



CODEN [USA]: IAJPB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.2562602>Available online at: <http://www.iajps.com>

Research Article

**KNOWLEDGE, ATTITUDE AND PRACTICES OF  
HEALTHCARE PROVIDERS REGARDING SAUDI  
GUIDELINES ON THE DIAGNOSIS AND TREATMENT OF  
PULMONARY HYPERTENSION****Abdulrahman Abdullah Alruwaili<sup>1</sup>, Abdulrahman Muflih Alruwaili<sup>1</sup>, Zedan Saud Alanaze<sup>1</sup>, Yasir Mohammed Alasmari<sup>1</sup>, Arwa Abdullah Almugathawi<sup>2</sup>, Noor Hussain Alalawi<sup>3</sup>, Ghadeer Hassan AlJulaih<sup>4</sup>**

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**Abstract:**

**Background:** Pulmonary hypertension is an increase in mean pulmonary arterial pressure equal or more than 25 mm Hg at rest, assessed by right heart catheterization. It usually comes with dyspnea, fatigue, chest pain, edema and it is female predominance.

**Methodology:** With a total of 343 physicians a cross-sectional study was conducted from September 25, 2018, to November 20, 2018, covering physicians from different levels using a questionnaire.

**Results:** While comparing the mean difference of knowledge score, we found the highest between the interns and the consultants -1.999. The lowest mean difference of practices score is between the residents the specialist -0.344. For the attitude, the lowest mean difference is between the residents and the consultants -0.074

**Conclusion:** The study shows that with the increase of professional level there is an increase in the mean of knowledge and practices. Hence, we should focus our resources on the junior physicians. Other studies discuss the same issue here is needed.

**Keywords:** KAP, Pulmonary hypertension, Guidelines, Awareness, Saudi Arabia.

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Please cite this article in press Abdulrahman Abdullah R. Alruwaili et al., *Knowledge, Attitude And Practices Of Healthcare Providers Regarding Saudi Guidelines On The Diagnosis And Treatment Of Pulmonary Hypertension.*, Indo Am. J. P. Sci, 2019; 06(02).

**INTRODUCTION:**

Pulmonary hypertension (PH) is defined as an increase in mean pulmonary arterial pressure (mPAP) equal or more than 25 mm Hg at rest which assessed by right heart catheterization (RHC) (1). Female predominance has been shown in different countries. In the UK female-to-male ratio is 1.8 (2). In a study conducted in Saudi Arabia revealed a female prevalence of 72.3% (3). PH has been classified by the World Health Organization (WHO) into 5 groups. Group 1, pulmonary arterial hypertension. Group 2, pulmonary hypertension due to left heart disease. Group 3, pulmonary hypertension due to lung diseases and/or hypoxemia. Group 4, Chronic thromboembolic pulmonary hypertension (CTEPH), Group 5, pulmonary hypertension with unclear and/or multifactorial mechanisms (4).

The first investigation to consider when suspecting PH is Transthoracic Doppler-echocardiography (TTE), which is used to acquire the tricuspid jet velocity (TJV) which in turn used to measure the right ventricle systolic pressure (RVSP) that is equivalent to the systolic pulmonary artery pressure (sPAP). RHC is considered the gold standard for the diagnosis of PH and should be done to confirm the diagnosis. (5)(6).

PH patients may present with dyspnea, fatigue, chest pain, and edema. These symptoms are not specific which may be the cause for late diagnosis as some study showed more than 70% of the patients presented with modified New York Heart Association (NYHA) functional Class III or IV (7)(8). So, a lower threshold for suspicion of PH is

needed in high-risk patients such as connective tissue disease (CTD) or congenital heart disease (CHD).

Considering this challenging disease, the Saudi Association for Pulmonary Hypertension (SAPH) had developed the Saudi guidelines on the diagnosis and treatment of pulmonary hypertension which was last updated in 2014 (5).

