Nominalization in Arabic translations of patient information leaflets

Hala Sharkas
United Arab Emirates University
hsharkas@uaeu.ac.ae

Abstract: Patient information leaflets (PILs) inserted in medicine packages constitute a genre written by experts for an audience of laymen, but studies of PILs in Arabic report low readability. According to the lay friendliness framework developed by Jensen (2013) for translated PILs, nominalization is one of the linguistic factors that contribute to PILs' low readability. Although nominalization has been extensively studied in scientific texts including medical papers, no studies examine its use and effect on lay friendliness in PILs translated into Arabic. This study analyzes a parallel corpus of English PILs and their Arabic translations to examine the frequency and forms of nominalization introduced into the Arabic translations. Considering Givon's (1993) definition of nominalization, all instances of finite verb phrases in the Source Texts (ST) that are fully or partially nominalized in the Target Texts (TT) were examined. Examples are discussed in terms of the level and function of nominalization in the target language.

Keywords: Patient information leaflets; nominalization; formality; Arabic translation

1. Introduction

Patient information leaflets (PILs) inserted in medicine packages constitute a genre written by experts for a lay audience. Health authorities around the world often issue guidance on producing such information to ensure safe use of medication. According to the guidelines issued by the Arab Gulf Cooperation Council (GCC), the aim of PILs is to maximize "the number of people who can use the information, including older children and adolescents, those with poor literacy skills and those with some degree of sight loss" (Product Evaluation and Standards Setting Department, 2013, p.72). This aim is to be achieved by ensuring the text is lay-friendly and accessible to the end users. It must be noted here that almost all PILs in Arabic are translations: they have English (and sometimes French) on one side and Arabic on the other side of the leaflet.

However, while the GCC's guidelines for English cover various textual aspects including syntax and style issues such as the complexity level of words, sentence and paragraph lengths, passive vs active voice, medical terms, and abbreviations and acronyms (Product Evaluation and Standards Setting Department, 2013, pp.72-76), the guidelines for Arabic merely emphasize the need to include a proofread Arabic translation that provides professional rendering of medical terms and uses language that patients can easily understand (p.71).

Studies of PILs in Arabic, however, report low readability (Munsour et al, 2017; Alaqeel & Al Obaidi, 2017). In their study of consumers' attitudes towards PILs, Al-Ramahi et al (2013, p. 61) concluded that Arab consumers were not fully

satisfied and wanted more detailed and clearer information given in a schematic and concise style. Hashim et al (2013) investigated readers' preferences on use of certain textual elements that usually contribute to low readability of health education leaflets in Arabic such as font size, typeface, text format and sentence length. Their survey showed preferences for certain fonts and formats as well as the need to use short sentences and clear practical examples from local Arabic cultures. Few studies related to Arabic PILs examine the role of translation in low readability especially in relation to the writing style.

A report on the package leaflets of medicinal products funded by the EU Health Program found that multilingual PILs faced the same problems that reduce readability in unilingual PILs; one problem unique to translated PILs, however, is their susceptibility "to going back to more formal language" (Van Dijk et al., 2014, p. 97). Askehave and Zethsen (2002, pp. 20-26) identified higher levels of formality in translated texts and a preference for "semantic translation"[1] as two of the factors contributing to the low readability of PILs. One syntactic and stylistic feature associated with formality is the use of nominalization. It is one of the elements identified in the framework developed by Jensen (2013, pp. 106-127) to determine the lay friendliness of translated PILs. Although nominalization has been extensively studied in scientific texts including medical papers, no studies examine its use and effect on lay friendliness in PILs translated into Arabic. This paper aims to examine nominalizations in PILs translated from English into Arabic and their possible effects on the level of formality of Arabic PILs. To achieve this aim, a parallel corpus of English PILs and their Arabic translations were analyzed to investigate the frequency and form of instances of nominalization and discuss their functions in the genre. Before outlining the methods used to achieve this aim, however, the following section will compare the function of nominalization in English and Arabic as an indicator of formality.

2. Functions of nominalization

Givon (1993) defines nominalization from two perspectives: lexical and syntactic. Lexical nominalization is "a process whereby a verb or adjective is converted into a noun" (Givon, 1993, p. 287), such as converting the adjective "applicable" into "applicability" and the verb "interfere" into "interference". Syntactic nominalization is a "process via which a finite verbal clause — either in its entirety or only the subject-less verb phrase — is converted into a noun phrase" (Givon, 2009, p. 66) such as converting the clause "he told the truth" into the phrase "his telling the truth." Halliday and Mattheisen (2014, p. 94) give a wider definition of nominalization as a "structural feature…. whereby any element or group of elements is made to function as a nominal group in the clause." They consider nominalizations as "ideational metaphors where processes and qualities are construed as if they were entities" (Halliday and Mattheisen, 2014, p. 710).

