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Writing Competency and Readability of Job Application Documents among Jordanian Pharmacists: A Cross-Sectional Study

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Abstract

In an increasingly competitive employment environment, pharmacists are expected to submit high-quality curriculum vitae (CVs), cover letters, and personal statements. Nevertheless, pharmacists for whom English is not a first language may encounter difficulties in producing effective job application documents. Jordan represents a context in which English is commonly used as a second language, yet there is limited evidence regarding the job application writing competencies of Jordanian pharmacists. Accordingly, this study evaluated the ability of Jordanian pharmacists to compose cover letters and personal statements in English and explored the relationship between selected demographic and professional characteristics and the readability levels of these documents.This cross-sectional study assessed Jordanian pharmacists' proficiency in writing English-language cover letters and personal statements and examined the readability of these documents. All submissions were independently and blindly evaluated by two researchers. Readability was measured using an online readability assessment tool that generated a readability index score. Scores ranging from 7 to 12 were classified as "optimal," whereas scores below 7 and above 12 were categorized as "simple" and "complex," respectively. Associations between readability scores and demographic or professional variables were analyzed using the chi-square test, with statistical significance set at $p < 0.05$.In total, 592 pharmacists were included in the analysis. Female participants accounted for nearly two-thirds of the sample (62.3%), and the majority (60.0%) had completed their pharmacy degree more than six months prior to applying for employment. Personal statements were submitted by most applicants (78.2%); however, fewer than half included a cover letter (34.8%), and just over one-quarter (27.2%) submitted both documents. Among the 206 cover letters written in English, fewer than half were position-specific (43.2%), although most followed a clear organizational structure (80.6%). Statistical analysis demonstrated a significant association between the inclusion of a professional photograph and the submission of a cover letter ($p < 0.001$, $\varphi = 0.14$). In addition, applicants who provided a structured cover letter were significantly more likely to include a personal statement ($p < 0.001$, $\varphi = 0.24$). Evaluation of text readability showed that a limited number of documents met the recommended readability standards, with only 65 personal statements and 102 cover letters falling within the acceptable range.The findings suggest that job application components such as personal statements and cover letters are frequently overlooked by Jordanian pharmacists, reflecting gaps in professional writing competence. Furthermore, the limited proportion of documents achieving appropriate readability levels highlights the need for targeted interventions to strengthen English-language writing skills and improve the overall quality of job application materials among pharmacists in Jordan.

Keywords: Readability index, Curriculum vitae, Cover letter, Personal statement, Pharmacists' job application

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Introduction

Over the last ten years, there has been a marked global rise in the number of pharmacy graduates [1]. In Jordan alone, approximately 2,000 pharmacists graduate annually [2]. This growth parallels the rapid expansion of pharmacy education in the country, where the number of

pharmacy schools increased from only two public institutions in the early 1990s to a total of 18 schools (five public and 13 private) by 2023 [3]. Workforce analyses conducted in 2016 reported that Jordan had a pharmacist density of 22.5 per 10,000 population, which is considerably higher than the global average of 6.02 pharmacists per 10,000 population [1]. As a result, Jordan ranks among the countries with the highest pharmacist densities worldwide, following only Malta and Japan [1, 4]. In such a saturated labor market, pharmacists must present professional profiles that reflect high levels of competence and qualification to remain competitive for employment opportunities [5]. Consequently, pharmacy graduates are expected to possess a diverse set of professional skills, including the ability to develop a strong curriculum vitae (CV), which represents a fundamental step in the job application process [6].

The term "curriculum vitae" is derived from Latin and translates to "course of life," emphasizing its purpose as a detailed summary of an individual's educational background, competencies, interests, and professional accomplishments [7–9]. An effective CV should be visually appealing, customized for specific employment opportunities, and designed to concisely showcase an applicant's skills and achievements [8]. Within the pharmacy profession, there is broad agreement regarding the essential components of a CV, which typically include personal details, academic qualifications, professional experience, presentations, publications, awards, licensure, certifications, and pharmacy registration information [10, 11]. Among these components, particular attention is required when drafting the personal statement [12, 13] and the cover letter, which commonly accompanies job applications [8, 14].

In contexts where English is not the primary language, including Jordan, preparing CVs and cover letters presents additional challenges and often necessitates targeted training [15]. This issue is especially relevant given that the Jordanian Ministry of Higher Education has designated English as the official language of instruction for medical sciences, including pharmacy, and as the primary language used for professional communication within the pharmaceutical sector [16]. Accordingly, job application documents are generally required to be written in English. Cover letters and personal statements typically address multiple themes and variables related to the applicant's qualifications and career goals [17, 18]. Regardless of format, producing a well-organized, purpose-driven, and clearly structured cover letter and personal statement is considered essential for successful pharmacy job applications [8, 14, 17, 19].

Within the Middle East, pharmacists commonly occupy positions as medical representatives, also known as pharmaceutical or drug representatives. These professionals are primarily responsible for fostering communication between pharmaceutical companies, healthcare providers, and pharmacies, as well as promoting pharmaceutical products [20, 21]. National data indicate that at least 35% of pharmacy graduates in Jordan are employed in medical representative roles [22]. These positions are associated with competitive salary packages, contributing to their popularity and heightened competition across the region [23, 24]. As a result, pharmacists must be well informed about the criteria used to assess job applications. One widely applied approach for evaluating cover letters and personal statements involves assessing the quality of written English, often through readability index measures [8, 9, 11, 13, 14].

