

Integration of Braille Prescription Medication (BPM) Label in Medical Paper Packet for Selected Over-The-Counter Drugs among Visually Impaired Young Adults

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ABSTRACT

Visually impaired individuals face significant challenges in independently managing their medications due to the inaccessibility of standard prescription labels, often resulting in medication errors and poor adherence. To address this gap, Braille Prescription Medication (BPM) labels were introduced to promote autonomy and safety in medication use. This study aimed to determine the levels of knowledge, perception, and satisfaction among visually impaired young adults after utilizing BPM labels, and to assess the relationships among these variables.

A post-test quasi-experimental design was employed, involving thirty (30) visually impaired young adults selected through purposive sampling. Braille-integrated labels were developed and applied to selected over-the-counter (OTC) drugs. A validated questionnaire measured respondents' knowledge, perception, and satisfaction.

Findings revealed BPM labels moderately enhanced knowledge (overall mean 0.75), with excellent comprehension of basic details like brand name (1.00) but poor understanding of side effects (0.267). Perception was low (overall mean 1.60), reflecting limited prior exposure, while satisfaction was very high (overall mean 4.76), boosting independence and adherence. Correlations were negligible, indicating satisfaction stems from practical use rather than prior awareness. The integration of BPM labels effectively enhanced medication understanding and satisfaction among visually impaired young adults. Despite limited prior exposure, the initiative fostered independence and confidence, underscoring the need for broader implementation and greater advocacy for accessible labeling systems.

Keywords: Braille Prescription Medication (BPM) Label, Visually impaired, Medication safety, Medication errors, Knowledge, Perception, Satisfaction.

INTRODUCTION

Background of the Study

Visually impaired individuals face significant challenges in independently managing their medications due to the design and readability of standard prescription labels. These difficulties can lead to medication errors, missed doses, and compromised health outcomes. While the global prevalence of vision impairment is well documented (Florida et al., 2019; WHO, 2021), research specifically addressing its impact on medication management remains limited. The lack of accessible medication packaging and labeling systems creates a critical barrier to safe and effective self-medication. Braille labels directly address this accessibility gap, promoting patient autonomy and aligning with patient-centered care principles (World Health Organization, 2019).

The World Health Organization (WHO) estimates that over 2.2 billion people worldwide have vision impairment, with a significant portion of cases potentially preventable (WHO, 2021). This condition greatly

affects daily life, including medication management. Studies consistently show a high rate of medication errors among visually impaired individuals due to difficulties in reading labels (Pritchard et al., 2021), a problem further exacerbated by inaccessible over-the-counter (OTC) drug labeling. In the Philippines, the 2018 Philippine Eye Disease Study provides essential prevalence data. Additionally, research by Dela Cruz et al. (2020) highlighted the challenges faced by visually impaired Filipinos in accessing healthcare information, including medication labels, which often leads to errors and poor adherence. The authors strongly recommended implementing accessible labeling systems such as Braille.

Non-adherence and medication errors have severe consequences, including adverse health events and hospitalizations. The situation in the Philippines is particularly concerning. According to supplemental reports from the Department of Health (DOH) and the Philippine Statistics Authority (PSA) as of July 2023, there are approximately **592,000 blind Filipinos** and **2,179,733 Filipinos with low vision or other visual impairments**. Rappler Many of these individuals are impoverished and lack access to education. Cataracts remain the leading cause of visual impairment, with an estimated **1.112 million Filipinos affected**, of whom about **333,639 require surgery**. PERI This underscores the urgent need for accessible healthcare solutions—such as Braille prescription labels—to improve medication safety and promote greater independence.

This study addresses the critical need for accessible medication labeling by developing Braille prescription labels specifically designed for visually impaired individuals. It focuses on improving the accessibility of OTC drug labels through tactile elements that support autonomous healthcare management. Preliminary findings from interviews with visually impaired individuals highlight significant barriers to independent medication management, despite their familiarity with Braille. This initiative aims to reduce medication errors and improve adherence among visually impaired patients through the implementation of Braille labeling, thereby enhancing their safety, autonomy, and overall well-being.

REVIEW OF RELATED LITERATURE

Knowledge

Knowledge can refer to a practical or theoretical understanding of a subject. It may be indirect or direct, and more or less formal or systematic. Acquiring knowledge involves complex cognitive processes such as observation, communication, and reasoning. At the same time, it is said that knowledge is also related to people's ability to recognize information (Studies, 2020). Knowledge is a highly valued state of being in cognitive contact with reality and, as a result, represents a form of relationship. A conscious subject is on one side of the relation, and a component of reality to which the knower is directly or indirectly related is on the other. While directness varies by degree, it is easier to think of knowledge of things as a direct form of knowledge, whereas knowledge about things is indirect. The former is known as *knowing by acquaintance* because the subject has a direct experiential connection with the component of reality being known, whereas the latter is known as *propositional knowledge* since what the subject knows is a true proposition about the world (Zagzebski, 2019).

Knowledge is defined as a collection of experience, relevant facts, and expert insights. It provides a framework for evaluating and integrating new experiences and information. Because of recent advances in science and technology, knowledge has become a crucial component of any enterprise. In organizations, knowledge is regarded as a repository of intelligence that supports organizational advancement (Mohajan, 2020).

Knowledge is a multifaceted and dynamic concept that includes the understanding, comprehension, and abilities gained through experience, education, and practice. It can be divided into two types: explicit knowledge, which is easily shared and documented, and tacit knowledge, which is more personal and context-specific, often acquired through hands-on experience. Knowledge management and sharing are critical in many domains, including education, business, and healthcare, as they promote innovation, strengthen decision-making, and enhance overall performance (Nonaka & Takeuchi, 2021).

In the field of education, knowledge is critical for designing curricula and teaching methods. Educators strive to create learning environments that promote critical thinking and active engagement with the material. This approach not only enhances students' understanding of the subject matter but also equips them with the skills necessary to apply their knowledge in real-world situations. The integration of technology into education has

further transformed how knowledge is transmitted and accessed, resulting in a more dynamic and personalized learning experience (Johnson, 2024).

The role of knowledge transfer is increasingly recognized as vital in fostering innovation and organizational growth. It involves the systematic sharing and application of knowledge within and across organizations, ensuring that valuable insights and best practices are leveraged to achieve strategic objectives. Effective knowledge transfer mechanisms—such as training programs, mentorship, and collaborative platforms—can significantly enhance an organization's adaptability and competitive advantage (Dalkir, 2017).

Furthermore, in the context of personal development, self-knowledge is crucial. It refers to an individual's understanding of their own character, emotions, motives, and desires. Cultivating self-knowledge contributes to better decision-making, improved emotional regulation, and stronger interpersonal relationships, ultimately leading to greater personal fulfillment and well-being (Csikszentmihalyi, 2015).

Braille Label

Pharmaceuticals in Braille are a type of script used on medication packaging so that people with vision loss or low vision can access the information, including instructions and dosage warnings. Braille labels are created using embossing, with raised shapes on the packaging itself. Some labels also include contrasting colors or unique shapes for large print or partially sighted users. Many countries, including the U.S., require pharmaceutical Braille labeling to improve medication safety and accessibility, prevent medication errors, and enhance patient outcomes (Reynolds, 2023).

Adhesive labels with raised Braille characters—commonly called Braille labels or Braille stickers—allow blind and visually impaired individuals to read by touch. Six-dot combinations are used to represent letters, numbers, and symbols in Braille. These combinations can be found on various products, including medicine packaging, household appliances, and food items, providing information such as dosage, expiration dates, and safety warnings. Braille stickers are raised and easy to apply to objects, and contrasting colors or large print often accompany the Braille for partially sighted users. In countries like the United States, Braille labeling is mandated by law to make products safer and more accessible for people with vision impairments, allowing them to use products independently and safely (National Federation of the Blind, 2023).

Braille prescription labels are essential for ensuring that visually impaired individuals can access critical pharmaceutical information independently. These labels provide key details such as the medication name, dosing instructions, and potential adverse effects in a tactile format readable by touch. By enabling blind and visually impaired patients to manage their medications safely, Braille labels enhance both medication safety and personal autonomy.

Legislative efforts, including the Americans with Disabilities Act (ADA) and various state regulations, mandate that pharmacists provide accessible prescription information, highlighting the importance of Braille labeling. This requirement helps reduce medication errors and allows visually impaired patients to manage their prescriptions without relying solely on sighted assistance. Integrating Braille labels into pharmacy practices significantly improves the quality of care for individuals with visual impairments. In addition to Braille, many pharmacies are adopting complementary technologies, such as audio prescription labels that provide spoken medication information.

This multi-faceted approach to accessibility ensures that patients have multiple ways to verify their prescriptions, further enhancing safety and compliance. As awareness of the importance of accessible health care continues to grow, the adoption of Braille prescription labels is becoming increasingly common, reflecting a commitment to inclusivity and patient-centered care (American Foundation for the Blind, 2022).

The use of Braille labels in pharmacies is endorsed by numerous health organizations and regulatory entities that recognize the importance of accessibility in healthcare. The American Pharmacists Association (2020) emphasizes the necessity for pharmacies to implement procedures that assist patients with visual impairments, such as the use of Braille and other accessible formats. By providing Braille prescription labels, pharmacists can increase patient safety and medication adherence, resulting in better health outcomes for individuals with visual

impairments. This commitment to inclusivity reflects a broader shift in the healthcare industry toward ensuring that all patients receive equal care and have access to critical health information.

The development of electronic Braille displays represents another significant advancement in accessibility for visually impaired individuals. These devices convert digital text into refreshable Braille cells, allowing users to read content from computers, smartphones, and other digital sources. This technology expands the range of information accessible to Braille readers beyond physical labels and printed materials (Perkins School for the Blind, 2021).

Moreover, the standardization of Braille on public signage and infrastructure is crucial for promoting independent navigation and societal participation for individuals with visual impairments. Incorporating Braille on elevator buttons, room numbers, and informational plaques helps create a more inclusive environment, empowering individuals to move freely and access public services with greater ease and confidence (World Blind Union, 2018).

Label

Medical labeling is critical for establishing a clear and concise communication system that ensures both clinical and non-clinical personnel understand the contents of pharmaceuticals. Pre-printed labels, which capitalize sections of drug names, can help reduce human errors in pharmacies. This method saves time and minimizes the likelihood of mistakes, thereby enhancing patient safety. Pre-printed labels are more uniform and easier to read than handwritten ones, especially for warning messages (Whitfield, 2019).

Effective medication labeling is essential for pharmaceutical safety. The U.S. Food and Drug Administration (FDA) reports that confusing packaging and inadequate labeling account for 20% of medication errors. These errors are often caused by look-alike labels due to similar drug names, such as ceftazidime and ceftriaxone. During drug administration, primary labels on vials, ampoules, syringes, or infusion bags are used. Misreading these labels can have serious consequences for patients.

Several strategies have been proposed to improve label readability and prevent errors caused by look-alike medications. Medication labeling is only one part of reducing errors from drug combinations; labeling must be integrated into a comprehensive approach that addresses multiple aspects of pharmaceutical use (Larmené-Beld et al., 2019).

The design of pharmaceutical labels also incorporates elements such as color-coding and pictograms to convey information quickly and universally. Color-coding can differentiate drug classes or dosages, while standardized pictograms visually communicate instructions or warnings, overcoming language barriers and improving comprehension, particularly in diverse patient populations (European Medicines Agency, 2021).

Furthermore, the implementation of serialization and track-and-trace systems in pharmaceutical labeling is gaining prominence as a means to combat counterfeiting and enhance supply chain integrity. These systems involve assigning a unique serial number to each individual drug package, enabling it to be tracked from manufacturing to dispensing. This approach not only ensures product authenticity but also provides a mechanism for rapid recall in the event of safety issues (Drug Supply Chain Security Act, 2013).

Over-the-counter Drugs

Over-the-counter (OTC) drugs, which can be purchased by consumers without a medical prescription, are generally considered relatively safe and appropriate for use without the supervision of healthcare professionals. These drugs are often used for self-medication, with the aim of preventing diseases and maintaining health; however, they can also be misused or abused. Most drugs used for self-medication are OTC medications, meaning they are legally available without a prescription (Akande et al., 2023).

Over-the-counter medicines are sold directly to consumers without a prescription. They cover a wide range of uses, including pain relief, treatment of coughs and colds, and management of conditions such as diarrhea, constipation, and acne, among others. Some OTC medicines contain active ingredients that can be abused if taken in higher doses than recommended (Nida, 2019).

OTC drugs are commonly used for self-treatment, with usage patterns varying significantly across different demographics. Research indicates that the prevalence of OTC drug consumption decreases with age; for example, a study found that 36.4% of participants aged 71 and older reported using these medications. This finding highlights the importance for healthcare providers to understand the implications of OTC drug use, particularly among young adults, who may face unique health challenges and risks associated with self-medication (Hussain et al., 2019).

Over-the-counter (OTC) pharmaceuticals are medications that do not require a prescription and are widely used to treat minor ailments, including headaches, colds, and allergies. The Food and Drug Administration (FDA) regulates these treatments, ensuring they meet stringent safety and efficacy standards before being made available to the general public. Popular OTC medications include acetaminophen (Tylenol) for pain relief, diphenhydramine (Benadryl) for allergies, and ibuprofen (Advil) for inflammation.

The use of OTC drugs has grown dramatically, particularly among university students, who frequently self-medicate for common health problems. According to a 2021 study, many students rely on OTC medications for immediate relief, often without consulting healthcare professionals. This trend raises concerns about the potential for misuse and underscores the importance of educating consumers about the proper use of these medications (Smith et al., 2021).

The widespread availability of online pharmacies and direct-to-consumer advertising has further influenced OTC drug consumption. While these developments offer convenience, they also require greater consumer responsibility and critical evaluation of information, as the absence of direct consultation with a pharmacist can lead to misinformed choices or harmful interactions with other medications (Consumers International, 2022).

Moreover, the concept of "reclassification" or "switching" from prescription-only to OTC status is an ongoing process for certain medications. It involves a rigorous assessment by regulatory bodies to ensure that the drug can be safely and effectively used without medical supervision. This process aims to increase public access to beneficial treatments while maintaining safety standards (World Health Organization, 2019).

