

Original Research

Practice, competency and attitude toward weight management service and the barriers for its implementation in the community pharmacy setting

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Abstract

Background: The World Health Organization has estimated that the prevalence of overweight and obesity in Jordan is up to 70% and 40% respectively. Identifying the community pharmacist's role is required to develop effective interventions for weight management. **Objective:** To evaluate practice, competence, and attitudes toward weight management service (WMS), and to explore the barriers associated with its implementation at the community pharmacy setting. **Methods:** The present cross-sectional study utilized a validated Face to face self-administered questionnaire, which was completed by community pharmacists and pharmacy technicians in different areas across Jordan. In addition to the socio-demographic variables, the study questionnaire evaluated pharmacists' practice, competency, attitudes, and the barriers for weight management services provision. **Results:** The participants showed inadequate practice and competency, but positive attitude towards WMS. Regression results revealed that having one to five years of work experience (OR= 2.419, 95% CI: 1.032:5.671, P<0.05), positive attitude (OR= 2.168, 95% CI: 1.285:3.656, P<0.01), and high competency (OR=3.377, 95% CI: 2.011:5.671, P<0.01) were associated with improved practice. On the other hand, having a Doctor of Pharmacy degree (OR=3.830, 95% CI: 1.259:11.649, P<0.05), and positive attitude (OR=3.590, 95% CI: 2.162:5.962, P<0.01) were associated with increased competency. Male participants showed unfavourable attitude towards the provision of WMS when compared to females (OR=0.597, 95%CI: 0.366:0.975, P<0.05), while having more than 6 years of work experience (OR=2.419, 95%CI: 1.032:5.671, P<0.05) was associated with improved attitude. Lack of patients' recognition of obesity as a disease (55.8%), lack of private consultation area in the pharmacy (53.1%), and inability to follow-up the patients (53%) were the most reported barriers to implement these WMS. **Conclusion:** Despite the frequent provision of WMS and the positive attitudes toward this service, the study participants did not demonstrate enough competency and reported several barriers to provide WMS.

Keywords: community pharmacy; weight management; competency; attitudes; practice; barriers

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INTRODUCTION

In 2019, the estimated worldwide prevalence of overweight and obesity was 60.8% and 32.1% respectively (40.4% in females compared to 24.2% in males), with an overall increase from 57% in 2004 to 60.8% in 2019.¹ In Jordan, the prevalence of overweight and obesity had been signed as the highest prevalence among middle east countries (39.94%).² Accumulation of excess fat affects health quality negatively and alarming positive risk factor for diseases including anatomical and metabolic complications,^{3,4} increased risk of cardiovascular disease, diabetes, chronic kidney disease, gastrointestinal problems, cancer,^{5,6} and susceptibility of obesity-related complications.⁷ Management of weight is complex, with forbearing need to perform self-management process which requires must struggle to make lifestyle and behavioral changes,^{8,9} and may need pharmacotherapy intervention in those who are obese or overweight.¹⁰ Healthcare providers should employ many strategies that encourage patients with obesity to adjust their lifestyles, as well as tracking patients with a BMI of 25 kg/m² and above.⁷ Pharmacists can contribute to the care of weight management by implementing interventions that focus on patient education about the potential complications of abnormal body weight and advise them of habits that improve overall health and life.¹¹ Literature reported positive attitudes by pharmacists toward WMS implementation.^{12,13} However, the



practice of this service is variant and has not been investigated extensively in the literature.

Due to conflicting results regarding the factors associated with pharmacists' behaviors and practice of WMS, more research is required to diminish this variability and to pinpoint the root determinants of pharmacists' attitudes toward and practice of these services. The current study aimed to examine the attitudes, competence, and practices of WMS and the barriers for its implementation in the community pharmacy setting.

MATERIALS AND METHODS

Study design and subjects

The present cross-sectional study was conducted using a face-to-face self-administered questionnaire on community pharmacists and pharmacy technicians who had more than six months of work experience in the period from May through August 2022.

