

# **A Comparative Analysis of Lexico-grammatical Features of Moves in the Research Abstracts of Students in a Ghanaian University**

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Writing a high-quality research abstract is challenging for undergraduate students who use English as a Second Language at the University of Health and Allied Sciences in Ho, Ghana. This paper compares the lexico-grammatical features in 150 research abstracts written by undergraduate Medical, Nursing, and allied Health students of UHAS. The data was manually coded and presented as frequency counts and percentages in tables and a figure. The study found high usage of simple present, simple past, perfect tenses, hedges, boosters, and nominalization in research abstracts written by undergraduate students of UHAS. The present tense dominates introduction moves, while simple past tense dominates method and product moves. The findings revealed that hedges, boosters, and nominalization dominate introductory, product, and conclusion moves of the research abstracts. It is recommended that Ghanaian universities, including UHAS teach students the effective writing of research abstracts, and more specifically discipline-specific writing of research abstracts.

**Keywords:** Research abstracts, moves, lexico-grammatical feature, boosters, hedges, nominalization, tenses.

## **1. Introduction**

Writing is the most commonly used language skill for assessing students for high-stakes decision making, as it allows teachers to assess critical thinking and simultaneously assess large numbers of students. This mode of assessment is mainly used for class tests, homework, and final exams at undergraduate level, as well as assessing theses and dissertations. However, poor writing ability is prevalent among university students worldwide, threatening academic performance and completion rates.

Abstracts are concise summary of research documents such as theses, or dissertations, and articles, aiming to provide a brief overview of a study (Hyland 2004; Jiang and Hyland 2017; Omidian, Shahriari, and Siyanova-Chanturia 2018). However, novice researchers often struggle with writing high-quality abstracts due to unfamiliarity with rhetorical organization, communicative purpose, conventions, and linguistic requirements. To address this issue, teaching abstract writing should focus on identifying the discursal and rhetorical nature of this genre in different disciplines. This article compares lexicogrammatical features in abstracts written by undergraduate students in Medicine, Nursing, and Allied Health Sciences at the University of Health and Allied Sciences in Ho, Ghana.

The theory underpinning the study carried out in this article is “academic literacies”. This theory is explained better when juxtaposed with its counterpart, “academic literacy”. As its name implies, “academic literacies” acknowledges the nuanced and therefore pluralistic nature of the literacies that students in different disciplines need to possess in order to cope with discourse demands of academic education within such disciplines. On the contrary, “academic literacy” is understood to be generic version of its pluralized counterpart. For the reason that the nuanced and pluralized approach caters for the differentiated needs of students, it is currently the one embraced and justified by academic development practitioners across the board (Lee and Street 2006; Jacobs 2013). The present article fits into this theory because of its focus on the lexicogrammatical features evident in the dissertation abstracts of the three groups of students selected for the study. In the same way that the academic literacies theory does, it acknowledges that students in Engineering will need different reading, writing and thinking competences from those in Nursing, for example. We briefly review the concepts and some empirical studies on moves, lexicogrammar, tense, hedges, boosters, and nominalization.

Moves, also known as rhetorical moves, are text segments serving specific communicative functions in a genre (Swales 1990, 2004). They are a bundle of linguistic features, such as lexical and propositional meanings, that give a segment a uniform orientation and signal discourse content (Nwogu 1997). Moves are semantic units linked to the writer's purpose and are crucial for writing research abstracts, especially for inexperienced non-native English writers (Kanoksilapatham 2007; Yang and Allison 2003; Wannaruk and

Annuaire 2016).

Lexico-grammar is a crucial aspect of academic writing, forming the structure of discourse. It involves the combination of lexical items and syntax to create meaningful sentences (Berne and Blachowicz 2008; Ranney 2012). Scholars must understand how lexico-grammatical features interact and function in specific texts, such as tense, hedges, boosters, and nominalization, to create effective and communicative research documents. We briefly deal with these features in the below.

Research abstracts often use present, past, and perfect tense in rhetorical moves, with the past tense being the most commonly used (Abarghooeinezhad and Simin 2015; Biber 1988; Chalak and Norouzi 2013; Doró 2014; Gerbert 1970; Gledhill 2009; Hanidar 2016; Khany and Malmir 2019; Nurhayati 2017; Pho 2008; Tankó 2017; Tseng 2011; Wang and Tu 2014). According to these studies, present and perfect tenses are less frequent in research abstracts. These studies also indicate that the present tense is used in introduction, purpose, method, product, and conclusion moves, while the past tense is used in method and product moves.

Hedges are linguistic devices used by writers to limit or withdraw their commitment to a proposition or statement (Gillaerts and Van de Velde 2010; Hyland 2005). These devices include modals of possibility, adverbs, adjectives, introductory verbs, lexical verbs, and nouns. They are often used to state research gaps and summarize conclusions, indicating reluctance to commit completely (Gillaerts and Van de Velde 2010; Hyland 2005). According to these authors, they are often used when making controversial claims that require negotiation between writer and reader.

Boosters are metadiscursive devices that enhance the persuasiveness of statements by expressing conviction and confidence (Akman and Karahan 2023). They can take the form of evaluative adjectives, adverbs, verbs, and nouns. They are essential for scientific statements in social contexts, ensuring accuracy, writer and reader-oriented communication (Gillaerts and Van de Velde 2010; Hyland 2005; Serholt 2012). Nominalization, also known as "nouncing", is a linguistic process that transforms verbs or adjectives into nouns with suffixes (Halliday 2004a,b,c; Halliday 2008; Leech 2006). This process allows authors to create informationally dense discourses by building chains of logical arguments (Halliday 2008). It is commonly used in research abstracts and expository texts to increase information density and create highly dense, informational discourse (Biber 1988).

