Saudi Pharmaceutical Journal 29 (2021) 976–980

Contents lists available at ScienceDirect

Saudi Pharmaceutical Journal

journal homepage: www.sciencedirect.com

Original article

Work readiness scale for pharmacy interns and graduates: A cross-sectional study

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ARTICLE INFO

Article history:
Received 20 February 2021
Accepted 15 July 2021
Available online 21 July 2021

Keyword:
Saudi Arabia
Work readiness
Graduates

ABSTRACT

Introduction: As the number of unemployment among pharmacy graduates increases, the Saudi Ministry of Labor implemented extra measures to facilitate their training and hiring by the private sectors. Nevertheless, there is a paucity of data regarding pharmacy graduates' work readiness (WR). Hence, we aim to assess their WR and identify predicting factors associated with WR among pharmacy graduates' in Saudi Arabia.

Methods: A 46-item self-reported pre-validated anonymous work readiness scale (WRS) survey with a 5-point Likert scale was administered to pharmacy senior students and graduates using Qualtrics XM® survey tool over the month of May 2020. The main outcome was to assess WRS for pharmacy interns and graduates and identify factors associated with work readiness.

Results: A total of 617 participants have participated in this survey, out of which 46.5% were freshly graduated pharmacists and 19.6% were pharmacy interns. Most participants (82.3%) were PharmD candidates or graduates. Around two-third of participants (63%) have successfully completed all survey items. The maximum points scored was 223 out of 230, and the median overall score was found to be 175. There was no significant association with gender, age, or type of university regarding overall scores. However, a statistically significant odds ratio was observed with PharmD program type and previous pharmaceutical marketing training (OR = 1.778, 95% CI = 1.143–2.765: OR = 0.618, 95% CI = 0.432–0.884, respectively).

Conclusion: The overall median score shows a good work readiness level among pharmacy students/graduates in Saudi Arabia; however, PharmD program graduates exposed to advance pharmacy training, including the pharmaceutical marketing experience, have higher work readiness odds than Bpharm graduates. Further studies involving other related perspectives, such as stakeholders, employers, and preceptors, would give a clear image of pharmacy graduates' job readiness levels.

1. Introduction

Unemployment among newly graduated pharmacists in Saudi Arabia is rising, mainly due to the increased number of public and private pharmacy colleges, the saturation of job vacancies in the governmental sectors, and Saudi pharmacists' challenges to join the private sector (Almaghaslah et al., 2019). In July 2020, The Saudi Ministry of Labor had ordered the Saudization of the pharmacy profession in the private sector to overcome the increasing unemployment rate among Saudi pharmacists (Alruthia et al., 2018). On the other hand, decision-makers are moving toward pushing universities to collaborate with different employers in the governmental and private sectors to create work-integrated

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Peer review under responsibility of King Saud University.

Production and hosting by Elsevier

https://doi.org/10.1016/j.jsps.2021.07.018
1319-0164/

learning programs such as internships and summer training programs, all of which to prepare college students to acquire such skills while they are in school (Design, 2019).

Work readiness skills of fresh college graduates have been proven to be significant predicting factors for employability (Bridgstock et al., 2015; Cleary-Holdforth, 2007). Furthermore, employability rate has become one of the main methods to assess the performance and outcomes of pharmacy colleges in Saudi Arabia and around the world; hence, many universities have established communications with employers to incorporate job-market competencies within their curricula effectively (Romenti et al., 2012).

In the context of evaluating job readiness skills, a trusted tool that considers curriculum content, working environment, and interpersonal skills are essential. Deakin University has validated a work readiness scale that involves 64-item for health professions (Caballero et al., 2011). *Walker et al.* developed another scale in 2015 adapted to nursing graduates and other health professions (Walker et al., 2015).

Caballero's work readiness scale assesses four perspectives about graduates' work readiness, which include; work competence (WC), social intelligence (SI), organizational acumen (OA), and personal characteristics (PC) (Caballero et al., 2011).

There are a considerable gap in the literature regarding pharmacy school graduates' readiness skills, particularly with the expansion in the number of graduates every year, globally and in Saudi Arabia, which escalates the competition and hardens the recruitment criteria for the labor's interest market. This study aims to identify predicting factors associated with work readiness among pharmacy graduates in Saudi Arabia.

2. Methods

2.1. Study design

This survey-based observational study has recruited interns and graduates from 24 different pharmacy schools across Saudi Arabia. The institutional review board approved the study for ethical consideration. This study's primary objective was to recognize the work readiness level of pharmacy students and graduates across the country and the factors that may influence a higher or lower level of work readiness.