Study instruments

After extensive literature review, the survey was adapted from an earlier study conducted for the same purpose.¹³ The questionnaire was reviewed for face and content validity by an expert panel, and it was piloted on fifteen community pharmacists and pharmacy technicians for clarity of the questions, relevance of the items, and time for completion. The survey started with a small paragraph, which described the study objective and the confidentiality of the study findings. A custom-designed questionnaire was used to collect socio-demographics and information about years of experience, area of work, position in the pharmacy, community pharmacy type and number of pharmacists and pharmacy technicians working during one shift. The survey also included four parts. The first part included 23 items, which evaluated the participants practice with regard to weight management in the community pharmacy setting on a five-point Likert scale ranging from never (score 1) to always (score 5). The perceived competencies were evaluated using 24 items where the participants provided their answers on a three-point Likert scale ranging from not competent (score 1) to fully competent (score 3). The attitudes toward WMS (9 items) and the barriers for implementing WMS (10 items) were evaluated on a five-point Likert scale ranging from strongly disagree (score 1) to strongly agree (score 5). The medians for the three computed scales (practice, perceived competencies, and attitudes toward WMS) were computed and participants who scored above the median were included in the high score group while those who scored below the median were included in the low score group for each scale.

Statistical analysis

The statistical package for social science (SPSS®) version was used for data analysis. This software allowed exploratory descriptive data analysis using the appropriate summary statistics, e.g. mean (SD) and frequency were used to for continuous and categorical variables respectively. The internal consistency of the four composed domains attitudes, competence, practice,

and barriers towards implementing weight managements services were evaluated by computing Cronbach's alpha and the results indicated high internal consistency for the four domains (Cronbach's alpha = 0.947, 0.935,0.942, 0.931 respectively). Binary regression models were conducted to evaluate the relationship between sociodemographic characteristics of the participants and the attitudes, perceived competencies, and practices with regard to WMS. The score groups for each scale were included as dependent variables while the sample characteristics were included as independent variables. Statistical significance was considered at P-value <0.05.

Ethics approval statement

The study was approved by the Institutional Review Board and the Deanship of Research at Jordan University of Science and Technology (REF: 52/151/2022). Participants who agreed to participate in the study were asked to sign a consent form.

RESULTS

The current study included 315 community pharmacists and pharmacy technicians from various regions across Jordan. The mean age was 28 years (SD=6.907). The majority of the participants were females (57.1%), single (68.6%), had a bachelor's degree in pharmacy (72.1%), and graduated from public universities (55.2%). Around one third of the participants had six years of experience and more (31.7%). Participants' demographic characteristics are presented in Table 1.

Table 1. Sociodemographic characteristics of the study participants (N = 315)		
		Mean (SD) or Frequency (%)
Age		28 (6.907)
Gender	Female	180 (57.1)
	Male	135 (42.9)
Level of education	Diploma in pharmacy	34 (10.8)
	Bachelor of science in pharmacy	227 (72.1)
	Doctor of pharmacy (Pharm D)	32 (10.2)
	Master of science in pharmacy	22 (7.0)
University of graduation	Private	141 (44.8)
	Public	174 (55.2)
Years of experience	6 Moths- 1 Year	88 (27.9)
	1-5 Years	127 (40.3)
	6-10 Years	60 (19.0)
	11-15 Years	19 (6.0)
	16-20 Years	10 (3.2)
	> 20 Years	11 (3.5)
Position in the pharmacy	Pharmacist in training	56 (17.8)
	Pharmacy manager	29 (9.2)
	Pharmacy owner	34 (10.8)



	Pharmacy supervisor	34 (10.8)
	Staff pharmacist	162 (51.4)
Community pharmacy type	Chain pharmacy	83 (26.3)
	Independent single pharmacy	232 (73.7)
Average number of pharmacists working during one shift	One	198 (63.2)
	More than 1	116 (36.8)
Average number pharmacy technicians working during one shift	0	138 (43.8)
	More than one	42 (13.3)
	One	135 (42.9)
Marital status	Married	99 (31.4)
	Single	216 (68.6)

SD, standard deviation

As shown in Table 2, the median of the total practice score was 75 (62-89). Most of the pharmacists often/always measured patients' blood pressure (BP) (58.7%), explained the risks associated with overweight and obesity (57.7%), and provided counselling on the proper use and/or side effects of weight reduction drugs, herbs, or dietary supplements (55.9%). On the other hand, estimating patient's body fat percentage (12.7%), and measuring patient's waist circumference (9.2%) were the least frequently provided weight management services.