According to Halliday and Mattheisen (2014), the nominalization metaphor first appeared in scientific and technical registers to create various types of technical terms and develop arguments by use of nominals functioning as themes. Nominalization, however, entails a loss of some information that only experts can be assumed to know, which made its adoption in scientific register "a mark of

---

[1] According to Newmark, "semantic translation attempts to render, as closely as the semantic and syntactic structures of the second language allow, the exact contextual meaning of the original" (1981, p. 39).

prestige and power" (p. 730). This power is enhanced by the fact that nominalization "engenders considerable syntactic complexity and ambiguity" (Halliday and Matthiessen, 1999, p. 314). Billig (2008, p. 7) also mentions nominalization as a way to enhance the level of formality in writing and emphasizes its use in scientific register to create "unequal power relations" between those belonging to the scientific community and those who do not. Another function of nominalization is to reify processes normally denoted by verbs by turning them into nouns that denote entities. This then allows writers and speakers "to use the abstract, reified concepts as agents of processes" (Billig, 2008, p. 7). Because of how nominalization functions, Fowler (1991, p. 80 in Billig, 2008, p. 8) considered it to be "inherently potentially mystificatory; and that it permitted habits of concealment". Converting processes into entities allows science writers to express thoughts in an objective language allowing people to be separate from the phenomena or processes they observe (Wenyan, 2012, p. 89).

Wenyan (2012, p. 88) concludes that nominalization as examined by Halliday (1994/2000) and Ure (1977) contributes to increasing the level of text formality by increasing its lexical density. A full clause in a text can be nominalized to become the theme in the next sentence thus condensing all the information given by the clause into one nominalization (a noun or a noun phrase for example). Functioning as references to information in previous clauses, nominalization is seen by Wenyan (2012) as "a powerful tool in textual cohesion" (p. 88) and "thematic connection" (p. 89) in academic writing.

A few studies examine the functions of nominalization in Arabic in relation to register, text type or genre. Hatim (1997, p.114) identified nominalization as a rhetorical device that is "very effective in masking real intentions" because by turning verbs into nouns, "both 'agency' and 'modality'" are eliminated. As such, it becomes "an important grammatical resource for the expression of Ideology" (Hatim, 1997, p. 220). Holes (2004, pp. 320-323) included the tendency for nominalization as one of the stylistic features of journalistic genres in Arabic especially those that deal with news analysis and economic, political and social issues. He suggested three reasons for such a tendency: (1) to depersonalize the language and allow the writer to make claims without attribution thus implying objectivity; (2) to express complex abstractions in political texts, and (3) to avoid verbal structures that mark Arabic spoken dialects thus employing a distinctively more formal style. El-Farahty (2015) listed nominalization as a common syntactic feature of Arabic legal genres although it is more common in "constitutions, legislations and in international documents where there is a need for inclusiveness in writing" (p. 40). Fakhri (2012) analyzed the functions of nominalization used in three Arabic legal genres: court judgments, legislative provisions, and fatwas (Islamic law rulings). His findings indicate that nominalization is used in Arabic legal discourse in different frequencies to serve three main functions: conciseness, comprehensive-ness, and affective appeal. In court judgements, nominalization helps achieve "robust advocacy and concise anaphoric reference" (p. 148). In legislative provisions, nominalizations "enable the writer to zero in on activities and behaviors, often without the need to specify agents or doers, and thus achieve a high degree of comprehensiveness without compromising the conciseness of the writing" (p. 150). In fatwas, nominalization has two functions: "serving to create legal concepts and rhetorically strengthening the mufti's opinion" (p. 151). To explain the variation in use of nominalization and finiteness in the same genre, Fakhri (2012, p. 152) proposed that "nominalization is preferred when the mention of agents is redundant". Inspired by Givon's (2009) finiteness continuum (along

which Givon proposed that languages can be categorized from the least to the most finite), Fakhri (2012, p. 152) suggested that "the dichotomy nominalization versus finiteness can serve as a taxonomic distinction among genres." Fakhri's (2012) results indicate that nominalization in Arabic functions in similar ways to nominalization in English: it creates lexical density by encapsulating complex concepts in concise terms; it also creates a degree of ambiguity by turning verbal structures that indicate agents and processes into agentless abstract entities. To summarize, nominalization in Arabic and English have similar functions: (1) marking texts as formal; (2) depersonalizing language and concealing agency, and (3) increasing abstractness and lexical complexity.

3. Methods

This paper aims to investigate the frequency and the forms of nominalization used in translating PILs and discuss their effect on the level of formality and consequently the lay friendliness of Target Texts (TTs). To achieve this aim, a corpus of PILs translated from English into Arabic was analyzed to identify instances of nominalization. The corpus consists of 16 PILs (a total of 14,898 English words) for medication sold in the United Arab Emirates, a member of the GCC. The English and Arabic texts were provided, each on one side of the leaflet. The leaflets were produced by 16 different pharmaceutical companies in 12 countries (namely Cyprus, Egypt, France, Germany, Japan, Saudi Arabia, Spain, Syria, Switzerland, United Arab Emirates, United Kingdom, and the United States) in the years between 2004 and 2015. Restricting the corpus to texts produced by different companies in as many countries as possible limited the number of texts (and consequently the size of the corpus) but it was necessary to avoid texts by the same translators, which would have resulted in an overly homogenous corpus. It must be noted that the mandatory passage "This is medicament" and its translation, which are imposed by the Council of Arab Health Ministers and the Union of Arab Pharmacists, were excluded from the word count and statistical analysis.