2.2. Instrument used

A 46-item anonymous survey was administered to pharmacy senior students and graduates using Qualtrics XM® survey tool. By completing the survey, participants were giving consent to participate in the study. No identifiable information was collected. The survey was distributed over the month of May 2020. Eligible participants were pharmacy graduates, interns, and fifth-year students of pharmacy colleges in Saudi Arabia. And the sample size was deemed appropriate if it reached more than 450, similar to *Walker et al.* study (Walker et al., 2015).

2.3. Survey tool

A pre-validated Work Readiness Scale (WRS) was used (Caballero et al., 2011). Some modifications were done by rephrasing or removing some items to make the survey more suitable for our population in terms of the pharmacy profession. As a result, we had a 46-item self-reported WRS and 9 new items relevant to the pharmacy population in Saudi Arabia (Table 1). The WRS was estimated to take around 15 min, but there was no time limit.

Table 1
New items added to make the survey more relevant to pharmacy students and graduates.

Item added
Effective communication with different patients
Taking patients' aggressive behavior personally
Confidence in addressing interpersonal conflict in workplace
Maintaining appropriate balance between work and outside interests
Ability to switch off when I not at work
Acknowledging the important of learning as much as possible about an organization where you work
Acknowledging personal strengths and weaknesses
Ability to express oneself easily
Ability to remain calm under pressure

A 5-point Likert scale was used, with higher scores representing a higher level of work readiness. The WRS represented four perspectives: personal characteristics, organizational acumen, work competence, and social intelligence.

High internal consistency was seen in the original WRS with an overall Cronbach alpha value of 0.96. The four factors described the Cronbach alpha value as follows, personal characteristics 0.93, organizational acumen 0.92, work competence 0.90, and social intelligence 0.88 (Caballero et al., 2011).

2.4. Analysis

Descriptive analyses were conducted on all participants' responses with missing or non-response removed from the denominator. A score for each of the four sections was reported, along with a total score for the whole survey. Responses from participants who completed all the items were first categorized as above average or below average based on the results' median, then assessed in the multiple logistic regression models for the primary outcomes. Any variable with a p-value of < 0.05 on univariant analysis has been incorporated into the model. To assess the final model, an Enter approach was used. The odds ratio of the final logistic model was reported if found significant.

Chi-square, *t*-test, or Mann Whitney rank sum as appropriate were used to assess categorical and continuous data, respectively. Statistical significance was defined at a p-value < 0.05.

All analyses were performed using IBM SPSS Statistics, version 20 (IBM Corp., Armonk, N.Y., USA).

3. Results

A total of 617 participants have participated in this survey; around half of the participants were females (305, 49.4%). Participants from governmental schools were 577 (93.5%), and 40 (6.5%) were from private pharmacy schools (Fig. 1). Most participants (82.3%) were either interns or graduates from PharmD programs. Only (17.7%) of our sample were either candidates or graduates from Bpharm programs. Around two-thirds of participants (63%) have completed all survey items. Out of the total number of participants who completed the survey, 61.4% were freshly graduated pharmacists, and 19.3% were pharmacy interns and the rest were still 5th-year students.

For those who completed the whole survey, the meantime for completing the entire survey was 19 min and 45 s and the median 11 min, suggesting a variation and abnormal response time between participants.

The maximum number of points scored was 223, and the median overall score was found to be 175. Regarding subcategories, the median score representing personal characteristics had the least subscore with 36 out of 50 points, while the highest median score was observed with the subcategory representing organizational