As presented in Table 3, while many of the participants were fully competent of measuring patients' BP (53%), and explaining the risks associated with overweight and obesity (49.8%), more than 80% of them were incompetent or partially competent of estimating the patient's body fat percentage (81.9%) and

Table 2. Practice of weight management services (N=315)					
How frequently do you undertake the following weight management activities in your pharmacy?					
	Never	Rarely	Sometimes	Often	Always
	Mean (SD) or Frequency (%)				
Measure patient's weight	27 (8.6%)	49 (15.6%)	104 (33.0%)	70 (22.2%)	65 (20.6%)
Measure patient's height	70 (22.2%)	72 (22.9%)	83 (26.3%)	57 (18.1%)	33 (10.5%)
Measure patient's waist circumference	157 (49.8%)	84 (26.7%)	45 (14.3%)	22 (7.0%)	7 (2.2%)
Calculate patient's body mass index (BMI)	82 (26.0%)	86 (27.3%)	77 (24.4%)	45 (14.3%)	25 (7.9%)
Estimate patient's body fat percentage	134 (42.5%)	81 (25.7%)	60 (19.0%)	29 (9.2%)	11 (3.5%)
Measure patient's blood glucose	29 (9.2%)	44 (14.0%)	95 (30.2%)	64 (20.3%)	83 (26.3%)
Measure patient's blood pressure	17 (5.4%)	40 (12.7%)	73 (23.2%)	81 (25.7%)	104 (33.0%)
Identify patient or medication related factors that may contribute to weight gain	15 (4.8%)	45 (14.3%)	107 (34.0%)	88 (27.9%)	60 (19.0%)
Explain the risks associated with overweight and obesity	14 (4.4%)	33 (10.5%)	86 (27.3%)	94 (29.8%)	88 (27.9%)
Offer weight management related brochures or written educational information	45 (14.3%)	84 (26.7%)	98 (31.1%)	53 (16.8%)	35 (11.1%)
Evaluate obese/overweight patient readiness to change behavior in relation to weight management	24 (7.6%)	94 (29.8%)	99 (31.4%)	64 (20.3%)	34 (10.8%)
Establish a target goal for weight range for overweight/obese patients	42 (13.3%)	85 (27.0%)	94 (29.8%)	63 (20.0%)	31 (9.8%)
Estimate the daily caloric requirements for overweight/obese patients	90 (28.6%)	98 (31.1%)	73 (23.2%)	37 (11.7%)	17 (5.4%)
Advice on a healthy diet to achieve weight loss	18 (5.7%)	51 (16.2%)	89 (28.3%)	77 (24.4%)	80 (25.4%)
Review patient physical activity and design a physical activity plan	44 (14.0%)	73 (23.2%)	95 (30.2%)	73 (23.2%)	30 (9.5%)
Recommend weight loss medications, herbs or dietary supplements	18 (5.7%)	59 (18.7%)	82 (26.0%)	100 (31.7%)	56 (17.8%)
Counsel about the proper use and/or side effects of weight loss medications, herbs or dietary supplements	12 (3.8%)	51 (16.2%)	76 (24.1%)	87 (27.6%)	89 (28.3%)
Recommend weight loss supplies (eg, diet foods, fat burning devices, steps counting devices, etc ...)	16 (5.1%)	58 (18.4%)	82 (26.0%)	89 (28.3%)	70 (22.2%)
Counsel about the proper use of and/or side effects of weight loss supplies (eg, diet foods, fat burning devices, steps counting devices, etc ...)	15 (4.8%)	56 (17.8%)	89 (28.3%)	91 (28.9%)	64 (20.3%)
Counsel about weight monitoring for patients who are taking medications that can cause weight gain	23 (7.3%)	49 (15.6%)	104 (33.0%)	83 (26.3%)	56 (17.8%)
Monitor patient adherence to weight loss medications, herbs or dietary supplements	28 (8.9%)	70 (22.2%)	92 (29.2%)	84 (26.7%)	41 (13.0%)
Monitor patient adherence to nutritional/physical activity advice	40 (12.7%)	65 (20.6%)	104 (33.0%)	72 (22.9%)	34 (10.8%)



