes if any of these requirements is not followed or abandoned. Under the Poisons Act 1952 the penalty for the offence is fine not more than RM5, 000 or imprisonment not more than two years or both.

The Federal Food, Drug and Cosmetic Act of 1938 set up assigned classifications for different drug classes. Prescription drugs were assigned their own classification that held specific requirements for distribution and usage. Requirements for packaging designate what type of information should appear on the label. Any medications dispensed to patients must list the pharmacy name and address, the date of the prescription, the name of the prescriber, the name of the patient, and the prescription serial number on the package label. Also listed is a federal warning forbidding any type of drug transfer, meaning only the person it was prescribed for is permitted to use the medicine.

As of 1998, the Prescription Drug Marketing Act was instated to assist consumers and professionals with the safe handling of pharmaceutical drugs. This act required the name of the drug, dosage amounts, possible side effects and dosage instructions to be clearly listed on the label. By 2006, additional provisions were put in place by the U.S. Food and Drug Administration (FDA) requiring medications to be dispensed with package inserts. Inserts contain easy-to-read instructions that emphasize the most important information about the medication. According to FDA the prescription label for Controlled drugs and non-controlled drugs dispensed pursuant to a prescription must bear a label, permanently affixed to the immediate container in which the drug is dispensed or delivered and which is received by the purchaser or patient, which must include the following:

- Name and address of the dispenser or pharmacy
- Serial number of the prescription
- Date of its filling or refilling
- Name of the prescriber
- Name of the patient
- Directions for use, including precautions, if any, as indicated on the prescription
- Initials or name of the dispensing pharmacist
- Telephone number of the pharmacy
- Drug name and strength and quantity

The prescription label for controlled drugs, in addition to the above, must comply with the label requirements of the Federal and State Uniform Controlled Substances Act, including the transfer warning auxiliary label.

In Malaysia consumer can seek information of medicine and drugs on official website of Pharmaceutical Services Division, Ministry of Health Malaysia at http://www.pharmacy.gov.my [15]. As of early 2008, the American Society of Consultant Pharmacists Foundation and the American Foundation for the Blind put together guidelines for prescription labelling requirements to provide the visually impaired population with the same protections as those who are not visually impaired. These guidelines provide specific directives for pharmacists on how to prepare important labelling information for those who are visually impaired. Also included are resources listing the types of assistive technology and services available to help those with visual impairments access drug information.

B. Labelling Requirements, dispensing and selling of Controlled Medicines

All pharmaceutical products must be labelled before they can be dispensed or sold to patients. The label carries a number of functions:

- To indicate clearly the contents inside the container.
- To give clear instructions to patients on how and when the medicine or
- medicinal product should be taken or used.
- To specify clearly to patients the storage requirements and duration of storage for the dispensed products.
- To inform patients of any warnings and cautions that they should be aware off

According to the Poisons Regulations 1952, which applies to both pharmacists and doctors, where any poison is sold or supplied as a dispensed medicine, or as an ingredient in a dispensed medicine, the container of such medicine shall be labelled, in a conspicuous and distinct manner, with:

- The name and address of the supplier or seller; and
- The name of the purchaser or patient;
- The name of the medicine; and
- Adequate directions for the use of such medicine; and
- The date of delivery of such medicine; and
- Where such medicine is sold or supplied and entered in a prescription book, with a reference to a serial number of the entry in such book relating to such sale or supply.

According to the Poisons Regulation 1952 pharmacists and doctors must label containers containing scheduled poisons with the word Controlled Medicines and the name of medicines, name and address of supplier, name of patient, adequate directions on its use and the serial number of entries recorded in the "Prescription Book" [16]. Therefore, patients are advised to ensure that the container of medicines received form private practitioners, dentists and pharmacists are labelled with the required information. Figure 3 show the guidelines for prescription medication labels provided by Pharmaceutical Department, Ministry of Health Malaysia.