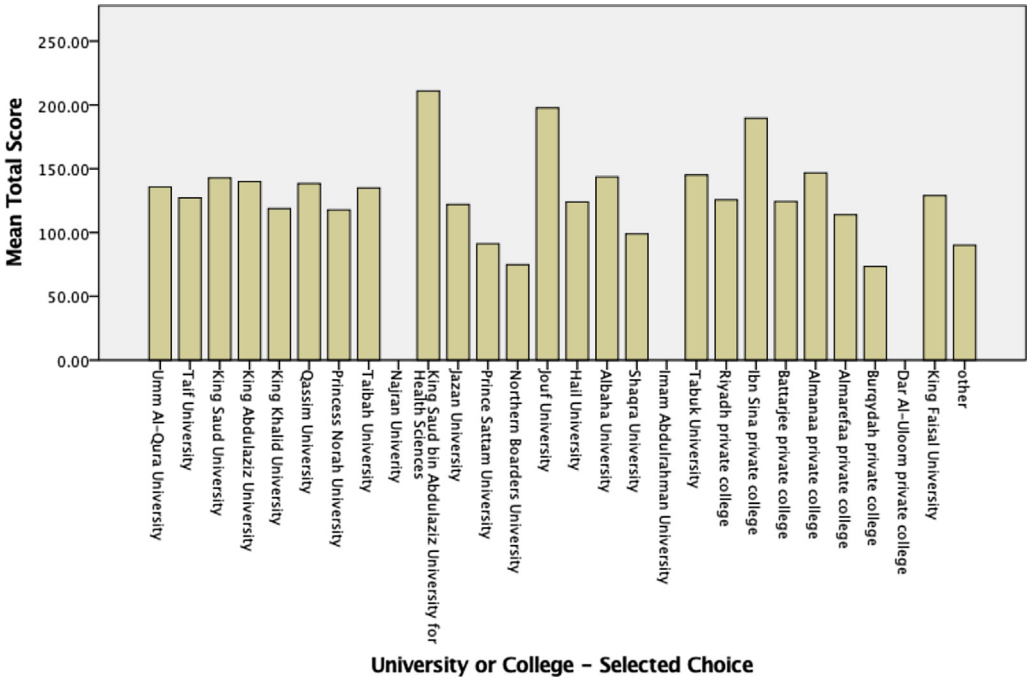

Fig. 1. Mean total score difference between different universities.

acumen with 41 out of 45 points. All data are presented in Tables 2–6.

The logistic regression model

The logistic regression model was done to determine the relationship between the overall score categories and background variables (age, gender, academic status, type of the university, studied program, and previous training in pharmaceutical companies). The model was statistically significant (p = 0.037). A statistically significant odds ratio (OR = 1.778, P = 0.011) was observed with program type and previous pharmaceutical company training, which means it is 1.778 times more likely for participants from a PharmD program to have a higher score than participants from a BPharm program. A statistically significant odds ratio (OR = 0.618, p = 0.088) was also found between not having pharmaceutical training and work readiness, which means participants who did not have any previous training in a pharmaceutical company were found to be 0.61 times less likely to score high in the work readiness tool versus those who had.

However, there was no significant association with gender (p = 0.575), age (p = 0.095), or type of university (p = 0.418) regarding overall scores.

Table 2
Scores of items for all participants.

Item	Highest	Lowest	Mean (SD)	Median
Social intelligence (SI)	60	25	49 ± 0.2	
Organizational acumen (OA)	45	20	40.86 ± 0.15	41
Work competence (WC)	75	30	61.42 ± 0.34	
Personal characteristics (PC)	50	25	36.49 ± 0.26	36

Table 3
Social intelligence survey items for all participants.

Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree	Item
7	19	94	216	135	People approach me for original ideas
9	33	57	127	245	Developing relationships with people is one of my strengths
2	19	63	152	235	Others would say I have an open and friendly approach
2	20	46	155	248	I communicate effectively with different patients
2	26	64	182	197	I find I am good at reading other people's body language
1	8	22	87	353	There is a lot to learn from employees who have worked at an organization for years
8	11	28	133	291	I can learn a lot from my colleagues
2	10	27	142	290	I recognize when I need to ask for help
132	115	111	67	46	Approaching senior people at work is a weakness for me
N/A	5	7	37	422	It's important to respect my colleagues
47	86	91	182	65	I sometimes experience difficulty starting task
28	39	102	142	160	I feel confident to address interpersonal conflict in the workplace

Table 4
Organizational acumen survey items for all participants.

Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree	Item
2	14	37	142	249	I consider myself to have a mature view of life
N/A	2	6	56	381	I look forward to the opportunity to learn and grow at work
1	11	20	109	303	I am always working on improving myself
1	6	20	110	307	I see all feedback as an opportunity for learning
N/A	6	44	140	254	An organization's values and beliefs forms part of its culture
N/A	1	18	67	358	It is important to respect authority figures
N/A	3	10	71	360	It is important to learn as much as you can about the organization
14	31	52	108	239	I do not take patients' aggressive behavior personally
4	24	48	144	224	I maintain an appropriate balance between work and outside interests

Table 5
Work competence survey items for all participants.

