Research Article

Preliminary Linguistic Approach to Study Drug Name in Retail Pharmacy

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ABSTRACT

Medicine nomenclature is a solution to many drug-related problems and complexity in drug use. The drug name is unique for medicine identity, and brand, and is indexed in a variety of regulatory, business credibility, and medical databases. The present piece of study is the initial solution to explore preliminary linguistic aspects of medicine marketed in the local community and retail pharmacies. Using basic computational readability and linguistic parameter, randomly selected 947 medicine names were studied and analyzed from December 2017 to March 2018. The eye-catching result described diverse and unique characteristics including words, syllables, initial and terminal bigram, and trigram. Preliminary linguistic features of the brand name evaluated were interesting. Advocacy of name game in medicine regulation should be taken into consideration for patient safety.

Keywords: Medicine nomenclature, brand name, safety, medicine regulation.

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INTRODUCTION

'What is in the name?' is the all-time famous quote of Shakespeare however important in medicine name. The names of medicinal products serve many purposes essentially, including correct identification, drug safety, medication error, look-alike sound-alike drug, and severe consequences for patients due to misunderstandings with drug names[1-3]. We follow cultural rituals to name someone, then why not regulatory rituals, and rules for medicine. At present, several agencies are involved in designing and approving names overseas. Country-wise medicines brands are invented names, submitted to a complex process of nomenclature adopted by respective regulatory agencies namely, INN, BAN, JAN, AAU, USAN, INFARMED, EMEA, and many more. Medicine nomenclature starts during the clinical trials through the approval process that ends at the market i.e., retail pharmacies and consumers.

Every time pharmacists (WE) walk & work through a store or pharmacy, we walk amongst aisles upon aisles of brand-name products, including medications. Whether they are behind the counter or on the counter, how often do we take the time to consider the name of our prescription or medicine of choice? The truth is, people probably don't analyze the brand name, but subconsciously decided to buy this specific brand. Moreover, some of the INN are known by brand name. What is it about such common and widely known brands such as Lipitor, Allegra, Eptoin, Lasix, Disprin, Calpol, and Crocin that makes them marketable and linguistically interesting? We believe there are science, art, and regulatory aspects to name. Keeping in mind this study aims to evaluate the linguistic aspects of brand names in relation to word format. For the present study, we evaluated words, letters, size, syllables, and trigrams for randomly selected products available in a local pharmacy store.

MATERIALS AND METHODS

The method for this study followed based on readability and linguistic aspects described in literature[4-6]. With prior permission from the pharmacy to work 618 brand names and 329 generic names of medicine available in community pharmacy were randomly selected. The whole sample was included to avoid bias. Linguistic variables were as: Number of words, language, use of numbers, number of alphabets, names beginning with a consonant or a vowel, names ending with a consonant or a vowel, tall men letters, initial and terminal trigram. Descriptive statistics (example- average, standard deviation) were calculated. The statistical analysis was carried out with SPSS for Windows (version 19.0, IBM-SPSS, Chicago, IL).

RESULT AND DISCUSSION

Of the 618 brand names, 483 names were in English, 134 were in Hindi and English and 1 name was in English Hindi, and Arabic. 186 names were beginning with vowels and 432 were with consonants' while 116 names ended with a vowel and 502 names ends with consonants. 29 brand names were with numbers and 7 brand names were tall man letters. Of the 329 generic names, 263 names were in English, and 66 names were in English and Hindi. One

hundred and fifteen names begin with vowels and 214 were with consonants while 154 names end with vowels and 175 names end with consonants. Three generic names were with numbers and 5 generic names were tall man letters. Basic descriptive statistics for the two types of names that we analyzed are in table 1 while distributions of words are in table 2.

Table 1: Descriptive Statistics for Brand Names and Generic Drug Names.

	Overall n= 947			Generic Name n= 329			Brand Name n= 618		
	Letter	Syllable	Word	Letter	Syllable	Word	Letter	Syllable	Word
Mean	12.55	4.9	1.62	22.47	8.76	2.36	7.27	2.85	1.23
Median	8	3	1	21	8	2	7	3	1
Mode	7	3	1	11	8	2	7	3	1
SD	9.923	3.846	1.045	11.15	4.30	1.38	2.09	0.814	0.46
Min.	2	1	1	8	3	1	2	1	1
Max.	69	27	9	69	27	9	16	6	3

Table 2: Distribution of the number of words and syllables in brand names and generic names

No. of words	Brand names		Generic Names	
	Brand names words N (%)	Syllables N (%)	Generic names words N (%)	Syllables N (%)
1	485 (78.48%)	18(2.91%)	86 (26.21%)	-
2	123 (19.90%)	174(28.16%)	137(41.76%)	-
3	10 (1.62%)	335(54.21%)	52(15.85%)	16(4.88%)
4	----	73(11.81%)	30(9.14%)	47(14.33%)
5	----	12(1.94%)	11(3.35%)	23(7.01%)
6	----	6(0.97%)	5(1.52%)	18(5.49%)
7	----	-	4(1.21%)	29(8.84%)
8	---	-	1(0.30%)	52(15.85%)
9	---	-	2(0.60%)	27(8.23%)
10	---	-	-	23(7.01%)
11	----	--	-	22(6.71%)
12	---	-	-	14(4.27%)
13	---	-	-	17(5.18%)
14	---	----	-	11(3.35%)
15	---	----	-	4(1.22%)
16	----	----	-	4(1.22%)
17	---	----	-	7(2.13%)
18	---	----	-	2(0.61%)
19	---	----	-	4(1.21%)
20	---	---	-	1(0.30%)
21	---	---	-	1(0.30%)
22	---	---	-	3(0.91%)
23	---	---	-	1(0.30%)
24	---	----	-	1(0.30%)
25	---	---	-	1(0.30%)

The 618 sampled brand names were formed by 760 words, while 329 sampled generic names were formed by 778 words. Majority of brand name words comprising of 2 and 3 syllables while syllables range more in generic names. Brand names were with more tall man letters than the generic name. Table 3 gives the most common initial and terminal bigram trigram for brand names and Table 4 generic names, respectively. Dice score and similarity score was the point of evaluation in this piece of study.