The leaflets were scanned and converted into Word documents to facilitate textual analysis. The STs and TTs were analyzed to identify all instances of nominalization. The following nominalization categories were identified:

(1) Finite Verb Phrase > Noun Phrase (FVP>NP):
Example: If you **take** too many capsules <في حالة **تناول** جرعة زائدة [in case of **taking** extra dosage]

This category is considered full nominalization whereas all the remaining others are considered partial nominalizations. It includes all instances of finite verb phrases in the STs that were translated into nouns or noun phrases in the TTs. All instances of the verb "be" as a main verb in the present tense, however, were excluded because this verb was either omitted in Arabic or replaced by a pronoun (*huwa* or *hiya*) or a verb but was never translated into a noun in the corpus.

(2) Verb > *Tamma* + Noun (V>*Tamma*):
Example:

[**prescription**] تم وصف هذا الدواء <**has been prescribed** This medicine completed of this medicine]

This category includes all finite verb phrases in the STs that were translated into the Arabic verb *tamm*a [literally: completed] plus a noun derived from the ST verb. Hatim (2004, p. 243) noted that to create a scientific register in Modern Standard Arabic, this structure was adopted as "a nominalizing device commonly in use these days for a passive-without-agent construction." Although grammatically the verb *tamm*a is an active verb and the following noun is *faaʻil* [actor], there is no agent performing an action. In translation, the noun in this structure is derived from the passive verb in the ST. For example, "has been prescribed" is translated into *tamma waṣfu* [prescription completed] instead of *wuṣifa* [the Arabic passive form of the verb *waṣafa*, which in medical contexts means "to prescribe a medicine"].

(3) Modal Verb + Infinitive > Verb + Noun (Mod>V+N):
Example:
[**must** يجب **البحث** عن أعراض مبكرة > One **should look** for the early symptoms] **searching** for early symptoms].

This category includes all instances of modal verbs such as *should*, *must* and *may* followed by infinitives in the STs that were translated into verbs indicating obligation, possibility or permission such as *yajib*, *yanbaghi* and *yumkin* plus nouns (*masdar* [verbal noun]). Gai (1981: 297-98) identified four levels of nominalization in Arabic (from the lowest to the highest degree): (1) *maṣdar muʼawwal*, which is a phrase made of the particle *ann* and a verb in the present tense form; in this level every verbal category is preserved including time and mode; (2) relative pronouns (such as *maa*, *man*, *al-lathi*) followed by a clause in the indicative mode; (3) the participle (the noun pattern *faaʻil*, which indicates agent and action but not time), and (4) the infinitive or *masdar*. Accordingly, instances in the corpus where a ST modal verb was translated into *masdar muʼawwal* (V + *ann* + V) were also analyzed to identify the level of nominalization preferred in the corpus.

(4) Imperative Verb > Verb + Noun (ImpV>V+N):
Example: **wash** hands thoroughly> يجب **غسل** اليدين جيداً [**must washing** hands well]

Similar to modal verbs, imperative verbs in the STs were frequently translated into verbs indicating obligation such as *yajib* plus a noun (*masdar*) derived from the ST verb (instead of using the imperative form of the verb in Arabic). Such instances were also analyzed as a form of partial nominalization.

The total frequencies for each category of nominalization and the overall proportion of the 16 texts were computed. To determine if these frequencies are statistically significant, z-tests for the proportions of each category were used. For that purpose, a null hypothesis for each category was tested by comparing the frequency observed in the data to a hypothesized threshold of nominalization. Details of statistical testing are provided in the Results below. Moreover, the frequency of nouns in the STs that were translated into verbs was also analyzed to

examine if verbalization was used in the translation process and how it compares in frequency with nominalization.

Nominalizations of qualities or adjectives were not analyzed, because in Arabic grammar, adjectives are "formally nouns in particular functions" (Badawi, Carter and Gully, 2004, p.25), and they are usually identified as adjectives based on their position in the sentence. Accordingly, identifying nominalizations of adjectives is a complex process, and due to limitations of time and resources, it was not included in this study.