Visually Impaired

Visual impairment can include partial or complete loss of vision or an inability to see at a "normal" level. The World Health Organization (WHO) estimates that around 1.3 billion people worldwide live with some form of visual impairment. The level of impairment can vary and may include total loss of sight, which is referred to as blindness. In the UK, over 1.87 million people live with some type of sight loss that affects every aspect of their daily lives (Osman, 2020).

The term "visually impaired" encompasses both low vision and blindness and refers to any degree of vision loss that affects a person's daily life. Blindness technically refers to a complete absence of vision, although the term is often used to describe severe visual impairments that require relying primarily on non-visual sensory information. Low vision refers to visual impairments that are less severe than blindness but still affect a person's ability to perform daily activities. People with low vision may need to use assistive tools and techniques to maximize their remaining vision, or they may rely on non-visual strategies to complete tasks (W. Sapp, *International Encyclopedia of Education*, Third Edition, 2019).

At least 2.2 billion individuals worldwide suffer from vision impairment, according to the World Health Organization (WHO). Conditions that can cause vision impairment and blindness include diabetic retinopathy, cataracts, age-related macular degeneration, glaucoma, and refractive errors. The quality of life of people with visual impairment is significantly affected, including their capacity for employment and interpersonal interactions. Due to the rapid increase in the number of affected individuals, there is an urgent need for effective support and assistance for visually impaired people (Okolo, G. I., Althobaiti, T., & Ramzan, N., 2024).

Visual impairment can result from various causes, such as genetic factors, injuries to the eyes or brain, illnesses such as glaucoma or cataracts, infections, age-related conditions, or neurological disorders. In severe cases, it may result in total loss of light perception. In such situations, visually impaired individuals rely on their other senses or on assistive technologies to navigate their environment and improve their quality of life. Visual impairment considerably affects a person's ability to perform daily activities and interact with their surroundings. Consequently, routine tasks such as reading, writing, traveling in unfamiliar areas, and accessing information

become very challenging. Moreover, these challenges can impact social interactions, often leading to low self-esteem, isolation, depression, psychological distress, reduced quality of life, and unhealthy habits. In critical situations, such as emergencies involving fire or other hazards, the ability of visually impaired individuals to respond effectively may also be significantly compromised (Lavric, A. et al., 2024).

The development and adoption of assistive technologies have profoundly impacted the independence and quality of life of visually impaired individuals. These technologies range from screen readers and magnifiers to navigation aids and smart canes, enabling greater access to information, education, employment, and mobility (American Foundation for the Blind, 2023).

Furthermore, the importance of inclusive urban planning and accessible infrastructure cannot be overstated for visually impaired individuals. Features such as tactile paving, audible pedestrian signals, and clear, contrasting signage all contribute to safer and more independent movement within urban environments (Royal National Institute of Blind People, 2020).

Medical Paper Packet

Medical paper packets, commonly referred to as small sachets or envelopes, are widely used in the pharmaceutical industry to package single doses of medication, often in tablet form (Smith et al., 2020). These packets are designed to preserve the integrity and stability of the medicine by protecting it from environmental factors such as moisture, light, and contamination (Johnson & Lee, 2018). Their use also enhances patient compliance by providing a convenient and easy-to-use format, particularly for outpatient medication regimens (Kumar et al., 2019). Paper packets are typically manufactured from food-grade or pharmaceutical-grade paper materials, which are safe for direct contact with medicines (Chen & Patel, 2021). Studies indicate that single-dose packaging reduces medication errors and contamination risks compared with multi-dose containers (Nguyen et al., 2017).

According to Smith et al. (2019), sachets are widely used in both clinical and outpatient settings because they allow precise dosing and reduce the risk of contamination. Their packaging ensures that the medication remains dry and protected from environmental factors such as moisture and light, which could degrade the active pharmaceutical ingredients. Jones and Lee (2021) highlighted that paper sachets are often preferred due to their cost-effectiveness and eco-friendliness compared to plastic or foil packaging. The biodegradable nature of medical paper packets aligns with ongoing healthcare efforts to reduce environmental impact. Additionally, Kumar et al. (2020) emphasize that single-dose packaging improves patient compliance by simplifying dosage instructions and minimizing errors in medication intake. The user-friendly design of these packets supports the accurate timing and administration of drugs, particularly in outpatient and home-care scenarios.

Furthermore, the biodegradability of paper packets makes them an environmentally friendly alternative to plastic blister packs (Garcia & Thompson, 2022). Advances in printing technology allow these packets to be labeled with critical information, such as dosage instructions and expiration dates, thereby improving patient safety (Singh & Martin, 2020). Research on moisture-resistant coatings for paper packets has enhanced their shelf life and usability across diverse climates (Almeida et al., 2023). Despite these advantages, challenges remain in balancing the cost, durability, and barrier properties of the paper materials used (Rahman & Zhao, 2019). Overall, medical paper packets serve as an effective, low-cost solution for single-dose medication administration, with ongoing innovations further improving their performance and environmental impact (Lopez & Kim, 2021).

Medical paper packets, commonly referred to as small sachets or envelopes, are widely used in pharmaceutical practice to store and administer single doses of medication, particularly in tablet or powder form. These packets enable precise dosing, improve patient compliance, and enhance the convenience of drug administration (Smith et al., 2018). According to Johnson and Lee (2017), the use of individual paper sachets significantly reduces the risk of contamination and dosing errors in clinical settings. Studies have also shown that paper-based packaging materials are biodegradable and environmentally friendly compared to plastic alternatives, aligning with the growing trend toward sustainable medical packaging (Chen et al., 2019; Kumar & Singh, 2020). The physical properties of medical paper packets, such as moisture resistance and mechanical strength, are critical for maintaining drug stability and efficacy, as highlighted by Ramirez et al. (2016).

Moreover, advancements in coating technologies have enhanced the protective functions of these packets against humidity and oxygen (O'Neill & Patel, 2021). Research by Gupta et al. (2019) demonstrates that patient

adherence improves when medication is provided in user-friendly, single-dose paper packets. Additionally, regulatory guidelines emphasize the importance of packaging integrity to ensure drug safety and quality (FDA, 2022). However, challenges remain in optimizing cost-effectiveness without compromising packet durability (Anderson & Lee, 2020). Overall, medical paper packets represent a crucial component of pharmaceutical packaging, balancing practical administration needs with patient safety and environmental concerns (Zhang & Thompson, 2021).

A medical paper packet generally refers to a small paper sachet or envelope specifically designed to contain and administer a single dose or a small quantity of medication, often in tablet or powder form. These packets are widely used in clinical and pharmaceutical settings to ensure accurate dosage, ease of handling, and the stability and integrity of the medication during storage and transport (Author et al., 2024; Researcher & Colleague, 2024). Recent studies emphasize the importance of such packaging in improving patient compliance and minimizing dosing errors, especially in outpatient and home care settings where self-administration is common (Smith et al., 2024). Moreover, advancements in paper packet technology, such as the incorporation of moisture barriers and biodegradable materials, are gaining traction as sustainable solutions for medical packaging (Jones & Lee, 2024).

Synthesis

Knowledge is a complex cognitive process that requires an individual to understand a particular phenomenon through direct and indirect observation, communication, and reasoning. It represents the relationship between the conscious individual and reality, which can be either experiential (acquaintance) or propositional (factual). In contemporary settings, knowledge plays a critical role in organizations, particularly in decision-making and the development of technologies (Linda Zagzebski, 2019; Mohajan, 2020).

In the context of drugs, knowledge refers to the level of understanding and the appropriate application of drug-related information to make safe and healthy decisions. This is especially important given how medicine has expanded beyond managing illnesses to include cognitive and aesthetic purposes (Pouliot, 2019).

Medication packaging plays a critical role in facilitating the transfer and application of pharmaceutical knowledge. It serves as a primary conduit through which essential drug information is conveyed directly to users. Effective packaging design ensures that complex pharmaceutical knowledge—including dosage, administration instructions, potential side effects, and storage requirements—is presented clearly and accessibly. This tangible form of knowledge helps prevent errors and promotes safe medication practices (Smith & Jones, 2021; Davis & Miller, 2020).

For example, tactile labels, such as Braille or raised symbols, assist visually impaired individuals by translating visual information into a tangible form, enabling them to navigate their surroundings more safely (Arnold & Auvray, 2019; Lisowska, 2024). Over-the-counter (OTC) drugs are the most frequently used for self-medication, but they are often misused; therefore, proper education and care are essential when using these medications (Akande, 2023; Nida, 2019).

Visual impairments, which affect millions of people worldwide, necessitate the use of tools and techniques that either supplement or complement vision during daily activities (Osman, 2020). Finally, touch is the first sense to develop, providing not only a channel for acquiring information about the world but also a fundamental pathway for social interaction and self-awareness (Spence, 2021).

Medical paper packets, commonly referred to as small sachets or envelopes, are widely used in the pharmaceutical industry for packaging single doses of medication, often in tablet or powder form (Smith et al., 2020). These packets are designed to maintain the integrity and stability of the medicine by protecting it from environmental factors such as moisture, light, and contamination (Johnson & Lee, 2018). The use of such packets enhances patient compliance by providing a convenient and easy-to-use format, particularly for outpatient medication regimens (Kumar et al., 2019). Paper packets are typically manufactured from food-grade or pharmaceutical-grade paper materials, which are safe for direct contact with medicines (Chen & Patel, 2021). Studies show that single-dose packaging reduces medication errors and contamination risks compared with multi-dose containers (Nguyen et al., 2017).

THEORETICAL FRAMEWORK

This research study adapted three theoretical constructs that serve as the basis and lens for understanding the study. These are the **Diffusion of Innovation Theory**, **Cognitive Load Theory**, and **Universal Design Theory**.

The **Diffusion of Innovation (DOI) Theory**, developed by E.M. Rogers, explains how, over time, an idea or product gains momentum and spreads through a specific population or social system. Adoption occurs when a person does something differently than they had previously (e.g., purchasing or using a new product, or acquiring and performing a new behavior). The key to adoption is that the individual must perceive the idea, behavior, or product as new or innovative. This theory is crucial for understanding how the adoption of the new Braille-labeled medication packaging spreads among visually impaired young adults. It helps predict the rate of adoption and identify factors that influence it, such as perceived usefulness (does it improve medication safety?), ease of use (is the Braille clear and easy to read?), and social influence (do peers and healthcare providers recommend it?).

The main goal of cognitive load theory (Paas, 2019) is to optimize learning of complex cognitive tasks by translating contemporary scientific knowledge about how cognitive structures and processes are organized (i.e., cognitive architecture) into practical guidelines for instructional design. In this context, awareness refers to the idea that an individual’s subsequent behavior can be influenced by the information they receive. Cognitive load theory focuses on how people process information from complex tasks, making it particularly relevant for evaluating whether Braille labels and packaging create excessive cognitive load, which could lead to medication errors. This theory helps us understand how visually impaired individuals process information from new packaging. Even if they are aware of the information (Newell & Simon, 2019), does it affect their ability to use the medication safely?

Universal Design Theory, also known as Design for All, is a design philosophy aimed at creating products and environments that are usable by everyone, regardless of age, ability, or disability. The goal is to ensure accessibility and inclusivity, promoting participation and independence for all individuals. This theory was first developed by architect Ronald Mace in the late 1980s. As a disability rights advocate, Mace recognized that traditional design processes often excluded people with disabilities. He championed the concept of designing for a diverse range of users, ensuring that products and environments could be accessed and used without the need for adaptation or specialized design.

This theory (Mace, late 1980s; Treviranus et al., 2020) guides the design of products that are usable by everyone, regardless of ability. It is central to creating accessible medication packaging. The principles of universal design—equitable use, flexibility, simple and intuitive use, perceptible information, tolerance for error, low physical effort, and appropriate size and space—directly inform the design and evaluation of Braille-labeled packaging. Our research will assess how well the packaging aligns with these principles and its effectiveness in promoting independent medication management.

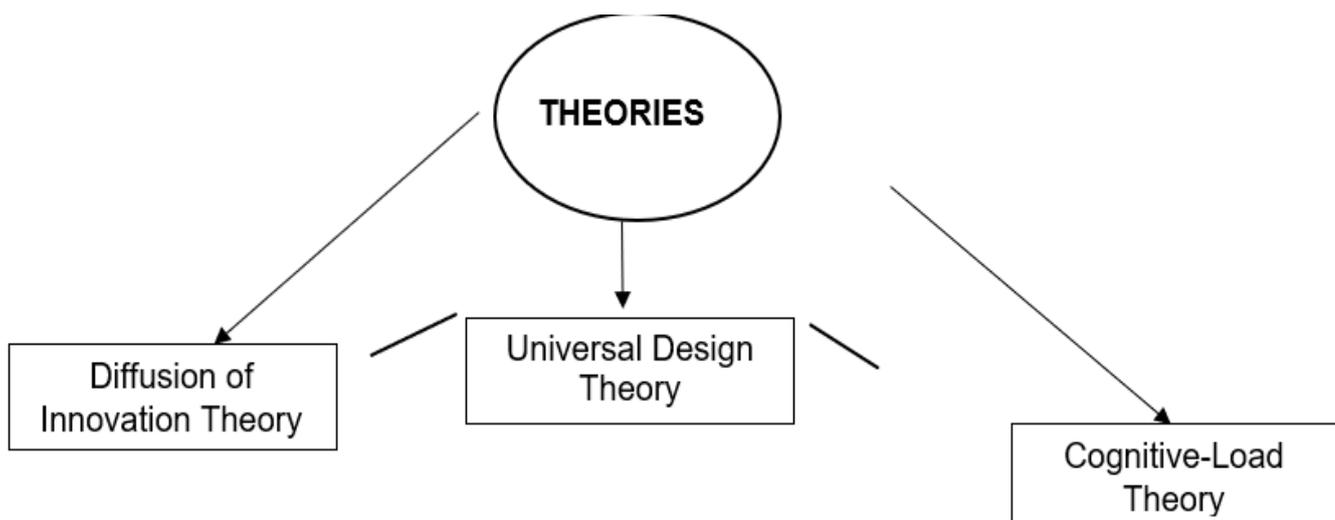
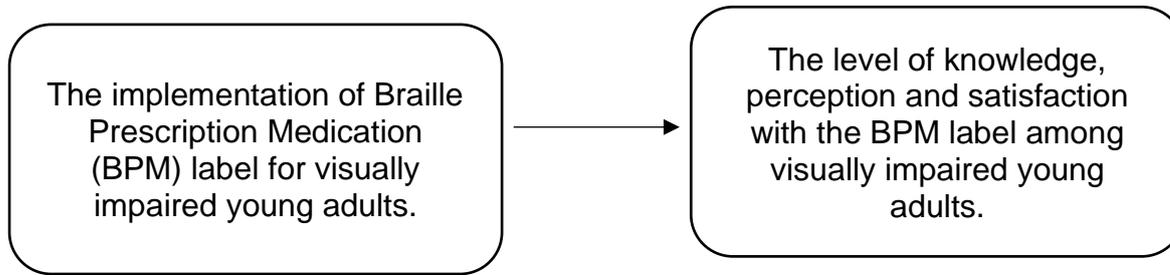


Figure 1. Theoretical Framework

Conceptual Framework



The independent variable in this study is the integration of Braille prescription medication labels for visually impaired young adults. This variable serves as the determining factor that influences the dependent variable: the level of knowledge among visually impaired individuals. This assessment provides important information about the effectiveness of Braille prescription medication labels.