## 2. Methodology

This article uses pragmatism, a blend of positivism and interpretivism research paradigms (Alharahsheh and Pius 2020), and quantitative and qualitative research approaches. It uses linguistic analysis supported by

Hyland's (2000) model to determine the frequency of lexico-grammatical features in undergraduate students' research abstracts. The positivism paradigm emphasizes empirical methodology, experiments, and observation (Fordjour and Chan 2020; Peng and Shiyu 2019), while interpretivism describes experiences without statistical procedures or quantification (Iyamu 2020; Kankam 2019; Yin 2018). The interpretive paradigm favors qualitative research, while positivism favors quantitative methods. The sample size included 150 research abstracts, 50 of which were medical, nursing, and allied health research abstracts. This discourse excludes article abstracts published in high-quality medical science journals, as the researchers assumed that the undergraduate students are novice writers in English as a Second Language. Extracts from these abstracts were examined for the frequency of lexico-grammatical features such as tenses, hedges, boosters, and nominalization. These features were manually categorized and colour-coded to indicate the degree of utilization of each in the three set of abstracts as shown below:

High ■ Moderate ■ Low ■

The researchers used conventional qualitative coding methods to ensure the validity, reliability, and trustworthiness of their results (Mackey and Gass 2015). They performed pre-coding by carefully reading and re-reading abstracts and extracts, noting lexicogrammar properties in rhetorical moves. The actual coding involved highlighting portions of texts and labeling them using a coding scheme derived from literature (Al-Khasawneh 2017; Menezes 2013). The researchers also piloted the coding scheme on samples of abstracts to ensure its effectiveness. Intra- and inter-coder reliability was ensured through coding and recoding, and consensus was reached through discussion among coders. The results of the tense patterns found in the rhetorical moves of the abstracts written by the three groups of students are displayed in tables by frequency counts and percentages in the three tables below.

### 3. Results

Tables 1, 2, and 3 present tense patterns in the rhetorical moves of research abstracts written by undergraduate medical, nursing, and allied health students of UHAS.

**Table 1.** Tense Patterns in the rhetorical moves of research abstracts written by undergraduate

Move	Simple Present	Simple Past	Present Perfect	Past Perfect
Introduction	26(62.0%)	1(2.0%)	6(75.0%)	0(0.0%)
Purpose	5(11.9%)	6(10.0%)	0(0.0%)	0(0.0%)
Method	2(4.7%)	30(51.0%)	0(0.0%)	1(11.0%)
Product	5(11.9%)	17(29.0%)	1(12.5%)	8(89.0%)
Conclusion	4(9.5%)	5(8.0%)	1(12.5%)	0(0.0%)
Total	42(100%)	59(100%)	8(100%)	9(100%)

Key: High ■ Moderate ■ Low ■

**Table 2.** Tense patterns in the rhetorical moves of research abstracts written by undergraduate nursing students of UHAS

Move	Simple Present	Simple Past	Present Perfect	Past Perfect
Introduction	16(33.0%)	2(7.0%)	0(0.0%)	0(0.0%)
Purpose	8(16.0%)	0(0.0%)	0(0.0%)	0(0.0%)
Method	7(14.0%)	13(45.0%)	1(33.3%)	0(0.0%)
Product	2(4.0%)	8(28.0%)	1(33.3%)	1(50.0%)
Conclusion	16(33.0%)	6(20.0%)	1(33.3%)	1(50.0%)
Total	49(100%)	29(100%)	3(100%)	2(100%)

Key: High ■ Moderate ■ Low ■

**Table 3.** Tense patterns in the rhetorical moves of research abstracts written by undergraduate

Move	Simple Present	Simple Past	Present Perfect	Past Perfect
Introduction	8(42.0%)	3(13.0%)	5(71.0%)	0(0.0%)
Purpose	5(26.0%)	2(8.0%)	0(0.0%)	0(0.0%)
Method	0(0.0%)	11(46.0%)	0(0.0%)	0(0.0%)
Product	0(0.0%)	7(29.0%)	0(0.0%)	0(0.0%)
Conclusion	6(32.0%)	1(4.0%)	2(29.0%)	0(0.0%)
Total	19(100%)	24(100%)	7(100%)	0(0.0%)

Key: High ■ Moderate ■ Low ■

The study found that the introduction move in abstracts was dominated by the present tense (62%), with simple present and present perfect tenses being the most frequently used tenses. The method, product, and purpose moves used the simple past tense (51%, 29%, and 6%), and the past perfect and simple past tenses were frequently used in the product move.

Excerpts 16

Malaria continues to be endemic especially in sub-Saharan Africa; Ghana inclusive. Though there are several malaria programs; it remains endemic. Treatment seems very much delayed and if nothing is done about it, it poses a real threat to persons who delay seeking treatment [Medicine].

Excerpts 86

Fever is one of the most common medical signs caused by numerous medical conditions ranging from non-serious to life-threatening. Records over the years show that, about seventy-five percent of viral, bacterial, fungal, and parasitic infections present with fever. This makes it necessary for practitioners to become abreast with recent facts on fever for sound clinical reasoning and a high index of suspicion to diagnose fever-related conditions [Medicine].

Excerpts 87

Urethral catheterization is an invasive clinical procedure whereby a

catheter is inserted into the bladder to help voiding in patients who have difficulty urinating. An estimation of 15% to 20% of patients use a catheter. Despite its benefits, there are several complications that can arise from the procedure. These complications usually result in poor prognosis and impact negatively on the treatment outcome. Urinary catheters are used in almost all the departments of a hospital and it is therefore essential for the catheterization procedure to be safe to minimize its associated complications [Medicine].

#### Excerpts 2

Adolescents constitute an important segment of every society but currently, review of many researches depicts that they do not have adequate information and knowledge on adolescent sexual and reproductive health both at school and at home, and therefore, follow their sexual pleasure and explore without considering the right measures, leading them to acquire several sexual and reproductive health problems [Nursing].