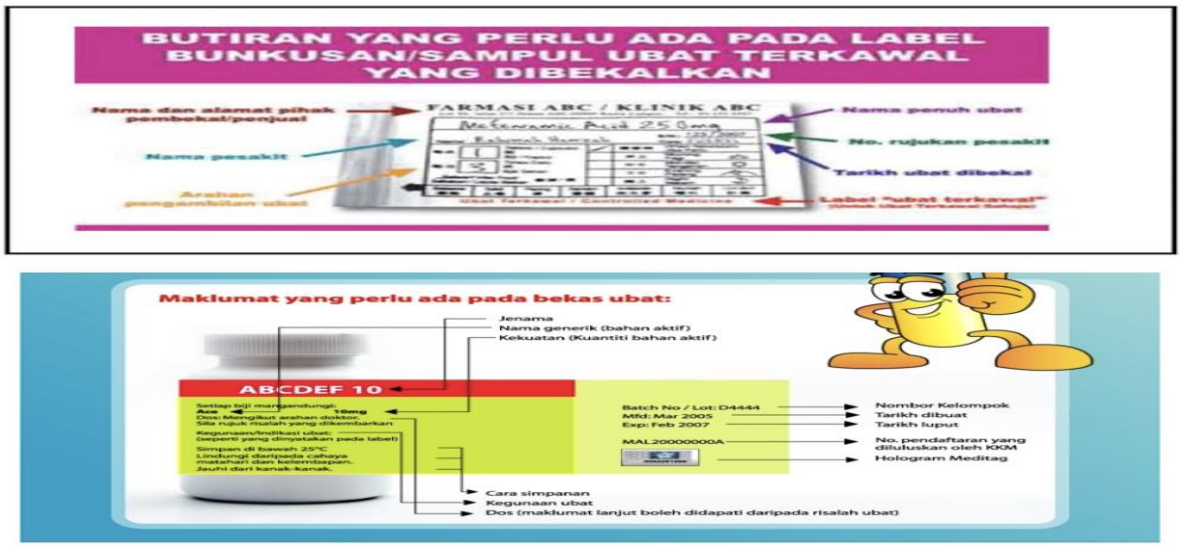

Fig. 3 Prescription Medication Label of Controlled Medicine

Under the Poisons Act 1952 also controlled medicines must be handed to patients or consumers by the doctors, pharmacists or dentists. It is an offence for the clinics, shop assistants or pharmaceuticals to supply medicines to patients. The act of supplying medicines by registered general practitioner, pharmacist or dentist themselves is to safeguard the patients, as these professionals can give the appropriate instructions and information about the medicines to patients (www.pharmacy.gov.my).

RESULT AND DISCUSSIONS

A questionnaire was developed and administered to consumers prior to the introduction of larger font-size prescription labels in selected local clinics. Data were collected in two stages: the first survey was conducted before implementing the proposed label design to establish a baseline of consumer perceptions; the second survey was conducted afterward to evaluate the impact of the new design on readability and user satisfaction.

The first survey aimed to gather information about consumer experiences with current prescription medication labels. This included the legibility of text, clarity of instructions, and the presence of cautionary information, expiry dates, batch numbers, and storage guidelines. A total of 200 respondents participated, with 40 individuals surveyed at each of the five selected clinics to reduce sampling bias. Based on findings from the initial survey and earlier readability tests, a new prescription medication label was designed and tested in the second phase.

The second survey focused on consumer feedback regarding the redesigned label. Respondents were asked whether they noticed any changes in legibility, the visibility of cautionary and advisory instructions, and their preferences regarding label layout and font size. Particular attention was paid to their understanding of the new use of font hierarchy—where the generic name appeared more prominently than the trade name.

The results and discussion are presented in two sections:

- Survey 1 on existing prescription medication label.
- Survey 2 on evaluating of new proposed prescription medication label

A. Survey 1: Existing Prescription Medication Label

Readability and Comprehension*:* The survey revealed significant challenges in label readability among older adults. Only 37% of respondents stated they could clearly read the instructions on their prescription labels, while 63% reported difficulty. Comprehension was also a concern—25% admitted they only "sometimes" understood the instructions, and just 8% said they "always" understood them. Ambiguous or vague phrasing contributed to confusion, with instructions like "take three times daily," "take when necessary," and "take when in pain" cited as particularly unclear. These findings suggest that both font size and wording clarity are essential for ensuring proper medication use among elderly patients. Poor legibility increases the risk of medication errors, including skipped doses or unintentional overdoses. The results underscore the need for clearer, larger text and more precise language on medication labels to support patient understanding and compliance, especially among those with reduced vision and limited health literacy.