Review and monitor patient's progress in relation to weight management	41 (13.0%)	78 (24.8%)	87 (27.6%)	77 (24.4%)	32 (10.2%)
Refer overweight/obese patients to other healthcare professionals and specialist services where appropriate (eg, nutritionist, bariatric specialist, etc ...) for weight management purposes	19 (6.0%)	77 (24.4%)	94 (29.8%)	73 (23.2%)	52 (16.5%)
Practice score	75 (62-89)				

Table 3. Competency to provide weight management services (N=315)

Please rate your self-perceived competence in relation to provision of the following weight management services.

	Fully Competent	Not Competent	Partiality Competent
	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)
Measure patient's weight	141 (44.8%)	42 (13.3%)	132 (41.9%)
Measure patient's height	119 (37.8%)	56 (17.8%)	140 (44.4%)
Measure patient's waist circumference	75 (23.8%)	109 (34.6%)	131 (41.6%)
Calculate patient's body mass index (BMI)	114 (36.2%)	74 (23.5%)	127 (40.3%)
Estimate patient's body fat percentage	57 (18.1%)	123 (39.0%)	135 (42.9%)
Measure patient's blood cholesterol	61 (19.4%)	135 (42.8%)	119 (37.8%)
Measure patient's blood glucose	154 (48.9%)	49 (15.6%)	112 (35.6%)
Measure patient's blood pressure	167 (53%)	42 (13.3%)	106 (33.7%)
Identify patient or medication related factors that may contribute to weight gain	136 (43.2%)	35 (11.1%)	144 (45.7%)
Explain the risks associated with overweight and obesity	157 (49.8%)	35 (11.1%)	123 (39.0%)
Evaluate obese/overweight patient readiness to change behavior in relation to weight management	126 (40%)	44 (14.0%)	145 (46.0%)
Estimate the daily caloric requirements for overweight/obese patients	79 (25.1%)	90 (28.6%)	146 (46.3%)
Advice on a healthy diet to achieve weight loss	125 (39.7%)	49 (15.6%)	141 (44.8%)
Review patient physical activity and design a physical activity plan	90 (28.6%)	64 (20.3%)	161 (51.1%)
Recommend weight loss medications, herbs or dietary supplements	125 (39.7%)	50 (15.9%)	140 (44.4%)
Counsel about the proper use and/or side effects of weight loss medications, herbs or dietary supplements	149 (47.3%)	37 (11.7%)	129 (41.0%)
Recommend weight loss supplies (eg, diet foods, fat burning devices, steps counting devices, etc ...)	122 (38.7%)	39 (12.4%)	154 (48.9%)
Counsel about the proper use of and/or side effects of weight loss supplies (eg, diet foods, fat burning devices, steps counting devices, etc ...)	129 (41.0%)	38 (12.1%)	148 (47.0%)
Counsel about weight monitoring for patients who are taking medications that can cause weight gain	122 (38.7%)	37 (11.7%)	156 (49.5%)
Monitor patient adherence to weight loss medications, herbs or dietary supplements	112 (35.6%)	45 (14.3%)	158 (50.2%)
Monitor patient adherence to nutritional/physical activity advice	98 (31.1%)	47 (14.9%)	170 (54.0%)
Review and monitor patient's progress in relation to weight management	110 (34.9%)	51 (16.2%)	154 (48.9%)
Refer overweight/obese patients to other healthcare professionals and specialist services where appropriate (eg, nutritionist, bariatric specialist, etc ...) for weight management purposes	115 (36.5%)	47 (14.9%)	153 (48.6%)
Competence score	27 (22-34)		

measuring patient's blood cholesterol (80.6%). Furthermore, most of the participants showed incompetency or partial competency in measuring patients' waist circumference (76.2%) and estimating the daily caloric requirements for overweight/obese patients (74.9%).