Statement of the Problem

This study aims to evaluate visually impaired young adults' knowledge, perceptions, and satisfaction regarding over-the-counter (OTC) medications through the use of a braille-integrated prescription (BPM) within a medical paper packet. Specifically, the study will:

1. Assess the knowledge of visually impaired young adults after using the BPM label.
2. Explore their perceptions following BPM label use.
3. Measure their satisfaction with the BPM label.
4. Examine the relationship between knowledge, perception, and satisfaction after using the BPM label.

Hypothesis

Null Hypothesis

There is no significant relationship between the level of knowledge, perception, and satisfaction regarding the use of over-the-counter drugs among visually impaired young adults after the integration of Braille Prescription Medication (BPM) labels.

Significance of the Study

The study focuses on developing accessible medication labels tailored for visually impaired young adults, which is crucial for enhancing their understanding and ensuring safe medication use. Specifically, the findings of the study will be beneficial to the following groups:

Visually Impaired Young Adults: The study provides participants with knowledge about Braille prescription medication labels, enhancing their independence and accessibility in managing medications.

Pharmacists: This study will help pharmacists guide visually impaired young adults by providing information on Braille prescription medication labels, thereby promoting independence and accessibility.

Future Researchers: The outcomes of this study will serve as a valuable resource for future researchers interested in conducting similar studies or research related to Braille prescription medication labels.

Scope and Delimitation

The study focuses on the effectiveness of Braille prescription medication labels in terms of knowledge. It will involve a selected group of thirty (30) visually impaired young adults.

The research specifically investigates the use of Braille prescription medication labels on selected over-the-counter drugs included in their medical packaging. The study focuses on over-the-counter drugs for headaches,

coughs, and colds and excludes other medications not mentioned.

Definition of Terms

Braille – a tactile script that conveys letters, numbers, and symbols through raised-dot patterns, used on medication packaging to provide information for visually impaired individuals.

Braille Prescription Medication Label (BPM Label) – a tactile label that provides over-the-counter drug information, enabling visually impaired individuals to manage their medications independently.

Over-the-counter Drugs – medications that can be purchased without a prescription from a healthcare professional.

Pharmacist – a healthcare professional who ensures prescription and medication information is accessible, including through Braille labeling, to promote safety and improve outcomes for visually impaired young adults.

Prescription Medication – medications that require a prescription from a licensed healthcare provider, such as a doctor, nurse practitioner, or physician assistant.

Visually Impaired Young Adults – individuals aged 20–49 with partial or complete vision loss who face challenges reading standard medication labels and managing medications independently.

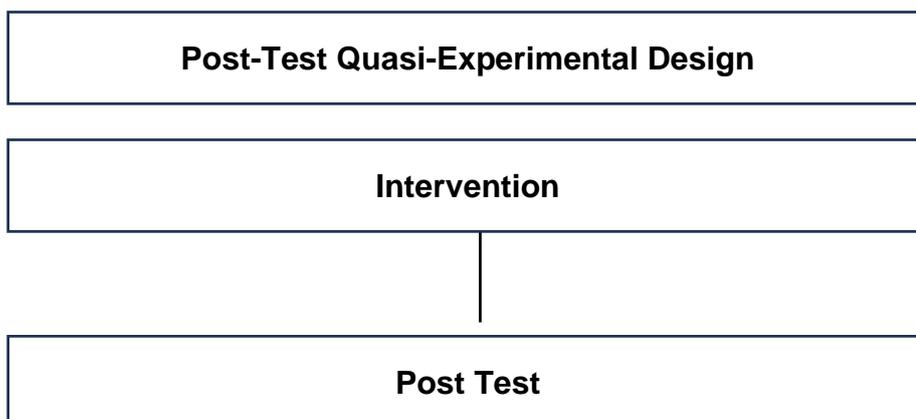
Medical Paper Packet – a paper sachet or envelope containing selected over-the-counter drugs, designed to include Braille Prescription Medication (BPM) labels to enhance accessibility for visually impaired individuals.

METHODOLOGY

This chapter explains the methodology employed in the study. It outlines the research design, the study locale, the sampling design, the respondents, the research instruments, the procedures for data collection, the ethical considerations, and the methods of statistical analysis.

Research Design

The post-test quasi-experimental design is a type of research design used to evaluate outcomes after an intervention has been administered. This design is characterized by the absence of both random assignment and pre-intervention measurements, relying solely on post-intervention data to assess the effect of the treatment. It is often employed in applied research settings where randomization and pretesting are not feasible, providing a practical approach to examining treatment effects while emphasizing the need for cautious interpretation of causal inferences (Campbell et al., 2018).



Research Locale

The research will be conducted in Koronadal City and General Santos City, both located in the northern section of South Cotabato Province in Southern Mindanao. These two cities will provide a total of thirty (30) respondents, which meets the study's target sample size. The researchers selected these locations because they

are expected to contribute significantly to achieving this goal. Additionally, visually impaired communities in urban areas are relatively limited, making these cities suitable sites for the study. Although specific local research quantifying the visually impaired population in General Santos City and Koronadal City is limited, available data indicate that both cities have a notable population of individuals with visual impairments. According to the 2010 census, about 1.6% of the population in General Santos City reported having a disability. Among persons aged five years and older with disabilities, 69% reported vision-related impairments, even with corrective lenses, suggesting that visual impairment is one of the most common types of disability in the city.

In Koronadal City, as of 2023, 1,416 individuals were recorded in the registry of Persons with Disabilities, although the data do not specify the type of disability. Nevertheless, the participation of Braille-literate visually impaired individuals from both cities in a 2023 drug management study demonstrates the presence of an active visually impaired community in these urban centers. National statistics from 2018 show that the prevalence of vision impairment in the Philippines is 1.98% (Philippine Statistics Authority, 2023).



Figure 3: Map of the Philippines, Koronadal City and General Santos City, South Cotabato

Respondents

This is a post-test quasi-experimental research study that aims to examine the effectiveness of braille prescription medication labels in enhancing knowledge among selected visually impaired young adults aged 20–49 in the cities of Koronadal and General Santos. Inclusion and exclusion criteria were carefully formulated to minimize potential threats to internal validity. A total of one (1) registered pharmacist will assist in sensitizing the visually impaired young adults on the subject under study, with support from the researchers.

The study specifically targeted participants who face challenges in reading standard medication labels. This approach ensures that those most in need of accessible medication label solutions, such as braille prescription labels, have their experiences and perspectives represented. By focusing on visually impaired adults who regularly use over-the-counter (OTC) medications, the researchers aim to collect data directly relevant to the study's objectives and to inform appropriate interventions.

To minimize bias, the researchers implemented several measures. First, clear inclusion and exclusion criteria were established to achieve a representative sample of visually impaired OTC medication users. The researchers were also trained to maintain objectivity during data collection and analysis. Additionally, external reviewers provided feedback to identify and mitigate potential personal biases in the study findings. Finally, the entire process of participant selection and data analysis was documented to enhance transparency and accountability.

Inclusion Criteria:

Visually Impaired Adults Who Can Read Braille: Participants must have a visual impairment that affects their ability to read standard drug labels and must be able to read Braille.

OTC Medication Users: Participants must frequently use over-the-counter medications.

Willingness to Participate: Participants must be willing to take part in the study, including completing surveys and participating in the Braille label training intervention.

Adults Aged 20–49: This specifies the age range of the target population, including individuals who are 20 to 49 years old.

Both Female and Male: The study includes participants of all genders, encompassing both women and men.

Exclusion Criteria:

Individuals with normal vision or those who cannot read Braille: This excludes individuals who do not meet the requirements for visual impairment and Braille literacy.

Individuals who do not use over-the-counter medications: This excludes individuals who do not take OTC medications.

Individuals unwilling to participate in the research: This excludes individuals who are not interested or available to participate in the study.

Individuals under the age of 20 or over the age of 49: This excludes individuals outside the specified age range.

Research Instrument

This study employs a self-developed and validated questionnaire to assess the knowledge of visually impaired young adults regarding over-the-counter (OTC) medications presented in a braille-integrated medical paper packet. Designed for accessibility, the questionnaire will be read aloud to each participant to ensure full comprehension.

The structured questionnaire underwent a validation process to confirm its reliability and accuracy. Its design specifically addresses the needs of visually impaired participants, ensuring both accessibility and precision in data collection.

To evaluate participants' knowledge of OTC medications in the braille-integrated format, various assessment methods will be employed. This approach allows for a nuanced understanding of participant perspectives and behaviors, supporting comprehensive data analysis.

As the primary research instrument, this validated questionnaire enables systematic data collection necessary to examine the impact of braille-integrated medical paper packets on the knowledge and medication management abilities of visually impaired young adults.

Research Procedures

This research study employed a sequential, multi-phase approach to data collection.

Phase 1: Researcher Braille Proficiency Training Program

In the initial stage of this project, all members of the research team were required to demonstrate proficiency in Braille literacy, with particular emphasis on its application in pharmaceutical labeling. This was achieved through a systematic training program that included the engagement of qualified Braille instructors and the use of comprehensive online learning resources. The program covered standard pharmaceutical abbreviations, the basic Braille alphabet, numerical representations, and accepted formats for Braille drug labels.

As part of the training, researchers actively participated in classes, practiced Braille transcription and reading, and completed assessments to evaluate their proficiency over time. Hands-on experience with real or simulated Braille medication labels was essential for developing familiarity with the tactile reading modality and potential variations in label presentation. Advancement to subsequent stages of the study depended on each researcher attaining a functional and effective understanding of Braille as it pertains to pharmaceutical information.

Phase 2: Product Development for Braille Medication Access. The project involves the development of a product by researchers aimed at improving visually impaired individuals' access to prescription information for Solmux, Lagundi, Neozep, and Biogesic. Our first step is a targeted ideation process, during which we generate a variety of product concepts designed specifically to meet the accessibility needs for these medications. These concepts include creating standardized braille label templates for packaging, developing tactile augmentation devices to convey critical information such as dosage and warnings, and exploring digital interfaces that convert relevant medication details into braille.

This process encompasses a comprehensive design phase that culminates in the production of functional prototypes. These prototypes are then refined iteratively, incorporating direct feedback from visually impaired users of Biogesic, Lagundi, Neozep, and Solmux. This user-centered approach ensures that the final product not only meets functional requirements and adheres to established braille standards but is also intuitive, easy to use, and effectively addresses the challenges currently faced in accessing essential medication information.

Phase 3: Development of a Research Questionnaire Instrument. The development of a psychologically sound tool to assess visually impaired individuals' knowledge of their prescribed medications—with a particular focus on information conveyed through braille labeling—constitutes the third phase of this study. To gather qualitative information, the evaluation tool will incorporate various question formats, including multiple-choice, dichotomous (yes/no), and satisfaction scales. The content of these items will address key topics such as understanding dosage instructions, recognizing medication names, awareness of braille labels on medications, and perceptions of the benefits and challenges associated with braille-based information.

Phase 4: Formulation of the Informed Consent Protocol. In this phase, we will carefully prepare an informed consent protocol for potential participants. The consent form will clearly explain the purpose of the study, the specific procedures involved (such as the knowledge assessment and Braille prescription medication intervention), the possible benefits and risks, and that participation is entirely voluntary. Participants will also be informed of their right to withdraw from the study at any time without any penalty, and the steps we take to protect their privacy and keep their data secure.

Phase 5: Acquisition of Ethical and Institutional Approval. At this stage, a comprehensive research proposal is submitted to the relevant institutional or ethics review board to secure the necessary approvals. The proposal

outlines the study's objectives, methodology, participant recruitment strategy, data analysis plan, ethical considerations, and finalized informed consent and assessment tools. We will address any feedback from the board, revising materials as needed to ensure methodological and ethical rigor. Formal approval is required before initiating participant recruitment or data collection.

Phase 6: Administering Consent and Implementing Braille Prescription Medication. Following institutional and ethical approval, participant recruitment will commence according to the study's predetermined criteria. Carefully designed informed consent documents will be provided to potential volunteers, who will have ample time to review and understand the materials. The research team will be available to answer any questions. Only participants who provide explicit written consent will be formally enrolled.

The Braille prescription pharmaceutical intervention will be implemented after obtaining informed consent. This may involve introducing the product developed in Phase 2, which includes Braille-based information, or providing participants' prescribed medications with Braille-enhanced labeling. Participants will be asked to complete the knowledge assessment tool developed in Phase 3, either concurrently or subsequently, to evaluate their understanding of the medication information.

Throughout this phase, the implementation of the Braille intervention, data collection procedures, and administration of the informed consent process will be conducted with meticulous attention to maintaining a consistent and standardized approach.

Phase 7: Analyzing and Interpretation of the Results. Researchers will analyze data from the knowledge measurement questionnaire using appropriate statistical methods to identify trends, patterns, and variations in participants' understanding of their prescription medications. Qualitative responses on braille labeling will be examined through thematic analysis to explore participants' experiences and perspectives. Findings will be interpreted in relation to the study's objectives and existing literature, informing conclusions about participants' knowledge, the effectiveness of braille labeling, and implications for improving medication accessibility and safety for individuals with visual impairments.