#### Excerpts 3

Tramadol hydrochloride is a synthetic (man-made) pain reliever (analgesic) used for the management of moderate to severe pain. There are increasing concerns worldwide regarding the addiction potential of Tramadol. The proliferation of tramadol has become popular among the youth in the Zabzugu District [Nursing].

#### Excerpts 4

Stress is a term that can be linked to so many life situations that people are confronted with due to rapidly changing values, life styles, career patterns and family role expectations. University students often experience stress from a variety of sources, including poor self-care habits, educational demands, daily hassles, and perceived control over stressful situations. Stress can affect students' academic performance and overall well-being. Although people from all walks of life experience stress on daily basis, students are more likely to experience stressful situations because of their academic requirements [Nursing].

#### Excerpts 45

Spices are essential ingredients used in almost every day in most of our meals. Many spices have been shown to have harmless effect with considerable antioxidants effect. These antioxidant effects may greatly contribute to the prevention of pathological effects caused by free radicals and their associated oxidative stress. They are used either in their natural or highly processed form [Allied Health].

## Excerpts 46

The demand to use plant-based produces as a functional ingredient has increased in recent years due to possible deleterious effects of synthetic functional ingredients to consumers. Pectin has good gelling capacity which can be used as thickener in food products. Okra has pectin which can be commercially extracted for the purposes of food fortification because okra extracts have great nutritional value [Allied Health].

## Excerpts 47

Even though the food chain industry is considered an important part of the economies of many developing countries by generating revenues and providing affordable and easily accessible foods, there have been major concerns of food safety because of the resultant increase in the number of foodborne illnesses. Foodborne associated illnesses negatively affect the health and economic wellbeing of many developing nations [Allied Health].

Extracts 4, 22, and 97 of medical abstracts, as well as extracts 55 and 56 of allied health abstracts, demonstrate the prevalence of the simple past tense in the purpose move of the abstracts. Some of the words underlined in these extracts are auxiliary verbs in the simple past tense.

## Extract 4

This study was aimed at assessing the most common diagnoses made at the Radiology Department of the Ho Teaching Hospital. [Medicine]

## Extract 22

The study sought to determine the role of hysteroscopy in the management of uterine pathologies amongst women at Supercare Specialist Medical & Ho Fertility Centre (SUPERCARE) [Medicine].

## Extract 97

This study aimed to evaluate the knowledge of health professionals who perform urethral catheterization and to assess immediate complications that patients experience during the catheterization process in various health facilities across the Ho Municipality [Medicine].

## Extract 55

The aim of this study was to analyze the various sources of drinking water in the Ho Municipality of the Volta Region of Ghana, and establish their quality [Allied Health].

## Extract 56

The main aim of this study was to determine maternal socio-demographic and biological factors of preterm delivery in the Kadjebi district [Allied Health].

The method move of research abstracts is is primarily written in the simple past tense. This grammatical structure can be found in excerpts 7, 9, and 99 of medical abstracts, 14, 15, and 16 of nursing abstracts, and 57, 58, and 59 of allied health abstracts. In these extracts, the verbs underlined are all in the simple past tense.

Extract 7

This study was a cross-sectional and descriptive study involving patients attending the Ho Teaching Hospital. Data was collected using face-to-face questionnaire administration from March 2020 to April 2020 and was analyzed using SPSS. [Medicine]

Extract 9

This study used a cross-sectional study design using quantitative research tools. A convenience sampling method was also used in selecting respondents in schools and at their homes at the time of the study. Data obtained from a pre-tested administered questionnaire was analysed using Microsoft Excel 2016, SPSS version 22 and STATA version 13.0 results were recorded as frequencies. Charts and tables were also used to view results comprehensively where needed. [Medicine]

Extract 99

This was a cross-sectional study involving a convenient sampling of patients who had a urethral catheter or had been catheterized urethrally in the Ho Teaching Hospital (HTH) during the period of study. A structured questionnaire was administered and responses were collected, entered and analyzed with SPSS version 22.0 for windows software [Medicine].

Extract 14

Employing a cross-sectional approach, a structured questionnaire was administered to two-hundred and forty (240) working mothers attending the health facilities in Tema. Descriptive statistics such as frequency, mean and standard deviation will be used to analyse variables. Chi-square and fisher's exact tests would be used to determine the association between EBF practices and other variables such socio-demographic characteristics [Nursing].

Extract 15

A descriptive cross-sectional survey was conducted among lactating mothers living in the Tema Metropolis. The study included only lactating mothers who are 18 years and above. The total number of people recruited in this study was 351. Stratified sampling method was used to select the study participants with the use of public and private health facilities as strata. A structured questionnaire was used to obtain data from participants. Analysis of



this study data was performed with the Statistical package for Social Sciences, version 25 [Nursing].

#### Extract 16

A quantitative study was employed using a cross-sectional design. Respondents were conveniently sampled for this study. A standardized questionnaire and a Modified Hassles Assessment Scale that involves a 5-likert scale were used as the assessment instrument. Descriptive statistics such as frequency tables and mean were used to analyse variables. Some variables were ranked to ascertain the ones that are mostly utilised by participants in the study. Data were finally presented in tables and bar graphs [Nursing].

#### Extract 57

Review was performed empirically. Articles and journals were retrieved from websites such as Google Scholar, PubMed and ScienceDirect. Current and noncurrent literature was selected based on their level of importance to the research work. These articles and journals were then analyzed, and deductions and conclusions were made in synchrony with recommendations and future solutions as well as other aspects of the topic [Allied Health].

#### Extract 58

Electronic databases (PubMed, Google Scholar and Science direct) were searched from January, 2000 to March, 2020 for literature on quality characteristics of reused vegetable oil for frying. The literature found was reviewed until a final number was attained [Allied Health].

#### Extract 59

Systematic searches for studies using electronic databases such as Google Scholar, PubMed library from 2000 to 2020 was done. These electronic databases were searched using both individual words and a combination of the words: weaning foods, weaning food formulations, brown rice, palm dates, soybean, and sensory evaluation of weaning foods. Experimental cross-sectional studies authored in English between 2000 and 2020 were considered eligible for the study [Allied Health].