4. Results

The analysis shows that out of a total of 999 finite verb phrases in the English corpus, including verbs in the active and passive voice as well as imperative verbs and modal verbs, 301 verbs (30%) underwent a form of nominalization in Arabic. Table 1 shows the frequencies for the various forms of nominalization identified:

Table 1: Frequencies of nominalization instances

Categories of nominalization	ST Finite Verbs	FVP> NP	V>Tamma	Mod>V+N	ImpV> V+N	Mod> V+Ann+V
Frequency in corpus	999	104	19	112	35	31

For the total of all forms of nominalization in the TTs, the overall proportion of the 16 PILs was computed then one z-test for one population proportion was used to examine if the proportion of all nominalization categories is significantly higher than 28%. This threshold was hypothesized based on the sample proportion of the data because there is no standard threshold of nominalization in Arabic. The statistical analysis in Table 2 shows that the proportion of all nominalizations equals 30.13%. The null hypothesis that this proportion is less than or equal to 28% versus the alternative hypothesis that this proportion is greater than 28% was tested. The test statistics of 1.50 with P-value 0.0669 shows a failure to reject the null hypothesis. It follows that the proportion of all nominalizations is statistically insignificantly higher than 28%. In other words, this result shows that at most 28% of the ST finite verbs in the corpus underwent a degree of nominalization.

Table 2: Statistical analysis for finite verb phrase in ST to nominalizations in the TT

Observed	Hypothesized	
0.3013	0.28	p (as decimal)
301/999	280/999	p (as fraction)
301.	279.72	X
999	999	n
	0.0142	std. error
	1.50	z
	.0669	p-value (one-tailed, upper)

FVP>NP

The overall proportion of the 16 texts was computed, then one z-test for one population proportion was used to examine if the proportion of finite verb phrases (FVPs) in the STs that were rendered into noun phrases (NPs) in the TTs was significantly higher than 9%. The statistical analysis in Table 3 shows that the proportion of FVPS to NPs (FVPs>NPs) equals 10.41%. Thus, the null hypothesis that this proportion is less than or equal to 9% versus the alternative hypothesis that this proportion is greater than 9% was tested. The test statistics of 1.56 with P-value 0.0597 shows a failure to reject the null hypothesis. It is concluded that the proportion of FVPs>NPs is statistically insignificantly higher than 9%. This result shows that at most 9% of the ST finite verbs in the corpus were rendered into noun phrases.

Table 3: Statistical analysis for finite verb phrase in ST to noun phrases

Observed	Hypothesized	
0.1041	0.09	p (as decimal)
104/999	90/999	p (as fraction)
104.	89.91	X
999	999	n
		std.
	0.0091	error
	1.56	z
	.0597	p-value (one-tailed, upper)

V>Tamma

For this type of nominalization, the overall proportion of the 16 texts was computed then one z-test for one population proportion was used to examine if the proportion of FVPs in the STs that were translated into *tamma* + noun in the TTs (V>*Tamma*) is significantly higher than 1.33%. The statistical analysis in Table 4 shows that the proportion equals 1.9%. The null hypothesis that this proportion is less than or equal to 1.33% versus the alternative hypothesis that this proportion is greater than 1.33% was tested. The test statistics of 1.58 with P-value .0573 shows a failure to reject the null hypothesis and it is concluded that the proportion of V>*Tamma* is statistically insignificantly higher than 1.33%. This result shows that only 1.33% of the ST finite verbs at most were rendered into the verb *tamma* + noun.

Table 4: Statistical analysis for finite verb phrase in ST to *tamma* + noun

Observed	Hypothesized	
0.019	0.0133	p (as decimal)
19/999	13/999	p (as fraction)
19.	13.287	X
999	999	N
		std.
	0.0036	error
	1.58	Z
	.0573	p-value (one-tailed, upper)

Mod>V+N

The overall proportion of the 16 texts was computed, then one z-test for one population proportion was used to examine if the proportion of modal verbs in STs that were translated into verbs plus nouns in the TTs (Mod>V+N) was significantly higher than 9.7%. The statistical analysis in Table 5 shows that the proportion equals 11.21%. The null hypothesis that this proportion is less than or equal to 9.7% versus the alternative hypothesis that this proportion is greater than 9.7% was tested. The test statistics of 1.61 with P-value 0.0533 shows a failure to reject the null hypothesis. It is concluded that the proportion of Mod>V+N is statistically insignificantly higher than 9.7%. This result shows that at most 9.7% of the ST modal verbs in the corpus were rendered into Arabic verbs indicating modality and noun phrases derived from the ST infinitives.

Table 5: Statistical analysis for Modal verb + infinitive in ST> (verb + noun) in TT

Observed	Hypothesized	
0.1121	0.097	p (as decimal)
112/999	97/999	p (as fraction)
112.	96.903	X
999	999	N
		std.
	0.0094	error
	1.61	Z
	.0533	p-value (one-tailed, upper)

For the modal verbs in the STs that were translated into verbs + *ann* + verbs in TTs, the overall proportion of the 16 texts were also computed, and one z-test for one population proportion was used to examine if the proportion (Mod> V+*ann*+V) was significantly higher than 2.35%. The statistical analysis in Table 6 shows that the proportion equals 3.1%. The null hypothesis that this proportion is less than or equal 2.35% versus the alternative hypothesis that this proportion is greater than 2.35% was tested. The test statistics of 1.57 with P-value 0.0581 shows a failure to reject the null hypothesis. It is concluded that the proportion of (Mod> V+*ann*+V) is statistically insignificantly higher than 2.35%. This result shows that at most 2.35% of the ST modal verbs were rendered into *masdar mu'awwal*, but this frequency is far less than Mod>V+N.

