Original Article

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Evaluation of drug management competency: A comparison between the 360-degree appraisal and manager assessment

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Abstract

Competency assessment is very essential for human resource development. However, there are various types of competency evaluation methods. The aim of this study is to compare the 360-degree appraisal and the manager assessment for evaluating the drug management competency of staff working at Tambon Health Promoting Hospitals in Chonburi Province, Thailand. Self-administered questionnaire was used as the data collection tool. The total of 310 participants was included in this study. The drug management competency level of staff was evaluated using the 360-degree appraisal and the manager assessment. Independent sample t-test was applied to analyze the differences between the two assessment methods. The results revealed no statistical significant discrepancy of the competency score evaluated by different methods. However, small variation in the actual competency score was observed. The competency score evaluated by manager assessment were higher than that of 360-degree appraisal in most of drug management criteria. On the other hand, the competency score for four out of twenty criteria evaluated by managers were lower. This major finding raises an issue of overestimation of the competency level. Therefore, the 360-degree appraisal should be considered as one of the appropriate competency evaluation tools for staff's competency because of its advantage in minimizing the possibility of bias which might be occurred by the conventional manager assessment.

Keyword: evaluation, drug management competency, 360-degree appraisal, Tambon Health Promoting Hospital, Thailand

1. INTRODUCTION

The Tambon Health Promoting Hospital (THPH) is the hospital in the primary health care level. They provide health services concerning health promotion, protection, treatment and rehabilitation to the people in the responsible sub-district area under the supervision of the community hospitals as the Contracting Unit for Primary Care (CUP) which provide support and control of quality and standard of the THPHs[1]. Among the tasks that a THPH operates, drug management is one of the crucial important duties. Generally there are four processes in the drug management in each hospital; drug selection, procurement, distribution and prescription[2]. According to a drug management study of THPHs in the southern part of Thailand, it was found that drug management of many THPHs was not very effective and some were lack of quality. Important problems were due to staff's competency. Responsible staff did not have sufficient skills and knowledge in managing the medical supplies. Medical supply process was not conducted in accordance with the standard criteria[3]. Moreover, similar problems were reported in several primary health care centers as well. Common issues observed were also due to insufficient skills and knowledge of staff in the management of drug which led to

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many problems e.g. over stock of medical supplied, low turnover rate, expired medicines, poor storage system in the refrigerators and incomplete labeling of products[4-7]. As competency comprises of knowledge, skill, ability including attitude and other characteristics that make people to create outstanding and efficient work in an organization, deficient in any parts of these could result in inferior work performance and could be considered as inadequate competency[8].

Competency assessment is very important for human resource development. Its main purpose is to obtain better understanding regarding the strengths and weak points of staff. It is widely used to promote, provide rewards and arrange proper traning courses for staff[8]. Presently, there are various tools commonly used to evaluate the competency of staff. Each has its advantages and disadvantages. The assessment by manager can be considered as one of the most popular assessment tools. By applying the manager assessment, staff are usually evaluated by their supervisors or directors. With this method, the bias arisen from the judgment made by only one person might lead to staff's unsatisfaction[9]. A study revealed that the staff received less score for their drug management competency when they were evaluated by their supervisors[10].

On the contrary, the 360-degree appraisal, an assessment tool used to evaluate leadership and competency, is being increasingly popular nowadays. There are many organizations that apply this method to evaluate their staff's competency. This assessment tool has been considered better to the conventional tool as it assists in reducing bias of evaluating by supervisor as the only single source [11]. The 360-degree appraisal is a valid and reliable method since the evaluation is done by multisource i.e. peers, supervisor, subordinate and the person under evaluation. This method can solve the weakness of the manager assessment. However, the weakness of the 360-degree appraisal is due to opinion difference of each assessor. As everybody has his own mindset and expectation, employees working at different levels could have different view point and opinion regarding the same person. In addition, the feedback also depends upon the expectation of a particular person. Thus, this might lead to some kind of bias as a result[12]. Therefore, the researcher was interested in conducting a research study to compare the 360-degree appraisal and the manager assessment for evaluating drug management competency of staff who work at THPHs in Chonburi Province, Thailand. The results would be very beneficial to propose the proper assessment tool which should be used in the evaluation of drug management competency of staff at the THPHs.