Regarding attitudes (Table 4), most of the participants agreed statement was "Pharmacists should provide information and recommendations on weight loss medications, herbs,

and dietary supplements" (72.1%) and the least agreed statement was "Pharmacists should offer physical activity recommendations to help overweight/obese patients in losing weight" (57.4%). On the other hand, nearly 42.6% of the participants did not agree that pharmacists should offer physical activity recommendations to help overweight/obese patients in losing weight, and 41.6% of them did not agree with the statement "Pharmacists should be involved in monitoring weight related outcomes in overweight/obese patients".



As shown in Table 5, the most common barrier that hinder the implementation of WMS was “patients do not consider obesity as a disease” (55.8%). Other common barriers included “pharmacist perceived difficulty in being able to adequately

follow-up with the patient” (53%), “lack of private consultation area in the pharmacy” (53.1%), and “lack of patient’s awareness of the pharmacist’s expertise in relation to weight management” (53%).

What is your extent of agreement with the following statements?					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)
Pharmacists should provide information and recommendations on weight loss medications, herbs and dietary supplements	24 (7.6%)	23 (7.3%)	41 (13.0%)	107 (34.0%)	120 (38.1%)
Pharmacists should collaborate with other healthcare providers (eg physicians, dietitians, exercise physiologist or behavioral psychologist, etc ...) to help overweight/obese patients in losing weight	19 (6.0%)	27 (8.6%)	48 (15.2%)	102 (32.4%)	119 (37.8%)
Pharmacists should offer nutritional/dietary advice to help overweight/obese patients in losing weight	17 (5.4%)	30 (9.5%)	51 (16.2%)	124 (39.4%)	93 (29.5%)
Pharmacists should offer physical activity recommendations to help overweight/obese patients in losing weight	22 (7.0%)	39 (12.4%)	73 (23.2%)	105 (33.3%)	76 (24.1%)
Pharmacists should offer motivational/behavioral counseling to help overweight or obese patients in losing weight	21 (6.7%)	35 (11.1%)	51 (16.2%)	103 (32.7%)	105 (33.3%)
Pharmacists should be involved in setting the optimal weight goal in overweight/obese patients	24 (7.6%)	36 (11.4%)	64 (20.3%)	128 (40.6%)	63 (20.0%)
Pharmacists should be involved in monitoring weight related outcomes in overweight/obese patients	23 (7.3%)	39 (12.4%)	69 (21.9%)	112 (35.6%)	72 (22.9%)
Pharmacists should use point-of-care devices in the pharmacy (e.g.: weighing scale, blood pressure monitors, cholesterol testing etc. ...)	19 (6.0%)	33 (10.50%)	50 (15.9%)	111 (35.2%)	102 (32.4%)
Pharmacists should assess cardiovascular risk in at risk patients such as obese and overweight patients	17 (5.4%)	31 (9.8%)	52 (16.5%)	89 (28.3%)	126 (40.0%)
Attitude score	36 (29-40)				

What is your extent of agreement with the below factors being considered as barriers for implementing weight management services in the community pharmacy?					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)
Lack of pharmacist time for counseling	31 (9.8%)	46 (14.6%)	86 (27.3%)	99 (31.4%)	53 (16.8%)
Lack of patient demand for weight management services	33 (10.5%)	56 (17.8%)	91 (28.9%)	103 (32.7%)	32 (10.2%)
Lack of or inadequate reimbursement/financial compensation for pharmacists in relation to weight management	26 (8.3%)	46 (14.6%)	95 (30.2%)	103 (32.7%)	45 (14.3%)
Lack of private consultation area in the pharmacy	22 (7.0%)	53 (16.8%)	73 (23.2%)	118 (37.5%)	49 (15.6%)
Lack of patient’s awareness of the pharmacist’s expertise in relation to weight management	21 (6.7%)	48 (15.2%)	79 (25.1%)	108 (34.3%)	59 (18.7%)
Patient’s beliefs that obesity is controllable without medications	25 (7.9%)	68 (21.6%)	92 (29.2%)	82 (26.0%)	48 (15.2%)
Lack of or inadequate pharmacist’s knowledge in relation to weight management	36 (11.4%)	68 (21.6%)	78 (24.8%)	85 (27.0%)	48 (15.2%)
Lack of pharmacist’s interest to provide weight management services in the pharmacy	27 (8.6%)	59 (18.7%)	93 (29.5%)	92 (29.2%)	44 (14.0%)
Pharmacist perceived difficulty in being able to adequately follow-up with the patient	21 (6.7%)	50 (15.9%)	77 (24.4%)	110 (34.9%)	57 (18.1%)