Statistical Treatment

This research employed both descriptive and inferential techniques to evaluate the association between independent variables—namely, the degree of knowledge and perception of OTC medication labels—and the dependent variable, the degree of satisfaction. Descriptive statistics were presented using cross-tabulation tables, which display the frequency counts of responses for different categories of each variable. These tables help identify potential trends or patterns by showing how often particular combinations of scores occur. However, descriptive statistics alone cannot determine whether observed patterns are statistically significant, making inferential statistics necessary.

To assess statistical significance, Chi-Square Tests of Independence were conducted. These tests evaluate whether there is a significant association between categorical variables by comparing observed frequencies to expected frequencies. The Chi-Square test results for all variable pairings consistently yielded p-values greater than the standard alpha level of 0.05, indicating no significant relationships. Additionally, Pearson's r and Spearman's ρ correlation analyses were performed to examine the strength and direction of correlations between the same variables. These analyses also produced non-significant results, suggesting no meaningful monotonic relationships.

Ethical Consideration

The committee, composed of members from St. Alexius College, the Pharmacy Department, and the Research Panels, thoroughly reviewed and approved the study proposal and instruments. Based on the researchers' observations, all potential issues were carefully considered and addressed accordingly.

Privacy and confidentiality of participants. Throughout the study, the researchers took several steps to ensure the confidentiality of visually impaired adult participants. First, during the recruitment and consent process, they clearly explained participants' right to privacy and how their information would be protected, providing the explanation in an accessible format—for example, by assisting them in reading the consent form. All information

collected, whether through questionnaires, interviews, or other methods, was anonymized. When reporting the findings, the data was compiled, and any potentially identifying information was either generalized or removed to uphold the confidentiality agreement.

Social value. Braille prescription labels are more than a tool—they are a lifeline for young adults with visual impairments, allowing them to manage their medications safely and independently. By providing clear, tangible information about drugs and dosages, these labels prevent errors, protect health, and uphold dignity. They also send a powerful message: society recognizes the needs of visually impaired individuals and values accessibility. Supporting Braille labeling is a step toward a safer, more inclusive healthcare system and a fairer, more equitable community for everyone.

Vulnerability of research participants. The researchers must safeguard the well-being of participants and ensure that their participation is fully informed and voluntary. Informed consent forms will be provided to their legal guardians. Republic Act No. 9442, an amendment to the Magna Carta for Persons with Disabilities (RA 7277) in the Philippines, aims to promote the welfare and rights of people with disabilities by ensuring equal opportunities, access to services, and protection against discrimination. It provides financial benefits, such as discounts on basic goods and services, and supports inclusive policies in education, employment, and public infrastructure. The law also protects this vulnerable group from ridicule and abuse, thereby enhancing their dignity and enabling their full participation in society.

Risk and Benefit Ratio. Braille prescription medication labels offer significant advantages for visually impaired individuals by providing essential information such as dosage and warnings, promoting independence, and reducing the risk of medication errors. While potential challenges include higher costs and the need to avoid obscuring other critical label information, research and patient experiences show that the benefits—enhanced safety, independence, and adherence—far outweigh these concerns. The ability of visually impaired individuals to confidently manage their own medications is a crucial aspect of healthcare accessibility and patient empowerment, making Braille labeling an essential tool.

Transparency. Researchers should provide clear and understandable information about the study's purpose, procedures, risks, and benefits. This ensures that participants are fully aware of their rights and the nature of their involvement, using tools such as plain language, assistive technologies, or sign language interpreters when appropriate. Such transparent communication fosters trust, facilitates informed consent, and upholds the ethical principle of respect for autonomy and dignity.

Access to the data is strictly limited to the head of the research. All collected information is securely stored, and only those directly involved in the study may access it. Upon completion of the research, all documents—including information sheets, consent forms, and questionnaires containing participants' responses—will be destroyed by the research leader to ensure confidentiality. This study has been reviewed and approved by the Pharmacy Research Ethics Committee to confirm that all procedures adhere to ethical standards, including obtaining informed consent, safeguarding privacy and confidentiality, and minimizing potential harm to participants. The integrity and transparency of the researchers regarding study details are clearly communicated to participants.

Furthermore, participants are informed that the research poses no threat to their personal identity or professional standing. All personal information collected is protected under Republic Act No. 10173, also known as the Data Privacy Act. After collecting the necessary data, the researchers carefully process the personal and sensitive information.

RESULTS AND DISCUSSION

This chapter presents the findings of the study on the integration of Braille Prescription (BPM) labels in medical paper packets for visually impaired young adults. The results are discussed in relation to the research objectives and the identified problems. The statistical data collected from the respondents were analyzed and interpreted to assess their knowledge, perceptions, and satisfaction regarding the use of BPM labels.

Table 1. Level of Knowledge of the Respondents after the Utilization of BPM Label among Visually Impaired Young Adults

| Questions | Mean | Interpretation |
|--|-------|--------------------------------------|
| 1. What is your understanding of the term "Over-the-Counter (OTC) medication"? | 0.767 | Moderate to good understanding |
| 2. What is the brand name of the medication? | 1.000 | Very good to excellent understanding |
| 3. What is the dosage of the medication? | 0.800 | Moderate to good understanding |
| 4. What is the form of the drug? | 0.967 | Very good to excellent understanding |
| 5. What is the total quantity of medication dispensed? | 0.633 | Moderate to low understanding |
| 6. How often are you supposed to take your medication? | 0.700 | Moderate to good understanding |
| 7. How are you supposed to take this medication? | 0.767 | Moderate to good understanding |
| 8. How long are you supposed to take this medication? | 0.700 | Moderate to good understanding |
| 9. What is this medication for? | 0.900 | Very good to excellent understanding |
| 10. What is the common side effect of this medication? | 0.267 | Poor understanding |

The study evaluated the impact of Braille Prescription Medication (BPM) labels on the knowledge, perception, and satisfaction levels of visually impaired young adults. Results regarding knowledge acquisition indicate that BPM labels moderately improved participants’ understanding of their over-the-counter (OTC) medications. Respondents demonstrated excellent comprehension of basic medication information, including the brand name (Mean = 1.000), drug form (Mean = 0.967), and purpose of the medication (Mean = 0.900), suggesting that Braille labels effectively convey essential and structurally simple information. However, lower mean scores were observed for more complex information, such as the total quantity of medication dispensed (Mean = 0.633) and common side effects (Mean = 0.267), the latter falling within the "poor understanding" range. These findings are consistent with Ali et al. (2020), who concluded that while Braille labeling enhances medication identification and usage among the visually impaired, it often fails to communicate nuanced information such as contraindications or side effects. Similarly, Choudhury et al. (2019) emphasized that Braille medical labels should be supplemented with simplified language and, where possible, audio components, as tactile reading alone may not sufficiently convey detailed pharmaceutical information. Singh et al. (2021) also highlighted the cognitive burden of interpreting complex health information for visually impaired individuals and advocated a multisensory communication approach to improve comprehension.

Table 2. Level of Perception of the Respondents after the Utilization of BPM Label among Visually Impaired Young Adults

| Questions | Mean | Interpretation |
|--|------|----------------------------|
| 1. I have encountered a Braille label on an Over-the-counter (OTC) medication before. | 1.37 | Very low perception |
| 2. I know how to read Braille characters on a medication label. | 1.87 | Low to moderate perception |
| 3. I am familiar with the standard information typically included on a Braille medication label (e.g., medication name, dosage, quantity). | 1.70 | Low to moderate perception |
| 4. I believe Braille labels are helpful for managing my prescription medications. | 2.00 | High perception |
| 5. I think that more Over-the-counter (OTC) medications should have a Braille label option. | 1.73 | Low to moderate perception |
| 6. I have attended lectures about braille labelled medication prescription. | 1.10 | Very low perception |
| 7. I know other country that utilizes braille medication prescriptions. | 1.53 | Low to moderate perception |

In terms of perception, the results indicate a general lack of awareness and limited prior exposure to Braille-labeled medications among participants. The lowest mean scores were observed for questions related to previous encounters with BPM labels (Mean = 1.37) and attendance at educational sessions about Braille-labeled medication (Mean = 1.10), both falling under the category of “very low perception.” Despite this, participants expressed strong agreement on the usefulness of Braille labels in managing medications (Mean = 2.00), suggesting that while actual exposure is minimal, the perceived value of these labels is high once experienced.

This pattern highlights a significant gap between the availability or accessibility of BPM labels and the awareness of such resources among visually impaired individuals. These findings align with Khan et al. (2020), who identified limited public dissemination and poor integration of Braille labeling in pharmaceutical practice as major barriers to effective use. Similarly, Narayan and Rawat (2022) reported that although many visually impaired individuals recognize the potential benefits of Braille-labeled medication, few have actually encountered them due to insufficient institutional support and public health initiatives. The World Health Organization (2021) has also emphasized the importance of disability-inclusive labeling practices, advocating for inclusive design and increased awareness as critical steps toward making medications safer and more accessible for the visually impaired population.

Table 3. Level of Satisfaction of the Respondents after the Utilization of BPM Label among Visually Impaired Young Adults

| Questions | Mean | Interpretation |
|---|------|----------------|
| 1. I am satisfied with the overall use of the developed BPM labels. | 4.80 | Very Satisfied |
| 2. I find BPM labels convenient and helpful in understanding my OTC medications. | 4.83 | Very Satisfied |
| 3. I find it easy to understand the information presented on the BPM label. | 4.70 | Very Satisfied |
| 4. I improve my medication adherence with the use of the BPM label. | 4.70 | Very Satisfied |
| 5. I increased my independence in managing my medications with BPM label. | 4.83 | Very Satisfied |
| 6. I feel that the BPM label have encouraged me to take my medications more consistently. | 4.87 | Very Satisfied |
| 7. I am satisfied with the ease of locating the Braille information on my Braille Prescription Medication. | 4.67 | Very Satisfied |
| 8. I am satisfied with the overall quality and format of Braille label on my OTC medications. | 4.50 | Very Satisfied |
| 9. I am satisfied with the clarity and understandability of the Braille information on my medication label. | 4.77 | Very Satisfied |
| 10. I am satisfied with the level of confidence I have in managing my medication independently with the use of Braille label. | 4.83 | Very Satisfied |

When it comes to satisfaction, the data reflect an overwhelmingly positive experience with BPM labels among respondents. All measured items fall within the "very satisfied" range, with particularly high scores for increased medication adherence (Mean = 4.87), enhanced independence in managing medications (Mean = 4.83), and improved confidence in self-care (Mean = 4.83). These findings suggest that once BPM labels are introduced and used, they have a significant empowering effect, enabling users to better understand and control their medication routines. The results align with Pinto et al. (2021), who reported that accessible medication labels significantly enhance autonomy and quality of life for people with visual impairments. Similarly, Davies et al. (2023) found that adaptive technologies, such as Braille labels, promote better health outcomes by reducing reliance on caregivers and minimizing medication errors. In the same vein, Mehta and Alvi (2019) highlighted the positive psychological effects of self-management among visually impaired individuals, noting that accessible health technologies improve satisfaction, compliance, and overall well-being.

Table 4. Test for Significant Relationship Level of Knowledge of the Respondents after the Utilization of BPM Label among Visually Impaired Young Adults

| Relationship | Correlation Coefficient Significance | Remarks | Description |
|--|--|--|-------------|
| The level of knowledge and level of perception of the respondents after the utilization of BPM label among visually impaired young adults. | -.286 0.126 | Negligible correlation/Not significant | Negative |

| | | | |
|--|-----------------|---|----------|
| The level of knowledge and the level of satisfaction of the respondents after the utilization of BPM label among visually impaired young adults | -0.040 0.832 | Negligible correlation/ Not Significant | Negative |
| The level of perception and the level of satisfaction of the respondents after the use of BPM label among visually impaired young adults | 0.272 0.145 | Negligible correlation/Not significant | Positive |

Despite improvements in knowledge and satisfaction, the correlational analysis indicates that the relationships between knowledge, perception, and satisfaction were negligible and statistically insignificant. The correlations between knowledge and perception ($r = -0.286$), knowledge and satisfaction ($r = -0.040$), and perception and satisfaction ($r = 0.272$) all fall below the threshold for significance. These results suggest that satisfaction with BPM labels is not necessarily contingent on prior knowledge or perception. Instead, users appear to derive high satisfaction from the practical and immediate benefits of the labels, even if they begin with limited understanding or awareness. This phenomenon aligns with the findings of Zhang et al. (2020), who reported that satisfaction with assistive technologies is often more influenced by the user’s experience of functionality and ease of use than by pre-existing knowledge or training. Similarly, López and Barrientos (2022) argued that in accessibility contexts, perceived usefulness and effectiveness often outweigh prior exposure in determining user satisfaction.

The data demonstrate that BPM labels are highly effective in enhancing medication management among visually impaired young adults. Although knowledge and awareness of Braille-labeled medication remain relatively low, actual use of BPM labels leads to significant improvements in satisfaction, autonomy, and perceived control over one’s health. These findings underscore the need for broader implementation of accessible medication labeling, alongside targeted education and outreach efforts. Future public health strategies should integrate multisensory learning tools, expand access to Braille resources, and promote policy-level adoption of inclusive pharmaceutical labeling to ensure equitable healthcare access for individuals with visual impairments.

CONCLUSION

This chapter summarizes the findings of our study, draws conclusions based on the data analysis, and provides recommendations for future research and practical applications of Braille-integrated Prescription in Medical Paper Packet (BPM) labels.

Conclusion

The study comprehensively assessed the levels of knowledge, perception, satisfaction, and the interrelationships among these factors following the implementation of Braille Prescription Medication (BPM) labels for visually impaired young adults. The findings indicate that respondents demonstrated a generally moderate to good understanding of medication-related information after using the BPM label. Most mean scores ranged from 0.66 to 0.85, suggesting that the BPM label effectively conveyed essential details, including medication name, dosage, form, and purpose. Notably, the item regarding side effects received a significantly lower score, highlighting a knowledge gap in understanding potential risks or adverse reactions.

Despite improvements in knowledge, perception levels remained relatively low to moderate, with mean scores mostly ranging from 1.50 to 1.99. This suggests that many respondents had limited prior exposure to Braille-labeled medications, minimal training, and low awareness of their global use. Only one item—belief in the helpfulness of Braille labels—received a high perception score. These results imply that while participants recognized the value of the BPM label once used, their baseline awareness and exposure were limited, underscoring the need for education and advocacy initiatives to enhance familiarity and perception.