Table 6: Statistical analysis for Modal verb + infinitive in ST> (verb + *ann* + verb) in TT

Observed	Hypothesized	
0.031	0.0235	p (as decimal)
31/999	23/999	p (as fraction)
31.	23.477	X
999	999	N
		std.
	0.0048	error
	1.57	z
	.0581	p-value (one-tailed, upper)

ImpV>V+N

For imperative verbs in the STs translated into verbs + nouns in the TTs (ImpV>V+N), the overall proportion of the 16 texts were computed then one z-test for one population proportion was used to examine if the proportion of ImpV>V+N was significantly higher than 2.27%. The statistical analysis in Table 7 shows that the proportion of ImpV>V+N equals 3.5%. The null hypothesis that this proportion is less than or equal 2.7% versus the alternative hypothesis that this proportion is greater than 2.7% was tested. The test statistics of 1.57 with P-value 0.0586 shows a failure to reject the null hypothesis. It is concluded that the proportion of ImpV>V+N is statistically insignificantly higher than 2.7%. This result shows that at most 2.7% of the ST imperative verbs in the corpus were rendered into Arabic verbs indicating obligation and nouns derived from the imperative verbs.

Table 7: Statistical analysis for Imperative verb in ST> (verb + noun) in TT

Observed	Hypothesized	
0.035	0.027	p (as decimal)
35/999	27/999	p (as fraction)
35.	26.973	X
999	999	n
		std.
	0.0051	error
	1.57	z
	.0586	p-value (one-tailed, upper)

N>V & Added Verbs

The frequency of nouns in the STs that were translated into verbs in the TTs (N>V) is 22. The proportions of FVP>NP and N>V are 0.1041 and 0.022, respectively. The null hypothesis that there is no significant difference between the proportions of FVP>NP and N>V was tested. The test statistics of 7.55 with P-value <0.0001 shows a rejection of the null hypothesis, so there is evidence of a significant difference in this proportion. The positive sign of the test indicates that the proportion of FVP>NP is statistically significantly higher than N>V.

Table 8: Statistical analysis for FVP>N in ST to N>V

p1	p2	p_c	
0.1041	0.022	0.0631	p (as decimal)
104/999	22/999	126/1998	p (as fraction)
104.	22.	126.	X
999	999	1998	n
	0.0821		difference
	0.		hypothesized difference
	0.0109		std. error
	7.55		z
	4.46E-14		p-value (two-tailed)

However, it was observed that 64 verbs were added to the TTs in the translation process. The proportion of the total of 86 of verbalized nouns and the added verbs (N>V + Added Vs) is 0.064. For the null hypothesis that there is no significant difference between the proportions of FVP>NPs and N>V +Added Vs, the test statistics of 1.37 with P-value 0.1698 shows a failure to reject the null hypothesis, so there is no statistically significant difference between the proportion of FVP>NP and N>V + Added Vs. This result could mean that verbalization together with the added verbs almost balance out full nominalization in the corpus (but not all degrees of nominalization). Examination of the verbs that were added, however, indicate that such a conclusion may not be valid for all instances of such additions. Some of these verbs actually may have enhanced the formality level as explained below in the discussion of the examples of adding the verbs *yurja* [please] and *qum + bi* [roughly: do + of].

Table 9: Statistical analysis for FVP>N in ST to N>V+ Added Vs

p1	p2	p_c	
0.1041	0.0861	0.0951	p (as decimal)
104/999	86/999	190/1998	p (as fraction)
104.	86.	190.	X
999	999	1998	n
	0.018		difference
	0.		hypothesized difference
	0.0131		std. error
	1.37		z
	.1698		p-value (two-tailed)

5. Discussion

In this section, examples from the corpus are analyzed in relation to the functions of nominalization to examine the possible effects they may have on the level of formality and consequently on readability and lay friendliness of PILs.

FVP>NP
Analysis of examples of this form of nominalization shows consistent avoidance of the directive mood, and loss of agency thus making the target text impersonal and more formal. The loss of agency, however, does not necessarily confuse readers about who is expected to perform the actions. For instance, the imperative verb "apply" in example 1 is nominalized into وضع [putting] instead of the verb ضع [put], thus changing the directive mood of a command into the declarative mood.