Furthermore, Tables 1, 2, 3, and Figure 1 demonstrate that the product move is dominated by the simple past tense. This is shown in excerpts 11, 26, and 121 of medical abstracts, 35, 36, and 37 of nursing abstracts, and 76 and 77 of allied health abstracts. Some of the words underlined in these extracts are verbs in the simple past tense.

#### Extract 11

About 63.57% of the hypertensive patients attending Ho Teaching Hospital had low adherence rates. Medication adherence was associated with

some demographic features such as educational level ( $p=0.001$ ), and duration of condition ( $p=0.003$ ), though not statistically significant males, married respondents and those 60 years and above were found to be more adherent. Most of the respondents 76.07% showed high knowledge level, however knowledge had no significant association with respondents' level of adherence [Medicine].

#### Extract 26

Majority of the mothers were between the ages of 20 and 35 (81.0%) and the mean age of the mothers was 28.78 (SD 5.93) years. Regarding knowledge of the problem, 72.1% of respondents had heard of NNJ before and 62.8% gave a correct description of NNJ as yellowing of mucous membranes. Most mothers (79.2%) had inadequate knowledge on the causes of NNJ. There were statistically significant associations between the levels of education [Medicine].

#### Extract 121

The mean (standard deviation {SD}) age of participants was  $22 \pm 3.25$  years with majority (82.9%) being 18-24 years old. Of the 385 students studied, 281 (73%) of them ever heard of breast cancer, with the commonest source of information being the media and school teachers. With regards to knowledge of breast cancer, 365 (95%) of respondents knew at one risk factor, 236 (83.9%) know that family history to be a risk factor while, 176 (62.6%) know of individual lifestyle as a predictor of breast cancer. Even though more than half of the participants were aware of the various screening methods, 164 (42.6%) of them has ever performed Breast Self-Examination (BSE), 39 (10.1%) had ever gone for Clinical Breast Examination (CBE), 9(2.3%) had ever gone for Mammography while 173 (44.9%) of them had never been screened for breast cancer before. More than half (52.8%) of those who had ever gotten pregnant had ever induced abortion. About one quarter of the respondents had ever used hormonal contraceptives and 14.3% of them had a positive family history of breast cancer. Majority (28.5%) of those who had not screened for BSE said they had no reason for not performing it while 28.1% of them said they did not know how to do it. Intention to perform BSE was higher (85.3%) among students without family history of breast cancer compared with those with family history (76.5%). In addition, students who perceived themselves to be at risk of breast cancer were more likely (93.3%) to do BSE in the future compared with their colleagues who did not perceive themselves at risk (87.1%) [Medicine].

#### Extract 35

The study finally pointed that, the practices of exclusive breast-feeding suggested differences in terms of the desire to practice based on socio-economic predators. The study finally identified some challenges to exclusive breast

feeding including the stress involved in exclusive breast feeding and the possibility of breast becoming flabby, etc. [Nursing].

#### Extract 36

This study reported majority of the respondents as female than males with majority of them being nurse assistants (41.3%). The overall level of knowledge on essential newborn care was 59.2%. With about 50.3% and 46.3% of the healthcare providers having adequate knowledge on airway patency and breastfeeding respectively. The attitude of the health care providers was good among 77.6% of them. About 54.2% and 45.3% also had good attitude on good care and resuscitation respectively [Nursing].

#### Extract 37

Out of a total of 280 women, only 729, representing 46%, are aware of cervical cancer. None of the women in the study has been immunized against the HPV virus nor attend regular screening for early detection of cervical cancer. Barriers to cervical cancer screening services included lack of awareness about the services, inappropriate perception such as the fear of getting cancer, cost of the service, and negative attitude of healthcare workers [Nursing].

#### Extract 76

There was a significant difference in the intake of energy, protein, total fat, carbohydrate, phosphorous and zinc between cases and controls. ( $P=0.000$  for energy,  $p=0.01$  for total fat,  $p=0.09$  for carbohydrates,  $p=0.00$  for phosphorous and  $p=0.04$  for zinc respectively). Grains and cereals (OR=18.308, CI-95%: 2.125- 157.711) as well as poultry, meat and fish (OR=1.833, CI-95%: 0.4720.126) were associated with chronic kidney disease with a significant difference of ( $p$ -value; 0.001 and 0.004 respectively). Majority of the controls (63.3%) took at least 1 slice of fruits such as watermelon, pawpaw and pineapple at least 2-4 times in a week while most of the cases (40%) took such fruits at most once in a week [Allied Health].

#### Extract 77

Results show that 77.6% of patients were satisfied with the overall food service in the Volta Regional Hospital. Logistic regression revealed that ages between 20 and 45 years, low monthly income, taste, variety of food, appearance of food, overall room satisfaction, absence of disturbance in/outside room and room cleanliness were statistically significant independent variables related to patient satisfaction with hospital food and food service ( $p < 0.05$ ). According to the results of the study, physical environment (96.5%) was ranked highest followed by food quality (79.14%), meal service quality (62.06%), and food safety (40.95%) respectively. Confidence in hospital food is built only

when proper foodservice is provided (100%) [Allied Health].

The usage of present and past perfect tenses in the introduction, method, product, and conclusion moves has been demonstrated in Tables 1, 2, 3, and Figure 1 (see p. 16). This claim is supported by various excerpts including 26 and 121 from medical abstracts, 37 from nursing abstracts, and 45 and 47 from allied health abstracts.

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Even though the food chain industry is considered an important part of the economies of many developing countries by generating revenues and providing affordable and easily accessible foods, there have been major concerns of food safety because of the resultant increase in the number of foodborne illnesses. Foodborne associated illnesses negatively affect the health and economic wellbeing of many developing nations [Allied Health].

