



MORPHEMIC PATTERNS OF MEDICINE BRAND NAMES ON THE GHANAIAN MARKET

Kongo, A. E.¹, Fenyi, D. A.², Jones-Mensah, I.³ and Tabiri, M. O.⁴

^{1,2,3}*Department of Communication Studies, Faculty of Information Technology and Communication Studies, University of Professional Studies-Accra, Accra Ghana.*

⁴*Department of General Studies, Faculty of Computing and Information Systems, Ghana Communication Technology University, Ghana.*

¹*angel.kongo@upsamail.edu.gh*

ABSTRACT

Purpose: This study aims to analyse the morphemic structures employed by pharmaceutical companies in naming medicine brand names and explore how these naming patterns reflect the brands' perceived effects on users.

Design/Methodology/Approach: Using the purposive sampling technique, the researchers sampled 1,000 medicine brand names fully registered under the Food and Drugs Authority (FDA) of Ghana and applied Katamba's Lexical Morphology Theory to identify the morphemic structures used in composing these names.

Findings: The analysis revealed that the medicine brand names incorporate elements such as Generic Names (GN), Dosage Forms (DF), Manufacturers' Names (MN), Local Representatives (LR), and Zero Criteria. Furthermore, the findings indicate that the morphemic patterns of medicine brand names on the Ghanaian market are structured mono-morphemically, incorporating coinages and borrowings, as well as di-morphemically and poly-morphemically, both of which involve blending and compounding word-formation processes.

Research Limitation: The paper focused on brand names that omitted generic drug information. This limitation highlights the challenges in analysing pharmaceutical brand names while acknowledging the constraints of market-based pharmaceutical research.

Social Implications: These findings carry significant social implications, particularly for the Food and Drugs Authority of Ghana, by emphasising the need to scrutinise medicine brand names to ensure they do not mislead consumers or pose potential risks.

Practical Implication: Regulatory authorities, such as the Food and Drugs Authority of Ghana, can use these insights to evaluate and approve medicine brand names that prioritise accuracy and public safety.

Originality/Value: This research contributes to the existing body of knowledge and offers insights into the linguistic strategies used in medicine branding. It sheds light on how morphemic structures influence consumer perceptions and highlights the intersection of linguistics, public health, and regulatory practices in the pharmaceutical industry.

Keywords: *Brand name. chemicals. medicine. morphemic pattern. pharmaceutical products*

ISSN: 2408-7920

Copyright © African Journal of Applied Research

Arca Academic Publisher

892



INTRODUCTION

Generally, the naming of products depends on various philosophies. In Ghana, for instance, alcoholic beverage names, especially those meant to enhance sexual drive, are derived from the effects of the products on users, the names of ailments, active ingredients used, myths and others (Adongo et al., 2024; Mends, 2017). In Indonesia, for instance, product names are generally derived from sources such as the name(s) of the main ingredient(s), the names of people and places, and others (Haryati, 2014). Similarly, Cho (2019) and Batey (2008) also argued that elements that account for the choice of name for a product include the ease of pronunciation and meaning of the name. In essence, everywhere in the world, names mean something, and the meaning of product names can be derived from semantic association or sound symbolism (Brdar-Szabó & Brdar, 2023; Klink, 2001).

The creation of product names specifically depends on word formation processes (WFP) and other linguistic approaches in general (Mends, 2017; Haryati, 2014; Batey, 2008; & Mponda, 2007). Ratih and Gusdian (2018) explain WFP as the phenomenon used to build words. According to Trask (2008), WFP is a way to construct new words from existing materials. Meanwhile, according to Hacken (2015), WFP is how to produce new words using specific language rules. Plag (2003) stated that WFP creates new words from other words. With this idea, most entrepreneurs and advertisers use some form of WFP to formulate names for their products and advertise them respectively.

The Food and Drugs Authority of Ghana, in collaboration with the Public Health Directorate of Ghana, has directed that “a product name should not; a) constitute a safety hazard, b) be misleading, (c) be established or based on international non-proprietary names, or (d) stems from a related substance or for any other sufficient reason determined by the Authority” (FDA, 2019, p.1). This directive is laudable because inappropriate product names tend to cause prescription and medication errors which may occur partly due to “look-alike and sound-alike proprietary names, unclear label abbreviations, acronyms, dose designations, and error-prone labelling and packaging designs” (FDA, 2019, p.1).

According to the regulations, pharmaceutical companies that desire to sell their products in the country have to follow “the clear guidance on the naming of the medicinal products in line with acceptable international standards” (FDA, 2019, p. 11) before they can register their products and sell them in the country. This guideline guides pharmaceutical companies in formulating their product names to identify and remedy potential sound-alike and look-alike confusion with existing drug names and meet current requirements before they are disbursed into Ghanaian pharmacies or drug stores.



This study veers into medicine brand names on the Ghanaian market to determine the criteria producers used to formulate the names, the type of WFP used to formulate the names, and whether pharmaceutical companies follow the guidelines prescribed by the Ghana Food and Drugs Authority. It seeks to analyse the morphemic patterns of brand names of pharmaceutical products in the Ghanaian market.