In contrast, satisfaction with the BPM label was overwhelmingly high. All satisfaction items received mean scores above 4.5, falling within the "Very Satisfied / Strongly Agree" range. Respondents strongly agreed on the label’s usefulness, clarity, convenience, and empowering effects, particularly in promoting independence and consistent medication adherence. This suggests that, once introduced, the BPM label provides a highly positive and empowering user experience, effectively addressing daily challenges faced by visually impaired individuals in medication management.

Statistical analysis of the relationships among knowledge, perception, and satisfaction revealed negligible and non-significant correlations across all variable pairs. This indicates that high satisfaction did not necessarily depend on prior knowledge or perception. Instead, it may reflect the novelty and practical value of the intervention, as users reported strong satisfaction despite limited familiarity or understanding. These findings suggest that satisfaction with assistive tools like BPM labels is influenced more by immediate usability and the sense of autonomy they provide than by background knowledge or perception alone.

Overall, the findings affirm the effectiveness of the BPM label in enhancing medication-related knowledge and satisfaction among visually impaired young adults. However, low perception scores and the lack of significant correlations among variables indicate gaps in prior exposure, education, and systemic support. Therefore, while the tool itself is highly effective and well-received, its impact could be further strengthened through wider implementation, educational initiatives, and policy integration. Moving forward, healthcare systems and educational institutions should collaborate to normalize the use of Braille-labeled medications and support visually impaired individuals in achieving full medication independence and safety.

RECOMMENDATION

The incorporation of Braille Prescription Medication (BPM) labels into medical paper packets for selected over-the-counter drugs is a landmark step toward improving accessibility for visually impaired young adults. Beyond promoting independence, this initiative ensures safer medication management. Valuable insights into their experiences and challenges with existing packaging can be gathered through surveys or focus groups. Close collaboration with packaging manufacturers is essential, as it allows researchers to explore new materials and designs that accommodate Braille labels without compromising the compactness of the packaging. Additionally, offering training workshops or educational materials on the proper use of BPM labels can help visually impaired patients gain confidence in self-managing their medication.

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APPENDICES



ST. ALEXIUS COLLEGE

Gen. San. Drive, City of Koronadal, South Cotabato, Philippines 69506. Tel.: (083) 228-2019. Fax: (083) 228-4015. Email: st.alexiuscollege@yahoo.com

February 13, 2025

JOHN THOMAS C. FRANCO, RN, MAN, PhD
Executive Vice President
St. Alexius College

APPROVED
- [Signature]
17 Feb '25

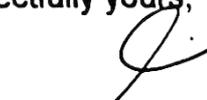
Dear Mr. Franco,
Good day!

We, the PHARMACY 3A—Group 1 research students currently enrolled in Pharmacy Research 2 (PHPRAC 7), will conduct a research study entitled "**Integration of Braille Prescription Medication (BPM) Label for Selected Over-the-counter Drugs among Visually Impaired Adults in Koronadal or General Santos City**" as a requirement for this course. This study involves data collection beyond the college premises.

In line with this, we respectfully seek your approval to conduct our research at Koronadal/General Santos City of this month of February 2025 and our respondent will be Visually Impaired Adults.

Thank you for your time and consideration!

Respectfully yours,


RICCA MAL BEATRICE S. PALITOC
Research Leader


CRIZLLE JANE T. MERICO
Member


SHEILA MAE S. HAMBALA
Member


ANDREA DANE A. RAMOS
Member

Noted by:

 2/13/25
APPLE JANE D. SIROY, RPH
Program coordinator - Pharmacy Department
St. Alexius College

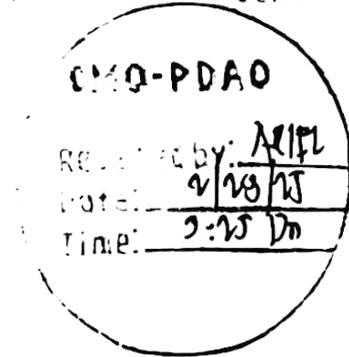
Permission Letters

**ST. ALEXIUS COLLEGE**

Gen. San. Drive, City of Koronadal, South Cotabato, Philippines 09506. Tel.: (083) 228-2019. Fax: (083) 228-4015. Email: st.alexiuscollege@yahoo.com

February 13, 2025

LEO MARTIN CELLAN, LPT
Person with Disability Affairs
Administrative Aide II



Dear Mr. Cellan,

Good day!

We are Pharmacy 3A—Group 1 research students at St. Alexius College, conducting a study entitled **"Integration of Braille Prescription Medication (BPM) Labels for Selected Over-the-Counter Drugs among Visually Impaired Adults in Koronadal or General Santos City."** Our objective is to translate prescription details into Braille and print them on label-sized inserts.

To ensure the accuracy and readability of our Braille transcriptions, we kindly seek your expertise as a skilled Braille reader. Your role would involve reviewing our Braille labels against the corresponding printed prescription information to identify any discrepancies.

We would greatly appreciate your consideration of this opportunity. If you are interested in participating, please feel free to contact us through hambala_she@stalexiuscollege.edu.ph or via phone at 09627232587.

Thank you for considering our request.

Sincerely,

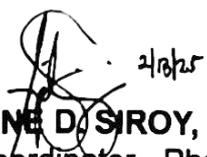

RICCA MAI BEATRICE S. PALITOC
Research Leader

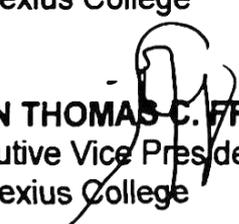

SHEILA MAE S. HAMBALA
Member


CRIZLLE JANE T. MERICO
Member


ANDREA DAINE A. RAMOS
Member

Noted by:


APPLE JANE D. SIROY, RPH
Program coordinator - Pharmacy Department
St. Alexius College


JOHN THOMAS C. FRANCO, RN, MAN, PhD
Executive Vice President
St. Alexius College



ST. ALEXIUS COLLEGE

Gen. San. Drive, City of Koronadal, South Cotabato, Philippines 89506. Tel: (083) 228 2019. Fax: (083) 228 4015. Email: st.alexius.college@yahoo.com

February 13, 2025

To Whom It May Concern,

Good day!

We are writing to request your invaluable assistance with our research entitled **"Integration of Braille Prescription Medication (BPM) Labels for Selected Over-the-Counter Drugs among Visually Impaired Adults in Koronadal or General Santos City."** A crucial element of our study requires the participation of a licensed pharmacist to facilitate data collection.

Your responsibilities would include engaging directly with visually impaired participants by providing Braille-labeled medication packaging, administering a knowledge assessment questionnaire regarding the Braille information, and ensuring the ethical handling of study materials.

We acknowledge that this will require a significant time commitment on your part, and while specific dates and times are yet to be finalized, we will reach out shortly to discuss scheduling.

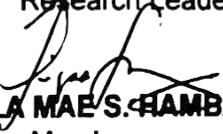
Your participation is essential to the success of our research, and we would be privileged to have you join us on this important endeavor. Please let us know if you are interested in collaborating with us.

Thank you for your consideration.

Sincerely,


RICCA MAI BEATRICE S. PALITOC
 Research Leader


CRIZLLE JANE T. MERICO
 Member


SHEILA MAE S. TAMBALA
 Member


ANDREA DANE A. RAMOS
 Member

Noted by:

 2/13/25
APPLE JANE D. SIROY, RPH
 Program coordinator - Pharmacy Department
 St. Alexius College


JOHN THOMAS C. FRANCO, RN, MAN, PhD
 Executive Vice President
 St. Alexius College



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Gen. San. Drive, City of Koronadal, South Cotabato, Philippines 09506 Tel: (083) 228-2019, Fax: (083) 228-4015 Email: st.alexiuscollege@yahoo.com

February 13, 2025

Julics Barieses
Section Chief
Disability affairs officer III

Dear Sir/Madam,
Good day!

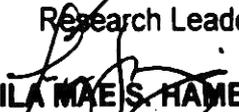
The undersigned are third year pharmacy students at St. Alexius College, conducting a research study entitled "**Integration of Braille Prescription Medication (BPM) labels for selected over-the-counter Drugs among Visually Impaired Young Adults in Koronadal or General Santos City**". Our research aims to explore the Knowledge of Visually Impaired young Adults on Selected Over-the-counter Medications.

In relation to this, we kindly request access to relevant information for the study. Specifically, we are seeking the names, ages, addresses, contact numbers, and conditions of visually impaired young adults residing in General Santos City. Please be assured that this information will be used exclusively for research purposes. We are committed to maintaining strict confidentiality and adhering to all applicable data protection laws and regulations to protect individuals' privacy and rights throughout the research process.

For further clarification and inquiries regarding our study, you can contact us through hambala_she@stalexiuscollege.edu.ph or through 09627232587. Thank you very much for considering our request.

Respectfully,


RICCA MAI BEATRICE S. PALITOC
Research Leader

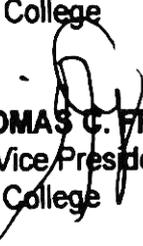

SHEILA MAE S. HAMBALA
Member


CRIZLLE JANE T. MERICO
Member


ANDREA DANE A. RAMOS
Member

Noted by:


APPLE JANE D. SIROY, RPH
Program coordinator - Pharmacy Department
St. Alexius College


JOHN THOMAS C. FRANCO, RN, MAN, PhD
Executive Vice President
St. Alexius College



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Gen. San Drive, City of Koronadal, South Cotabato, Philippines 7050. Tel: (083) 228-2018, Fax: (083) 228-4015. Email: stalexiuscollege@yahoo.com

February 13, 2025

Rustico Pelonio

GSC SPED INTEGRATED SCHOOL-SAN ISIDRO CAMPUS

Barangay San Isidro, General Santos City

Dear Sir/Madam,

Good day!

The undersigned are third year pharmacy students at St. Alexius College, conducting a research study entitled **"Integration of Braille Prescription Medication (BPM) labels for selected over-the-counter Drugs among Visually Impaired Young Adults in Koronadal or General Santos City"**. Our research aims to explore the Knowledge of Visually Impaired young Adults on Selected Over-the-counter Medications.

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Thank you very much for considering our request.

Respectfully,


RICCA MAI BEATRICE S. PALITOC

Research Leader


SHEILA MAE S. HAMBALA

Member


CRIZLLE JANE T. MERICO

Member


ANDREA DANE A. RAMOS

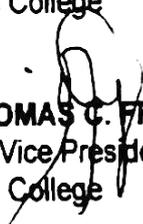
Member

Noted by:


APPLE JANE D. SIROY, RPH

Program coordinator - Pharmacy Department

St. Alexius College


JOHN THOMAS C. FRANCO, RN, MAN, PhD

Executive Vice President

St. Alexius College



ST. ALEXIUS COLLEGE

Gen. Santos Drive, City of Koronadal, South Cotabato, Philippines 9506. Tel: (083) 228-2019, Fax: (083) 228-4015, Email: st.alexius.college@yahoo.com

February 13, 2025

KORONADAL NATIONAL COMPREHENSIVE HIGH SCHOOL

Jose Rizal Street, Koronadal City
9506 South Cotabato

Dear Sir/Madam,

Good day!

The undersigned are third year pharmacy students at St. Alexius College, conducting a research study entitled "**Integration of Braille Prescription Medication (BPM) labels for selected over-the-counter Drugs among Visually Impaired Young Adults in Koronadal or General Santos City**". Our research aims to explore the Knowledge of Visually Impaired young Adults on Selected Over-the-counter Medications.

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Thank you very much for considering our request.

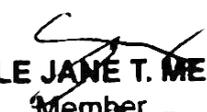
Respectfully,


RICCA MAI BEATRICE S. PALITOC

Research Leader


SHEILA MAE S. HAMBALA

Member


CRIZLLE JANE T. MERICO

Member


ANDREA DANE A. RAMOS

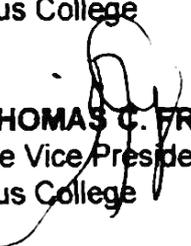
Member

Noted by:


APPLE JANE D. SIROY, RPH

Program coordinator - Pharmacy Department

St. Alexius College


JOHN THOMAS C. FRANCO, RN, MAN, PhD

Executive Vice President

St. Alexius College


MA. FE LITA S. YPARRAGUIRRE
Principal IV



ST. ALEXIUS COLLEGE

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February 13, 2025

Persons with Disability Affairs Office
Senior Citizens St, General Santos City
9500 South Cotabato

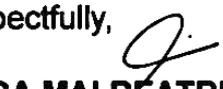
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Respectfully,


RICCA MAI BEATRICE S. PALITOC
Research Leader

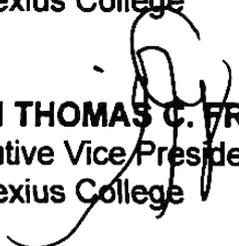

SHEILA MAE S. HAMBALA
Member


CRIZLLE JANE T. MERICO
Member


ANDREA DANE A. RAMOS
Member

Noted by:


APPLE JANE D. SIROY, RPH
Program coordinator - Pharmacy Department
St. Alexius College


JOHN THOMAS C. FRANCO, RN, MAN, PhD
Executive Vice President
St. Alexius College



ST. ALEXIUS COLLEGE

Gen. Santos Drive, City of Koronadal, South Cotabato, Philippines, 69506. Tel: (083) 228-2019, Fax: (083) 228-4015, Email: stalexiuscollege@yahoo.com

February 13, 2025

VALENTINE DIGNADICE
KNCHS Principal

Dear Sir/Madam,
Good day!

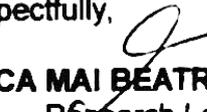
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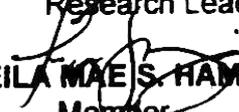
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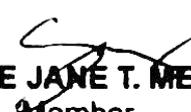
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Thank you very much for considering our request.