Readability indices provide an estimate of the level of difficulty required to comprehend a written text by quantifying linguistic characteristics such as sentence length, word complexity, and syllable count [25, 26]. Over more than nine decades, numerous readability formulas have been developed and extensively examined, particularly within the fields of linguistics, education, and print media [25]. In recent years, readability assessment has gained increasing attention within healthcare-related research, especially in the context of patient education materials [26–29]. However, relatively few studies have adopted an objective, scientific approach to examining CV-related content. Moreover, to the best of our knowledge, no previous research has evaluated pharmacists' cover letters and personal statements using readability index measures. Therefore, the present study aims to assess Jordanian pharmacists' proficiency in writing English-language cover letters and personal statements and to explore the relationship between selected demographic and professional characteristics and the readability indices of these job application documents.

Study design, population, and setting

A cross-sectional study design was employed to include Jordanian pharmacists holding either a Bachelor of Pharmacy or a Doctor of Pharmacy degree who applied

for positions as medical representatives at a large multinational pharmaceutical company operating in Jordan. All eligible applicants were contacted by telephone by the company to obtain verbal consent for participation. Applicants were clearly informed that no personally identifiable data would be disclosed to the research team, that all submissions would remain fully anonymized, and that participation or non-participation would not influence the hiring process. Only applicants who provided informed consent were included in the study.

To ensure confidentiality, the pharmaceutical company anonymized all submitted CVs and job application documents prior to data transfer. Each application was assigned a unique numerical identification code, and all identifying information, including names, contact details, and addresses, was removed. The anonymized documents were then forwarded to the principal investigator (MO), who conducted an additional verification to confirm complete anonymization. Two senior managers from the company independently supervised the anonymization procedure and retained the secure master list linking identification codes to the original applications.

CVs and job application materials were eligible for inclusion if they were written in English and submitted electronically via email. Submissions were excluded if they were written in Arabic, belonged to non-pharmacist applicants or individuals holding a pharmacy diploma, were incomplete, or were submitted as scanned hard copies that could not be electronically analyzed without transcription.

Ethical considerations

Ethical approval for the study was granted by the Institutional Review Board (IRB) of the Hashemite University in Zarqa, Jordan (Reference No. 14/9/2021/2022).

Sample size determination

Based on an estimated pharmacist population of 29,463 in Jordan [30], a confidence level of 95%, and a margin of error of 5%, the required sample size was calculated in accordance with the recommendations of Taherdoost [31]. Using an online sample size calculator [32], a minimum of 381 participants was determined to be sufficient to achieve a representative sample for the study.

Data collection

Data collection was conducted over a three-month period, from 1 February to 30 April 2022. All job applications that satisfied the predefined eligibility criteria were initially screened by a trained research assistant. Information extracted from each CV and job application was systematically recorded in a Microsoft Excel database. The collected variables included applicant gender; graduation status (recent graduate within six months of application submission or not); presence or absence of a cover letter; whether the cover letter was customized for a medical representative position at a pharmaceutical company; inclusion of a personal statement; consistency of font style and punctuation; documentation of work experience; use of a CV template; total number of pages; file format; type of personal photograph; marital status; city of residence; listed skills; academic performance level; and inclusion of referees.

Each application was independently reviewed by two researchers, who extracted the data and evaluated the presence of the specified variables. In addition, the cover letters were independently classified by both reviewers according to whether they were tailored and structurally organized. Data extraction was performed blindly, with neither researcher having access to the other's assessments. The principal investigator (PI) subsequently compared the extracted datasets to ensure agreement. Any discrepancies were discussed between the two reviewers, with unresolved differences adjudicated by the PI. A cover letter was defined as tailored if it explicitly addressed the advertised position and incorporated keywords related to the responsibilities of a medical representative or the specific job announcement. A cover letter was considered structured if it demonstrated a clear organizational format consisting of an opening paragraph, a main body, and a concluding paragraph.

Data analysis

Descriptive analyses were performed to summarize the study variables. Categorical data were presented as frequencies and percentages using Microsoft Excel. All English-language cover letters and personal statements were uploaded to an online readability assessment platform (StoryToolz), which evaluates surface-level textual characteristics such as sentence length and other readability-related parameters [33]. The tool generated readability scores based on multiple established

formulas, including the Flesch–Kincaid Grade Level, Automated Readability Index, Coleman–Liau Index, Gunning Fog Index, and the Simple Measure of Gobbledygook (SMOG) [25, 26]. An overall readability grade level was calculated by averaging the scores generated by these indices [33].

Readability scores were subsequently classified into three categories: "simple" for scores below 7, "target" for scores ranging from 7 to 12, and "complicated" for scores exceeding 12 [29, 34, 35]. Statistical analyses were conducted using SPSS software (version 24.0) to explore associations between predictor variables and readability categories. Relationships between categorical variables were examined using the chi-square test, with degrees of freedom calculated using the formula $df = (r - 1) \times (c - 1)$, where "r" denotes the number of categories within a given variable and "c" represents the number of response options. Effect size for nominal variable associations was assessed using the Phi (Φ) coefficient or Cramer's V statistic when more than two categories were involved. Coefficient values of 0, 0.1, 0.3, and 0.5 were interpreted as indicating no, small, moderate, and strong associations, respectively. Phi (Φ) or Cramer's V values were reported only for statistically significant associations ($p < 0.05$).