Table 3: Initial and terminal bigram and trigram of Brand name.

Initial						Terminal					
Bigram	**N**	**%**	**Trigram**	**N**	**%**	**Bigram**	**N**	**%**	**trigram**	**N**	**%**
Ca-	28	4.5%	Bet-	13	2.1%	-In	31	5%	-ine	13	2.1%
Be-	27	4.36%	Car-	10	1.6%	-Ne	16	2.6%	-lus	10	1.6%
Am-	21	3.4%	Aml-	10	1.6%	-Ol	16	2.6%	-ate	6	0.9%
Cl-	15	2.4%	Cal-	9	1.4%	-On	14	2.2%	-rte	6	0.9%
At-	14	2.2%	Ato-	7	1.1%	-Ee	14	2.2%	-lin	5	0.8%
Ac-	12	1.9%	Cef-	7	1.1%	-Il	14	2.2%	-ard	6	0.9%
Ci-	12	1.9%	Ami-	6	0.9%	-En	12	1.9%	-ind	5	0.8%
An-	11	1.7%	Ben-	6	0.9%	-Al	11	1.7%	-vas	6	0.9%
Az-	11	1.7%	Can-	6	0.9%	-Us	11	1.7%	-one	5	0.8%
Al-	16	2.5%	Bec-	5	0.8%	-An	10	1.6%	-cin	5	0.8%

Table 4: Initial and terminal bigram and trigram of Generic name

Initial						Terminal					
Bigram	**N**	**%**	**Trigram**	**N**	**%**	**Bigram**	**N**	**%**	**Trigram**	**N**	**%**
ac-	32	9.75%	ace-	23	7%	-ne	69	21.03%	-ine	52	15.85%
al-	27	8.23%	alf-	8	2.4%	-in	48	14.63%	-ide	40	12.19%
am-	20	6.09%	alp-	8	2.4%	-de	40	12.19%	-ate	25	7.62%
pr-	10	3.0%	ami-	7	2.1%	-ol	33	10%	-cid	12	3.65%
te-	9	2.74%	pro-	6	1.8%	-te	24	7.31%	-min	12	3.65%
ad-	8	2.43%	aml-	5	1.5%	-id	12	3.65%	-ole	12	3.65%
ra-	7	2.13%	amb-	5	1.5%	-le	12	3.65%	-one	12	3.65%
ri-	7	2.13%	ter-	4	1.2%	-um	11	3.35%	-ium	10	3.04%
sa-	7	2.13%	tra-	4	1.2%	-an	8	2.4%	-mol	10	3.04%

Our results show that a substantial number of brand names and generic names are written mostly in English and at least in other vernacular languages. Labeling, naming, and printing of medicine are prescribed under rules 95-96 of the drug and cosmetic act but linguistic specifications are not with segments or combinations of letters that do not exist in words.

Additionally, around 20% of brand names and more than 50% of the generic name in our sample comprised more than one word which is also at odds. Some are with numbers, units, and likewise more. More than a half of brand name and ¾ of generic name of the words of the sampled is long (names with four or more syllables). Moreover, some of the sampled names were available in the tall man letters while versatile naming was observed with name writing i.e. block letters, capitalized and first capital only. Positively, most of the brand names and generic names are presented with versatile initial and terminal trigram. Some names were identified consisting of numbers and products of numbers & alphabets via 3D. Debates need to be open to recommending names even if the consumer can misunderstand contrarily helpful to remember and facilitate phonology. Various abbreviations were identified in the sample of names. Many of these abbreviations are referred to as terms in clinical terminology. For instance, ER does stands for extended-release, CR does stand for controlled release which needs to clear the meaning to vernacular medici0ne users who are non-familiar with such terms for the safe use of medicine. We noticed about 'PR" is usually a prolonged release, but we also came to know some are with the pulsatile release.

A high number of vowels and consonants were found in the sample of names. The use of vowels and consonants constitutes the length of the name and phonology. It is well established that it is harder for users to recognize, recall, memorize and pronounce a long name.

Some linguistic features of the evaluated names were related to common preferences. Tests on preferences about the names of medicines may provide additional safety features addressed by the present regulations. Numbers of medicines are present in the domestic market and international markets over the globe from India. For which names are adopted as per marketing rules, market share, regulations, and brand notoriety instead strive hard to linguistic and legibility concerns. USAN in the USA, WHO, and respective country authorities look over the alphabet and terminology aspects of medicine name. Present pharmacy practice, mushrooming products, and literature published; naming is a worldwide problem. Health literacy of patient, repeated purchase, advertisement and common names English has widely spoken language makes trigram and bigram initial or terminal is at concern. Common bigram and trigram can lead to confusion, so a safety perspective point of view is found important.

CONCLUSION

With whatever the small number of names, we studied able us name games of medicine, the viewpoint behind the names, and the handling of medicine in the pharmacy. Name of medicine helps not only to manage medicine but thought-provoking on dominant stretchy on new names, use of names in medicine safety.

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