Respectfully,


RICCA MAI BEATRICE S. PALITOC
Research Leader

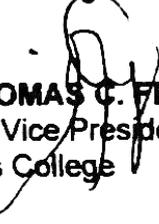

SHEILA MAE S. HAMBALA
Member


CRIZLLE JANE T. MERICO
Member


ANDREA DANE A. RAMOS
Member

Noted by:


APPLE JANE D. SIROY, RPH
Program coordinator - Pharmacy Department
St. Alexius College


JOHN THOMAS C. FRANCO, RN, MAN, PhD
Executive Vice President
St. Alexius College



ST. ALEXIUS COLLEGE

Gen. Santos Drive, City of Koronadal, South Cotabato, Philippines 7014. Tel: (083) 275-2014, Fax: (083) 275-4015. Email: stalexiuscollege@stalexiuscollege.edu.ph

February 13, 2025

GSC SPED INTEGRATED SCHOOL-SAN ISIDRO CAMPUS Barangay San Isidro, General Santos City

Dear Sir/Madam,
Good day!

The undersigned are third year pharmacy students at St. Alexius College, conducting a research study entitled "**Integration of Braille Prescription Medication (BPM) labels for selected over-the-counter Drugs among Visually Impaired Young Adults in Koronadal or General Santos City**". Our research aims to explore the Knowledge of Visually Impaired young Adults on Selected Over-the-counter Medications.

In relation to this, we kindly request access to relevant information for the study. Specifically, we are seeking the names, ages, addresses, contact numbers, and conditions of visually impaired young adults residing in General Santos City. Please be assured that this information will be used exclusively for research purposes. We are committed to maintaining strict confidentiality and adhering to all applicable data protection laws and regulations to protect individuals' privacy and rights throughout the research process.

For further clarification and inquiries regarding our study, you can contact us through hambala_she@stalexiuscollege.edu.ph or through 09627232587. Thank you very much for considering our request.

Respectfully,

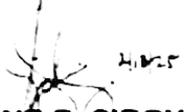

RICCA MAI BEATRICE S. PALITOC
Research Leader

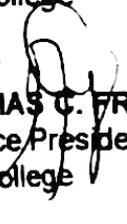

SHEILA MAE S. HAMBALA
Member


CRIZLLE JANE T. MERICO
Member


ANDREA DANE A. RAMOS
Member

Noted by:


APPLE JANE D. SIROY, RPH
Program coordinator - Pharmacy Department
St. Alexius College


JOHN THOMAS C. FRANCO, RN, MAN, PhD
Executive Vice President
St. Alexius College

Ethical Approval



ST. ALEXIUS COLLEGE

Gen. San. Drive, City of Koronadal, South Cotabato, Philippines 09506, Tel.: (083) 228-2019, Fax: (083) 228-4015, Email: st.alexiuscollege@yahoo.com

RESEARCH QUESTIONNAIRE VALIDATION

Name of the Validator : Mariabe P. Quinco, RPh MS Pharm

“ Integration of Braille Prescription Medication (BPM) Label within Compact Packaging for Selected Over-the-counter Drugs among Visually Impaired Young Adults.”

Educational Attainment of the Validator:

| Education | Field of Specialization | Higher Education Institution |
|-------------------|----------------------------------|------------------------------|
| Bachelor's Degree | BS Pharmacy | SPC, Davao City |
| Master's Degree | MS Pharm | UIC, Davao City |
| Doctorate Degree | PhD in Pharmacy(Dissertation II) | UIC, Davao City |

Research Studies Conducted:

| Research Title | Research Role | | Year |
|---|-----------------|---------------|------|
| | Lead Researcher | Co-Researcher | |
| PHYSICIANS – PHARMACISTS TEAM INTERVENTION IN ANTIMICROBIAL STEWARDSHIP IN HOSPITALS: A SYSTEMATIC REVIEW AND META-ANALYSIS | / | | 2020 |
| | | | |
| | | | |
| | | | |

Relevant Experience in Validating Research Instruments:

| Research Title | Year | Program | Higher Education Institution |
|----------------|------|---------|------------------------------|
| | | | |
| | | | |

RPOvalidationtool2025

Validation Sheet

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |

(Name and Signature of Validator)

Direction: Please check the number of the rating that corresponds to your choice using the rating scale provided.

| Rating | Verbal Description |
|--------|--------------------|
| 4 | Excellent |
| 3 | Very Good |
| 2 | Good |
| 1 | Fair |

| | | | | |
|--|----------|----------|----------|----------|
| 1. CLARITY | 4 | 3 | 2 | 1 |
| The instructions in the survey questionnaire/interview schedule are clear, concise, understandable, and suited to the level of the respondents | / | | | |
| The questions in the survey questionnaire/interview schedule given are clear, concise, understandable, and suited to the level of the respondents/participants. | | / | | |
| 2. ORGANIZATION | 4 | 3 | 2 | 1 |
| The questions/items in the survey questionnaire/interview schedule are organized in logical manner based on the statement of the problem of study/the grand tour question. | | / | | |
| 3. APPROPRIATENESS | 4 | 3 | 2 | 1 |
| The questions/items in the survey questionnaire/interview schedule are appropriate and relevant to the study. | | / | | |
| The questions in the survey questionnaire/interview schedule were designed to answer appropriately and comprehensively the specific questions in the statement of the problem/grand tour question. | | / | | |
| 4. ADEQUACY | 4 | 3 | 2 | 1 |
| The survey questionnaire/interview schedule is sufficient to gather information needed to answer questions in the statement of the problem/grand tour question. | / | | | |



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Gen. San. Drive, City of Koronadal, South Cotabato, Philippines 09506. Tel: (083) 228-2019. Fax: (083) 228-4015. Email: st.alexiuscollege@yahoo.com

RESEARCH QUESTIONNAIRE VALIDATION

Name of the Validator : Kimberly Jean Surmion

Educational Attainment of the Validator:

| Education | Field of Specialization | Higher Education Institution |
|-------------------|-------------------------------------|-------------------------------|
| Bachelor's Degree | BS Pharmacy | St. Alexius College |
| Master's Degree | MS in Pharmacy major mgmt and Admin | Philippine Women's University |
| Doctorate Degree | PHD in Pharmacy | Centro Escolar University |

Research Studies Conducted:

| Research Title | Research Role | | Year |
|----------------|-----------------|---------------|------|
| | Lead Researcher | Co-Researcher | |
| | | | |
| | | | |
| | | | |
| | | | |

Relevant Experience in Validating Research Instruments:

| Research Title | Year | Program | Higher Education Institution |
|----------------|------|---------|------------------------------|
| | | | |
| | | | |
| | | | |
| | | | |


SURMION, KIMBERLY JEAN
 (Name and Signature of Validator)

Direction: Please check the number of the rating that corresponds to your choice using the rating scale provided.

| Rating | Verbal Description |
|--------|--------------------|
| 4 | Excellent |
| 3 | Very Good |
| 2 | Good |
| 1 | Fair |

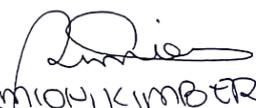
| | | | | |
|--|---|---|---|---|
| 1. CLARITY | 4 | 3 | 2 | 1 |
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| The questions in the survey questionnaire/interview schedule given are clear, concise, understandable, and suited to the level of the respondents/participants. | / | | | |
| 2. ORGANIZATION | 4 | 3 | 2 | 1 |
| The questions/items in the survey questionnaire/interview schedule are organized in logical manner based on the statement of the problem of study/the grand tour question. | | / | | |
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| The questions in the survey questionnaire/interview schedule were designed to answer appropriately and comprehensively the specific questions in the statement of the problem/grand tour question. | | / | | |
| 4. ADEQUACY | 4 | 3 | 2 | 1 |
| The survey questionnaire/interview schedule is sufficient to gather information needed to answer questions in the statement of the problem/grand tour question. | | / | | |
| The survey questionnaire/interview schedule represents the coverage of the research adequately | | / | | |
| 5. OBJECTIVITY | 4 | 3 | 2 | 1 |
| Each questions/items in the survey questionnaire/interview schedule requires only one specific answer and measures only one behavior. | / | | | |
| There are no items in the survey questionnaire/interview schedule which suggest bias on the part of the researcher/s. | | / | | |
| 6. ATTAINMENT OF OBJECTIVES | 4 | 3 | 2 | 1 |
| The survey questionnaire/interview schedule as a whole fulfill the objectives of the study to which it was instructed. | | / | | |

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| 7. EVALUATION RATING SYSTEM | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| The rating system and the scale adopted is appropriate and relevant to all items. | | / | | |
| 8. ETHICAL CONSIDERATIONS | 4 | 3 | 2 | 1 |
| The survey questionnaire/interview schedule includes a brief description on the purpose of the survey/interview and what data will be collected, how their responses will be used, and their right to withdraw at any time. | | / | | |
| Precautions to protect sensitive information by indicating protocols in securing storage and transfer methods, as data breaches can have severe consequences for both participants and the credibility of the research | | | / | |

Comments and Suggestions

I suggest to add Effectiveness on the statement of the problem: to measure the efficiency of the Braille prescription. Add another separate questionnaire to measure the level of effectiveness of Braille prescription. Add clause or instruction on how to protect sensitive information on the questionnaire. Ethical consideration for vulnerable population.


GURMION, KIMBERLY JEAN
 (Name and Signature of Validator)

| | | | | |
|---|----------|----------|----------|----------|
| The survey questionnaire/interview schedule represents the coverage of the research adequately | | / | | |
| 5. OBJECTIVITY | 4 | 3 | 2 | 1 |
| Each questions/items in the survey questionnaire/interview schedule requires only one specific answer and measures only one behavior. | | / | | |
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| 6. ATTAINMENT OF OBJECTIVES | 4 | 3 | 2 | 1 |
| The survey questionnaire/interview schedule as a whole fulfill the objectives of the study to which it was instructed. | / | | | |
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| 8. ETHICAL CONSIDERATIONS | 4 | 3 | 2 | 1 |
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| Precautions to protect sensitive information by indicating protocols in securing storage and transfer methods, as data breaches can have severe consequences for both participants and the credibility of the research | | / | | |

Comments and Suggestions

1. Lay out: Use formal heading with logo of school. Present your study title as introduction. Include short description and goal of your study.
2. Discuss in your RRL the OTC drugs. Why are these chosen as OTC drugs for your Questionnaire. Present also the process of creating BPM, this must be supported in RRL
3. If I may suggest: To include in your methodology, how are you going to create BPM codes.
4. Include also in your Research instrument part, if the questionnaire is researchers-made or adapted? Then, present also the different parts of your questionnaire.
5. If intend to use 3 OTC drugs, these must be presented separately. Make sure researchers have the legend on what is Drug 1,2 and 3. See the form.
6. Give a short thank you statement after the last table.
7. Avoid jargon or medical terms, difficult for the respondents to understand. I suggest you will have a Tagalog translation of your Consent form and Questionnaire.
8. Fif I may suggest to finalize the research design and methodology.
9. See also the Questionnaire Form for my other comments.

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ST. ALEXIUS COLLEGE

Gen. San. Drive, City of Koronadal, South Cotabato, Philippines 09506, Tel.: (083) 228-2019, Fax: (083) 228-4015, Email: st.alexiuscollege@yahoo.com

RESEARCH QUESTIONNAIRE VALIDATION

Name of the Validator : Mershen B. Gania, RPh, Clin Pharm, MSPh

Educational Attainment of the Validator:

| Education | Field of Specialization | Higher Education Institution |
|-------------------|---|------------------------------|
| Bachelor's Degree | BS in Pharmacy Major in Clinical Pharmacy | UIC |
| Master's Degree | MS in Pharmacy | UIC |
| Doctorate Degree | PhD In Pharmacy (on-going) | UIC |

Research Studies Conducted:

| Research Title | Research Role | | Year |
|--|-----------------|---------------|------|
| | Lead Researcher | Co-Researcher | |
| Characterization Of Phenolic Composition and Antioxidant Activity of the Leaf and Stem Extracts of Water Spinach (Ipomoea Aquatic Forsk.) | / | | 2014 |
| "Level Of Knowledge, Awareness, And Acceptance of Health Workers on Cannabinoid Integrated Medicine for Chronic Pain Management: A Convergent Approach." | / | | 2023 |
| Destructive Fires: Lived Experiences of Punta Dumalag-1 Matina Aplaya Residents in Fire Dilemma and Recovery | | / | 2023 |
| Association Between the Mnsod Val16ala Polymorphism and The Development of Diabetic Nephropathy: Evidence from A Meta-Analysis | | / | 2024 |

Relevant Experience in Validating Research Instruments:

| Research Title | Year | Program | Higher Education Institution |
|--|------|-------------|------------------------------|
| Reseta: Ready, Set, Tag! An Integration Of The | 2023 | Bs Pharmacy | San Pedro College |

RPOvalidationtool2025

Direction: Please check the number of the rating that corresponds to your choice using the rating scale provided.

| Rating | Verbal Description |
|--------|--------------------|
| 4 | Excellent |
| 3 | Very Good |
| 2 | Good |
| 1 | Fair |

| | | | | |
|--|----------|----------|----------|----------|
| 1. CLARITY | 4 | 3 | 2 | 1 |
| The instructions in the survey questionnaire/interview schedule are clear, concise, understandable, and suited to the level of the respondents | / | | | |
| The questions in the survey questionnaire/interview schedule given are clear, concise, understandable, and suited to the level of the respondents/participants. | / | | | |
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| 3. APPROPRIATENESS | 4 | 3 | 2 | 1 |
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| 4. ADEQUACY | 4 | 3 | 2 | 1 |
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| The survey questionnaire/interview schedule represents the coverage of the research adequately | / | | | |
| 5. OBJECTIVITY | 4 | 3 | 2 | 1 |
| Each questions/items in the survey questionnaire/interview schedule requires only one specific answer and measures only one behavior. | / | | | |
| There are no items in the survey questionnaire/interview schedule which suggest bias on the part of the researcher/s. | / | | | |
| 6. ATTAINMENT OF OBJECTIVES | 4 | 3 | 2 | 1 |
| The survey questionnaire/interview schedule as a whole fulfill the objectives of the study to which it was instructed. | / | | | |
| 7. EVALUATION RATING SYSTEM | 4 | 3 | 2 | 1 |

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| | | | | |
|---|----------|----------|----------|----------|
| The rating system and the scale adopted is appropriate and relevant to all items. | | | | |
| 8. ETHICAL CONSIDERATIONS | 4 | 3 | 2 | 1 |
| The survey questionnaire/interview schedule includes a brief description on the purpose of the survey/interview and what data will be collected, how their responses will be used, and their right to withdraw at any time. | | / | | |
| Precautions to protect sensitive information by indicating protocols in securing storage and transfer methods, as data breaches can have severe consequences for both participants and the credibility of the research | | / | | |

Comments and Suggestions

Please see the comments on the document attached with this validation form.