**AIM:**

To explore the level of knowledge of healthcare providers and their attitude and practices regarding the Saudi guidelines on the diagnosis and treatment of pulmonary hypertension.

**Study design and methods**

A cross-sectional study was conducted from September 25, 2018, to November 20, 2018, covering physicians from different levels (Consultant, specialist, resident, and intern). A total of 343 physicians were voluntarily and anonymously surveyed in this study. A pretested questionnaire has been distributed to the target population consisted of 15-items capture their knowledge, attitude and practices regarding the Saudi guidelines on the diagnosis and treatment of pulmonary hypertension. Regarding the knowledge and practices score, we calculate the correct response and we used Likert scales to calculate the attitude score.

**RESULTS:**

Out of 343 physicians participate in the study a 174 (50.7%) were females. Most of the participants were interns 142 (41.4%), while the consultants were 38 (11.1%). The mean age of the residents was 29.8 and the overall mean age was 31.3 (Table 1)

Table 1. Socio-demographic characteristics of the participants

		Sex			Age
		Male	Female	Total	Mean
		N (%)	N (%)	N (%)	
Professional level	Interns	58 (16.9%)	84 (24.5%)	142 (41.4%)	24.7
	Residents	52 (15.2%)	48 (14%)	100 (29.2%)	29.8
	Specialists	34 (9.9%)	29 (8.5%)	63 (18.4%)	38.1
	Consultants	25 (7.3%)	13 (3.8%)	38 (11.1%)	48.3
	Total	169 (49.3%)	174 (50.7%)	343 (100%)	31.3

Table 2. Mean difference of knowledge score between of the participants

(I) Professional level	(J) Professional level	Mean Difference (I-J)	Std. Error	Sig.
Interns	Residents	-1.047*	0.126	0.000
	Specialists	-1.506*	0.156	0.000
	Consultants	-1.999*	0.213	0.000
Residents	Specialists	-0.459*	0.164	0.036
	Consultants	-0.951*	0.219	0.000
Specialists	Consultants	-0.492	0.238	0.225

\*. The mean difference is significant at the 0.05 level.

When comparing the mean difference of knowledge score between different professional level, we found the highest between the interns and the consultants -1.999 and the lowest is between the residents and the specialists -0.459 (Table 2).

Table 3. Mean difference of practices score between of the participants

(I) Professional level	(J) Professional level	Mean Difference (I-J)	Std. Error	Sig.
Interns	Residents	-1.208*	0.147	0.000
	Specialists	-1.552*	0.195	0.000
	Consultants	-2.265*	0.245	0.000
Residents	Specialists	-0.344	0.214	0.506
	Consultants	-1.057*	0.261	0.001
Specialists	Consultants	-0.713	0.291	0.094

\*. The mean difference is significant at the 0.05 level.

Table 3 shows the mean difference of practices score between the participants' groups. The highest difference is between the interns and the consultants -2.265 and the lowest between the residents the specialist -0.344.

Regarding the attitude the lowest mean difference is between the residents and the consultants -0.074 and the highest is between the interns and the specialists -2.474 (Table 4)

Table 4. Mean difference of attitude score between of the participants

(I) Professional level	(J) Professional level	Mean Difference (I-J)	Std. Error	Sig.
Interns	Residents	-1.911*	0.328	0.000
	Specialists	-2.474*	0.410	0.000
	Consultants	-1.837*	0.434	0.000
Residents	Specialists	-0.562	0.438	0.742
	Consultants	0.074	0.461	1.000
Specialists	Consultants	0.637	0.522	0.785

\*. The mean difference is significant at the 0.05 level.