(1) ST: Apply a small quantity of gel as deeply as possible into each nostril 3-4 times a day.
TT: ضع كمية صغيرة من الجل بعمق بقدر الامكان في كل منخر ٣-٤ مرات يوميا

BT[2]: **Putting** a small amount of the gel as deeply as possible in each nostril 3-4 times daily.

It is implicitly understood that the user is the one who will apply the gel because this sentence comes within a section titled "Dosage/Direction of Use". Throughout this section, all the imperative verbs were translated into nouns or modal verbs where there is no direct addressee. This usage is common in formal texts.

(2) ST: For treating infected wounds **you should use** an antiseptic, e.g. Bepanthen Plus
TT: في حالات الجروح المتقيحة فإن **استخدام** بيبانثين بلاس هو الأفضل
BT: In cases of infected wounds **using** Bepanthen Plus is the best.

In example 2, the modal verb "should" is nominalized thus losing the explicit agent "you", but again it is implicitly understood that the reader/user is the one advised to use Bepanthen. Sometimes the agent "you" was preserved explicitly in the immediate context such as in example 3. The nominalization, however, made the text slightly more complex than using the one-verb direct command استشر [consult].

(3) ST: Ask your doctor or pharmacist for advice before taking any medicine.
TT: عليك استشارة طبيبك أو الصيدلي قبل استعمال أي دواء.
BT: On-you consultation of your doctor or the pharmacist before using any medicine.

It was observed in the corpus that the imperative verbs were sometimes translated into imperatives and sometimes into nominalizations all within the same sentence or paragraph such as in example 4.

(4) ST: Take only as much as you need to relieve your symptoms and leave at least 4 hours between each dose.
TT:
تناول الدواء فقط وفقا لحاجتك الى تخفيف الأعراض مع وجوب ترك فترة زمنية فاصلة بين الجرعات مدتها ٤ ساعات على الأقل.
BT: Take the medicine only according to your need to reducing the symptoms with the obligation (**of) leaving** an interval time period between doses of at least 4-hour duration.

The first verb in the ST was translated into the imperative verb *tanawal* [take] but the second verb was replaced with two nouns "obligation" and "leaving" instead of the simple imperative verb *utruk* [leave]. It is implicitly understood that the user/reader (the implicit "you" in the first imperative verb) is the one who is obliged to do the leaving, however this nominalization is not only unnecessary, but also results in a stilted text.

When FVP>NP nominalization is used with verbs in the passive voice, there is no loss of agency. For example, "once the pack has been opened" was translated into بعد فتح العبوة [after pack opening]. However, when the ST verb is in the active voice, the FVP>NP nominalization often leads to a loss of agency although the

---

agent may be explicitly or implicitly indicated elsewhere in the immediate context such as in example 5.

(5) ST: What if you take too many capsules?

TT: ماذا عليك فعله في حالة تناول جرعة زائدة؟

BT: What **on-you doing** in case (of) **taking** extra dosage

Suggested translation: ماذا **تفعل** إذا **تناولت** جرعة زائدة؟ [what **you-do** if **you-take** an extra dosage?]

In example 5, the translator indicates obligation and agency by using the prepositional phrase *'alayka* [on-you] followed by nouns. Nonetheless, this change of structure to create the nominalization weakens the direct address to the reader and makes it more lexically complex and formal compared to the suggested translation.

FVP>NP nominalization was also used occasionally to express added politeness and a high level of formal address such as in example 6 in which both "please" and "consult" were rendered into nouns.

(6) ST: please consult your doctor or pharmacist.

TT: الرجاء استشارة طبيبك او الصيدلاني

BT: the-plead consultation (from) your doctor or pharmacist.

V>Tamma

Rendering the passive verbs into *tamma* and a noun derived from the ST verb instead of into a passive construction was commonly used such as in example 7.

(7) ST: acute allergic reactions…. have been reported

TT: تم الإبلاغ عن تفاعلات حساسية حادة

BT: reporting completed of acute allergic reactions

While the passive itself enhances the level of formality, rendering it into this nominalized agentless construction enhances the level of formality even more because this construction is only used in Modern Standard Arabic (which is inherently more formal than the vernacular variations of Arabic).

The level of formality was also enhanced when imperative verbs were translated into the construction of *tamma* + N such as in examples 8 and 9. In both examples, the direct command was rendered into the impersonal passive structure created by the present form of the verb *tamma* and a noun derived from the ST imperative verb.

(8) ST: Take the capsule with a glass of water.

TT: يتم تناول الكبسولة مع قدح من الماء

BT: Taking the capsule is-completed with a glass of water

(9) ST: Repeat up to four times a day if needed

TT: يتم التكرار حتى ٤ مرات حسب الاحتياج

BT: Repetition is-completed up to 4 times according to need.

