

# Career Choice of Contract Pharmacists in Malaysian Public Health Facilities and Its Associated Factors

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## Abstract

**Introduction:** The contract system for pharmacists was introduced by the Ministry of Health Malaysia (MOH) to reduce the waiting period for the training programme for Provisionally Registered Pharmacists in government health facilities. Little is known about the perception of contract pharmacists regarding their career prospect following the new policy.

**Objective:** To explore contract pharmacists' perception and career choice, and determine the factors affecting their preference in pharmacy career.

**Method:** A cross-sectional study was conducted in November and December 2020 using a validated, self-administered online questionnaire involving contract pharmacists working in government health facilities in Kuala Lumpur and Putrajaya. The questionnaire contained questions that assessed career expectation, preferences, experience in job search, and an open-ended question for suggestions to improve aspects of their training. Fisher's exact test was performed to assess the relationship between demographic characteristics and career preferences.

**Results:** The response rate was 68.8% (n=97). Hospital pharmacy was the most preferred setting for current placement (44.3%). Almost all respondents (92.8%) would like to work with MOH, but only 24.7% were confident that they will be able to secure a permanent post. There was a significant relationship between ethnicity and current workplace preference (p=0.011), intention to remain in MOH after 10 years (p=0.017) and willingness to work in East Malaysia or rural areas (p=0.023). Long-term job security, work environment and opportunities for career development were rated the three most important factors in choosing their career.

**Conclusion:** The contract system poses various challenges for the new generation of pharmacists. With the growing number of pharmacy graduates and limited available positions in the public sector, there are a lot of uncertainties in employment opportunities. Early career advice and wider exposure on pharmacy career pathways are essential to broaden the career perspectives and equip young pharmacists with the necessary skills to adapt and develop new roles in order to keep up with changing times.

**Keywords:** career preference, pharmacy career, pharmacist, job preference, work preference

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## Introduction

In many countries, the supply of pharmacists is rapidly exceeding demand as pharmacy schools continue to open and expand disproportionately to workforce capacity, leading to fierce competition among the graduates (1). Thought leaders have been observing marketplace trends and urging pharmacy colleges and schools to produce suitable number of competent entry-level pharmacists trained to fill the available positions to prevent an oversupply. Pharmacy schools have responded to the accreditation requirements, but generally seemed to be overlooking the supply and demand data (1).

Historically, there was a shortage of pharmacists in Malaysian public health facilities run by the government. Eligible pharmacy graduates were therefore guaranteed to have a training opportunity in public hospitals as Provisionally Registered Pharmacist (PRP), and they were required to serve in government health facilities for a period of at least three years as Fully Registered Pharmacist (FRP) following the

completion of PRP training (2). Pharmacy graduates were considered to be 'privileged' for having a job opportunity guaranteed as civil servant after completion of their studies, leading to high demand for pharmacy degree programmes and the expansion of pharmacy programmes offered by higher learning institutions nationwide. Prior to 1996, only one public institution offered pharmacy degree programme in the country, and the number has now increased to 19 institutions, with another 71 overseas institutions offering pharmacy programmes recognised by the Pharmacy Board of Malaysia (PBM) (3). Consequently, there had been a sharp increase in the number of pharmacy graduates nationwide, leading to saturation in the public health facilities, and a long period of unemployment after graduation due to limited available training positions. A similar phenomenon occurred among the medical and dentistry graduates.

In 2012, The Pharmaceutical Services Division (PSD), MOH introduced the Liberalisation of PRP Training Policy, thus extending PRP training to private facilities such as community pharmacies, private hospitals, pharmaceutical industry and research and development centres recognised by the PBM (4). Primary health clinics run by the governments have also been designated as PRP training centres, with compulsory attachment in public hospitals to enrich their experience. This provides broader options in training facilities, with various training experiences that may result in different expectations in career pathway between PRPs trained in the established public hospital setting and the relatively new PRP training centres in health clinics. The Malaysian Government has also introduced a new policy by offering the medical, dental and pharmacy graduates to serve on contract basis due to the limited number of permanent posts (5, 6). Currently, the pharmacist contract system is for a three-year period, which includes one year as a PRP and another two years as a fully registered pharmacist FRP. The decision for a permanent post will be known during second year.