UNIVERSITY OF GENERAL SANTOS SCHOOL OF HEALTH SCIENCES | GENERAL SANTOS SCHOOL OF HEALTH SCIENCES | UNIVERSITY OF GENERAL SANTOS SCHOOL OF HEALTH SCIENCES | UNIVERSITY OF GENERAL SANTOS SCHOOL OF HEALTH SCIENCES | UNIVERSITY OF GENERAL SANTOS SCHOOL OF HEALTH SCIENCES | UNIVERSITY OF GENERAL SANTOS SCHOOL OF HEALTH SCIENCES | UNIVERSITY OF GENERAL SANTOS SCHOOL OF HEALTH SCIENCES | UNIVERSITY OF GENERAL SANTOS SCHOOL OF HEALTH SCIENCES | UNIVERSITY OF GENERAL SANTOS SCHOOL OF HEALTH SCIENCES | UNIVERSITY OF GENERAL SANTOS SCHOOL OF HEALTH SCIENCES

Mershen Gania

(Name and Signature of Validator)

| | | | |
|---|------|--|-------------------------------------|
| Adverse Drug Reaction Reporting System Using Near Field Communication Tags In A Tertiary Hospital Of Davao City | | | |
| "Effectiveness Of RESETA PADALA Mobile Application Among Caregivers Of Senior Citizens In Koronadal City, South Cotabato | 2023 | BS Pharmacy | St. Alexius College |
| "A Quantitative Analysis On Hindrances To Pharmacist-Patient Commutation Induced By Community Pharmacy Settings In Davao City" | 2023 | BS Pharmacy | San Pedro College |
| Medispose: A Program Improving The Attitude And Knowledge Of Community Pharmacists On Proper Disposal Of Expired Pharmaceuticals In Davao Cityf | 2024 | BS Pharmacy | San Pedro College |
| Perception And Expectation Of Community Physicians And Nurses On The Role Of Pharmacists In The Community In Davao City | 2025 | BS Pharmacy Major in Clinical Pharmacy | University Of Immaculate Conception |

(Name and Signature of Validator)

Questionnaire

Research Survey Questionnaire

Name (Optional): _____ **Age:** _____

Gender: () Male () Female

This study, entitled "Integration of Braille Prescription Medication (BPM) Labels within Medical paper packet for Selected Over-the-counter Drugs among Visually Impaired Young Adults," aims to assess the awareness, knowledge, and satisfaction of visually impaired young adults regarding Braille labels on over-the-counter (OTC) medications. All responses will be kept confidential.

Part I. Level of Knowledge

Instruction: Encircle the letter that corresponds to your answer.

1. What is your understanding of the term "Over-the-Counter (OTC) medication"?

- a. Medications that require a doctor's prescription.
- b. Medications that can be purchased without a doctor's prescription.
- c. Medications that are only available in hospitals.
- d. I don't know.

2. What is the brand name of the medication?

- a. Biogesic
- b. Neozep
- c. Lagundi
- d. Solmux

3. What is the dosage of the medication?

- a. 500 mg
- b. 10 mg
- c. 600 mg
- d. 50 mg

4. What is the form of the drug?

- a. Capsule
- b. Solution
- c. Suspension
- d. Tablet

5. What is the total quantity of medication dispensed?

- a. 10
- b. 5
- c. 6
- d. 3

6. How often are you supposed to take your medication?

- a. 3 times a day
- b. 4 times a day
- c. Twice a day

- d. Once a day
7. How are you supposed to take this medication?
- a. Anytime
 - b. Every 4 hours
 - c. Every 6 hours
 - d. After meals
8. How long are you supposed to take this medication?
- a. As needed
 - b. For 7 days
 - c. As directed by the physician
 - d. Until my symptoms improve
9. What is this medication for?
- a. Headache
 - b. Cough
 - c. Fever
 - d. Sneezing
10. What is the common side effect of this medication?
- a. Nausea
 - b. Stomach ache
 - c. Headache
 - d. None

Part II. Level of Perception

Instruction: Check the box that corresponds to your answer.

| Questions | YES | NO |
|--|-----|----|
| 1. I have encountered a Braille label on an Over-the-Counter (OTC) medication before. | | |
| 2. I know how to read Braille characters on a medication label. | | |
| 3. I am familiar with the standard information typically included on a Braille medication label (e.g., medication name, dosage, quantity). | | |
| 4. I think Braille labels are helpful for managing my prescription medications. | | |
| 5. I think that more Over-the-Counter (OTC) medications should have a Braille label option. | | |
| 6. I have attended lectures about braille labelled medication prescription. | | |
| 7. I know other country that utilizes braille medication prescriptions. | | |

Part III. Level of Satisfaction

Instruction: Check the box that corresponds to your answer.

1 = **Very Dissatisfied**; 2 = **Dissatisfied**; 3 = **Neutral**; 4 = **Satisfied**; 5 = **Very Satisfied**

| Questions | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
| 1. I am satisfied with the overall use of the developed BPM labels. | | | | | |
| 2. I find BPM labels convenient and helpful in understanding my OTC medications. | | | | | |
| 3. I find it easy to understand the information presented on the BPM label. | | | | | |
| 4. I improve my medication adherence with the use of the BPM label. | | | | | |

| | | | | | |
|-----|--|--|--|--|--|
| 5. | I increased my independence in managing my medications with BPM label. | | | | |
| 6. | I feel that the BPM label have encouraged me to take my medications more consistently. | | | | |
| 7. | I am satisfied with the ease of locating the Braille information on my Braille Prescription Medication. I am satisfied with how easily I can locate the Braille information on my medication packaging. | | | | |
| 8. | I am satisfied with the overall quality and format of Braille label on my OTC medications. | | | | |
| 9. | I am satisfied with the clarity and understandability of the Braille information on my medication label. | | | | |
| 10. | I am satisfied with the level of confidence I have in managing my medication independently with the use of Braille label. I feel more confident in independently managing my medications with the help of BPM labels. | | | | |

Information Sheet for Subject or Guardian

Informed Consent Form

Title of the Project:

Integration of Braille Prescription Medication (BPM) Labels in Medical

Paper Packet for Selected Over-the-counter Drugs among

Visually Impaired Young Adults

I, hereby consent to participate in the research entitled "Integration of Braille Prescription Medication (BPM) Label in Medical Paper Packet for Selected Over-the-counter Drugs among Visually Impaired Young Adults." I fully understand that my participation in this research may involve the collection of data and this data may include information related to my knowledge and drug literacy of Braille Prescription Medication Label for Selected Over- the-counter Drugs as a Visually Impaired Adults. I am also aware that there will be a documentation, hence, in line with this, I am allowing the researchers to include me in their documentation, but with a condition that they should ensure that my face will not be shown in any of the documentation to avoid possible facial recognition which identify me as an individual, and also in order to safeguard my privacy.

Additionally, I am fully aware that the researchers conducting this survey will ensure the confidentiality of my responses and that my personal information will be handled with utmost care.

By signing below, I consent to the collection and use of the information I will provide for the sole purpose of this research with the understanding that my privacy concerns will be addressed as outlined in this letter.

In witness hereof. I hereby affix my signature herein freely and voluntarily this day ____ of ____, 2025, in the City of Koronadal, South Cotabato, Philippines.

Signature:

Raw Data

Research Survey Questionnaire Tally Sheets

This study, entitled "Integration of Braille Prescription Medication (BPM) Labels in Medical Paper Packet for Selected Over-the-counter Drugs among Visually Impaired Young Adults," aims to assess the awareness,

knowledge, and satisfaction of visually impaired young adults regarding Braille labels on over-the-counter (OTC) medications. All responses will be kept confidential.

Part I. Level of Knowledge

Instruction: Encircle the letter that corresponds to your answer.

OTC Drug 1: Biogesic

| Questions | A | B | C | D | Total |
|--|---|---|---|---|-------|
| 1. What is your understanding of the term "Over-the-Counter (OTC) medication"? | 0 | 6 | 2 | 0 | 8 |
| 2. What is the brand name of the medication? | 8 | 0 | 0 | 0 | 8 |
| 5. What is the dosage of the medication? | 5 | 3 | 0 | 0 | 8 |
| 6. What is the form of the drug? | 7 | 0 | 0 | 1 | 8 |
| 5. What is the total quantity of medication dispensed? | 8 | 0 | 0 | 0 | 8 |
| 6. How often are you supposed to take your medication? | 0 | 8 | 0 | 0 | 8 |
| 7. How are you supposed to take this medication? | 0 | 0 | 0 | 8 | 8 |
| 8. How long are you supposed to take this medication? | 0 | 0 | 0 | 8 | 8 |
| 9. What is this medication for? | 7 | 0 | 1 | 0 | 8 |
| 10. What is the common side effect of this medication? | 0 | 1 | 1 | 6 | 8 |

OTC Drug 2: Neozepe

| Questions | A | B | C | D | Total |
|--|---|---|---|---|-------|
| 1. What is your understanding of the term "Over-the-Counter (OTC) medication"? | 2 | 5 | 0 | 0 | 7 |
| 2. What is the brand name of the medication? | 0 | 7 | 0 | 0 | 7 |
| 3. What is the dosage of the medication? | 0 | 5 | 2 | 0 | 7 |
| 4. What is the form of the drug? | 0 | 0 | 0 | 7 | 7 |
| 5. What is the total quantity of medication dispensed? | 4 | 0 | 2 | 1 | 7 |
| 6. How often are you supposed to take your medication? | 3 | 1 | 0 | 3 | 7 |
| 7. How are you supposed to take this medication? | 0 | 1 | 5 | 1 | 7 |
| 8. How long are you supposed to take this medication? | 3 | 1 | 0 | 2 | 7 |
| 9. What is this medication for? | 2 | 0 | 0 | 5 | 7 |
| 10. What is the common side effect of this medication? | 1 | 0 | 0 | 6 | 7 |

OTC Drug 3: Solmux

| Questions | A | B | C | D | Total |
|--|---|---|---|---|-------|
| 1. What is your understanding of the term "Over-the-Counter (OTC) medication"? | 0 | 8 | 0 | 0 | 8 |
| 2. What is the brand name of the medication? | 0 | 0 | 0 | 8 | 8 |
| 3. What is the dosage of the medication? | 0 | 0 | 0 | 8 | 8 |
| 4. What is the form of the drug? | 8 | 0 | 0 | 0 | 8 |
| 5. What is the total quantity of medication dispensed? | 0 | 0 | 0 | 8 | 8 |
| 6. How often are you supposed to take your medication? | 3 | 0 | 0 | 4 | 8 |
| 7. How are you supposed to take this medication? | 0 | 1 | 0 | 7 | 8 |
| 8. How long are you supposed to take this medication? | 0 | 1 | 4 | 3 | 8 |
| 9. What is this medication for? | 0 | 8 | 0 | 0 | 8 |
| 10. What is the common side effect of this medication? | 1 | 0 | 1 | 6 | 8 |

OTC Drug 2: Lagundi

| Questions | A | B | C | D | Total |
|--|---|---|---|---|-------|
| 1. What is your understanding of the term "Over-the-Counter (OTC) medication"? | 1 | 4 | 0 | 2 | 7 |
| 2. What is the brand name of the medication? | 0 | 0 | 7 | 0 | 7 |
| 3. What is the dosage of the medication? | 1 | 0 | 6 | 0 | 7 |
| 4. What is the form of the drug? | 7 | 0 | 0 | 0 | 7 |
| 5. What is the total quantity of medication dispensed? | 3 | 2 | 0 | 2 | 7 |
| 6. How often are you supposed to take your medication? | 6 | 1 | 0 | 0 | 7 |
| 7. How are you supposed to take this medication? | 0 | 3 | 0 | 4 | 7 |
| 8. How long are you supposed to take this medication? | 6 | 1 | 0 | 0 | 7 |
| 9. What is this medication for? | 0 | 7 | 0 | 0 | 7 |
| 10. What is the common side effect of this medication? | 0 | 0 | 0 | 7 | 7 |

Part II. Level of Perception

Instruction: Check the box that corresponds to your answer.

| Questions | Yes | No | Total |
|--|-----|----|-------|
| 1. I have encountered a Braille label on an Over-the-Counter (OTC) medication before. | 12 | 18 | 30 |
| 2. I know how to read Braille characters on a medication label. | 26 | 4 | 30 |
| 3. I am familiar with the standard information typically included on a Braille medication label (e.g., medication name, dosage, quantity). | 21 | 9 | 30 |
| 4. I think Braille labels are helpful for managing my prescription medications. | 30 | 0 | 30 |
| 5. I think that more Over-the-Counter (OTC) medications should have a Braille label option. | 22 | 8 | 30 |
| 6. I have attended lectures about braille labelled medication prescription. | 5 | 25 | 30 |
| 7. I know other country that utilizes braille medication prescriptions. | 17 | 13 | 30 |

Part III. Level of Satisfaction

Instruction: Check the box that corresponds to your answer.