Mod>V+N

Directive language was also avoided when modal verbs in the STs were rendered into verbs plus nouns (Mod>V+N) instead of the less nominalized form of verb+ *ann*+ verb. For example, "should take" was translated in some parts of the corpus

into *yajibu tanaawulu* يجب تناول [must + taking] and in other parts into *yajibu ann tatanaawala* يجب أن تتناول [must+ particle *ann*+ you-take]. The use of the second verb in the latter construction indicates an agent, whereas the former structure is less direct and more formal. Notably, Mod>V+N has occurred in the corpus far more often than Mod>V+*ann*+V, but it must be added here that in many instances of Mod>V+N, the ST construction was passive, and in such cases, rendering it into V+N is more concise since there will be no need for an agent such as in example 10.

(10)   ST: Mydocalm must be immediately and definitively interrupted
        TT: يجب إيقاف ميدوكالم فوراً ونهائياً
        BT: must stopping Mydocalm immediately and finally.

ImpV>V+N
As with FVP>NP, when imperatives are replaced by a verb that indicated obligation or possibility plus a noun derived from the imperative verb, very often the implicit agent "you" is omitted. In examples 11 and 12, the direct command is replaced with the nominalization and the agent is not indicated grammatically in the immediate context, but it is implicitly retrieved from the general context.

(11)   ST: Repeat the administrations as required; but do not exceed 3 applications a day
        TT: يمكن تكرار الاستعمال حسب الحاجة، ويكفي عادة الاستعمال ٣ مرات يومياً
        BT: Repeating (of) usage is possible according to need, and usually using 3 times a day is enough.
        Suggested translation: **كرر** الاستعمال حسب الحاجة [**repeat** use according to need].

(12)   ST: Tell your doctor right away if you develop any of these symptoms
        TT: ينبغي اخبار الطبيب فورا في حالة ظهور أي من الأعراض التالية
        BT: should informing the doctor immediately in case (of) appearance (of) any of the following symptoms.
        Suggested translation: أخبر طبيبك فوراً إذا ظهرت لديك أي من الأعراض التالية [tell your doctor immediately if any of the following symptoms **appeared** in you].

Accordingly, understanding may not be affected by loss of agency through partial nominalization, but the level of formality is. By replacing the imperative verb with a nominalized form of the verb and not addressing the reader directly, the style becomes impersonal, and consequently more formal compared to a version where nominalization is not used such as in the suggested translation.

In some cases, the addressee was clearly marked through the use of the personal pronoun such as in example 13.

(13)   ST: do not pass it on to others
        TT: يجب عليك عدم إعطائه لأي شخص
        BT: should **on-you** not giving it to any person

Nonetheless, choosing this longer and more complex structure over the two-word structure of لا تعطه [do-not give-it], illustrates again the inclination to weaken the directive language when addressing the reader, which enhances formality.

There have been 13 instances of imperative verbs in the STs rendered into the verb *yurja* [please] plus a nominalized form of the verb such as in example 14. As mentioned above, adding verbs in the TTs does not necessarily balance out the effect of introduced nominalization. In example 14, it actually increased formality by introducing a polite request instead of using an imperative verb.

(14) ST: do not touch the dropper tip
      TT: يرجى عدم ملامسة طرف القطارة
      BT: **please** not touching the dropper tip

Interestingly, ST imperatives were occasionally rendered into the imperative verb *qum* + preposition *bi* [roughly of] and a noun derived from the ST imperative verb (frequency of 10 instants in the corpus). For example, "interrupt treatment" was translated into قم بإيقاف العلاج [do stopping (of) the treatment] and "ask your doctor" into قم باستشارة الطبيب [do consultation (of) the doctor]. Even with the added imperative verb in the TT, this choice of nominalizing the ST verb as opposed to rendering it into an imperative verb (like أوقف [stop] or استشر [consult]) not only increases lexical complexity to a certain extent, but more importantly it weakens the impact of the ST directive verb by splitting the action into two parts in Arabic: a verb and a noun. Additionally, since this construction of *qum* + *bi* + noun is used only in standard Arabic (not colloquial), it is considered formal.

6. Conclusion

This study shows that forms of full and partial nominalization have occurred in the corpus in different frequencies. While these frequencies are unable, from a statistical point of view, to determine if nominalization occurred because of translation or due to other factors, they provide a starting point from which to undertake larger and more comprehensive studies in order to compare the findings. The discussion of the examples showed that the functions of nominalization, namely making a text more formal, complex and impersonal, are identifiable in the corpus. The observed instances of nominalization in PILs may not directly confuse readers on how to use the medicine, but they unnecessarily make the texts impersonal and lexically complex. By avoiding or weakening directive command, the writer is no longer addressing the reader directly, and the level of formality is enhanced. Future research could focus on verbs of command and test if translated PILs with lower frequencies of nominalized imperative verbs could achieve higher scores of readability. Additionally, surveys to elicit readers' feedback on such modified PILs could be designed to investigate the target audience's views and preferences.