Several studies had been conducted locally to assess satisfaction and perception towards the PRP training in Malaysian public health hospitals (7-10). Multiple studies had also been conducted to explore the career preferences of pharmacy graduates (11-14) and to assess job satisfaction among pharmacy staff (15, 16), both locally and abroad. Following the changes in government policies, there are a lot of uncertainties surrounding the future of current pharmacy undergraduates. The recent changes in PRP training policy and the contract system are new phenomena and little is known about the perception and career expectation of the personnel involved. This study aimed to explore contract pharmacists' perception of their pharmacy career in terms of future career plans, factors affecting their choice, and general opinion on employability.

## Methods

This was a multicentre, cross-sectional study using self-administered online questionnaire among contract pharmacists in two public hospitals and 20 government health clinics located in Kuala Lumpur and Putrajaya. The online survey was conducted from 2 November 2020 to 31 December 2020. The study population consisted of contract pharmacists including PRPs and FRPs. Based on the staff registry, there was a total of 173 contract pharmacists in Kuala Lumpur and Putrajaya. Twenty-two had resigned while 10 of them received an offer for permanent position in MOH before November 2020, who were excluded. Therefore, there were 141 eligible contract pharmacists to participate in the study. Sample size for the survey was estimated using Raosoft sample size calculator, based on the following values: population size=141; margin of error=5%; confidence level=95%; and response distribution=50%. Based on the calculation, the sample size for the survey was 104. However, to ensure sufficient response is obtained, all eligible contract pharmacists were invited to answer the questionnaire, which was administered via Google form. The link containing the participant information sheet and consent form was emailed to all facilities, and those who agreed to participate provided their consent electronically via the same Google form used for the survey questions.

The questionnaire was developed based on past studies on career expectation of pharmacy undergraduates and pharmacy trainees, and subsequently modified to suit Malaysia's employment scenario through a series of discussions with study investigators and senior pharmacists (7, 11, 13). It contained 24 main questions that assessed demography, career priorities, future career plan, and experience in job search with a 20 5-point Likert scale items that measure the respondent's perception of their career prospect. The sections on demography, expectation and perception were compulsory to all respondents. The section for job opportunities needed to be answered only by those who had started looking for job opportunities outside MOH public health facilities.

An introduction explaining the purpose of the study was displayed at the beginning of the online questionnaire. No personal data was collected, and respondents were able to answer the questionnaire anonymously after agreeing to participate in the study. The questionnaire was validated for its content by

three senior pharmacists to assess suitability of language and content. The questionnaire was then pretested by 20 pharmacists from various facilities to ensure clarity of language, relevance and acceptability. Those who participated in the pilot study was not included in the actual data collection. Cronbach's alpha value of the questionnaire during the pilot study involving 20 pharmacists was 0.832.

Data was predominantly analysed with descriptive statistics, using IBM SPSS Statistics version 24. Descriptive statistics was presented either as continuous data with means and standard deviations (SD) or as categorical data with frequency (n) and percentages (%). In order to identify the most important factors in choosing their future career, weighted scores were calculated based on frequency distribution and weighted values of the answers (Strongly agree = 5, Agree = 4, Neutral = 3, Disagree = 2, and Strongly Disagree = 1). The frequency values of each factor were then multiplied with the weight to sum up the scores, and divided with the total number of respondents. As more than 20% of cells have expected frequencies of less than 5, Fisher's exact test was performed to compare the demographic characteristics (gender, marital status, graduation place, designation, and current facility) against career preferences (workplace preference, intention to remain in MOH after ten years, willingness to work in East Malaysia / rural areas and willingness to work outside normal office hours). The study was registered with the National Medical Research Register (NMRR-20-1371-55348) and permission to conduct the study was obtained from the MOH Medical Research and Ethics Committee (MREC). The study was conducted in accordance to the Declaration of Helsinki and Malaysian Good Clinical Practice Guideline.

## Results

A total of 97 respondents aged from 24 to 29 years old participated in this study, giving a response rate of 68.8%. The respondents were predominantly female (87.6%), single (83.5%), graduated from local private university (60.8%), had been fully registered (78.4%) and worked in health clinic (72.2%). Most of the respondents were Malays (53.6%) followed by Chinese (37.1%), and Indians (6.2%). Majority of the respondents have worked for at least one year, and the mean duration of service was 22.5 months. The demographic characteristics of respondents and their career preferences are summarised in Table 1.