Lack of management support in relation to provision of weight management services in the pharmacy	16 (5.1%)	58 (18.4%)	89 (28.3%)	106 (33.7%)	46 (14.6%)
Patient opinions about obesity not as a disease	20 (6.3%)	42 (13.3%)	77 (24.4%)	105 (33.3%)	71 (22.5%)
Lack of willingness among patients to work at losing weight	15 (4.8%)	53 (16.8%)	88 (27.9%)	106 (33.7%)	53 (16.8%)
Barriers score	41 (34-48)				

The regression model indicated that pharmacists with one to five years of experience had significantly higher odds to be in the high practice group than those with less than one year of practice (OR= 2.419, 95% CI: 1.032:5.671, P-value<0.05). Pharmacists with a positive attitude towards WMS had double the odds to be in the high practice group when compared with participants with negative attitude (OR= 2.168, 95% CI: 1.285:3.656, P-value<0.01). Furthermore, pharmacists with high competence level towards WMS had significantly higher odds to be in the high practice group when compared with low competence (OR=3.377, 95% CI: 2.011:5.671, P-value<0.01). On the other hand, Pharm D participants had significantly higher odds to be in the high competence group when compared to diploma participants (OR=3.830, 95% C.I: =1.259:11.649, P-value<0.05). Moreover, participants with a positive attitude toward WMS tended to be in the high competence group compared to those with negative attitude (OR=3.590, 95% C.I: =2.162:5.962, P-value<0.01). Male pharmacist had lower odds of having positive attitude when compared to females (OR=0.597, 95%C.I.:0.366:0.975, P<0.05), whereas those with more than 6 years of experience had higher odds of having positive attitude than those with less than 1 year of experience (OR=2.419, 95%C.I.:1.032:5.671, P<0.05).

DISCUSSION

The most frequently provided WMS in the current study was measuring patients' BP (58.7%). Higher percentages were reported in earlier studies.^{12,14} A study conducted in the UK found that most of the participants provided BP monitoring as a WMS.¹⁵ On the other hand, around 75% of the participants in other study rarely/never measured patients' BP.¹⁴ Since obesity is a significant cardiovascular risk factor, screening cardiovascular risks using physiological measurements such as BP would help reduce these risks by resolving any BP disorders through referral to a private physician, and the appropriate use of weight-loss medications.

The current study showed that pharmacists and technicians with longer work experience, positive attitude, and high competency had significantly higher WMS practice. Pharmacists and technicians with higher work experience would undoubtedly be more knowledgeable and skilled, enabling them to offer tailored advice on weight loss products and so improve their practice of WMS. Having positive beliefs and high competence towards WMS would also promote the tendency of the participants to provide these services

The participants' competence to provide various WMS in the current study seems inadequate, with over 80% of them being incompetent or partially competent of estimating the patient's

body fat percentage (81.9%). Similar results were found in a Qatari study.¹⁴ These findings necessitate the provision of ongoing educational interventions through informative lectures with interactive case discussions or training with fictitious patients in order to increase competency in providing WMS.^{16,17} Earlier research showed that education is a key determinant of adults' competency.¹⁸ This theory was confirmed in our study, which found that pharmacists with a Doctor of Pharmacy degree were more likely to have high competence of providing WMS when compared with a diploma degree. The positive attitude of the participants toward providing WMS was another factor that significantly boosted their competency in doing so.