The preceding discourse looks at tense patterns in research abstracts. The ensuing section is on the use of hedges, boosters, and nominalization in the rhetorical moves of the abstracts.

**Table 4.** Hedges, boosters, and nominalization in the rhetoric moves of research abstracts of undergraduate medical students of UHAS

Move	Hedge	Booster	Nominalization
Introduction	3(43.0%)	13(36.0%)	10(23.0%)
Purpose	0(0.0%)	2(6.0%)	8(18.0%)
Method	0(0.0%)	5(14.0%)	3(7.0%)
Product	2(29.0%)	12(33.0%)	12(27.0%)
Conclusion	2(29.0%)	4(10.0%)	11(25.0%)
Total	7(100%)	36(100%)	44(100%)

Key: High ■ Moderate ■ Low ■

**Table 5.** Hedges, boosters, and nominalization in the rhetoric moves of research abstracts of undergraduate nursing students of UHAS

Move	Hedge	Booster	Nominalization
Introduction	3(33.3%)	4(25.0%)	8(29.0%)
Purpose	0(0.0%)	0(0.0%)	7(25.0%)
Method	2(22.2%)	6(38.0%)	2(7.0%)
Product	0(0.0%)	5(31.0%)	6(21.0%)
Conclusion	4(44.4%)	1(6.0%)	5(18.0%)
Total	9(100%)	16(100%)	28(100%)

Key: High ■ Moderate ■ Low ■

**Table 6.** Hedges, boosters, and nominalization in the rhetoric moves of

research abstracts of undergraduate allied health students of UHAS

Move	Hedge	Booster	Nominalization
Introduction	2(50.0%)	9(47.0%)	3(15.0%)
Purpose	0(0.0%)	0(0.0%)	1(5.0%)
Method	0(0.0%)	0(0.0%)	5(25.0%)
Product	0(0.0%)	7(37.0%)	6(30.0%)
Conclusion	2(50.0%)	3(16.0%)	5(25.0%)
Total	4(100%)	19(100%)	20(100%)

Key: High ■ Moderate ■ Low ■

A recap of the lexico-grammatical features in the research abstracts in this paper is also presented in a graphical form for analysis (see Figure 1, p. 15).

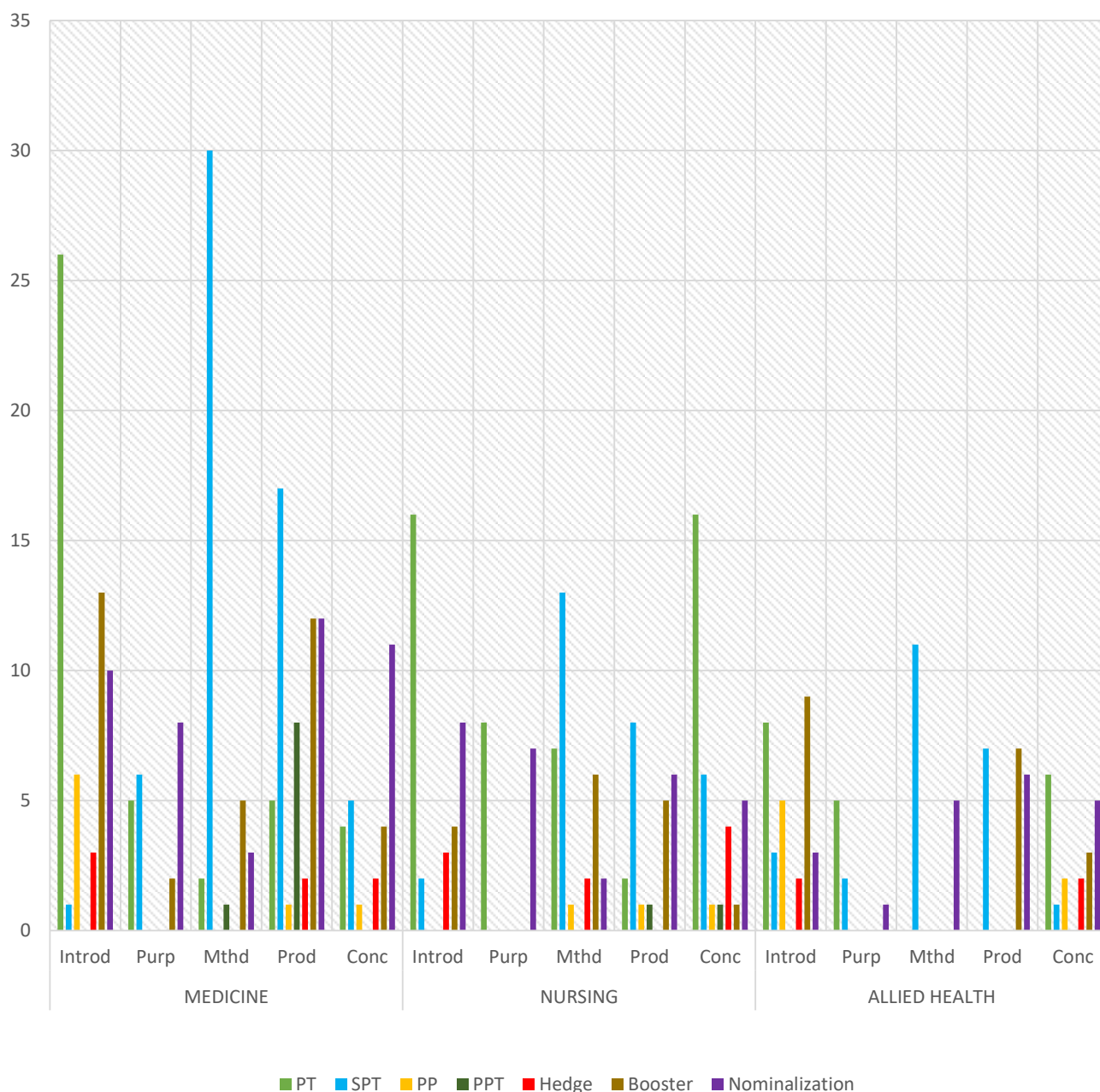


Figure 1. Lexico-grammatical features in the rhetoric moves of research

abstracts of undergraduate medical, nursing and allied health students of UHAS

Key: PT – Present Tense; SPT – Simple Past Tense; PP – Present Perfect; PPT – Past Perfect Tense; Introd – Introduction; Purp – Purpose; Mthd – Method; Prod – Product; Conc – Conclusion