In terms of workplace choice after the respondents' current placement, the top three preferred options were hospital setting (44.3%), followed by community pharmacy or health clinic (32.0%), and pharmaceutical industry (12.4%). The majority of Malay participants were interested in working in hospital, health clinics or community pharmacy, and only 11.5% were interested in other pharmacy-related sectors, such as industry and academia. In comparison, a higher proportion of Chinese (33.3%) and three out of six Indian participants were interested in other pharmacy-related sectors. In ten years' time, more participants saw themselves working in community pharmacy compared to private hospital (23.7% vs 6.2%). Approximately one-third of the respondents wanted to remain working with MOH after ten years, and 75.8% of this consisted of Malay participants. In comparison, only 19.4% of Chinese respondents saw themselves working in MOH after 10 years, and 30.6% wanted to work in community pharmacy.

Based on the results of Fisher's exact test, significant association was found between ethnicity and current workplace preference, intention to remain in MOH after ten years, as well as willingness to work in East Malaysia (i.e. Sabah and Sarawak) and rural areas, which was summarised in Table 2. No significant association was found for the other demographic characteristics, except between graduation place and current workplace preference ( $p=0.032$ ). It was noted that 43.3% of the respondents preferred to work only during office hours, including respondents who would like to work in a hospital setting. More than one-third (36.1%) of respondents preferred to work in Klang Valley area only, 40.2% were willing to work in other states within Peninsular area, and only 23.7% were willing to work in Sabah or Sarawak. Notably, 16.5% of respondents were also willing to work in rural areas with limited facilities. Among the respondents, the top three factors affecting their choice of career plans were long-term job security (score=4.82), working environment (score=4.75) and career development opportunities (score=4.73). A summary of respondents' factors in choosing their career was presented in Figure 1.

A detailed summary of respondents' perception on their pharmacy career was presented in Table 3. Notably, almost all respondents (92.8%) would like to work with MOH, but only 24.7% were confident that they will be able to secure a permanent post. Similarly, only 27.8% of the respondents were confident regarding their ability to secure a job. 69.0% participants felt that PRP training facility may affect their chances of obtaining permanent position in MOH, and majority (81.4%) also felt that PRP training in hospital is more advantageous. Generally, the respondents were satisfied with their salary and staff benefits, but only 33.0% felt that they have sufficient opportunities to further their studies.

Among the respondents, 34 FRPs have started looking for job in the private sectors during the study period. Out of these, 17 (50.0%) were called for interview, but only eight (23.5%) secured a job offer. Seven of them was offered to work in community pharmacy, with salaries ranging between RM 2,000 – RM 5,999. One respondent obtained a non-pharmacy job offer, with offered salary of less than RM 2,000. All successful applicants were single and worked in health clinic. A summary of the job applicants and successful applications were shown in Table 4.

A total of 36 comments were obtained when respondents were prompted to provide suggestions for the current training system. Several recurring themes were identified from the comments, covering the issues of fair appraisal and marking scheme for PRPs, more transparency in the assessment and selection process for permanent position, longer duration of PRP training with longer attachment in hospital, and provision of equal training opportunities. The respondents also hoped for a better learning environment with supportive preceptors and diversified training modules. The comments were summarised in Figure 2.

Table 1: Demographic characteristics and career preference of respondents (n=97)

| Characteristics   | n (%) / Mean $\pm$ SD |
|---|-----------------------|
| Age, years  | 25.60 $\pm$ 1.32      |
| Gender  |                       |
| Male  | 12 (12.4%)            |
| Female  | 85 (87.6%)            |
| Marital Status  |                       |
| Single  | 81 (83.5%)            |
| Married   | 16 (16.5%)            |
| Ethnicity   |                       |
| Malay   | 52 (53.6%)            |
| Chinese   | 36 (37.1%)            |
| Indian  | 6 (6.2%)              |
| Other   | 3 (3.1%)              |
| Graduation place  |                       |
| Local private university  | 59 (60.8%)            |
| Local public university   | 25 (25.8%)            |
| Overseas university   | 5 (5.2%)              |
| Private university with twinning program                          | 8 (8.2%)              |
| Designation   |                       |
| Registered pharmacist   | 76 (78.4%)            |
| Trainee pharmacist  | 21 (21.6%)            |
| Duration of service, month  | 22.5 $\pm$ 9.58       |
| Current facility  |                       |
| Health clinic   | 70 (72.2%)            |
| Hospital  | 24 (24.7%)            |
| State health department   | 3 (3.1%)              |
| Ideal retirement age  |                       |
| $\leq$ 40 years old   | 8 (8.2%)              |
| 41 - 50 years old   | 22 (22.7%)            |
| 51 - 60 years old   | 55 (56.7%)            |
| > 60 years old  | 12 (12.4%)            |
| Preference in working hours at MOH facilities                     |                       |
| Office hour only  | 42 (43.3%)            |
| After office hour service up until 11pm/ weekend/ public holidays | 29 (29.9%)            |
| 24 hours on-call/on-site  | 26 (26.8%)            |