As far as the literature is concerned, studies in forming brand names in medicine are rare. Similar to pharmaceutical brand names, Bujalkova and Jureckova's (2003) study analysed the WFP of medical terms. Manokaran et al. (2022) claimed that several medical terms are generated from WFP, such as compounding, blending, back-formation clipping, etc. In addition, Haryati (2014) and Mends (2017), who worked on food product names and beverages in Indonesia and Ghana, analysed the WFP involved. This shows that none of the above studies attempted to investigate pharmaceutical brand name formation in Ghana. As a result, this study seeks to analyse the criteria used for formulating medicine brand names, the morphemic patterns of medicine brand names and how the criteria for choosing medicine brand names and their morphemic patterns relate.

This research seeks to contribute to emerging studies in determining the morphemic patterns of medicine brand names and the kind of WFP responsible for creating confusion in the minds of pharmacists and finding lasting solutions to the problem. Theory-wise, the study will enable the Pharmacy Council of Ghana to see Katamba' Lexical Morphology as a tool prescribed for all pharmaceutical companies in Ghana to see the connection between word form, the object, and idea we form of the object (Gyasi & Dwumoh, 2024).

WFP is central to the creation of new lexical items in any language. They serve as linguistic tools that enable speakers and writers to expand vocabulary, adapt to new cultural and technological developments, and meet the communicative demands of specific contexts. Scholars have explored mechanisms such as compounding, blending, clipping, and affixation to understand how they contribute to creating innovative and memorable words.

The relevance of WFP extends beyond product naming to other specialised domains, such as technology. For instance, Susilo (2007) highlights the role of WFP in the creation of computer jargons, identifying 160 terms formed through back-formation and 103 through initialisation. Lieber (2009) explains initialisation as a process involving letter-by-letter pronunciations, while Delahunty and Garvey (2010) describe acronyms responsible for 57 terms in Susilo's study as "an alternative way to make new words... by taking the first letters of several words and combining them into one." These examples demonstrate the adaptability of word-formation processes in producing concise and contextually relevant terms across different fields.



WFP further extends beyond product naming and technology to everyday language use. For instance, Erlinawati (2012) investigates the jargon used by street children in confined areas, revealing how WFP-like borrowing is employed. As described by Delahunty and Garvey (2010, p. 137), borrowing occurs when “speakers of one language interact with the speakers of another language,” leading to the adaptation of words from one language into another. Since street children often live in urban areas where multiple languages are spoken, they are likely to encounter words from other languages and integrate them into their vocabulary. This example further illustrates the versatility of WFP in diverse social contexts.

WFP also play a significant role in specialised fields such as photography. Interestingly, research on jargon used in digital camera world magazines reveals that this jargon is often produced through WFP (Maharani,2012). One of the most common processes identified in the study is clipping, which Lieber (2009, p. 53) defines as “the process of shortening a word to create another new word in colloquial rather than in formal register.” This process typically involves removing syllables from the original word, contributing to the creation of more concise and accessible terms within the field.

Nuralam (2012) examines the WFP in the jargon used among the Kaskus Internet Forum community members. The study shows that “there were a number of coinages of creating new words without paying attention to their morphological aspect (Delahunty & Garvey (2010, p. 136). In other words, the words created can be completely new morphemes. Also found in the study were acronyms. Iswara and Sastaparamitha (2020) note that factors influence the use of acronyms and conclude that the simplification of the words and the feeling of being current or modern are factors responsible for peoples’ creation of acronyms.

In product naming, WFP is essential as it shapes brand names' semantic, phonological, and cultural appeal, influencing how they resonate with consumers. Cook (2001) argues that product names have a powerful impact on customers, as the meaning attached to them defines the product and its effects on the user. Le (2021) further emphasises that a successful brand name fosters an emotional and personal connection with customers, which, over time, can lead to the establishment of brand loyalty. Thus, WFP contributes to creating memorable product names and plays a pivotal role in building lasting consumer relationships.

Building on the discussion of the role of WFP in product naming, this study aligns with the works of Haryati (2014) and Mends (2017), which explore the relationship between theory and product names, focusing on the meanings they convey to consumers. However, a key distinction between their studies and the current research lies in the data variation. While Haryati (2014) and Mends (2017) examined food product names in Indonesia and beverage product names in



Ghana, respectively, this research analyses explicitly the names of pharmaceutical products in Ghana.

Globally, the pharmaceutical industry mandates that every medicine must have an approved generic name, and medicines with similar actions should have similar names. For example, phenoxymethylpenicillin, ampicillin, amoxicillin, and flucloxacillin share similar-sounding names to indicate their belonging to the same family (Sambrook, 2017; Manzoli et al., 2016). This naming convention, which reflects the actions or effects of the medicines, encourages manufacturers to categorise products into families with similar names. This regulation is designed to help doctors and patients quickly identify medications and understand their effects, facilitating informed prescription and usage.