2. MATERIALS AND METHODS

2.1 Study design

This is a descriptive survey research. The self-administrered questionnaire was used as the tool for data collection. The 360-degree appraisal and the conventional evaluation "manager assessment" were the competency evaluation methods employed in this study.

2.2 Sample

The target population of the study were from 116 THPHs in Chonburi province. Four persons per one THPH were recruited for the study. Four respondents consisted of one officer who held the main responsibility in drug management, the THPH director and two other officers who worked with the drug management officer. The total number of respondents was 464 persons. In each THPH, a person who was engaged in drug management not only assessed ownself but also was assessed by others.

2.3 Questionnaire

The data collection was done by using self-administrered questionnaire which was developed in accordance with the competency evaluation criteria in the Manual of Primary Health Care Unit standard and quality assurance of the Ministry of Public Health[13]. The content and construct validity tests were verified by three experts. The pilot test was completed by 32 staff in Chachoengsao Province, Thailand. The Cronbach's alpha coefficient was 0.85.

Research questionnaire consisted of two parts. The first part asked the respondents about

personal information (gender, age, education level, position, work experience) while the second part, composing of twenty questions, requested them to evaluate the staff's competency on drug management in four dimensions. Four dimensions were 1) drug selection, 2) procurement, 3) distribution and 4) prescription. Staff's competency was divided into five levels; (level 1 expressed the lowest competency level and level 5 showed the highest competency level). To calculate the staff's competency, weight average score was used to reduce the bias from each rater. The score rated by the director and each colleague accounted for 30% and 25% of the total score, respectively. The rest 20% of the total score came from the staff's self-rating [14]. The competency score of each dimension was calculated from the score multiplied by the weight assigned for each assessor. The score was then sum up and divided by the total number of criteria in each dimension. The difference in the competency score was calculated by subtracting the score rated using the 360-degree appraisal by that of the manager assessment [15].

2.4 Data collection

The study protocol and instrument received approval by Faculty of Dentistry and Faculty of Pharmacy Mahidol University Institutional Review Board. The total of 464 questionnaires were directly sent to the target group in 116 THPHs by head of each THPH during January 2015 to February 2015. After the questionnaire was completed, returned questionnaires were sent back to researcher team by post.

2.5 Data Analysis

The data collected were reviewed and verified for completeness before entering into the computer. Statistical Package for the Social Sciences (SPSS) version 18 was used as the main data analysis tool. Descriptive statistics were employed to describe personal information of respondents and the staff competency assessment. The independent sample t-test was applied to analyze the differences in the competency score assessed by the 360-degree appraisal and the manager assessment.

3. RESULTS

Of 464 questionnaires sent out, the total of 310 questionnaires from 80 THPHs were returned, resulting in the response rate of 68.97 %. The findings showed that the responsible staff were predominantly female (93.8%). The average age was 37 years old, the maximum age was 56 years old and the minimum was 21 years old. Majority of them were married (55%). More than half had got a bacherlor's degree (78.8%). Regarding the position, it was found that most of them were nurse (45%) and public health officer (27.5%). In addition, majority of them have been working in each THPH for approximately 11.2 years with average 7 years of work experience as the staff involving in drug management. Regarding the training history, the study revealed that majority of them (96.2%) did not attend any training courses on drug management before started working in this position. Moreover, more than half of them (68.8%) reported that they did not participate in any training programs during their work.

In terms of drug management competency, the results showed no statistical significant difference in the evaluation of competency score between two assessment methods in all dimensions. Nevertheless, it was observed that the actual score acquired from different methods was varied. The study found that in most of the criteria, competency score from the manager assessment were higher than that of the 360-degree appraisal. On the contrast, even though the statistical test showed no significant difference, the actual findings obtained from the study showed that the competency score for four out of twenty criteria assessed by managers were lower. Those criteria were 1) ability to prepare the annual report on value of use and utilization of drugs and medical supplies (item 3) in drug selection dimension, 2) ability to check and record the temperature of the refrigerator every day (item 10), 3) ability to create the stock card and accurately update the data in the record (item 12) and 4) ability to control the inventory holding rate less than 3 months (item 14) in drug distribution dimension. According to the statistical testing, the study revealed that in

three criteria, the competency score rated by diferent methods were significantly different. Those criteria were 1) ability to check the accuracy of drugs and medical supplies after receiving from the CUP (item 6) in drug procurement dimension, 2) ability to to properly store the drugs and medical supplies in accordance with the standard (item 7) and 3) ability to store the drugs in the proper temperature (item 9) in drug distribution dimension. The comparison of drug management competency score evaluated using the 360-degree appraisal and the manager assessment was shown in Table 1 and 2.