Tables 4, 5, 6, and Figure 1 show that hedges are commonly used in the introduction and conclusion moves of the abstracts. Evidence shows a high usage of hedges in the introduction, conclusion, and introduction moves of allied health (50%), nursing (44.4%), and medical (43%) abstracts, respectively. The study also revealed a moderate usage of hedges in the introduction (33%), product (29%), and conclusion (29%) moves of nursing and medical abstracts. However, the study found a low utilization of hedges in the method move of the nursing research abstract. Furthermore, the study found no use of hedges in the purpose, product, or method moves of allied health, nursing, and medical research abstracts. Excerpts 16, 87, and 122 of medical abstracts, 4, 14, and 40 of nursing abstracts, and 45, 46, and 78 of allied health abstracts below show the use of hedges such as "seems", "can", "will", "would", "should", "may", "often", "believe", "more likely", and "suggestive") in the introduction, product, and conclusion moves of the three sets of abstracts dealt with in this article.

#### Extract 16

Malaria continues to be endemic especially in sub-Saharan Africa; Ghana inclusive. Though there are several malaria programs; it remains endemic. Treatment seems very much delayed and if nothing is done about it, it poses a real threat to persons who delay seeking treatment [Medicine].

#### Extract 87

Urethral catheterization is an invasive clinical procedure whereby a catheter is inserted into the bladder to help voiding in patients who have difficulty urinating. An estimation of 15% to 20% of patients use a catheter. Despite its benefits, there are several complications that can arise from the procedure. These complications usually result in poor prognosis and impacts negatively on the treatment outcome. Urinary catheters are used in almost all the departments of a hospital and it is therefore essential for the catheterization procedure to be safe to minimize its associated complications [Medicine].

#### Extract 122

Out of the 123 respondents, 34 (27.6%) scored more than 10 on EPDS which is suggestive of postpartum depression. Out of the total number of respondents, 3(50%) of the 6 mothers who gave birth to babies with congenital malformation scored more than 10 on the EPDS and were more likely to suffer from PPD. Other obstetrics risk factors which yielded recognisable but insignificant association with PPD were planned/unplanned pregnancy,

complications with mother/baby during delivery and whether pregnancy was wanted or not. [Medicine]

Extract 4

Stress is a term that can be linked to so many life situations that people are confronted with due to rapidly changing values, life styles, career patterns and family role expectations. University students often experience stress from a variety of sources, including poor self-care habits, educational demands, daily hassles, and perceived control over stressful situations. Stress can affect students' academic performance and overall well-being. Although people from all walks of life experience stress on daily basis, students are more likely to experience stressful situations because of their academic requirements [Nursing].

Extract 14

Employing a cross-sectional approach, a structured questionnaire was administered to two-hundred and forty (240) working mothers attending the health facilities in Tema. Descriptive statistics such as frequency, mean and standard deviation will be used to analyse variables. Chi-square and fisher's exact tests would be used to determine the association between EBF practices and other variables such socio-demographic characteristics [Nursing].

Extract 40

When a relative is sick or they are sick, they immediately attributed it to someone and then go to a fetish priest or faith healer to know the cause of the illness, take a locally prepared herbs/medicine, sit in the sun, pray and if the illness still persist, they will visit a faith healer or a herbalist/traditional healer to cure them with the health facility being the last option because they believe the faith healers and herbalist/traditional healers can cure them. The study recommends that educational campaigns on biomedical perspectives of causes of disease should be intensified, there should be a collaboration between the herbalists, faith/traditional healers and the various health facilities so that they refer cases that they cannot cure to the health facilities as early as possible [Nursing].

Extract 45

Spices are essential ingredients used in almost every day in most of our meals. Many spices have been shown to have harmless effect with considerable antioxidants effect. These antioxidant effects may greatly contribute to the prevention of pathological effects caused by free radicals and their associated oxidative stress. They are used either in their natural or highly processed form [Allied Health].

Extract 46



The demand to use plant-based produces as a functional ingredient has increased in recent years due to possible deleterious effects of synthetic functional ingredients to consumers. Pectin has good gelling capacity which can be used as thickener in food products. Okra has pectin which can be commercially extracted for the purposes of food fortification because okra extracts have great nutritional value [Allied Health].

#### Extract 78

Maize is an important crop which is very integral in the nutrition in sub-Saharan Africa since it is a major staple in most African countries. Maize is often contaminated with fungi and its metabolites, which is detrimental to consumers. Most maize are contaminated during storage and the farmers and sellers are unable to detect this contamination. Hence the need to create awareness of fungi and mycotoxin contamination of maize [Allied Health].

The results in Tables 4, 5, 6, and Figure 1 show that introduction, method, and product moves in the research abstracts studied are replete with boosters. Evidence shows high usage rates of these features in the allied health (47%), nursing (38%), and medical (36%) abstracts written by UHAS undergraduate students. The study found moderate utilization rates of boosters in the product move of allied health (37%), medical (33%), and nursing (31%) abstracts. The results showed that medical, allied health, and nursing research abstracts had low utilization rates of 14%, 16%, and 25% in the method, conclusion, and introduction moves, respectively. The study revealed that no boosters were used in the purpose and method moves of all research abstracts. Extracts 1, 2, 11 from medical abstracts, 4, 16, 36 from nursing abstracts, and excerpts 46, 47 and 76 from allied health abstracts below highlight the use of boosters in the introduction, product, and conclusion moves of the abstracts. Adjectives and adverbs are the most commonly used boosters in this discourse.