Quite apart from the generic names of medicines, the European Medicines Agency directs that medicines can also have brand names (Keenum et al., 2012; Desai et al., 2019; Gagne et al., 2014; Schwartz, 2012); especially for those generic medicines that several companies produce as a way of distinguishing between the names. For this reason, many medicines have one or more brand names chosen by the companies that prepare them (Sambrook, 2017 & Regnstrom et al., 2010). The essence of choosing brand names is based on some criteria such as easy memorisation when being advertised, pronunciation when speaking and spelling when writing as compared to the complex generic names (Borgheini, 2003) such as phenoxymethylpenicillin, ampicillin, amoxicillin and flucloxacillin which are challenging to pronounce and memorise.

Theory

This research is grounded in Lexical Morphology (LM) theory, as proposed by Katamba (2003), which is a linguistic framework derived from Chomsky's (1988) Generative Grammar (GG). Lexical Morphology focuses on the morphological structure of words and how their components contribute to their meaning. The relevance of selecting this theory lies in its ability to offer a detailed analysis of WFP, providing insights into how morphemes interact within the structure of words. This approach is beneficial for examining the internal structure of complex words and understanding the relationship between syntax and morphology, which is central to the objectives of this study.

Word formation is a natural human ability, leading to the infinite creation of new words. Pharmaceutical companies regularly develop numerous brand and generic names for medicines. Since word formation follows specific rules, this study aims to analyze medicine brand names by examining the criteria used in their formulation, the morphemic patterns within these names, and how they are interconnected. For instance, in the case of pharmaceutical brand names, terms like "paracetamol" (from "acetaminophen" and "para-") or "ibuprofen" (from "isobutylphenylpropionic acid") illustrate how morphemes combine to form words with specific

ISSN: 2408-7920

Copyright © African Journal of Applied Research

Arca Academic Publisher

896



meanings. Similarly, "amoxicillin" combines "amino-" and "penicillin" to indicate a specific type of antibiotic, showing how morphemic patterns help convey both the function and category of the drug.

While much research has been conducted on WFP in various fields, there remains a gap in the specific analysis of pharmaceutical brand names through the lens of Lexical Morphology. Previous studies have explored word formation in general linguistic contexts or within specific product categories, such as food and beverages. However, few have focused on the unique aspects of pharmaceutical nomenclature. Moreover, while the criteria and morphemic patterns in pharmaceutical names have been briefly acknowledged, there is limited in-depth research examining how these elements interact to shape the identities and perceptions of medicine brands. This study addresses this gap by comprehensively analysing the morphological structures and naming conventions used in pharmaceutical brand names, shedding light on how these processes contribute to the broader understanding of lexical morphology in specialised domains.

METHODOLOGY

Research design

In this study, quantitative and qualitative approaches were used. The qualitative approach comprises different methods and research practices for researching field or life situations that reflect everyday life groups, societies, and organisations (Punch, 1998). Creswell (1994) adds that qualitative research is the appropriate design for exploring and describing inconspicuous phenomena to the researcher. Quantitative research, however, "uses mathematical models, theories, and/or hypotheses of phenomena and also provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships" (Goundar, 2012, p.9).

Data site, Sampling and Sample Size

The data for this study were sourced from the Food and Drugs Authority (FDA) of Ghana, an institution responsible for regulating the registration of food and beverage products, as well as human and veterinary drugs before they are sold in the country. The population for this research included all local and foreign drugs that were registered and sold in Ghana. A sample of 1,000 pharmaceutical products from this population was selected for analysis. The purposive sampling technique was employed to specifically target and select pharmaceutical brand names relevant to the study's objectives.

The purposive sampling was chosen because it allows for intentionally selecting a sample that meets the specific criteria relevant to the research. In this case, the focus was on pharmaceutical

ISSN: 2408-7920

Copyright © African Journal of Applied Research

Arca Academic Publisher



brand names of pharmaceutical products registered and sold within a defined period, which makes purposive sampling ideal for ensuring that the sample accurately represents the population of interest. This technique ensures that only products directly related to the research question are included, thereby increasing the relevance and precision of the findings.

Data Analysis

Data were analysed using Katamba's Lexical Morphology. Lexical Morphology concerns the composition of words, and as this research typically focused on the composition of medicine brand names, all the medicine brand names were grouped based on the criteria for formulating them. In this strand, the medicine brand names were studied to tease out the various philosophies behind their formation. The criteria were then identified, and their frequencies were recorded.

Another mode of analysing the data was to subject the medicine brand names to the kinds of WFP used to formulate medicines. In this aspect, the brand names were classified according to features of specific WFP and their respective occurrences quantified. This connected the frequencies of the brand names with their effects on consumers.

Lastly, the connection between the WFP and the criteria used to formulate the names was also given attention. The data were studied, and a number of connections were discovered. The frequencies of the connections were also recorded, and their meanings were interpreted. This enabled us to determine the connection between the WFP and the criteria used to formulate the names.