Results and Discussion

Descriptive results

During the recruitment period, the pharmaceutical company received 1,322 employment applications. Of these, 950 candidates agreed to allow their materials to be evaluated for research purposes. Each submission was subsequently assessed against eligibility criteria, leading to the exclusion of 358 applications. The primary reasons for exclusion were applications submitted by individuals outside the pharmacy profession (n = 207; 57.8%), documents prepared in Arabic rather than English (n = 84; 23.5%), possession of a pharmacy diploma instead of a bachelor's degree (n = 39; 10.9%), submission of scanned or hard-copy files unsuitable for electronic analysis (n = 23; 6.4%), and incomplete application materials (n = 5; 1.4%). Following this process, 592 applications met the study requirements and were included in the final dataset.

Analysis of the eligible applications showed that women represented the larger proportion of candidates (62.3%), and that most applicants had graduated more than six months prior to submitting their applications (60.0%). Slightly over half of the submissions utilized standardized CV formats (54.1%). High levels of formatting consistency were observed, with 92.4% of applications maintaining uniform font usage. The majority of candidates disclosed their place of residence (86.0%) and described previous employment history (64.0%). Conversely, marital status was omitted in most cases (60.8%), punctuation was inconsistently applied in more than half of the documents (54.6%), and referee information was rarely included (89.0%).

Narrative components varied considerably across submissions. A personal statement was present in 78.2% of applications, and 81.1% included a personal photograph. In contrast, nearly two-thirds of applicants did not submit a cover letter (65.2%). Among the 206 applicants who provided a cover letter in English, fewer than half aligned its content with the advertised role (43.2%), although most followed a conventional structural format (80.6%). While a skills section appeared in nearly all applications (94.6%), only a minority of candidates (23.2%) adapted their listed competencies to match the requirements of the advertised position **(Table 1).**

Table 1. Demographic variables and descriptive information

CV/job application variable	n (%)	Levels
Newly graduated	355 (60%)	No
	227 (38.3%)	Yes
	10 (1.7%)	Not provided
Gender	369 (62.3%)	Female
	213 (36%)	Male
	10 (1.7%)	Not provided
The same font used consistently	547 (92.4%)	Yes
	45 (7.6%)	No
CV template	272 (45.9%)	Regular template
	320 (54.1%)	Professional template

Punctuations used consistently	296 (45.4%)	Yes
	323 (54.6%)	No
Experience list included	379 (64.0%)	Yes
	203 (43.3%)	No
	10 (1.7%)	Incomplete
Personal statement included	463 (78.2%)	Yes
	129 (21.8%)	No
List of skills tailored to the advertised job (n = 560)	130 (23.2%)	Yes
	430 (76.8%)	No
University grade level	94 (16%)	Excellent
	140 (24%)	Very Good
	94 (16%)	Good
	3 (0.5%)	Satisfactory
	261 (44%)	Not provided
Marital status included	232 (39.2%)	Yes
	360 (60.8%)	No
City of living included	509 (86%)	Yes
	83 (14%)	No
The list of skills included	560 (94.6%)	Yes
	32 (5.4%)	No
Personal photo included	480 (81.1%)	Yes
	112 (19.9%)	No
Type of personal photo	129 (21.8%)	Casual
	351 (59.3%)	Official
	112 (18.9%)	No photo provided
Referees list included	65 (11.0%)	Yes
	527 (89.0%)	No
At least one misuse of big and small letters	466 (78.7%)	Yes
	126 (21.3%)	No
CV file format	486 (82.1%)	PDF
	82 (13.9%)	Word
	16 (2.7%)	Image
	8 (1.4%)	Other
Provided a cover letter in English	206 (34.8%)	Yes
	386 (65.2%)	No
English cover letter (n = 206)	89 (43.2%)	Tailored – Yes
	117 (56.8%)	Tailored – No
	166 (80.6%)	Structured – Yes
	40 (19.4%)	Structured – No
Number of CV/job application pages	307 (51.9%)	1
	217 (36.7%)	2
	50 (8.4%)	3
	14 (2.4%)	4
	3 (0.5%)	5
	1 (0.2%)	6

Readability indices of cover letters and personal statements

Among the 206 applicants who included a cover letter, nearly half (49.5%) achieved readability index values that fell within the recommended range. A small

proportion of cover letters were classified as having low readability complexity (4.3%), while just over one-quarter were categorized as highly complex based on their readability scores (26.2%) **(Table 2).**

Table 2. Readability index classifications of cover letters and personal statements according to individual formulas and mean scores.

Readability category	Automated Readability Index	Flesch–Kincaid grade level	Gunning Fog Index	Coleman–Liau Index	Mean grade level	SMOG Index
Cover letters (n = 206)						
Grade level 7–12 (Target)	78 (37.9%)	97 (47.1%)	77 (37.4%)	114 (55.3%)	102 (49.5%)	111 (53.9%)
Grade level <7 (Simple)	82 (39.8%)	80 (38.8%)	35 (17.0%)	50 (24.3%)	50 (24.3%)	32 (15.5%)
Grade level >12 (Complex)	46 (22.3%)	29 (14.1%)	94 (45.6%)	42 (20.4%)	54 (26.2%)	63 (30.6%)
Personal statements						
Grade level 7–12 (Target)	95 (20.8%)	126 (27.6%)	39 (8.6%)	111 (24.4%)	77 (16.9%)	65 (14.3%)
Grade level <7 (Simple)	4 (0.9%)	9 (2.0%)	2 (0.4%)	2 (0.4%)	4 (0.9%)	3 (0.7%)
Grade level >12 (Complex)	357 (78.3%)	321 (70.4%)	415 (91.0%)	343 (75.2%)	375 (82.2%)	388 (85.0%)