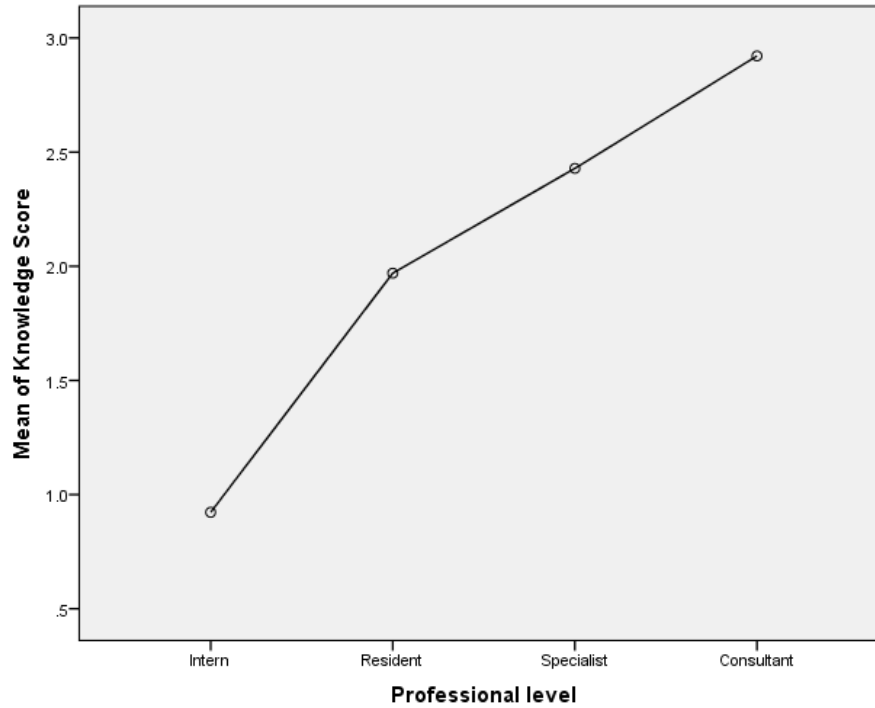


Figure 1. Means plots of knowledge score

As presented in figure 1, the consultants have the highest mean of knowledge score 2.92 which the highest possible score is 4. The lowest mean of knowledge with the interns 0.92 and the total mean is 1.73.

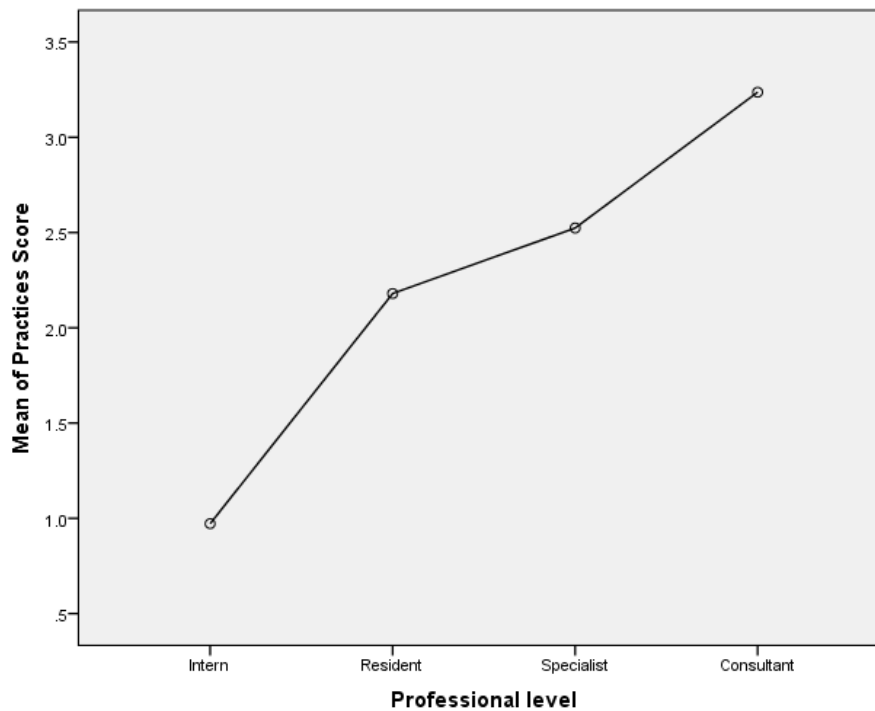


Figure 2. Means plots of practices score

Regarding practices similar to the knowledge the consultants have the highest mean 3.24 and the interns have the lowest 0.97 in which the highest possible practices score is 5 with total mean of 1.86 (Figure 2).