RESULTS AND DISCUSSION

This section analyses, interprets, and discusses the findings of the study. This is done in three strands; firstly, the criteria for formulating medicine brand names discovered include five main criteria: Generic Names (GN), Dosage Forms (DF), Manufacturers' Names (MN), Local Representatives (LR), and Zero Criteria. Secondly, the study shows that the medicine brand names are composed using mono-morphemic patterns, di-morphemic patterns, and poly-morphemic patterns. Thirdly, we discovered that the connection between the criteria for choosing medicine brand names and their morphemic patterns are in three folds: first, the criterion of direct connection, the criterion of indirect connection, and the criterion of unrelated connection.

The criteria for formulating medicine brand names on the Ghanaian market

The study shows that medicine brand names are coined based on five main criteria: Generic Names (GN), Dosage Forms (DF), Manufacturers' Names (MN), Local Representatives (LR),



and Zero Criteria. Table 1 below demonstrates the frequencies of the criteria used in the list of medicine brand names on the Ghanaian market.

Table 1: Criteria for Formulating Medicine Brand Names

Criteria for formulating medicine brand names	Frequency	Percentage
Generic Names (GN)	236	23.6
Dosage Forms (DF)	114	11.4
Manufacturers' Name (MN)	201	20.1
Local Representatives (LR)	175	17.5
Zero Criteria (ZC)	274	27.4
Total	1000	100

Source: From medicines registered under the FDA of Ghana

According to the study, the dominant criterion for formulating medicine brand names is the use of Generic Names (GN). GN occurs 236 times, representing 23.6% of 1000 medicine names used for analysis. The above illustrations show that the pharmaceutical companies have not given any brand names to their products. This can be attributed to several factors, one of which is that a medicine with GN without a brand name might be an invention that has been granted a patent. Manzini and Lazzarotti (2016) note that “a patent is an exclusive right to a product or a process that generally provides a new way of doing something or offers a new technical solution to a problem”. Li (2012) illustrates the conditions for obtaining a patent as the invention must show an element of novelty; that is, some new characteristic not known in the body of existing knowledge in its technical field. Therefore, some generic medicines might be inventions enjoying their patent rights.

Another factor that might have accounted for the pharmaceutical companies not giving brand names to their products is that several pharmaceutical companies do not produce such Generic Medicines. According to some scholars, Generic Medicines can have Brand Names, especially those generic medicines that are produced by several companies, as a way of distinguishing between the names (Keenum et al., 2012; Desai et al., 2019; Gagne et al., 2014; Schwartz, 2012). Generic names are universally recognised as brand names; therefore, using GN instead of brand names (BN) would help pharmacists and users quickly identify the type of medicines they use without confusing them because of *look-alike* or *sound-alike* factors.

The criteria used to formulate medicine brand names are the Manufacturer's Name (MN) and Local Representatives (LR). Statistics from the data revealed that MN occurs 201 times, representing 20.1%, and LR occurs 175 times, representing 17.5%. MN and LR have something in common: they represent the producers of the products in Ghana. They, however, differ in terms of the location of the establishment. MN are established in the country, whereas LR are



companies that have their mother companies outside the country and use a local company in the country as its affiliate.

The use of the pharmaceutical company's name as part of the medicine brand name can be attributed to some factors. Pharmaceutical companies that compose the brand names of their medicines using their company names as part of the name seek to enact a kind of identity for their products. This is because a brand is “an intangible asset that helps people identify a specific company and its products, especially when the companies need to set themselves apart from others who provide similar products on the market, including generic brands” (Kenton, 2020). *Letamol* is a paracetamol brand that Letap Pharmaceutical Limited uses to distinguish medicines from the generic forms of drugs available in drugstores.

Corroboratively, Quinlan (2003) claims that “pharmaceutical companies tend to promote their brand names because that is what sells their product on the competitive market. This strategy implies that both the companies and users have credibility and trust. The credibility status is probably attained due to the quality of products the companies produce and the good customer relations the companies have with customers. The trust status also comes into the limelight because the companies believe that the quality of products and services, they render to customers using their company names would help attract more customers to their products. Therefore, the company names constituting a part of the medicine brand name determine its brand identity or how the companies want their product to be viewed.

Dosage Forms (DF) has also been identified as a criterion for formulating medicine brand names. The data show that DF appears 114 times, representing 11.4% of the total. The study demonstrates that the nature of DF comes in liquid, gas, solid, and semisolid forms. These medicines can be oral (swallowable and chewable), injectable, smearable, inhalable, and drops. As part of the brand name, DF communicates to pharmacists and users how the medicine can be used. The reason for which drugs are taken in a particular DF is “dependent on the substance(s) used in preparing the drugs and certain harmful effects they can have on the user if not taken in the prescribed dosage” (Mehrandish & Mirzaeei, 2021). Mathias and Hussain (2010) exemplified that “persistent nausea, especially with vomiting, may make it difficult to use an oral dosage form for all kinds of drugs, and in such a case, it may be necessary to use an alternative means such as inhalational, buccal, sublingual, nasal, suppository, or parenteral instead” (p. 2).