Table 2: The relationship between ethnicity and career preferences

|   | Malay, n (%) | Chinese, n (%) | Indian, n (%) | Other, n (%) | p-value*     |
|---|--------------|----------------|---------------|--------------|--------------|
| Current workplace preference                    |              |                |               |              | <b>0.011</b> |
| Hospital  | 24 (46.2%)   | 17 (47.2%)     | 2 (33.3%)     | 0            |              |
| Community pharmacy / health clinic              | 22 (42.3%)   | 7 (19.4%)      | 1 (16.7%)     | 1 (33.3%)    |              |
| Other   | 6 (11.5%)    | 12 (33.3%)     | 3 (50.0%)     | 2 (66.7%)    |              |
| Prefer to remain in MOH after 10 years?         |              |                |               |              | <b>0.017</b> |
| Yes   | 25 (48.1%)   | 7 (19.4%)      | 1 (16.7%)     | 0.0%         |              |
| No  | 16 (30.8%)   | 19 (52.8%)     | 5 (83.3%)     | 2 (66.7%)    |              |
| Unsure  | 11 (21.2%)   | 10 (27.8%)     | 0             | 1 (33.3%)    |              |
| Willing to work in East Malaysia or rural areas |              |                |               |              | <b>0.023</b> |
| Yes   | 20 (38.5%)   | 5 (13.9%)      | 3 (50.0%)     | 0            |              |
| No  | 32 (61.5%)   | 31 (86.1%)     | 3 (50.0%)     | 3 (100.0%)   |              |
| Willing to work outside normal office hours     |              |                |               |              | 0.064        |
| Yes   | 34 (65.4%)   | 17 (47.2%)     | 4 (66.7%)     | 0            |              |
| No  | 18 (34.6%)   | 19 (52.8%)     | 2 (33.3%)     | 3 (100.0%)   |              |