Seven of the 463 participants who submitted personal statements were excluded because their statements could not be transferred into the readability analysis software. Of the remaining 456 personal statements analyzed, most were classified as having a complicated readability level (82.2%), while 16.9% fell within the target readability range and only 0.9% were categorized as simple **(Table 2).**

The relationship between submitting a variables and cover letter

Regarding the relationship between submitting a cover letter and other study variables, statistically significant associations were identified with the type of personal photograph provided ($P < 0.001$), university grade level ($P = 0.027$), and CV file format ($P = 0.001$). No significant associations were observed between cover letter submission and the remaining variables examined **(Table 3).** An assessment of association strength for nominal variables was applicable only to the type of personal photograph, yielding a Phi coefficient (φ) of 0.14.

Table 3. Presents the associations between cover letter submission and the examined variables.

Characteristic	Category/Level	Submitted Cover Letter: Yes (n=206)	No (n=386)	p-value (Chi-Square Test)
Gender	Female	129	240	
	Male	75	138	
	Not specified	2	8	0.61
Recent graduate	No	132	223	
	Yes	72	155	
	Not specified	2	8	0.246
Consistent font usage throughout	Yes	185	362	
	No	21	24	0.082
Consistent punctuation usage	Yes	102	221	
	No	104	165	0.07
Inclusion of work experience section	Yes	75	125	
	No	126	253	

	Incomplete	2	8	0.28
Inclusion of marital status	Yes	85	147	
	No	121	239	0.45
Inclusion of current city of residence	Yes	177	332	
	No	29	54	0.98
Inclusion of personal statement	Yes	161	302	
	No	45	84	0.98
Inclusion of skills section	Yes	182	368	
	No	14	18	0.28
Skills section tailored to the job posting	No skills section*	14	18	
	Yes	40	90	
	No	152	278	0.34
Inclusion of personal photograph	Yes	172	308	
	No	34	78	0.273
Style of personal photograph	Casual	29	100	
	Formal/Official	143	208	
	No photo*	34	78	<0.001 Phi(φ)=0.14
University academic performance level	Excellent	41	53	
	Very Good	55	85	
	Good	20	74	
	Satisfactory	1	2	
	Not specified	89	172	0.027**
Inclusion of referees/contact references	Yes	29	36	
	No	130	262	
	Available upon request	47	88	0.2
Presence of at least one error in capitalization at sentence starts	Yes	192	354	
	No	14	32	0.518
Presence of at least one error in capitalization for proper nouns (e.g., cities, names)	Yes	201	363	
	No	5	23	0.054
File format of resume/application	PDF	186	300	
	Word	18	64	
	Image	2	14	
	Other	0	8	0.001**
Length of resume/application (pages)	1	92	215	
	2	84	133	
	3	24	26	
	4	4	10	
	5	2	1	
	6	0	1	0.11

*Variables marked with an asterisk were excluded from the cross-tabulation chi-square analysis. **Fisher's exact test was applied when one or more cells had an expected frequency of fewer than five; therefore, the Phi coefficient was not calculated.

The association between providing a personal variables and statement

Submission of a personal statement showed statistically significant associations with the use of a CV template ($P < 0.001$), consistent font usage ($P = 0.002$), inclusion of a skills list ($P < 0.001$), inclusion of a referees list ($P = 0.047$), CV file format ($P < 0.001$), and provision of a structured cover letter ($P < 0.001$). No significant associations were found between personal statement

submission and the remaining variables examined **(Table 4).**

Analysis of association strength for nominal variables indicated that the strongest relationship was observed with the provision of a structured cover letter (Phi, φ = 0.24), while the weakest association was with inclusion of a referees list (Phi, φ = 0.10).

Table 4. Presents the associations between submission of personal statements and the examined variables.

Characteristic	Category/Level	Included Personal Statement: Yes (n=463)	No (n=129)	p-value (Chi-Square Test)
Gender	Female	295	74	
	Male	168	45	
	Not specified*	0	10	0.75
Recent graduate	No	274	81	
	Yes	189	38	
	Not specified*	0	10	0.08
CV template used	Regular template	192	80	
	Professional template	271	49	<0.001 Phi(φ)=0.17
Consistent font usage throughout	Yes	436	111	
	No	27	18	0.002 Phi(φ)=0.12
Consistent punctuation usage	Yes	258	65	
	No	205	64	0.28
Inclusion of work experience section	Yes	294	85	
	No	169	34	
	Incomplete	0	0	0.1
Inclusion of marital status	Yes	178	54	
	No	285	75	0.48
Inclusion of current city of residence	Yes	385	104	
	No	78	25	0.51
Inclusion of skills section	Yes	448	112	
	No	15	17	<0.001 Phi(φ)=0.18
Skills section tailored to the job posting	No skills section*	15	17	
	Yes	108	22	
	No	340	90	0.32
Inclusion of cover letter	Yes	161	45	
	No	302	84	0.98
Inclusion of personal photograph	Yes	381	99	
	No	82	30	0.15
Style of personal photograph	Casual	108	21	
	Formal/Official	273	78	
	No photo*	82	30	0.38
University academic performance level	Excellent	76	18	
	Very Good	119	21	
	Good	73	21	
	Satisfactory	2	1	
	Not specified	192	68	0.18