Additionally, the use of DF as part of the brand names is a requirement by the European Medicines Agency that medicines can have brand names, and the composition of the names can include the DF (Desai et al., 2019; Gagne et al., 2014; Schwartz, 2012; Keenum et al., 2012;) because some drugs do not have chemical stability or pharmacokinetics such as insulin which



is not taken orally for its extensive metabolism in the gastrointestinal tract (GIT) before reaching the bloodstream. Therefore, it cannot reach its therapeutic target destinations when taken orally. The oral and intravenous doses of a drug such as paracetamol will differ for the same reason.

The last identifiable criterion used to formulate medicine brand names is named Zero Criteria (ZC). The names of this class of medicines were composed using none of the criteria designed by the FDA; instead, they were composed of other substances whose meanings and origins are non-definable. Statistics from the data show that 274 of the brand names, representing 27.4%, were composed of non-identifiable substances. The ZC class of medicine brand names failed to comply with the directives given by the FDA and the European Medicine Agency. In addition, the names of this class of medicines do not communicate any meaning to pharmacists and users, and this opens pharmacists and users up to look-alike and sound-alike confusions that the FDA is strictly fighting against. Ironically, the ZC medicine brand names have been registered under the FDA and certified to be sold in Ghana.

Morphemic patterns of medicine brand names on the Ghanaian market

This section presents the results and discusses the morphemic patterns of medicine brand names used in the study. The study shows that the medicine brand names are composed using mono-morphemic patterns, di-morphemic patterns, and poly-morphemic patterns. Table 2 below illustrates the levels of the morphemic and their respective frequencies.

Table 2: Frequencies of morphemic patterns of medicine brand names

Morphemic Type	Frequency	Percentage
Mono-morphemic	220	22.0
Di-morphemic	292	29.2
Tri/poly-morphemic	488	48.8
Total	1000	100

Source: From medicines registered under the FDA of Ghana

The study shows mono-morphemic patterns of medicine brand names registered with the Food and Drugs Authority of Ghana. This pattern represents only a single morpheme, and the frequency of the names sums up to 220, representing 22.0% of the medicines registered under the FDA. Below are some classes of brand names that illustrate mono-morphemic patterns of medicine brand names found in the study.



Brand Name	=	+	Zero criteria
1. Alben			
2. Azopt			
3. Axa			
4. Zaha			
5. Drez			

The study shows that the mono-morphemic names do not have any morphemes of the criteria the FDA gave to compose the names. Most names mean nothing, and one cannot tell the criteria or WFP used by the pharmaceutical companies to compose the names. However, the names may be formulated through coinages and borrowing. Therefore, it can be concluded that the mono-morphemic structures do not contribute to the comprehensibility of the brand names; as such, the concern of the FDA to control pharmaceutical companies to formulate brand names to communicate some meaning to pharmacists and users has not been entirely successful.

The next level of morphemic pattern identified in the study has been named di-morphemic patterns. The formation of this type of morphemic pattern combines two morphemes from two different words. The study shows that 292 brand names, representing 29.2%, show di-morphemic patterns. Below are some examples from the data:

Brand Name	=	Generic	+	Local Manufacturer
1. Letavit		Multivitamin		Letap Pharmaceutical Ltd
2. Novamether		Artemether		Pharmanova Ltd
3. Nebilong		Nebivolol		unknown
4. Optifenac		Diclofenac		unknown
5. Myomil		Milrinone Lactate		unknown
6. Norvir		Ritnavir		unknown

The study shows that the di-morphemic patterns of the medicine brand names combined generic names and other elements that can make some meaning to pharmacists and users, unlike names composed using mono-morphemic patterns. In addition, most of the di-morphemic patterns of the medicine brand names used blending and compounding to compose the names of the brands. It, therefore, can be concluded that di-morphemic patterns of medicine brand names contribute to the meaning formation of the medicine brand names.

The last level of morphemic pattern identified from the data is the poly-morphemic pattern. This pattern combines three or more morphemes to compose the names of the medicine brand names. The study shows that 488 brand names, representing 48.8%, show poly-morphemic patterns in the medicine brand names. Here are some examples:



Brand Name	Generic Name	Local Manufacturer/other
1. Clotri-Denk 100	Clotrimazole	Denk Pharma
2. Nifedi Denk 20	Nifedipine	Denk Pharma
3. Metformin Denk 850	Metformin	Denk Pharma
4. Wormbat400	+Zero	Worm
5. Sandimmun Neoral	Sandimmun Ne-	Oral
6. HemoforcePlus Syrup	Hemoforce	Syrup

From the study, it is evident that poly-morphemic patterns of the medicine brand names exist. The formation of poly-morphemic medicine brand names combines more than two morphemes from different words and figures, mainly generic names and others. This pattern, like di-morphemic patterns, constructs meanings that pharmacists and users can easily comprehend. In addition, it is evident that most of the poly-morphemic patterns of the medicine brand names used blending and compounding to form the names of the brands. This implies that poly-morphemic patterns of medicine brand names also contribute to the meaning construction of the medicine brand names. It is the most preferred in the formulation of pharmaceutical brand names.

The connection between the criteria for choosing medicine brand names and their morphemic patterns.