Clarity of Instructions*:* All respondents confirmed that they received verbal instructions on how to take their medication, typically from clinic staff. Doctors sometimes explained first, but instructions were usually reinforced or solely provided by clinic assistants, many of whom are not formally trained nurses. This common practice in Malaysian clinics raises concern about accuracy and patient safety. Respondents reported that at home, they often relied on family members—such as spouses or children—to read or interpret the labels. This dependency highlights the potential risks posed by unreadable labels, particularly for elderly individuals living alone or without regular assistance. The findings suggest that while verbal instructions are helpful, they are not sufficient to compensate for unclear written information. This emphasizes the importance of both qualified personnel delivering medication guidance and improved label readability to ensure that patients understand and follow their prescriptions correctly, thereby reducing the risk of misuse or non-compliance.

Cautionary and Advisory Information*:* A surprising finding from the first survey was that most prescription labels lacked cautionary or advisory information. Respondents noted that such warnings were typically present only when medication was dispensed in its original manufacturer packaging. The absence of visible, clinic-applied warning labels means patients may miss critical safety instructions, such as side effects, food or drug interactions, or usage restrictions. This gap can lead to inappropriate medication use, particularly among the elderly, who may already face difficulties reading or understanding instructions. Given that many

patients rely heavily on labels as their primary source of information once home, including standardized cautionary and advisory statements is essential. The results point to a need for policy improvements or regulations mandating the inclusion of warning panels on all prescription labels, regardless of the source. Doing so would enhance safety, support proper medication adherence, and align practices with global pharmaceutical labelling standards.

Storage Information and Medicine Generic Name:

The placement and visibility of storage instructions, expiry dates, and batch numbers were often inconsistent or inadequate on current prescription labels. When space is limited, critical information may be excluded or hard to locate. Ideally, these details should be prominently placed to inform patients about proper storage and medication shelf life. Most respondents agreed that clearer communication from doctors would improve their understanding, though some emphasized the importance of patients being more proactive. Respondents also highlighted the need to include the medication name on the label so they can inform other healthcare providers of their current treatments. However, many were unfamiliar with the terms “generic name” and “brand name,” which sometimes led to confusion. These findings suggest that standardizing the use and presentation of drug names—along with accessible storage information—can enhance continuity of care, reduce confusion, and improve the overall safety of medication use.

B. The Proposed Prescription Medication Label Design

Based on the findings from Survey 1, a new prescription medication label was developed to address the readability issues faced by elderly patients. The key design change was the implementation of a **14-point font size**, selected based on preliminary readability tests conducted prior to the main survey. Participants in these eye tests consistently indicated that 14-point font was more comfortable to read, particularly without the need for reading glasses. This size is also significantly larger—by five points—than the font size used on most existing prescription labels in local clinics. Figure 4 shows a sample of the new prescription medication label design with the main features of the label.