\* Fisher's exact test

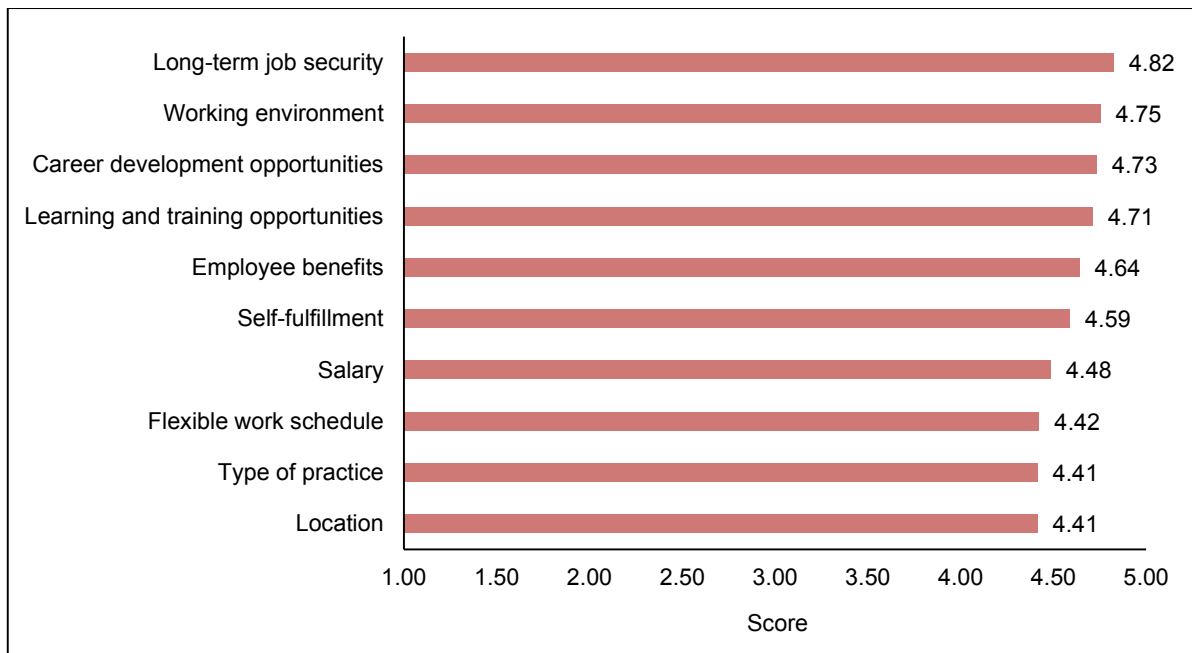


Figure 1: Factors in choosing career

Table 3: Perceptions on pharmacy career

| Statement   | n (%)          |            |            |            |                   |
|---|----------------|------------|------------|------------|-------------------|
|   | Strongly Agree | Agree      | Neutral    | Disagree   | Strongly Disagree |
| <b>Personal Career Plan</b>   |                |            |            |            |                   |
| I intend to eventually register as a pharmacist in Malaysia.  | 61 (62.9%)     | 33 (34.0%) | 3 (3.1%)   | 0 (0.0%)   | 0 (0.0%)          |
| I would like to work in government health facilities.   | 62 (63.9%)     | 28 (28.9%) | 6 (6.2%)   | 1 (1.0%)   | 0 (0.0%)          |
| I am optimistic about my career pathway.  | 33 (34.0%)     | 34 (35.1%) | 23 (23.7%) | 5 (5.2%)   | 2 (2.1%)          |
| I feel that I have a lot of opportunities to work outside government sector.                                      | 18 (18.5%)     | 31 (31.9%) | 28 (28.9%) | 18 (18.5%) | 2 (2.1%)          |
| I believe I can secure a job opportunity.   | 6 (6.2%)       | 21 (21.6%) | 36 (37.1%) | 24 (24.7%) | 10 (10.3%)        |
| I am confident that I will be able to work permanently in government service.                                     | 14 (14.4%)     | 10 (10.3%) | 23 (23.7%) | 23 (23.7%) | 27 (27.8%)        |
| <b>Training</b>   |                |            |            |            |                   |
| My university has prepared me well for my future pharmacy care.   | 17 (17.5%)     | 51 (52.6%) | 22 (22.7%) | 6 (6.2%)   | 1 (1.0%)          |
| My PRP training centre has prepared me well for my future pharmacy career.  | 22 (22.7%)     | 62 (63.9%) | 11 (11.3%) | 2 (2.1%)   | 0 (0.0%)          |
| I have equal chance with my other peers to obtain a place in government service.                                  | 10 (10.3%)     | 16 (16.5%) | 25 (25.8%) | 26 (26.8%) | 20 (20.6%)        |
| I think that PRP training facility affects the chances of obtaining an offer to work with MOH after PRP training. | 40 (41.2%)     | 27 (27.8%) | 25 (25.8%) | 5 (5.2%)   | 0 (0.0%)          |
| I think that PRP training in hospital provide more advantage than health clinic.                                  | 52 (53.6%)     | 27 (27.8%) | 13 (13.4%) | 3 (3.1%)   | 2 (2.1%)          |
| <b>Job Satisfaction</b>   |                |            |            |            |                   |
| I am satisfied with my current salary.  | 12 (12.4%)     | 54 (55.7%) | 25 (25.8%) | 6 (6.2%)   | 0 (0.0%)          |
| I am satisfied with the benefits I receive as a PRP in MOH.   | 21 (21.6%)     | 46 (47.4%) | 17 (17.5%) | 9 (9.3%)   | 4 (4.1%)          |
| I feel that I currently have a good work-life balance.  | 18 (18.6%)     | 36 (37.1%) | 29 (29.9%) | 13 (13.4%) | 1 (1.0%)          |
| I feel that I have sufficient opportunities to further my studies.  | 7 (7.2%)       | 25 (25.8%) | 39 (40.2%) | 20 (20.6%) | 6 (6.2%)          |
| I regret choosing pharmacy as a career pathway.   | 5 (5.2%)       | 12 (12.4%) | 30 (30.9%) | 20 (20.6%) | 30 (30.9%)        |