This section discusses the *connection* between the criteria for choosing medicine brand names and their morphemic patterns. Having analysed the data, we discovered that the *connection* is threefold: the criterion of direct *connection*, the criterion of indirect *connection*, and the criterion of unrelated *connection*. The table below shows the distribution of the relationships.

Table 3: The connection between the criteria for choosing medicine brand names and their morphemic patterns

Relationship	Frequency	Percentage
The criterion of direct <i>connection</i>	485	48.5
The criterion of indirect <i>connection</i>	281	28.1
The criterion of no <i>connection</i>	234	23.4
Total	1000	100

Source: Medicines registered under the FDA of Ghana

One connection between the criteria for selecting medicine brand names and their morphemic patterns is "the criterion of direct connection." This connection involves medicine brand names that incorporate any of the four elements prescribed by the FDA: Generic Names (GN), Dosage



Forms (DF), Manufacturers' Names (MN), and Local Representatives (LR). These elements must appear in the names and convey meaningful information to pharmacists and users.

The study revealed that 485, 485 representing 48.5% of the medicine brand names, were directly connected with the morphemic patterns. This is because this class of medicines at least communicates something that can make meaning to the users and the pharmacists. With this, the guideline provided by the FDA has been 48.5% successful. It can address the problems of look-alike and sound-alike confusions that usually occur in Ghanaian health facilities and pharmacies.

This finding concludes that pharmaceutical companies adhering to FDA guidelines and regulations in formulating their product brand names have achieved more tremendous popularity, superiority, and excellence in delivering goods and services. It aligns with Saragih's (2017) observation that the naming strategy for over-the-counter (OTC) medicines often reflects the company's identity, drawing on the connotations associated with the brand. This approach enhances brand recognition and reinforces the company's reputation for quality and reliability in the market.

The connection between the morphemic patterns and the criteria for choosing medicine brand names is indirectly related. This type of *connection* also concerns the morphemic patterns that have been composed using any of the four elements (Generic Names (GN), Dosage Forms (DF), Manufacturers' Names (MN), and Local Representatives (LR) prescribed by the FDA. However, none of the names suggests meanings related to the type of medicine or the effects of the medicine and others.

The study demonstrates that the indirectly related medicine brand names sum up to 281, representing 28.1% of the medicines registered under the FDA. This group of medicine brand names does not directly communicate to users and pharmacists; that is, the meaning they make does not depend on the four elements: Generic Names (GN), Dosage Forms (DF), Manufacturers' Names (MN), Local Representatives (LR) prescribed by the FDA. However, they indirectly make meaning to users, such as the effects of using the products, the ailments they cure, and others. With this as well, it can be concluded that the FDA's guidelines are 28.1% successful.

The class of pharmaceutical product names that partially communicate about the product may provide some indication of the product's function or purpose but may lack comprehensive details. Research indicates that partial communication can enhance brand recognition and recall, but it may also lead to confusion if the name does not fully convey the product's use or benefits (Berman, 2008; Singh & Jayanti, 2013). Furthermore, these names may be more appealing in



terms of simplicity and ease of pronunciation. Nevertheless, they may not meet the regulatory standards or fully support effective communication in the healthcare context. The key takeaway is that while partial communication in pharmaceutical names can be advantageous for marketing purposes, it may limit the product's ability to inform users, healthcare professionals, and regulatory bodies about its specific use and characteristics.

Finally, the study shows that some medicine brand names have no connection with the morphemic patterns and the criteria for choosing medicine brand names. The unrelated type concerns the morphemic patterns of medicine brand names that have been composed without the use of any of the four elements Generic Names (GN), Dosage Forms (DF), Manufacturers' Names (MN), Local Representatives (LR) prescribed by the FDA. The names that emerged from the data show that such names do not exist elsewhere, and for that matter, their meanings are too remote from the basic meaning they are supposed to convey.

The study illustrates that 234, representing 23.4% of the total number of medicines registered, are unrelated. This class of medicines tends to confuse pharmacists and users because nothing in their names suggests any meaning to them. This class of medicines can pose a danger to users, especially to those who practice self-medication. Therefore, it can be concluded that the guidelines provided by the FDA for pharmaceutical companies to follow were not adhered to.

This category of brand names lacks key information about the products; however, it was discovered that they were easy to pronounce and remember. Saragih (2017) argues that this absence of use of linguistic patterns represents a failure to provide an apparent linguistic reference, which is crucial for effective communication about the product. Pharmaceutical brand names that do not follow the pharmacy council's naming guidelines fail to convey the product's functionality and usability clearly, making them less informative.

CONCLUSION

In conclusion, this study dealt with morphemic medicine brand-name patterns in the Ghanaian market. The study interpreted and discussed its findings in terms of the criteria used for formulating medicine brand names, the word formation processes used to formulate medicine brand names, and the connection between the word-formation processes of medicine brand names and the meanings they make to users based on the guidelines outlined by the FDA.

In terms of the criteria used for formulating the medicine brand names, the study shows that the majority of the pharmaceutical companies in Ghana complied with the guidelines for Generic Names (GN), Dosage Forms (DF), Manufacturers' Names (MN), and Local Representatives



(LR) provided by FDA; however, about a quarter of the companies used their criteria to formulate the names of their medicines.