#### Extract 1

Over the past three decades (pp), the global caesarean section (CS) rate has significantly increased. Although there is no specific globally accepted rate, a recommended CS rate of 10% to 15% has been made by the World Health Organization (WHO) since 1985 [Medicine].

#### Extract 2

Hypertension, also known as high blood pressure is one of the growing public health concern worldwide. It is a major cause of cardiovascular disease morbidity and mortality in developing countries, Ghana inclusive. Unlike Malaria or certain acute illnesses, it is a lifelong non-communicable disease and hence has to be addressed with utmost priority. Aside lifestyle modification, keen adherence to medications is an intricate part of the management of hypertension as optimal blood pressure control slows down progression hence

its associated complications [Medicine].

#### Extract 11

About 63.57% of the hypertensive patients attending Ho Teaching Hospital had low adherence rates. Medication adherence was associated with some demographic features such as educational level ( $p=0.001$ ), and duration of condition ( $p=0.003$ ), though not statistically significant males, married respondents and those 60 years and above were found to be more adherent. Most of the respondents 76.07% showed high knowledge level, however knowledge had no significant association with respondents' level of adherence [Medicine].

#### Extract 4

Stress is a term that can be linked to so many life situations that people are confronted with due to rapidly changing values, life styles, career patterns and family role expectations. University students often experience stress from a variety of sources, including poor self-care habits, educational demands, daily hassles, and perceived control over stressful situations. Stress can affect students' academic performance and overall well-being. Although people from all walks of life experience stress on daily basis, students are more likely to experience stressful situations because of their academic requirements [Nursing].

#### Extract 16

A quantitative study was employed using a cross-sectional design. Respondents were conveniently sampled for this study. A standardized questionnaire and a Modified Hassles Assessment Scale that involves a 5-likert scale were used as the assessment instrument. Descriptive statistics such as frequency tables and mean were used to analyse variables. Some variables were ranked to ascertain the ones that are mostly utilised by participants in the study. Data were finally presented in tables and bar graphs [Nursing].

#### Extract 36

This study reported majority of the respondents as female than males with majority of them being nurse assistants (41.3%). The overall level of knowledge on essential newborn care was 59.2%. With about 50.3% and 46.3% of the healthcare providers having adequate knowledge on airway patency and breastfeeding respectively. The attitude of the health care providers was good among 77.6% of them. About 54.2% and 45.3% also had good attitude on good care and resuscitation respectively [Nursing].

#### Extract 46

The demand to use plant-based produces as a functional ingredient has

increased in recent years due to possible deleterious effects of synthetic functional ingredients to consumers. Pectin has good gelling capacity which can be used as thickener in food products. Okra has pectin which can be commercially extracted for the purposes of food fortification because okra extracts have great nutritional value [Allied Health].

#### Extract 47

Even though the food chain industry is considered an important part of the economies of many developing countries by generating revenues and providing affordable and easily accessible foods, there have been major concerns of food safety because of the resultant increase in the number of foodborne illnesses. Foodborne associated illnesses negatively affect the health and economic wellbeing of many developing nations [Allied Health].

#### Extract 76

There was a significant difference in the intake of energy, protein, total fat, carbohydrate, phosphorous and zinc between cases and controls. ( $P=0.000$  for energy,  $p=0.01$  for total fat,  $p=0.09$  for carbohydrates,  $p=0.00$  for phosphorous and  $p=0.04$  for zinc respectively). Grains and cereals (OR=18.308, CI-95%: 2.125- 157.711) as well as poultry, meat and fish (OR=1.833, CI-95%: 0.4720.126) were associated with chronic kidney disease with a significant difference of ( $p$ -value; 0.001 and 0.004 respectively). Majority of the controls (63.3%) took at least 1 slice of fruits such as watermelon, pawpaw and pineapple at least 2-4 times in a week while most of the cases (40%) took such fruits at most once in a week [Allied Health].

The study revealed furthermore, that the introduction, product, and conclusion moves of the research abstracts studied are replete with nominalization. Tables 4, 5, 6, and Figure 1 show that in the allied health, nursing, and medical research abstracts, nominalizations are used at rates of 30%, 29%, and 27% in the product, introduction and product moves, respectively. The study revealed moderate usage rates (25%) in the method, product, and conclusion moves of allied health, nursing, and medical research abstracts each. The findings also revealed low usage rates (21% and 23%) in the product and introduction moves of nursing and medical research abstracts, respectively. These findings suggest that nominalization appears prominently in all moves of the research abstracts studied in this article, with the exception of the purpose move, which showed a low use of nominalization. In other words, nominalization is less commonly used in the method and purpose moves. Extracts 2, 11, and 87 of the medical abstracts, excerpts 4, 11, and 37 of the nursing abstracts, and excerpts 57, 77, and 78 of the allied health abstracts below, all support the use of nominalization devices.

#### Extract 2

Hypertension, also known as high blood pressure is one of the growing public health concern worldwide. It is a major cause of cardiovascular disease morbidity and mortality in developing countries, Ghana inclusive. Unlike Malaria or certain acute illnesses, it is a lifelong non-communicable disease and hence has to be addressed with utmost priority. Aside lifestyle modification, keen adherence to medications is an intricate part of the management of hypertension as optimal blood pressure control slows down progression hence its associated complications [Medicine].

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#### Extract 87

Urethral catheterization is an invasive clinical procedure whereby a catheter is inserted into the bladder to help voiding in patients who have difficulty urinating. An estimation of 15% to 20% of patients use a catheter. Despite its benefits, there are several complications that can arise from the procedure. These complications usually result in poor prognosis and impacts negatively on the treatment outcome. Urinary catheters are used in almost all the departments of a hospital and it is therefore essential for the catheterization procedure to be safe to minimize its associated complications [Medicine].