Inclusion of referees/contact references	Yes	49	16	
	No	298	94	
	Available upon request	116	19	0.047 Phi(φ)=0.10
File format of resume/application	PDF	387	99	
	Word	65	17	
	Image	11	5	
	Other	0	8	<0.001**
Length of resume/application (pages)	1	249	57	
	2	157	60	
	3	41	9	
	4	11	3	
	5	3	0	
	6	1	0	0.24
Inclusion of cover letter	Yes	160	46	
	No	303	83	0.82
Cover letter is structured	No cover letter*	303	83	
	Yes	32	38	
	No	128	8	<0.001 Phi(φ)=0.24

*Items marked with an asterisk were excluded from the chi-square cross-tabulation analysis. **Fisher's exact test was applied when expected cell frequencies were below five; therefore, Phi coefficients were not reported.

Relationship between cover letter readability scores and respondent characteristics

Analysis revealed that cover letter readability scores were significantly influenced by gender, inclusion of an experience section, and whether the cover letter was tailored. Female respondents tended to produce cover letters with greater linguistic complexity, reflected by higher readability index values, compared with male respondents (P = 0.021). Applicants who omitted an experience list demonstrated higher readability scores than those who included one (P = 0.017). The most pronounced association was observed for tailored cover letters, which showed a strong relationship with readability index scores (P < 0.0001). Overall, most submitted cover letters fell within the target readability range **(Table 5).**

Assessment of association magnitude indicated that tailoring the cover letter exhibited the strongest relationship with readability level (association strength = 0.36). Gender and inclusion of an experience list showed comparable, moderate associations with readability scores (association strength = 0.24).

Table 5. Details the relationships between cover letter readability levels and participant characteristics.

Characteristic	Level	Low Readability (<7) n (%)	Medium (7–12) n (%)	High (>12) n (%)	χ^2	Strength of Association (φ or Cramér's V)	p-value
Gender	Female (n=129)	25 (19.4%)	64 (49.6%)	40 (31.0%)	11.56	0.24	0.021*
	Male (n=75)	23 (30.7%)	38 (50.7%)	14 (18.7%)			
	Not provided (n=2)	2 (100%)	0	0			
Recent graduate	Yes (n=72)	15 (20.8%)	33 (45.8%)	24 (33.3%)	9.02	0.21	0.061

	No (n=132)	33 (25.0%)	69 (52.3%)	30 (22.7%)			
	Not provided (n=2)	2 (100%)	0	0			
Work experience section included	Yes (n=126)	36 (28.6%)	62 (49.2%)	28 (22.2%)	12.1	0.24	0.017*
	No (n=78)	12 (15.4%)	40 (51.3%)	26 (33.3%)			
	Incomplete (n=2)	2 (100%)	0	0			
Skills section included	Yes (n=192)	96 (50.0%)	45 (23.4%)	51 (26.6%)	6.3	0.12	0.18
	No (n=12)	3 (25.0%)	6 (50.0%)	3 (25.0%)			
University academic performance	Excellent (n=41)	4 (9.8%)	21 (51.2%)	16 (39.0%)	13.5	0.17	0.095
	Very Good (n=55)	12 (21.8%)	33 (60.0%)	10 (18.2%)			
	Good (n=20)	5 (25.0%)	9 (45.0%)	6 (30.0%)			
	Satisfactory (n=1)	0	1 (100%)	0			
	Not provided (n=89)	29 (32.6%)	38 (42.7%)	22 (24.7%)			
Skills section tailored to job	Yes (n=89)	7 (7.9%)	48 (53.9%)	34 (38.2%)	26.59	0.36	<0.0001**
	No (n=117)	43 (36.8%)	54 (46.2%)	20 (17.1%)			
Cover letter is structured	Yes (n=164)	36 (22.0%)	85 (51.8%)	43 (26.2%)	2.65	0.11	0.27
	No (n=42)	14 (33.3%)	17 (40.5%)	11 (26.2%)			

*Variables marked with an asterisk were excluded from the chi-square cross-tabulation analysis.

Relationship between personal statement readability scores and respondent characteristics

No statistically meaningful relationships were identified between the readability index of personal statements and any of the respondent characteristics examined **(Table 6).**

Table 6. Summarizes the analysis of associations between personal statement readability levels and participant characteristics.

Variable	Level	< 7 n (%)	7–12 n (%)	> 12 n (%)	χ^2	Strength of Association	P-value
Gender	Female (291)	1 (0.3)	51 (17.5)	239 (82.1)	2.8	0.078	0.25
	Male (165)	3 (1.8)	26 (15.8)	136 (82.4)			
	Not provided (190)	–	–	–			
Newly graduated	Yes (186)	2 (1.1)	37 (19.9)	147 (79.0)	2.2	0.07	0.33
	No (270)	2 (0.7)	40 (14.8)	228 (84.4)			
Experience list included	Yes (288)	3 (1.0)	45 (15.6)	240 (83.3)	1.1	0.05	0.58
	No (168)	1 (0.6)	32 (19.0)	135 (80.4)			
Skills list included	Yes (440*)	73 (16.6)	4 (0.9)	364 (82.5)	1.2	0.05	0.56
	No	0 (0)	4 (26.7)	11 (73.3)			
University grade level	Excellent (76)	0	15 (19.7)	61 (80.3)	3.6	0.09	0.96
	Very good (116)	1 (0.9)	19 (16.4)	96 (82.8)			