In the case of the morphemic patterns of medicine brand names on the Ghanaian market, it was discovered that they were composed using mono-morphemic patterns, di-morphemic patterns, and poly-morphemic patterns. The mono-morphemic patterns of the medicine brand names were discovered to be names that do not communicate anything about the medicines they name. In contrast, di-morphemic and poly-morphemic patterns construct some meaning for pharmacists and users. Also, the researchers have no idea how the names of the mono-morphemic patterns of medicine brand names were formulated.

Finally, the study also investigated the connection between the word-formation processes of medicine brand names and the meanings they make to users based on the guidelines outlined by the FDA. It was realised that the medicine brand names have direct, indirect, and unrelated connections with the criteria outlined by the FDA. Therefore, it was concluded that the related medicine names, directly and indirectly, help communicate some meaning to users; however, those unrelated do not communicate any meaning to users.

The study has scholarships for morphological studies in particular and marketing and advertising in general because the nature and meaning of the names certainly will influence the consumers' decision to choose one product over the other. Therefore, it is suggested that the FDA continue to use the criteria designed for pharmaceutical companies wishing to market their products in the country. For those that have already found their way into the Ghanaian markets, the FDA can send them notices spelling out the dangers the names of their products can pose to users and advise them to do something about the names of their products.

REFERENCES

- Adongo, D. W., Adedia, D., Benneh, C. K., Tandoh, A., Amekyeh, H., Ntelah, E. K., ... & Woode, E. (2024). Psychoactive substance use and associated factors among students in a Ghanaian Tertiary Institution. *Scientific African*, 24, e02250.
- Batey, M. (2015). *Brand Meaning: Meaning, myth and mystique in today's brands*. Routledge.
- Berman, B. (2008). *Marketing pharmaceutical brands: A strategic approach*. Wiley.
- Brdar-Szabó, R., & Brdar, M. (2023). Figuratively used product names: From ergonyms to eponyms and paragon. *Lingua*, 290, 103552.
- Borgheini, G. (2003). The bioequivalence and therapeutic efficacy of generic versus brand-name psychoactive drugs. *Clinical therapeutics*, 25(6), 1578-1592.
- Bujalkova M, & Jureckova A. (2003). Application of word-formation models in medical terms fixation. *Bratisl Lek Listy*. 104 (10):335-8

ISSN: 2408-7920

Copyright © African Journal of Applied Research

Arca Academic Publisher

906



- Cho, H. (2019). Brand name fluency and perceptions of water purity and taste. *Food Quality and Preference*, 71, 21-24.
- Chomsky, N. (1988). *Generative grammar*. Studies in English linguistics and literature.
- Cook, G. (2001). *The Discourse of Advertising*. London: Routledge. ISBN 978-0-415-23455-9.
- Creswell, J. W. (1994). *Research Design: Qualitative and Quantitative Approaches*. Thousand Oaks, CA: Sage Publications
- Delahunty, G. P., & Garvey, J. J. (2010). *The English Language: from sound to sense*. WAC Clearinghouse.
- Desai, R. J., Sarpatwari, A., Dejene, S., Khan, N. F., Lii, J., Rogers, J. R., ... & Gagne, J. J. (2019). Comparative effectiveness of generic and brand-name medication use: A database study of US health insurance claims. *PLoS medicine*, 16(3), e1002763.
- Erlinawati, R. (2012). A study of jargon used by sheltered street children on jalan muharto malang. Skripsi. Malang: Universitas Brawijaya.
- Food and Drugs Authority (2019). Guidelines on labelling of medicinal products. <https://fdaghana.gov.gh/images/stories/pdfs/downloads/drugs%20guidelines/DER/2019/guidelines%20FOR%20labelling%20OF%20drugs.pdf>
- Gagne, J. J., Choudhry, N. K., Kesselheim, A. S., Polinski, J. M., Hutchins, D., Matlin, O. S., & Shrank, W. H. (2014). Comparative effectiveness of generic and brand-name statins on patient outcomes: a cohort study. *Annals of internal medicine*, 161(6), 400-407.
- Goundar, S. (2012). Research methodology and research method. *Victoria University of Wellington*.
- Gyasi, W. K., & Dwumoh, J. S. (2024). Reading Difficulty of Consumer Medicine Information (CMI) Leaflets for Five Chronic Ailments in Ghana. *African Journal of Applied Research*, 10(1), 224-237.
- Hacken, P. T. (2015). Transposition and the limits of word formation. In *Semantics of complex words* (pp. 187-216). Springer, Cham.
- Haryati, C. (2014). A study of word formation process of food and beverage product names in Indonesia. *Language Horizon* Vol. 2 No. 2
- Iswara, A. A., & Sastaparamitha, N. N. A. J. (2020). Form and Use of Euphemisms in Hoax. *RETORIKA: Jurnal Ilmu Bahasa*, 6(2), 121-130.
- Katamba, F. (2003). Bantu nominal morphology. *The Bantu languages*, 103, 120.
- Keenum, A. J., DeVoe, J. E., Chisolm, D. J., & Wallace, L. S. (2012). Generic medications for you, but brand-name medications for me. *Research in social and administrative pharmacy*, 8(6), 574-578.
- Kenton, W. (2020). Brand definition. <https://www.investopedia.com/terms/b/brand.asp>. Accessed on 14 July 2020.
- Klink, R. R. (2001). Creating Meaningful New Brand Names: A Study of Semantics and Sound Symbolism, *Journal of Marketing Theory and Practice*, 9:2, 27-34, DOI: [10.1080/10696679.2001.11501889](https://doi.org/10.1080/10696679.2001.11501889)