The majority of the participants in the present study showed a positive attitude towards the provision of WMS. This result was in line with that of previous studies conducted in Sudan,¹⁹ Malaysia,^{17,20} Qatar,¹³ and Scotland.²¹ The majority of the current study participants believed that they should provide information and recommendations on weight loss medications, herbs, and dietary supplements, and collaborate with other healthcare providers to help overweight/obese patients in losing weight. Similar results were found in a Qatari survey.¹³ However, nearly 70% of the pharmacists who participated in earlier study thought that pharmacists and pharmacy technicians did not provide the customers with enough information about weight-loss products.²² Furthermore, the majority of the pharmacists and technicians in a Malaysian survey believed that collaboration amongst healthcare experts is necessary for effective management of obesity and overweight, and that community pharmacists alone are unable to do so.¹⁴ This highlights the importance of managing obesity/overweight through cooperation amongst healthcare providers since a multidisciplinary team, consisting of a doctor, nutritionist, behavioral therapist, exercise specialist, nurses, and pharmacist, can accomplish a successful management of this disorder.^{23,24}

Even though the current study demonstrated favorable attitude towards the provision of WMS, male participants showed less willingness to provide WMS than females. This result might be justified by gender differences in pharmacists' job satisfaction, which was found higher among female pharmacists.²⁵ Furthermore, greater years of job experience were significantly associated with better attitude towards the provision of WMS. The improvement in knowledge and abilities acquired through the professional experience could raise the ability and eagerness to offer various sorts of pharmaceutical care services, including WMS.

In the current study, the most frequently reported barriers to the provision of WMS were patients' opinion about obesity not as a disease, which was higher than that reported in earlier



study,²⁶ but lower than that of another study.¹³ This finding may be explained by patients' ignorance of obesity and the risks it entails. Furthermore, the current study participants believed that the perceived difficulty in being able to adequately follow-up with the patient, lack of private consultation area in the pharmacy, and lack of patient's awareness of the pharmacist's expertise in relation to weight management were barriers to WMS provision. Earlier study found that over 80% of the community pharmacists recognized patient monitoring as a perceived barrier for WMS provision.¹³ Lack of space for private consultation was also identified as a barrier for providing WMS in previous research.^{12,13,17,21,26-28} Most of the pharmacies are designed with a physical space that supports the dispensing role, while a little room is available for counseling, which might limit the tendency to discuss obesity-related issues due to diminished privacy. This highlights the importance of upgrading future pharmacies design to include an appropriate space for private counseling to help pharmacists provide more effective and confidential WMS. Concerning the lack of patient's awareness of the pharmacies and pharmacy technician expertise in relation to weight management, around 35.5% of previous study participants found it a barrier to offering WMS.²⁸ The majority of the participants recognized this hurdle in other studies.^{13,26} Therefore, it is deemed necessary to enhance public perception towards pharmacists and pharmacy technicians role in obesity counseling and management.²⁸

CONCLUSIONS

Despite the frequent provision of WMS and the positive attitudes toward its implementation, the community pharmacists and pharmacy technicians did not demonstrate enough competency and reported several barriers to provide such service. Health policy makers should implement education and training campaigns in order to improve competency and to adapt strategies for overcoming the identified barriers for the

provision of WMS in the community pharmacy setting.

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CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest to declare.

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AUTHORS' CONTRIBUTION

ASJ conceived and designed the study, supervised the project, conducted research, provided research materials, and wrote initial and final draft of article. WA validated instruments, organized, analysed and interpreted data and reviewed the manuscript. DFM: designed the study, collected, organized, analysed and interpreted data, and wrote initial and final draft of article. SRA designed the study, collected, organized, analyzed and interpreted data, and wrote initial and final draft of article. AYN conceived the study and research methods, co- reviewed the final draft of article, and provided logistic support. YNA: conceived the study co-supervised the study and reviewed the final draft of the manuscript. AA: conceived the study co-supervised the study, reviewed the final draft of the manuscript, and provided logistic support. All authors have critically reviewed and approved the final draft of the study and agreed to be accountable for all aspects of the work.

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