	Good (72)	1 (1.4)	10 (13.9)	61 (84.7)			
	Satisfactory (2)	0	1 (50.0)	1 (50.0)			
	Not provided (190)	2 (1.1)	32 (16.8)	156 (82.1)			
Tailored cover letter	Yes	1 (1.3)	13 (16.5)	65 (82.2)	1.0	0.06	0.61
	No	3 (3.8)	13 (16.2)	64 (80.0)			
	No cover letter*	0	51	246			
Structured cover letter	Yes	2 (1.6)	19 (15.0)	106 (83.5)	3.4	0.08	0.18
	No	2 (6.3)	7 (21.9)	23 (71.9)			
	No cover letter*	0	51	246			

*Not included in the cross-tabulation chi-squared test

This study analyzed data from 592 participants. Although cover letters play a critical role in introducing CVs and job applications [14, 36], only 206 participants submitted English cover letters. Among these, 89 were customized to the job advertisement and 166 followed a structured format. Moreover, fewer than half of the submitted cover letters—representing only 17.2% of the total sample—achieved readability index scores within the recommended range (7–12). Female applicants tended to submit cover letters with higher readability index scores, indicating greater textual complexity compared with males. Previous research has similarly identified gender as a determinant of readability in written paragraphs produced by Jordanian students, with female students demonstrating higher readability levels than their male counterparts. The readability index is a widely accepted tool for evaluating text difficulty [25] and has been extensively applied in educational contexts and in the assessment of English written communication [8, 9, 11, 13, 14]. Readability encompasses both document structure and the clarity or ease with which written material can be understood [37]. Consequently, these findings indicate that more than half of the cover letters submitted by participants (n = 206) were characterized by suboptimal structure and limited comprehensibility.

More than 78% of participants included a personal statement in their application, and over 94% provided a list of skills. Despite this, only 23% of those who listed skills tailored them to the specific job advertisement. Personal statements serve as a persuasive component of job applications, enabling applicants to present their qualifications, attributes, experiences, and career goals [38], and offering an opportunity to emphasize key competencies and talents [7, 11, 14]. However, fewer than 22% of participants customized their personal statements to the advertised position, suggesting that many applicants may rely on standardized templates and underestimate the importance of this section in highlighting relevant experience. Further qualitative research, including interviews, may help clarify the underlying reasons for this practice. The readability index findings further supported concerns regarding the organization and clarity of personal statements, as fewer than 17% of participants who submitted personal statements (n = 456) achieved readability scores within the target range (7–12).

The results also demonstrated a statistically significant association between the inclusion of a cover letter and several application characteristics, including the type of personal photograph, university grade level, and CV file format. Applicants who submitted official-style photographs, used PDF-format CVs, and omitted their university grade levels were more likely to include a cover letter. Currently, there is limited evidence in the literature to explain these relationships. The inclusion of personal photographs in job applications remains a topic of debate, with no clear consensus, and the relevance of CV file format and disclosure of academic grades has not been widely explored. Nevertheless, it is plausible that applicants who used professional photographs and PDF CV formats possessed greater awareness of the importance of cover letters. Additionally, those who excluded their university grades may have used the cover letter to contextualize or explain their academic performance. In contrast, a greater number of variables were significantly associated with the inclusion of personal statements compared with cover letters. Applicants who used professional CV templates, maintained consistent font usage, included a skills list, omitted referees, submitted CVs in PDF format, and did not provide structured cover letters were more likely to include personal statements. Collectively, these findings support the assertion that participants who submitted both cover letters and personal statements—approximately 27.2% of the total sample (n = 592)—

demonstrated a satisfactory level of knowledge regarding effective job application writing for pharmacists.

These findings are not unexpected, particularly given that English is a second language in Jordan. Challenges related to writing cover letters and personal statements are also evident in countries where English is the primary language. A CareerBuilder survey reported that 61% of hiring managers automatically reject candidates whose applications contain spelling or typographical errors [39]. Common reasons for immediate rejection included spelling mistakes, direct copying of language from job advertisements, and unprofessional email addresses [39]. Consequently, applicants should carefully consider these factors to reduce the likelihood of early rejection. Additionally, a report by Andrew Hunter revealed that more than 90% of CVs in the United Kingdom contain spelling errors [40]. While this trend is often attributed to insufficient applicant effort, this interpretation is contested. Some argue that applicants may rely excessively on spell-checking tools, which may be disabled, while others suggest that candidates with minor typographical errors could still be highly qualified for the role [39]. Nevertheless, given that applications may be dismissed due to minor errors, applicants should be attentive to language accuracy to enhance their chances of securing an interview. Although these reports originate from English-speaking countries, they likely reflect broader recruiter attitudes, particularly in Jordan, where English is the official language of professional communication in pharmacy practice [16].

There is a growing need to incorporate competencies such as professional communication, teamwork and coordination [41], virtual and digital skills [42], innovation capabilities [43], and interpersonal communication [3, 44], alongside professional writing skills, into pharmacy education. Although limited research has examined students' retention of career-related skills and their perceived importance, recent evidence suggests that targeted workshops significantly enhance awareness of these competencies [6]. Other studies have similarly highlighted the practical advantages of developing virtual skills [42] and collaborative communication abilities [41].

Overall, the findings indicate that the majority of Jordanian pharmacists do not submit comprehensive job applications that include essential components such as cover letters and personal statements. Accordingly, this study underscores the importance of integrating career-related writing and communication skills into pharmacy curricula to support graduates' professional development and improve the quality of their job applications.