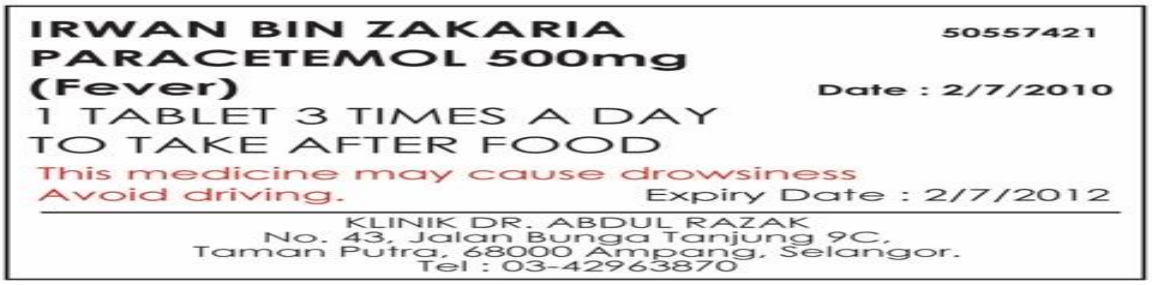

Figure 4: The new prescription medication label design

The new label design follows the labeling guidelines provided by the Pharmaceutical Services Division, Ministry of Health (MOH). The label dimensions were set at 6 cm by 9 cm, allowing it to fit neatly onto the standard polyethylene envelopes already in use at Malaysian clinics. This ensures compatibility with current packaging practices.

A prominent feature of the redesigned label is the use of the generic name of the medication as the main heading, ensuring consistency and reducing confusion among patients. The brand name or specific usage of the medicine appears in a smaller font below. Additionally, a dedicated “Warnings” section was added directly below the dosage instructions, clearly highlighted in a red panel. This section includes cautionary and advisory statements such as “Take when in pain” or “Take when necessary,” addressing a key issue identified in the first survey.

Another improvement is the inclusion of the expiry date, which was often missing or hard to locate on previous labels. This change reflects the feedback from participants who emphasized the importance of having clear information about the medication's shelf life.

Overall, the proposed label aims to enhance legibility, safety, and usability, especially for elderly patients, by improving text clarity, layout, and access to essential medication information.

C. Survey 2: Evaluation of New Label

During Survey 1, it was notable that approximately 63% of respondents reported having difficulty reading the instructions on their prescription labels, selecting responses such as 'sometimes,' 'very occasionally,' or 'never' able to read them clearly. In contrast, Survey 2 showed a dramatic improvement: only 1% of respondents reported difficulty, while the vast majority described the new labels as 'very easy' to read, as detailed in Table 2. This difference between the two surveys was found to be statistically significant, indicating that the redesigned prescription medication labels substantially enhanced readability for consumers. These results suggest that the new label design effectively addresses previous barriers to understanding, thereby improving patients' ability to read and follow medication instructions accurately.

TABLE II Respondent Readability Result in Survey 1 and Survey 2

Response option to whether respondent can read the instructions on prescription label	Survey 1	Survey 2
Never	2	-
Very occasionally	52	-
Sometimes	9	1
Often	4	4
Always	2	95

The percentage of consumers who reported that they could 'always' read the instructions on their prescription labels increased substantially with the new design. Overall, there was strong support from respondents for the updated prescription medication label, with over 80% expressing a preference for the larger label compared to the smaller, existing labels. These preferences are summarized in Table 3 below.

TABLE III Preferences Prescription Medication Label Font Size

Medication Label Font Size	Percentage of Consumers Preferences
Existing Medication Label Font Size	6
Larger Medication Label Font Size	83
Either label	11

Table 3: Label size preference

CONCLUSIONS

In conclusion, this research highlights critical challenges faced by consumers in reading and understanding prescription medication labels. Survey 1 revealed that a significant proportion of patients struggle with reading the instructions on their medication labels, and many do not fully comprehend the information provided. These findings emphasize the urgent need for improvements in label design to enhance both readability and comprehension, particularly for elderly patients.

Survey 2 further reinforces this need by demonstrating a clear consumer preference for larger font sizes on prescription labels. The evaluation of the new label design confirmed its practical feasibility for use in local clinics, as the larger labels can be easily affixed onto the existing polyethylene medicine envelopes commonly used in Malaysian clinics. This compatibility ensures minimal disruption to current dispensing workflows.

Consumer feedback on the redesigned labels has been overwhelmingly positive, with many respondents reporting improved ease of reading and better understanding of medication instructions. The larger font size and clearer layout effectively address the primary barriers identified in the initial survey. These findings strongly support the adoption of enhanced prescription labeling practices to improve medication safety and patient outcomes.

Overall, this study advocates for the wider implementation of standardized, user-friendly prescription labels, particularly in settings serving elderly populations. By prioritizing label readability and comprehension, healthcare providers can play a crucial role in reducing medication errors and promoting safer medication use.

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