Table 4: Summary of job applicants and successful applications

| Characteristics                              | Started looking for job opportunity, n (%) (n=34) | Secured job offer, n (%) (n=8) |
|--|---|--------------------------------|
| Gender                                       |   |                                |
| Male   | 6 (17.6%)   | 1 (12.5%)                      |
| Female                                       | 28 (82.4%)  | 7 (87.5)                       |
| Marital status                               |   |                                |
| Single                                       | 31 (91.2%)  | 8 (100%)                       |
| Married                                      | 3 (8.8%)  | -                              |
| Ethnicity                                    |   |                                |
| Malay  | 17 (50.0%)  | 3 (37.5%)                      |
| Chinese                                      | 15 (44.1%)  | 5 (62.5%)                      |
| Indian                                       | 1 (2.9%)  | -                              |
| Other  | 1 (2.9%)  | -                              |
| Graduation place                             |   |                                |
| Local private university                     | 18 (52.9%)  | 5 (62.5%)                      |
| Local public university                      | 11 (32.4%)  | 3 (37.5%)                      |
| Overseas university                          | 1 (2.9%)  | -                              |
| Private university with twinning program     | 4 (11.8%)   | -                              |
| Current facility                             |   |                                |
| Health Clinic                                | 31 (91.2%)  | 8 (100%)                       |
| Hospital                                     | 3 (8.8%)  | -                              |
| Sector with perceived most job opportunities |   |                                |
| Community pharmacy                           | 30 (88.2%)  | -                              |
| Hospital                                     | 2 (5.9%)  | -                              |
| Pharmaceutical industry                      | 1 (2.9%)  | -                              |
| All sectors about the same                   | 1 (2.9%)  | -                              |
| Sector with job offered obtained             |   |                                |
| Community pharmacy                           | -   | 7 (87.5%)                      |
| Non-pharmacy                                 | -   | 1 (12.5%)                      |