As for the attitude the specialists and the residents have the highest mean 12.95 and 12.39 respectively. But, the lowest here still with the interns 10.48 and the consultants mean score is 12.32. The total mean is 11.9 and the highest possible score is 20 (Figure 3).

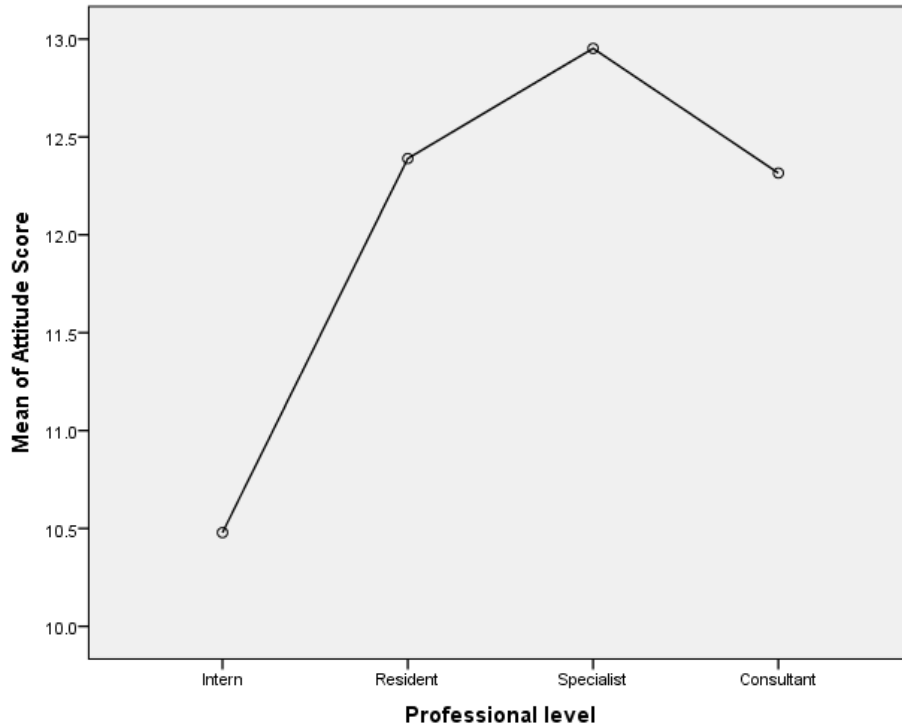


Figure 3. Means plots of attitude score

When asked about the reason of the underuse of the Saudi guidelines 188 have not read it yet. And about 35% said there should be a specialized center in every city and about 12% said only a few in the country.

#### DISCUSSION:

To our knowledge there were no studies tried to discuss the knowledge, attitudes, and practices of healthcare provider about the Saudi guidelines of pulmonary hypertension, therefore this study will give us an idea about the gap of knowledge and wither or not is it beneficial to target some of our resources to increase the awareness about pulmonary hypertension.

When comparing the knowledge result, we see that the consultants have a higher mean of knowledge score 2.92 (73%) than the specialists, residents, and interns. The results here are expected as it shows that higher professional level accompanied with higher mean of knowledge score. But what to point here is

the low overall mean 1.73 (43.25%) this may be due to the high prevalence of the interns and the residents 41.4% and 29.2% respectively were with the interns the mean of knowledge score is 0.92 (23%) and the residents 1.97 (49.25%).

Regarding practices, we can see a similar story to the knowledge as the consultants have the highest mean of practices score 3.24 (64.8%). But here the overall mean is lower 1.86 (37.2%).