Item	Strongly agree	Somewhat agree	Neutral	Somewhat disagree	Strongly disagree
I have a solid theoretical understanding of my field of work	150	164	62	28	7
I am confident about my learnt knowledge and could readily answer clinical questions about my field	128	159	75	42	7
Analyzing and solving complex problems is a strength for me	151	161	63	30	6
Now that I have completed my studies I consider myself clinically competent to apply myself to the field	127	166	76	32	10
One of my strengths is that I have an eye for detail	232	114	50	15	N/A
I know my strengths and weaknesses	228	133	38	10	2
I can express myself easily	175	151	49	30	6
I can't wait to start work and throw myself into a project	228	88	63	24	8
I thrive on completing tasks and achieving results	227	127	47	6	3
At work, it is important to always take responsibility for your decisions and actions	349	52	7	2	1
I am eager to throw myself into my work	213	109	70	12	7
Being among the best in my field is very important to me	270	101	25	9	6
I am good at making impromptu speeches	121	123	90	56	21
I am sometimes embarrassed to ask questions when I am not sure about something	99	124	60	67	61
I am able to switch off when I am not at work	101	118	124	49	19

Table 6
Personal characteristics survey items for all participants.

Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree	Item
1	13	49	182	145	I know how to cope with multiple demands
5	40	52	147	146	I remain calm under pressure
4	11	54	144	177	When a crisis situation that needs my attention arises I can easily change my focus
3	20	50	134	183	Adapting to different social situations is one of my strengths
43	93	102	97	55	I feel that I am unable to deal with things when I have competing demands
28	53	58	148	103	I get stressed when there are too many things going on
112	112	82	45	39	I don't like the idea of change
22	58	125	109	76	I become overwhelmed by challenging circumstances
5	26	59	150	150	I am always prepared for the unexpected to occur
54	85	63	84	104	Juggling too many things at once is one of my weaknesses

4. Discussion

To date and to the authors' knowledge, this is the first study that has assessed the work-readiness score and its associated factors among pharmacy graduates in Saudi Arabia. This study's modified work-readiness assessment tool focused on four main domains: personal characteristics, organizational acumen, work competence, and social intelligence.

The overall median score shows a good work readiness level among pharmacy students/graduates. Our study population scored the highest in terms of organizational acumen and the least in personal characteristics. That might be due to personal and social desirability biases, where graduates tend to over-report good attitudes and under-report the less desirable attitudes (Walker et al., 2015). The personal characteristic domain has more undesirable items where participants preferred to disagree with them, resulting in a low score.

The majority of pharmacy schools in Saudi Arabia offer PharmD programs (Alhamoudi & Alnattah, 2018). Unlike BPharm, the PharmD program required students to have advanced pharmacy practice experiences (APPE) in their last year (Alhifany et al., 2020). This experience helped students to be ready for the real-life pharmacy profession. Upon completing the APPE, students should have developed self-confidence and required competencies to practice independently (Mead & Pilla, 2017; Taylor et al., 2015). Marketing courses for pharmacists has been introduced early in the PharmD curriculum as well as dual PharmD/MBA programs are growing as the job market is shifting toward a service-based business model and the need for pharmacists with social and administrative skills are becoming more noticeable (Cook, 2003; Jacobs et al., 2017; Perepelkin, 2017).

Consistently, our study shows a statistically significant odds ratio for program type and previous pharmaceutical marketing training. PharmD program graduates exposed to advanced phar-

macy training, including the pharmaceutical marketing experience, have higher work readiness odds than Bpharm graduates.

Although studies have reported gender differences in regards to pharmacy practice competencies where females graduates tend to feel more ready than male graduates (McRobbie et al., 2006; Willis et al., 2009), our study shows no significant association exists between gender or age regarding the overall work readiness score. Interestingly, graduating from different universities and the type of university (public or private) has no impact on the overall WRS.

This study has some limitations. Only sixty-three percent of the participants completed all the survey items. We also noticed variability in the time participants needed to complete the survey. The length of the survey with multiple domains and numerous items could have impacted the timing response and completion of the survey. Another main limitation of this study, it is only examined the WRS from the students'/graduates' perspectives.

5. Conclusion

The overall median score shows a good work readiness level among pharmacy students/graduates in Saudi Arabia; however, PharmD program graduates exposed to advance pharmacy training, including the pharmaceutical marketing experience, have higher work readiness odds than Bpharm graduates. Further studies involving other related perspectives, such as stakeholders, employers, and preceptors, would give a clear image of pharmacy graduates' job readiness levels.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

We would like to thank the Deanship of Scientific Research at Umm Al-Qura University for supporting this work by Grant Code:19-MED-1-01-0044. We also would like to thank King Saud University, Riyadh, Saudi Arabia, for supporting this research project (RSP-2020/74).

Ethical approval

The study was approved by the regional institution review board.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sector.

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