Strengths and limitations

This research represents an original contribution by being the first to assess pharmacists' job application writing—specifically cover letters and personal statements—through the use of readability indices, while also exploring how these indices relate to a range of applicant and document characteristics. By doing so, the study addresses gaps in the existing literature concerning pharmacists' written professional communication and the factors influencing the readability of key application documents. However, several limitations should be acknowledged. The study relied exclusively on quantitative analysis, which limits insight into the motivations, perceptions, and challenges faced by Jordanian pharmacists when preparing job applications. Incorporating qualitative approaches, such as in-depth interviews or focus group discussions, would provide a more comprehensive understanding of these issues in future investigations. Moreover, although readability indices are useful for quantifying textual complexity, they are inherently limited in scope and do not evaluate logical flow, semantic precision, lexical appropriateness, or overall interpretability of the text [25, 26, 28, 29].

Conclusion

The present study demonstrates that English-language cover letters and personal statements are frequently absent from job applications submitted by Jordanian pharmacists, and that only a minority of applicants produce documents that are either tailored to the advertised position or follow a clear structural format. While the inclusion of a cover letter or personal statement may reflect a baseline level of awareness regarding professional application requirements, the readability analysis revealed that most of these documents fall outside the recommended readability range. This finding points to widespread deficiencies in professional writing proficiency among pharmacists. These results highlight an urgent need for pharmacy education programs to place greater emphasis on career-oriented writing skills, including CV preparation and job application documentation. Embedding such training within pharmacy curricula would enhance graduates' ability to effectively present their qualifications and professional competencies, thereby strengthening employability

outcomes and supporting the development of a more competitive pharmacy workforce.

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References

1. Bates I, John C, Bruno A, et al. An analysis of the global pharmacy workforce capacity. Hum Resour Health. 2016;14. 10.1186/s12960-016-0158-z.
2. Ministry of Higher Education and Scientific Research. Statistics - the Jordanian Ministry of Higher Education and Scientific Research. Annyal Rep. 2017.https://www.mohe.gov.jo/EN/List/Statistics.
3. AlMuhaissen SA, Elayeh E, Sharaydih R, et al. Doctor of pharmacy as a career option: a cross-sectional study exploring PharmD students and practitioners expectations in Jordan. Hum Resour Health. 2023;21:49. doi: 10.1186/s12960-023-00836-2.
4. Bader LR, Claire A, McGrath S. Advancing the Pharmacy Profession in Jordan: challenges and opportunities. Res Soc Adm Pharm. 2014;10. 10.1016/j.sapharm.2014.07.022.
5. Bader LR, McGrath S, Rouse MJ, et al. A conceptual framework toward identifying and analyzing challenges to the advancement of pharmacy. Res Soc Adm Pharm. 2017;13. 10.1016/j.sapharm.2016.03.001.
6. Medina MS, Schwier NC, Miller JL, et al. Career Skills Assessment in a doctor of Pharmacy Curriculum. Am J Pharm Educ. 2018;82:6300. doi: 10.5688/ajpe6300.
7. Rimmer A. How can I polish my CV? BMJ. 2019;l4903. 10.1136/bmj.l4903. [DOI] [PubMed]
8. Wallwork A. CVS, resumes, cover letters, and Linkedin: a guide to professional English. In: Springer Science and Business. New York, NY: Springer New York 2014. 135–66. 10.1007/978-1-4939-0647-5_12.
9. Jericho BG, Ilgen JS, Gottlieb-Smith R, et al. How to write your Curriculum Vitae. J Grad Med Educ. 2019;11:333–4. doi: 10.4300/JGME-D-19-00221.1.
10. Woolston C. How to take the lead in your career. Nature. 2021;592:151–3. doi: 10.1038/d41586-021-00811-8.
11. The Pharmacy Professional's Guide to Résumés, CVs, & Interviewing, 4th Edition. 2215 Constitution Avenue, N.W., Washington, DC 20037 – 2985:: The American Pharmacists Association 2017. doi:10.21019/9781582122687.
12. Oxtoby K. Preparing your medical CV. BMJ. 2017;j82. 10.1136/bmj.j82.
13. Oxtoby K. Tips on preparing your medical CV. BMJ. 2019;l4875. 10.1136/bmj.l4875.
14. Horowitz DP, Wu C-C, Kachnic LA. Preparing Your CV and Cover Letter. In: Career Development in Academic Radiation Oncology. Cham:: Springer International Publishing 2021. 51–62. 10.1007/978-3-030-71855-8_5.
15. Alhabahba MM, Pandian A, Mahfoodh OHA. English language education in Jordan: some recent trends and challenges. Cogent Educ. 2016;3:1156809. doi: 10.1080/2331186X.2016.1156809.
16. Ministry of Higher Education and Scientific Research. Why Jordan? Study in Jordan. 2023.https://rce.mohe.gov.jo/studyinjordan/en/.
17. McDowell EE. Perceptions of the Ideal Cover Letter and Ideal resume. J Tech Writ Commun. 1987;17:179–91. doi: 10.2190/BK23-74U3-333Q-0T86.
18. Hafner JH. The art of the cover letter. ACS Nano. 2010;4:2487–7. doi: 10.1021/nn100907e.
19. Moustafa K. Does the cover letter really Matter? Sci Eng Ethics. 2015;21:839–41. doi: 10.1007/s11948-014-9554-8.
20. Workneh BD, Gebrehiwot MG, Bayo TA, et al. Influence of Medical Representatives on Prescribing practices in Mekelle, Northern Ethiopia. PLoS ONE. 2016;11:e0156795. doi: 10.1371/journal.pone.0156795.
21. Goyal R, Pareek P. A review article on prescription behavior of doctors, Influenced by the Medical Representative in Rajasthan, India. IOSR J Bus Manag. 2013;8:56–60. doi: 10.9790/487X-0815660.
22. Pharmacy School. Alumni, Pharmacy School. Hahsemite Univ.