On the contrary, the attitude result showing a higher mean of attitude score with the specialists, residents, consultants, and interns respectively. But it should be noted that the only significant value here is between the interns and the rest of the participants.

This study does not come without any limitations, some of it were the uneven distribution of participants groups, the questionnaire consists of 15-items only and the absence of any similar studies to compare their results with ours.

**CONCLUSION:**

The study shows that with the increase of professional level there is an increase in the mean of knowledge and practices score. Hence, we should focus our resources on the interns and the residents more to increase the awareness about pulmonary hypertension, especially the local guidelines. Other studies discuss the same issue here is needed.

**Acknowledgment**

We would like to thank the participants for their time to complete the questionnaire and we send our appreciation to the following: Ebaa Ahmed Almufadhi, Ahad Eid Alotaibi, Noor Nahar Bu Murah and Moaath Ali Mohammed Khormi for their help as data collectors.

**Conflict of interest and funding**

The authors declare no conflict of interest. The study was self-funded.

**REFERENCES:**

1. McLaughlin V V., Archer SL, Badesch DB, Barst RJ, Farber HW, Lindner JR, et al. ACCF/AHA 2009 Expert Consensus Document on Pulmonary Hypertension. A Report of the American College of Cardiology Foundation Task Force on Expert Consensus Documents and the American Heart Association Developed in Collaboration With the American College of Chest Physicians; American Thoracic Society, Inc.; and the Pulmonary Hypertension Association. *J Am Coll Cardiol* [Internet]. 2009;53(17):1573–619. Available from: <http://dx.doi.org/10.1016/j.jacc.2009.01.004>
2. Galiè N, Humbert M, Vachiery J-L, Gibbs S, Lang I, Torbicki A, et al. 2015 ESC/ERS Guidelines for the diagnosis and treatment of pulmonary hypertension. *Eur Heart J* [Internet]. 2016;37(1):67–119. Available from: <https://academic.oup.com/eurheartj/article-lookup/doi/10.1093/eurheartj/ehv317>
3. Alhamad E, Cal J, Alfaleh H, Alshamiri M, AlBoukai A, AlHomida S. Pulmonary hypertension in Saudi Arabia: A single center experience. *Ann Thorac Med* [Internet]. 2013;8(2):78. Available from: <http://www.thoracicmedicine.org/text.asp?2013/8/2/78/109816>
4. Simonneau G, Gatzoulis MA, Adatia I, Celermajer D, Denton C, Ghofrani A, et al. Updated clinical classification of pulmonary hypertension. *J Am Coll Cardiol*. 2013;62(25 SUPPL.).
5. Aldabbagh M, Aldalaan A, Aldammas S, Alhazmi M, Alnajashi K, Alhabeeb W, et al. Saudi guidelines on the diagnosis and treatment of pulmonary hypertension: 2014 updates. *Ann Thorac Med* [Internet]. 2014;9(5):1. Available from: <http://www.thoracicmedicine.org/text.asp?2014/9/5/1/134006>
6. Badesch DB, Champion HC, Gomez Sanchez MA, Hoeper MM, Loyd JE, Manes A, et al. Diagnosis and Assessment of Pulmonary Arterial Hypertension. *J Am Coll Cardiol* [Internet]. 2009;54(1 SUPPL. 1):S55–66. Available from: <http://dx.doi.org/10.1016/j.jacc.2009.04.011>
7. Idrees MM, Al-Najashi K, Khan A, Al-Dammas S, Al-Awwad H, Batubara E, et al. Pulmonary arterial hypertension in Saudi Arabia: Patients' clinical and physiological characteristics and hemodynamic parameters. A single center experience. *Ann Thorac Med* [Internet]. 2014 Apr 14;9(4):209–15. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4166067/>
8. Humbert M, Sitbon O, Chaouat A, Bertocchi M, Habib G, Gressin V, et al. Pulmonary arterial hypertension in France: Results from a national registry. *Am J Respir Crit Care Med*. 2006;173(9):1023–30.