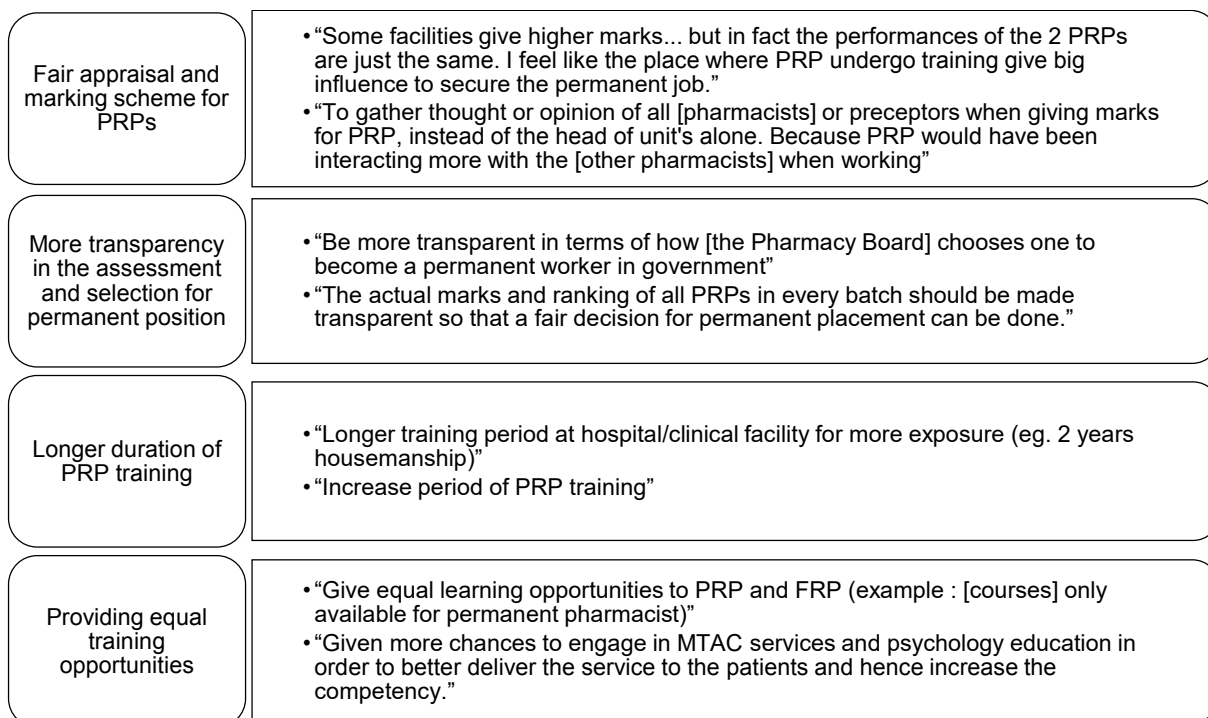


Figure 2: Summary of respondents' comments to improve PRP training

## Discussion

This study explored the diverse career preferences among contract pharmacists working in Kuala Lumpur and Putrajaya. Among the respondents in this study, hospital setting was the most preferred sector for an immediate placement, which is in agreement to the results of previous studies, including a local study among final year students, who desired the opportunity to gain clinical experience and knowledge from hospital (11, 12, 14). Hospital sector is often considered to offer more career development opportunities due to the variety of services provided, offering various experiences ranging from outpatient and inpatient pharmacy to aseptic drug preparation and therapeutic drug monitoring. A local qualitative study reported that PRPs from health clinic felt that their training in health clinic was not sufficient to handle work tasks in a hospital (3). It was noted that excluding MOH facility, more respondents saw themselves working in or managing their own community pharmacy after 10 years, rather than working in a private hospital. This could be due to the respondents acknowledging the lack of positions in private hospitals, where pharmacists are often more involved with drug procurement and management rather than taking a clinical role.

Respondents in this study rated extrinsic factors such as long-term job security and working environment as two of the most important factors in choosing their career. In a local study among local pharmacy undergraduates, monthly income and promotion potential were chosen as the first and second most important factor, respectively (13). Previous studies in overseas have reported that intrinsic factors (such as nature of work, sense of accomplishment, and opportunities of training and education) as the most frequently cited factors considered important in choosing their future career compared to extrinsic factors (such as salary, job security and working conditions) (17, 18). However, these studies were conducted among students, who may have more idealistic expectations compared to the respondents in this study. Factors in selecting career development tend to be dynamic and will change as the individual matures, starts a family and gains more exposure to real practice as well as external influences such as job prospects and the profession's image (19). In addition, with the current uncertainties in economic situation due to the COVID-19 pandemic, practical aspects such as long-term job security would understandably be a priority in career choice.

There were significant differences in career preferences between different ethnic groups, a trend that was also observed in previous studies, both local and abroad (13, 20-22). Malay participants in this cohort were more likely to choose conventional settings as their career preference such as hospital and community pharmacies compared to industrial pharmacy. There were also more Malay participants who were willing to work in rural areas and East Malaysia, and work outside normal office hours. Malaysia is a country where ethnic integration has not yet happened, with distinct differences between ethnic groups due to the preservation of separate identities and cultures (20, 23). Therefore, different community expectations and cultural priorities may have shaped the respondents' preferences. Significant differences of current workplace preferences were also observed among the respondents from different universities. However, this may be attributable to the uneven distribution of different ethnic groups in public and private universities, with significantly higher proportion of Malay participants from public universities.

There was an overwhelming interest among the respondents to work in government health facilities (92.8%). Considering that the respondents rated "long-term job security" as the most important factor in choosing their future career, this was somehow expected. However, there was a clear mismatch of demand and supply for available permanent positions in MOH due to limited available places, and this was reflected on the respondents' low confidence in their ability to secure a permanent position. During the COVID-19 pandemic, there have been numerous calls for the government to absorb contract healthcare workers into the public service to cater for staff shortage in the public healthcare sector (24). These calls were not answered, leading to a symbolical strike on July 2022 by healthcare workers, particularly doctors (24). Permanent positions were offered annually by MOH albeit at smaller quantity, and are usually located at rural areas or East Malaysia. However, these positions are usually not preferred, as evident from the responses in this study, in which only 28.9% were willing to take up job position in rural areas or East Malaysia.