- Maharani, W. A. (2012). Word formation processes of photography argons in digital camera world magazine. Skripsi. Malang: Universitas Brawijaya.
- Manokaran, K., Nian, O. S., & Manokaran, L. (2022). The Next Normal Terminologies in Malaysia: Morphological Landscape in the Future of Work. *Malaysian Journal of Qualitative Research*, 8(2).
- Manzini, R., & Lazzarotti, V. (2016). Intellectual property protection mechanisms in collaborative new product development. *R&D Management*, 46(S2), 579-595.
- Manzoli, L., Flacco, M. E., Boccia, S., D'Andrea, E., Panic, N., Marzuillo, C., ... & Ioannidis, J. P. (2016). Generic versus brand-name drugs used in cardiovascular diseases. *European journal of epidemiology*, 31(4), 351-368.
- Mathias, N. R., & Hussain, M. A. (2010). Non-invasive systemic drug delivery: developability considerations for alternate routes of administration. *Journal of pharmaceutical sciences*, 99(1), 1-20.
- Mehrandish, S., & Mirzaeei, S. (2021). A review on ocular novel drug delivery systems of antifungal drugs: Functional evaluation and comparison of conventional and novel dosage forms. *Advanced Pharmaceutical Bulletin*, 11(1), 28.
- Mends, B. E. (2017). An investigation into the naming patterns of food products in Ghana. *Journal of Education Development and Innovation*. Vol. 1, pp. 89-99
- Mponda, O. T. (2007). "An Analysis of the linguistic features in selected agricultural product names and their Shona audio advertisements aired on Radio Zimbabwe: M. A. dissertation. Harare: U.Z.
- Nuralam, A. (2012). *Word formation processes in the jargons used among the members of kaskus internet forum community* (Doctoral dissertation, Universitas Brawijaya).
- Le, M. T. (2021). The impact of brand love on brand loyalty: the moderating role of self-esteem, and social influences. *Spanish Journal of Marketing-ESIC*.
- Li, X. (2012). Behind the recent surge of Chinese patenting: An institutional view. *Research policy*, 41(1), 236-249.
- Lieber, R. (2009). *Introducing Morphology*. Cambridge: Cambridge University Press.
- Plag, I. (2003). *Word-Formation in English*. Cambridge: Cambridge University Press.
- Punch, K. (1998). *Introduction to social research: Quantitative and qualitative approaches*. London, Sage.
- Quinlan, M. L. (2003). *Just ask a woman: Cracking the code of what women want and how they buy*. John Wiley & Sons.
- Ratih, E., & Gusdian, R. I. (2018). Word formation processes in English new words of Oxford English dictionary (OED) online. *Celtic: A Journal of Culture, English Language Teaching, Literature and Linguistics*, 5(2), 24-35.
- Regnstrom, J., Koenig, F., Aronsson, B., Reimer, T., Svendsen, K., Tsigkos, S., ... &



- Vamvakas, S. (2010). Factors associated with success of market authorisation applications for pharmaceutical drugs submitted to the European Medicines Agency. *European journal of clinical pharmacology*, 66(1), 39–48.
- Sambrook, J. (2017). Generic names versus brand name medicines. <https://patient.info/treatment-medication/medicines-to-keep-at-home/generic-vs-brand-name-medicines>. Retrieved on 27/10/2021
- Saragih, H. (2017). Linguistics-based pharmaceutical product naming methods: A morphological study on over-the-counter medicine products in Indonesia. *Proceedings of the International Conference on Language and Literature*, 1(1), 11-21.
- Schwartz, V. E., Goldberg, P., & Silverman, C. (2012). Warning: Shifting Liability to Manufacturers of Brand-Name Medicines When the Harm Was Allegedly Caused by Generic Drugs Has Severe Side Effects. *Fordham L. Rev.*, 81, 1835.
- Singh, J., & Jayanti, R. K. (2013). Closing the marketing strategy-tactics gap: An institutional theory analysis of pharmaceutical value chain. In *Innovation and Marketing in the Pharmaceutical Industry: Emerging Practices, Research, and Policies* (pp. 701-735). New York, NY: Springer New York.
- Susilo, A. R. (2007). An analysis of jargon used by “waria” in salon yoes community in tanggul, jember. Skripsi. Malang: Universitas Muhammadiyah.
- Trask, L. (2008). *Etymological dictionary of Basque*. Sussex: University of Sussex.