https://hu.edu.jo/facnew/default.aspx?t=0&unitid=58000000
23. Bayt.com. Salaries in Jordan. 2023.https://www.bayt.com/en/jordan/salaries/.
24. World Salaries.com. Medical Representative Salary. 2023.Medical Representative Salary.
25. Cantos Gómez P, Sánchez Lafuente ÁA. Readability indices for the assessment of textbooks: a feasibility study in the context of EFL. Vigo Int J Appl Linguist Published Online First. 2019 doi: 10.35869/vial.v0i16.92. [DOI] [Google Scholar]
26. Wang L-W, Miller MJ, Schmitt MR, et al. Assessing readability formula differences with written health information materials: application, results, and recommendations. Res Soc Adm Pharm. 2013;9. 10.1016/j.sapharm.2012.05.009.
27. Kaur S, Kumar A, Mehta D, et al. So difficult to Understand : Readability Index Analysis of Online Patient Information on Lymphoma from NCI-designated Cancer Center. Blood. 2016;128:3567–7. doi: 10.1182/blood.V128.22.3567.3567.
28. Fajardo MA, Weir KR, Bonner C, et al. Availability and readability of patient education materials for deprescribing: an environmental scan. Br J Clin Pharmacol. 2019;85:1396–406. doi: 10.1111/bcp.13912.
29. Pearson K, Ngo S, Ekpo E, et al. Online patient education materials related to lipoprotein(a): Readability Assessment. J Med Internet Res. 2022;24:e31284. doi: 10.2196/31284.
30. Jordanian Pharmacist Association. Pharmacists In Jordan. 2020.https://www.jpa.org.jo/fy-stwr (accessed 20 Feb 2020).
31. Taherdoost H. Determining sample size; how to calculate Survey Sample size. Int J Econ Manag Syst. 2017;2:237–9.
32. Qualtrics. Sample Size Calculater. 2020.https://www.qualtrics.com/blog/calculating-sample-size/?fbclid=IwAR0urxilwycKuIxHio2ttEZ_yFvncrYA9BgXCJd5jQJeho2zmzfR4l3z2TU.
33. Story Tools. Readability statistics. Kydala Publ Inc 2016.https://storytoolz.com/readability.
34. Scott B. Readability Formulas. Free readability tools to check Read. Levels, Read. Assessment, Read. Grade Levels. 2018.http://www.readabilityformulas.com/freetests/six-readability-formulas.php.
35. Free Readability Calculators. Text Readability Consensus Calculator. http://www.readabilityformulas.com/free-readability-formula-tests.php. 2018.http://www.readabilityformulas.com/free-readability-formula-tests.php.
36. Garon JE. Resumes and cover letters: a guide. Clin Lab Manag Rev off Publ Clin Lab Manag Assoc. 1995;9:304–10. [PubMed] [Google Scholar]
37. Marnell G. Measuring readability Part 1: The spirit is willing but the Flesch is weak.
38. Chandran L, Chandran AS, Fischel JE. Crafting compelling personal statements. Acad Psychiatry. 2020;44:785–8. doi: 10.1007/s40596-020-01344-4.
39. Schiwietz S. Typo in the resume- should you really care? | softgarden. HR Knowl. 2017.https://softgarden.com/en/blog/typo-in-the-application-should-you-really-care/ (accessed 15 Nov 2022).
40. Papadatou A, MORE, THAN 9 OUT OF 10 CVS CONTAIN SPELLING ERRORS, AND MEN ARE THE MAIN CULPRITS, News. Recruit News. 2019.https://www.hrreview.co.uk/hr-news/more-than-9-out-of-10-cvs-contain-spelling-errors-and-men-are-the-main-culprits/114256 (accessed 18 Apr 2022).
41. Abdel-Qader DH, Hayajneh W, Albassam A, et al. Pharmacists-physicians collaborative intervention to reduce vaccine hesitancy and resistance: a randomized controlled trial. Vaccine X. 2022;10:100135. doi: 10.1016/j.jvacx.2021.100135.
42. Al Mazrouei N, Ibrahim RM, Al Meslamani AZ, et al. Virtual pharmacist interventions on abuse of over-the-counter medications during COVID-19 versus traditional pharmacist interventions. J Am Pharm Assoc. 2021;61:331–9. doi: 10.1016/j.japh.2021.02.003.
43. Odeh M, Amer R, Al Bawab AQ et al. Pharmaceutical innovation: the gap between knowledge, attitude, and perceptions among pharmacists and final-year pharmacy students. J Appl Pharm Sci 2022;7.
44. Odeh M, Alkhader E, McCloskey A, et al. Postgraduate pharmacist development- an evaluation of Jordanian pharmacist experiences to inform and shape an evidence-based professional development policy. PLoS ONE. 2021;16:e0255026. doi: 10.1371/journal.pone.0255026.