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Stress is a term that can be linked to so many life situations that people are confronted with due to rapidly changing values, life styles, career patterns and family role expectations. University students often experience stress from a variety of sources, including poor self-care habits, educational demands, daily hassles, and perceived control over stressful situations. Stress can affect students' academic performance and overall well-being. Although people from all walks of life experience stress on daily basis, students are more likely to experience stressful situations because of their academic requirements [Nursing].

#### Extract 11

The aim of this study is to determine the awareness of nurses in the Korle-Bu Teaching Hospital on infection prevention [Nursing].

## Extract 37

Out of a total of 280 women, only 729, representing 46%, are aware of cervical cancer. None of the women in the study has been immunized against the HPV virus nor attend regular screening for early detection of cervical cancer. Barriers to cervical cancer screening services included lack of awareness about the services, inappropriate perception such as the fear of getting cancer, cost of the service, and negative attitude of healthcare workers [Nursing].

## Extract 57

Review was performed empirically. Articles and journals were retrieved from websites such as Google Scholar, PubMed and ScienceDirect. Current and noncurrent literature was selected based on their level of importance to the research work. These articles and journals were then analyzed, and deductions and conclusions were made in synchrony with recommendations and future solutions as well as other aspects of the topic [Allied Health].

## Extract 77

Results show that 77.6% of patients were satisfied with the overall food service in the Volta Regional Hospital. Logistic regression revealed that ages between 20 and 45 years, low monthly income, taste, variety of food, appearance of food, overall room satisfaction, absence of disturbance in/outside room and room cleanliness were statistically significant independent variables related to patient satisfaction with hospital food and food service ( $p < 0.05$ ). According to the results of the study, physical environment (96.5%) was ranked highest followed by food quality (79.14%), meal service quality (62.06%), and food safety (40.95%) respectively. Confidence in hospital food is built only when proper foodservice is provided (100%) [Allied Health].

## Extract 78

Maize is an important crop which is very integral in the nutrition in sub-Saharan Africa since it is a major staple in most African countries. Maize is often contaminated with fungi and its metabolites, which is detrimental to consumers. Most maize are contaminated during storage and the farmers and sellers are unable to detect this contamination. Hence the need to create awareness of fungi and mycotoxin contamination of maize [Allied Health].

#### 4. Discussion

The study reveals that the simple present, past, and perfect tenses are the most commonly used tenses in research abstracts written by undergraduate Medical, Nursing, and Allied Health students at UHAS. This aligns with previous research (e.g., Abarghooeinezhad and Simin 2015; Biber 1988; Chalak

and Norouzi 2013; Doró 2014; Hanidar 2016; Khany and Malmir 2019; Nurhayati 2017; Tankó 2017; Tseng 2011; Wang and Tu 2014) indicating the dominance of these tense structures across rhetorical moves in these abstracts. Therefore, these tenses should be given attention when abstract writing is taught especially to students in the disciplines that were the focus of the present article.

The study reveals that the introduction move in abstracts frequently uses simple present tense and present perfect tenses, with the present tense being dominant but moderately used in purpose, product, and conclusion moves. The method move has low usage of present tense and past tenses, supporting Nurhayati's (2017) claim. Also, the study reveals that research abstracts frequently use the simple past tense in method and product moves, with the method move being dominated by the past tense. The usage rates were 51%, 46%, and 45% in Medicine, Nursing, and Allied Health abstracts, with moderate usage rates at 29%, 28%, and 29%, respectively. These findings are consistent with Swales and Feaks' (2009) observation that the method move is frequently dominated by the past tense. Moreover, an earlier study by Pho (2008) also found that the past tense was used more frequently in the method move. In addition, the study found that the past tense is commonly used in method and product moves, contributing to a more academic tone and depersonalizing information. This is supported by previous research (Khany and Malmir 2019; Nurhayati 2017; Pho 2008; Tankó 2017, Tseng 2011), which found the dominant use of simple past tense in summarizing research findings. The findings indicate that present perfect tense is not commonly used in the purpose and method moves of Medicine, Allied Health, and Nursing research abstracts. However, it is frequently used in the introduction of Medicine and Allied Health abstracts, and in the method, product, and conclusion moves of nursing abstracts. Again, the past perfect tense is rarely used in these abstracts. The product move is primarily written in the simple past tense, with few perfect tense instances, similar to the method move. This aligns with scholars like Tseng (2011) who cited the use of past tense more frequently in applied linguistics.

The study reveals that research abstracts often use grammar structures other than tense patterns, such as hedges, boosters, and nominalization, in the introduction, product, and conclusion moves. These features are less common in purpose and method moves, and are commonly used to highlight research gaps and summarize conclusions as observed by other researchers (e.g., Gillaerts and Van de Velde 2010; Hyland 2005). Overall, it seems that hedges are most commonly used in the introduction and product sections of research abstracts. The study reveals the extensive use of boosters in research abstracts, consistent with previous research (Gillaerts and Van de Velde 2010; Hyland 2005; Serholt 2012). These boosters provide an overview of the research area, review previous literature, summarize findings, and convey confidence in statements,

demonstrating writer engagement with the topic. The article shows high-to-moderate use of nominalization in the introduction, product, and conclusion moves of three research abstracts, a technique used to increase information density in academic writing, supporting Halliday and Martin (1993) and Halliday's (2004a,b,c; 2008) claims.

## 5. Conclusion

The article reveals that undergraduate Medicine, Nursing, and Allied Health students at UHAS write research abstracts that follow Hyland's (2000) five rhetorical move structure. They use various tense configurations and employ hedges, boosters, and nominalization in their abstracts. The study recommends that teachers teach discipline-specific research abstract writing techniques to students, especially in the Nursing, Allied Health, and Medicine disciplines. This information is crucial for scholars and practitioners of English for Academic Purposes (EAP) courses.

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