The use of nominalization to enhance formality may occur to adapt the text to the conventions of the genre in the target culture. Comparative corpus studies of other expert-to-layman and institution-to-user genres in Arabic including original (not translated) texts are needed to identify such cultural conventions. Better understanding of the stylistic and rhetorical conventions of textual genres in a language is essential to improve translators' textual competence. Therefore, larger studies that examine nominalization as well as other indicators of formality levels will help build a comprehensive, corpus-based picture, not only of the genre of PILs, but also of other genres in Arabic.

References

Alaqeel, S. & Al Obaidi, N. (2017). Patient evaluation of medication package leaflets in Al Kharj City, Saudi Arabia. *Therapeutic Innovation & Regulatory Science*, 51(1), 45-50. https://doi.org/10.1177/2168479016659320.

Al-Ramahi, R., Zaid, A.N., Kettana, N., Sweileh, W., & Al-Jabi, D. (2012). Attitudes of consumers and healthcare professionals towards the patient package inserts - a study in Palestine. *Pharmacy Practice*, 10(1), 57-63. https://doi.org/10.4321/s1886-36552012000100010.

Askehave, I. & Zethsen, K. (2002). Translating for laymen. *Perspectives*, 10(1), 15-29, https://doi.org/10.1080/0907676X.2002.9961431.

Badawi, E., Carter, M. & Gully, A. (2004). *Modern Written Arabic: A Comprehensive Grammar*. Routledge.

Billig, M. (2008). The language of critical discourse analysis: the case of nominalization. *Discourse and Society*, 19(6), 783-800. https://doi.org/10.1177/0957926508095894.

El-Farahty, H. (2015). *Arabic-English-Arabic legal translation*. Routledge.

Fakhri, A. (2012). Nominalization in Arabic discourse: A genre analysis perspective. In R. Bassiouney, & E. G. Katz (Eds.), *Arabic language and linguistics* (pp.145-155). Georgetown University Press.

Gai, A. (1981). Two points of Arabic grammar. *Arabica*, 28(2/3), 293-298. https://www.jstor.org/stable/4056304.

Givon, T. (1993). *English grammar: A function-based introduction. Volume I.* John Benjamins.

Givon, T. (2009). *Genesis of syntactic complexity: Diachrony, ontogeny, neuro-cognition, evolution*. John Benjamins.

Halliday, M. and Mattheisen, C. (2014). *Introduction to functional grammar*. Routledge.

Hashim, J., Al Abdouli, H., Al Salama, R., AlQahtani, M., Almajed S., Alzaabi, S. & Alk, M. (2013). Health education materials for Arab patients: content and design preferences. *Medical Principal Practice*, 22, 411–414. https://doi.org/10.1159/000346276.

Hatim, B. (1997). *Communication across cultures: Translation theory and contrastive text linguistics*. University of Exeter Press.

Hatim, B. (2004). The translation of style: linguistic markedness and textual evaluativeness. *Journal of Applied Linguistics*, 1(3), pp. 229–246. https://doi.org/10.1558/japl.v1.i3.229.

Holes, C. (2004). *Modern Arabic structures, functions and varieties*. Georgetown University Press.

Jensen, M. N. (2013) *Translators of patient information leaflets: Translation experts or expert translators? A mixed methods study of lay-friendliness*. Aarhus University, Aarhus School of Business and Social Sciences. PhD Thesis. https://pure.au.dk/portal/files/55635800/Matilde_Nisbeth_Jensen_PhD_AU_final.pdf

Munsour, E., Awaisu, A., Hassali, M., Darwish, S., & Abdoun, E. (2017). Readability and comprehensibility of patient information leaflets for antidiabetic medications in Qatar, *Journal of Pharmacy Technology*, 33(4), 128-136. https://doi.org/10.1177/8755122517706978.

Product Evaluation and Standards Setting Department (2013). *The GCC Guidance for Presenting the SPC, PIL and Labeling Information.* Executive Board of the Health Ministers' Council for GCC States. https://www.moh.gov.sa/eServices/Licences/Documents/106.pdf

Raynor, D., Blenkinsopp, A., Knapp, P., Grime, J., Nicolson, D. J., Pollock, K., Dorer, G., Gilbody, S., Dickinson, D., Maule, A. J., & Spoor, P. (2007). A systematic review of quantitative and qualitative research on the role and effectiveness of written information available to patients about individual medicines. *Health Technology Assessment,* 11(5), 1-160. https://doi.org/10.3310/ hta11050.

Van Dijk, L., Monteiro, S., Vervloet, M., de Bie, J. & Raynor, D.K.T. (2014). *Study on the package leaflets and the summaries of product characteristics of medicinal products for human use*. Executive Agency for Health and Consumers, European Commission. https://ec.europa.eu/health/sites/health/files/files/committee/75meeting/pil_s.pdf

Wenyan, G. (2012). Nominalization in medical papers: A comparative study. *Studies in Literature and Language,* 4(1), 86-93. https://doi.org/10.3968/j.sll.1923156320120401.1750.

Newmark, P. (1981). *Approaches to Translation*. Pergamon Press.