Shortage of pharmacists, absence of 24-hour pharmacy services, and heterogeneous distribution of pharmacies with higher density in urban area compared to rural regions have been frequently cited by those who oppose dispensing separation (25, 26). Insufficient number of pharmacists is not anymore an issue, as Malaysia has now reached the World Health Organization (WHO) optimum pharmacists-to-population ratio of 1 per 2000 (26). However, unequal distribution of pharmacies between urban and rural areas, as well as unavailability of 24-hour pharmacy may still be an issue. In this study, almost half of the respondents were only willing to work during office hours, and less than one-third were willing to work in



rural areas or East Malaysia. Due to the greater opportunities and various personal situations, graduates tend to flock to main cities or remain in their own locality. This resulted in the disparity of healthcare access between urban and rural areas, a problem that has been reported in various countries including China (27), Iran (28) and even the United States (29).

It was notable that despite the current interest to work with MOH, only one-third of the participants saw themselves working in MOH facilities after ten years, and almost half of these were Malays (48.1%). However, it was unclear whether the disparity was due to low confidence of being able to be accepted as a permanent staff in MOH or it was due to preference to work in the private sector after gaining experience in the public sector. Respondents were also apprehensive regarding the prospect of obtaining any job offer, likely due to the uncertainty of the economy. Data collection was conducted at the end of 2020, a period in which the country experienced high unemployment rate as a consequence of the national movement control order following the COVID-19 pandemic. The average unemployment rate in 2020 was recorded at 4.5%, reaching the highest level since 1993 (30). However, the pandemic also provided opportunities for contract pharmacists working in this period to extend their contract and remain in service for a longer duration compared to the earlier batches of contract pharmacists (31).

Only eight of the 34 respondents who have looked for job opportunities secured a job offer in this cohort. From this limited number, it was noted that there were disproportionately more successful applicants who were single, Chinese, graduated from private university and worked in health clinics. This study does not generate data to explain the differences observed, but a local study showed that being Chinese or being a Malay with Chinese language proficiency improved call back prospects for job applicants in Malaysian private sector (32). Previous reports have also shown that female job-seekers in fertile age had often been discriminated in hiring due to the potential of pregnancy and being on extended maternity leave (33, 34).

Many respondents raised the issue of fair appraisal and transparency in marking of the PRP assessment, and selection of permanent staff. Over two-thirds of the respondents in this cohort believed that training facilities can affect chances of obtaining an offer to work with MOH after PRP training. Several different individuals hoped for a more transparent and fair marking system, with emphasis on standardisation and merit based on the trainee's performance. This issue had also been reported in another local study (3), and in a local media (35). With hundreds of different training facilities with even larger number of preceptors, variability in marking is unavoidable. However, there should be an effort for standardisation, by providing clear guidelines on marking criteria and ensuring all preceptors were sufficiently trained and adhere to the guidelines provided.

To our knowledge, this was the first study that attempted to explore perception of contract pharmacists regarding their career after the commencement of the new contract system. However, the generalisability of the result is limited by the small sample size, and the localised setting of the study, which primarily focused on pharmacists working in public health care facilities in the urban setting of Kuala Lumpur and Putrajaya. Future studies may want to explore perception of pharmacists who work in the private sector to provide better understanding of the pharmacy workforce as a whole. Very limited data was obtained regarding job application and hiring success rate. The small number of successful job applicants captured in this study may be due to the limitation in the study design, which focused on pharmacists still working in MOH facilities, whereas successful applicants would have likely resigned and moved on to their new job. Due to the limitation of the data collected, the findings need to be interpreted with caution and further study is necessary to understand factors affecting successful job application in pharmacy sector.

## Conclusion

Hospital setting was the preferred career option for pre-registration training as well as post-training career placement. Majority of the respondents would like to continue working within public health facilities, but the confidence in attaining the limited positions was fairly low. With the growing number of pharmacy graduates and limited available positions, there seemed to be a very high competition for job vacancies, with less than a quarter of job seekers being able to secure a job offer. There may be a need to review the current training system to improve their career prospect. This also calls for a need to broaden the scope of pharmacy services in Malaysia particularly in the private sector, where the pharmacists' potential is often underutilised.

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### Conflict of Interest Statement

The authors declare that they have no competing interests that could influence the work reported in this paper.

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