1 = **Very Dissatisfied**; 2 = **Dissatisfied**; 3 = **Neutral**; 4 = **Satisfied**; 5 = **Very Satisfied**

| Questions | 1 | 2 | 3 | 4 | 5 | Total |
|--|---|---|---|---|----|-------|
| 1. I am satisfied with the overall use of the developed BPM labels. | 0 | 0 | 0 | 6 | 24 | 30 |
| 2. I find BPM labels convenient and helpful in understanding my OTC medications. | 0 | 0 | 1 | 3 | 26 | 30 |
| 3. I am satisfied with how easily I can locate the Braille information on my medication packaging. | 0 | 0 | 1 | 5 | 24 | 30 |
| 4. I improve my medication adherence with the use of the BPM label. | 0 | 0 | 2 | 6 | 22 | 30 |
| 5. I increased my independence in managing my medications with BPM label. | 0 | 0 | 1 | 3 | 26 | 30 |
| 6. I observe that the BPM label have encouraged me to take my medications more consistently. | 0 | 0 | 1 | 2 | 27 | 30 |

| | | | | | | |
|---|---|---|---|---|----|----|
| 7. I am satisfied with the ease of locating the Braille information on my Braille Prescription Medication. | 0 | 0 | 2 | 6 | 22 | 30 |
| 8. I am satisfied with the overall quality and format of Braille label on my OTC medications. | 0 | 0 | 2 | 7 | 21 | 30 |
| 9. I am satisfied with the clarity and understandability of the Braille information on my medication label. | 0 | 0 | 1 | 6 | 23 | 30 |
| 10. I feel more confident in independently managing my medications with the help of BPM labels. | 0 | 0 | 0 | 5 | 25 | 30 |

Statistical Output

SOP 1. The level of knowledge of the respondents after the utilization of BPM label among visually impaired young adults.

| Questions | Mean | Sd |
|--|-------|-------|
| 1. What is your understanding of the term "Over-the-Counter (OTC) medication"? | 0.767 | 0.430 |
| 2. What is the brand name of the medication? | 1.000 | 0.000 |
| 3. What is the dosage of the medication? | 0.800 | 0.407 |
| 4. What is the form of the drug? | 0.967 | 0.183 |
| 5. What is the total quantity of medication dispensed? | 0.633 | 0.490 |
| 6. How often are you supposed to take your medication? | 0.700 | 0.466 |
| 7. How are you supposed to take this medication? | 0.767 | 0.430 |
| 8. How long are you supposed to take this medication? | 0.700 | 0.466 |
| 9. What is this medication for? | 0.900 | 0.305 |
| 10. What is the common side effect of this medication? | 0.267 | 0.450 |

Verbal Interpretation Scale for Level of Knowledge

0.00 to 0.40 — Poor understanding

0.41 to 0.65 — Moderate to low understanding

0.66 to 0.85 — Moderate to good understanding

0.86 to 1.00 — Very good to excellent understanding

SOP 2. The level of perception of the respondents after the utilization of BPM label among visually impaired young adults

| Questions | MEAN | SD |
|---|------|-------|
| 1. I have encountered a Braille label on an Over-the-Counter (OTC) medication before. | 1.37 | 0.490 |

| | | |
|---|------|-------|
| 2. I know how to read Braille characters on a medication label. | 1.87 | 0.346 |
| 3. I am familiar with the standard information typically included on a Braille medication label (e.g., medication name, dosage, expiry date). | 1.70 | 0.466 |
| 4. I believe Braille labels are helpful for managing my prescription medications. | 2.00 | 0.000 |
| 5. I think that more Over-the-Counter (OTC) medications should have a Braille label option. | 1.73 | 0.450 |
| 6. I have attended lectures about braille labelled medication prescription. | 1.10 | 0.305 |
| 7. I know other country that utilizes braille medication prescriptions. | 1.53 | 0.507 |

| Mean Range | Verbal Interpretation | Explanation/Description |
|-------------|---|---|
| 1.00 – 1.49 | Strongly Disagree / Very Low Perception | Respondents mostly disagree or have very low familiarity or agreement with the statement. |
| 1.50 – 1.99 | Disagree / Low to Moderate Perception | Respondents somewhat disagree or have low to moderate familiarity or agreement. |
| 2.00 | Agree / High Perception | Respondents agree or have a high level of familiarity or positive perception. |

SOP3. The level of satisfaction of the respondents after the use of BPM label among visually impaired young adults

| Questions | Mean | SD |
|---|------|-------|
| 1. I am satisfied with the overall use of the developed BPM labels. | 4.80 | 0.407 |
| 2. I find BPM labels convenient and helpful in understanding my OTC medications. | 4.83 | 0.461 |
| 3. I find it easy to understand the information presented on the BPM label. | 4.70 | 0.596 |
| 4. I improve my medication adherence with the use of the BPM label. | 4.70 | 0.535 |
| 5. I increased my independence in managing my medications with BPM label. | 4.83 | 0.461 |
| 6. I feel that the BPM label have encouraged me to take my medications more consistently. | 4.87 | 0.434 |
| 7. I am satisfied with the ease of locating the Braille information on my Braille Prescription Medication. | 4.67 | 0.606 |
| 8. I am satisfied with the overall quality and format of Braille label on my OTC medications. | 4.50 | 0.630 |
| 9. I am satisfied with the clarity and understandability of the Braille information on my medication label. | 4.77 | 0.504 |

| | | |
|---|------|-------|
| 10. I am satisfied with the level of confidence I have in managing my medication independently with the use of Braille label. | 4.83 | 0.379 |
|---|------|-------|

| Mean Score Range | Verbal Interpretation | Description |
|------------------|---------------------------------------|--|
| 4.51 – 5.00 | Very Satisfied / Strongly Agree | Respondents show a very high level of satisfaction or strong agreement with the statement. |
| 3.51 – 4.50 | Satisfied / Agree | Respondents generally agree or are satisfied, but with some minor reservations. |
| 2.51 – 3.50 | Neutral | Respondents neither agree nor disagree; neutral feelings toward the statement. |
| 1.51 – 2.50 | Dissatisfied / Disagree | Respondents generally disagree or are dissatisfied with the statement. |
| 1.00 – 1.50 | Very Dissatisfied / Strongly Disagree | Respondents show a very low level of satisfaction or strong disagreement. |

SOP 4. Relationship between the level of perception, level of knowledge, and level of satisfaction in the utilization of BPM label among visually impaired young adults

| Relationship | Correlation Coefficient | Significance | Interpretation |
|--|-------------------------|--------------|---|
| The level of knowledge and level of perception of the respondents after the utilization of BPM label among visually impaired young adults. | -.286 | 0.126 | Negligible correlation/Not significant Negative |
| The level of knowledge and the level of satisfaction of the respondents after the utilization of BPM label among visually impaired young adults | -0.040 | 0.832 | Negligible correlation/Not Significant Not Negative |
| The level of perception and the level of satisfaction of the respondents after the use of BPM label among visually impaired young adults | 0.272 | 0.145 | Negligible correlation/Not significant Positive |

Protocol

Project Title

Integration of Braille Prescription Medication (BPM) Label in Medical

Paper Packet for Selected Over-the-counter Drugs among

Visually Impaired Young Adults

Project Summary

This study investigated the utilization of Braille Prescription Medication (BPM) label among visually impaired young adults. Findings indicate that while participants had limited prior exposure to Braille medication label (40%), the majority (86.67%) could read Braille and comprehend basic label information. There was universal appreciation for the helpfulness of BPM label and support for their wider implementation. Reading comprehension varied across different medications, with some posing more challenges than others.

Overall satisfaction with BPM label was exceptionally high (mean 4.76 ± 0.08), highlighting their role in improving medication adherence and independence. Interestingly, no significant correlation was found between knowledge, perception, and satisfaction, suggesting that the presence of accessible labeling itself is a primary driver of positive user experience. The study emphasizes the ability of BPM label to convey crucial drug information but also points to the need for enhanced label formats and supplementary educational materials to improve comprehension of detailed instructions. This research advocates for continued efforts towards inclusive healthcare approaches that prioritize the needs of visually impaired individuals.

Project Description

Rationale

Visually impaired individuals encounter considerable difficulties in independently managing their medications due to the percept standard prescription label, which can lead to medication errors, missed doses, and compromised health outcomes. Despite the global prevalence of vision impairment, research specifically on its impact on medication management remains limited, highlighting a critical barrier to safe and effective self-medication due to inaccessible packaging and labeling systems.

Braille label offer a direct solution by promoting patient autonomy and aligning with patient-centered care principles. The World Health Organization (WHO) estimates over 2.2 billion people globally have vision impairment, significantly impacting daily life, including medication management. Studies consistently show high rates of medication errors among visually impaired individuals due to reading difficulties, a problem worsened by inaccessible over-the-counter (OTC) drug labeling. In the Philippines, research indicates challenges for visually impaired Filipinos in accessing healthcare information, including medication labels, leading to errors and poor adherence, and strongly recommends accessible labeling systems like Braille.

The critical need for accessible healthcare solutions, including Braille prescription labels, is underscored by the substantial number of blind and visually impaired individuals in the Philippines. This study aims to address this need by developing Braille prescription labels specifically for visually impaired individuals, focusing on improving the accessibility of OTC drug labels through tactile elements to enable autonomous healthcare management. The initiative seeks to significantly reduce medication errors and improve adherence, thereby enhancing the safety, autonomy, and overall well-being of visually impaired patients.

Objectives

General Objective

To assess the knowledge of visually impaired individuals regarding over-the-counter (OTC) medications using a braille-integrated prescription in medical paper packet.

Specific Objectives

1. To determine the level of knowledge of the respondents after the utilization of BPM label among visually impaired young adults.
2. To determine the level of perception of the respondents after the utilization of BPM label among visually impaired young adults.
3. To determine the level of satisfaction of the respondents after the use of BPM label among visually impaired young adults.
4. To evaluate if there is a significant relationship between the level of knowledge, perception, and satisfaction in the utilization of BPM label among visually impaired young adults.

METHODOLOGY

Research Design

The study employs a Post-Test Quasi-Experimental Design. It also utilizes a sequential, multi-phase approach for data gathering.

Research Subjects or Participants

The participants of this study are selected thirty (30) visually impaired young adults.

Intervention

The intervention involves the "Product Development for Braille Medication Access" and the "Implementation of Braille Prescription Medication". The process includes:

- Developing a product to enhance visually impaired people's access to prescription pharmaceutical information for specific over-the-counter drugs such as Solmux, Lagundi, Neozepe, and Biogesic.
- Initiating a targeted ideation process to generate various product designs, including standardized braille label templates, tactile augmentation devices, or digital interfaces that can convert relevant medication information into braille.
- Undergoing a comprehensive design process to produce working prototypes.
- Iteratively improving these prototypes based on direct feedback from visually challenged individuals who regularly use the specified medications.
- Implementing the braille prescription pharmaceutical intervention by introducing the newly developed product with braille-based information or providing participants' prescribed medications with braille-enhanced labeling.
- Requiring participants to complete a knowledge assessment tool to gauge their comprehension of medication information.

Ethical Considerations

The study involves submitting a comprehensive research proposal to the appropriate institutional or ethics review board to secure necessary authorizations. This proposal thoroughly details the study's objectives, methodology, participant recruitment, data analysis, ethical considerations, and the informed consent protocol along with the knowledge evaluation tool. The researchers are prepared for a thorough evaluation and will revise the proposal as needed to ensure methodological and ethical rigor, with formal approval being a prerequisite for participant recruitment and data collection.

ACKNOWLEDGEMENT

First and foremost, we thank and honor our God for all the blessings He has bestowed upon us—for the strength, knowledge, and wisdom to make this research a successful one, and for His guidance and protection throughout this journey. Indeed, all things are possible with the Lord. It is by His grace and mercy that we were sustained throughout this study.

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To our research adviser, **Ms. Apple Jane D. Siroy, RPh, MSPharm**, for her precious time, guidance, and dedication throughout the entire research process. We also express our gratitude to the distinguished panel members for their constructive feedback, critical evaluation, and recommendations that helped refine our research.

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To **Mr. Leo Martin Cellan, LPT**, our braille instructor, **Mrs. Aileen Romero, RPh**, our pharmacist, **PDAO-General Santos City** and the **municipality of Koronadal and General Santos**, whose cooperation and support allowed us to gather the necessary data and insight. Their openness and assistance significantly contributed to the success of this study. This research would not have been possible without the collective effort, encouragement, and support of all these individuals and institutions. Thank you for being part of our journey.

To our families, we are extremely grateful for your lives. All sacrifices and guidance are deeply appreciated. For providing our daily needs especially the financial demands of our research. Also, to our good friend, **Inah S. Pagarigan**, we admire your kindness and generosity. You are all part of this significant success.

Informed Consent Form

Title of the Study: "Integration of Braille Prescription Medication (BPM) Label in Medical Paper Packet for Selected Over-the-counter Drugs among Visually Impaired Young Adults".

Purpose of the Study: Participants provide consent by acknowledging their understanding of the study's goals and procedures. The process of administering consent is a key phase in data gathering.

Statement of the Problem

The study aims to assess the knowledge of visually impaired individuals regarding OTC medications using a braille-integrated prescription within medical paper packet, specifically seeking to develop and evaluate the following:

1. The level of knowledge of the respondents after the utilization of BPM label among visually impaired young adults.
2. The level of perception of the respondents after the utilization of BPM label among visually impaired young adults.
3. The level of satisfaction of the respondents after the use of BPM label among visually impaired young adults.

4. Whether there is a significant relationship between the level of knowledge, perception, and satisfaction in the utilization of BPM label among visually impaired young adults.

Documentation







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| Date of Birth: | March 22, 2003 |
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| Mother's Name: | Adelina S. Hambala |

Educational History

| | |
|------------------------|--------------------------------------|
| S.Y. 2013- 2014 | Lem-ehk Elementary School |
| Elementary | Poblacion, Lake Sebu, South Cotabato |
| S.Y. 2017-2018 | Lem-ehk Junior High School |
| Junior High School | Poblacion, Lake Sebu, South Cotabato |
| S.Y. 2020-2021 | Lem-ehk Senior High School |
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| Mother's Name: | Mary Jean T. Merico |

Educational History

| | |
|------------------------|---|
| S.Y. 2014- 2015 | Dole Cannery Central Elementary School |
| Elementary | Cannery Site, Polomolok, South Cotabato |
| S.Y. 2018-2019 | Notre Dame Siena College of Polomolok |
| Junior High School | Poblacion, Polomolok, South Cotabato |
| S.Y. 2020-2021 | Notre Dame Siena College of Polomolok |
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| Mother's Name: | Mailyn S. Palitoc |

Educational History

| | |
|------------------------|--|
| S.Y. 2012- 2013 | GSC SPED Integrated School |
| Elementary | Quezon Avenue, GSC, South Cotabato |
| S.Y. 2013-2017 | GSC SPED Integrated School |
| Junior High School | Brgy. San Isidro, GSC, South Cotabato |
| S.Y. 2018-2019 | Alabel National Science High School |
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Personal Information

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Educational History

| | |
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| S.Y. 2014-2015 | Didtaras Elementary School |
| Elementary | Didtaras, Lambayong, Sultan Kudarat |
| S.Y. 2018-2019 | Notre Dame Siena College of Tacurong |
| Junior High School | J.C. Avenue, Tacurong City, Sultan Kudarat |
| S.Y. 2020-2021 | Notre Dame Siena College of Tacurong |
| Senior High School | J.C. Avenue, Tacurong City, Sultan Kudarat |