Table 1. The comparison of drug management competency evaluated by using the 360-degree appraisal and the manager assessment: Summary

Drug management criteria	Competency score (mean, SD)		p-value
	360 – degree assessment	Manager assessment	
1. Drug selection	3.80 (0.49)	3.83 (0.68)	0.730
2. Drug procurement	3.89 (0.43)	3.99 (0.50)	0.195
3. Drug distribution	3.89 (0.39)	3.95 (0.55)	0.447
4. Drug prescription	3.98 (0.40)	4.04 (0.61)	0.479
Overall competency	3.89 (0.39)	3.95 (0.52)	0.403

Table 2. The comparison of drug management competency evaluated by using the 360-degree appraisal and the manager assessment classified by dimension

Drug management criteria	Competency score (mean, SD)		p-value	Difference
	360 - degree assessment	Manager assessment		
Drug selection				
1. Able to make the annual procurement plan for drugs and medical supplies and submit it to the CUP on schedule	3.86 (0.54)	3.91(0.73)	0.310	-0.05
2. Able to accurately make in-and-out report of drugs and medical supplies and submit it to the CUP on schedule	3.87(0.52)	3.91(0.78)	0.370	-0.04
3. Able to prepare the annual report on value of use and utilization of drugs and medical supplies	3.90(0.51)	3.88(0.75)	0.390	0.02
4. Able to determine the need for drugs so that no drug shortage is occurred	3.54(0.52)	3.61(0.77)	0.240	-0.07
Drug procurement				
5. Able to prepare the complete documents for distributing of drugs and medical supplies and submit to the CUP on schedule	3.87(0.51)	3.91(0.55)	0.300	-0.04
6. Able to check the accuracy of drugs and medical supplies after receiving from the CUP	3.92(0.41)	4.06(0.58)	0.030*	-0.14

*Significant difference at $p<0.05$, CUP = the Contracting Unit for Primary Care

Table 2. The comparison of drug management competency evaluated by using the 360-degree appraisal and the manager assessment classified by dimension (Cont.)

Drug management criteria	Competency score (mean, SD)		p-value	Difference
	360 - degree assessment	Manager assessment		
Drug procurement				
7. Able to properly store the drugs and medical supplies in accordance with the standard	3.77(0.49)	3.98(0.66)	0.010*	-0.21
8. Able to arrange the drugs by therapeutic effect or in order from A-Z	3.93(0.48)	4.01(0.65)	0.170	-0.08
9. Able to store the drugs in the proper temperature	4.08(0.44)	4.25(0.61)	0.020*	-0.17
10. Able to check and record the temperature of the refrigerator every day	3.90(0.52)	3.88(0.74)	0.400	0.02
11. Able to manage the drugs by applying the First Expire First Use rule	4.06(0.40)	4.15(0.58)	0.130	-0.09
12. Able to create the stock card and accurately update the data in the record	3.78(0.48)	3.69(0.76)	0.180	0.09
13. Able to record the accurate quantity of drugs and medical supplies prescribed at the dispensing site and make sure the amount recorded is equal to the amount received from the main drug warehouse	3.69(0.51)	3.70(0.79)	0.470	-0.01
14. Able to control the inventory holding rate < 3 months	3.85(0.46)	3.81(0.78)	0.370	0.04
15. Able to control not to have expired or deteriorated drugs and medical supplies	3.99(0.49)	4.09(0.64)	0.150	-0.10
16. Able to accurately prepare the drugs for the patients	4.05 (0.45)	4.13(0.62)	0.190	-0.08
17. Able to write accurate and complete details on the drug label	3.90 (0.43)	3.95(0.67)	0.270	-0.05
18. Able to recheck the drug before prescribing to the patients	4.06 (0.44)	4.08(0.63)	0.410	-0.02
19. Able to accurately prescribe and provide counseling to the patients	4.10(0.46)	4.16(0.70)	0.270	-0.06
20. Able to set the system to manage the drug problems	3.81(0.48)	3.89(0.80)	0.220	-0.08

*Significant difference at $p<0.05$

4. DISCUSSION

There are several points to be discussed. First is with regards to the methodology part. This study had high response rate. This could be due to the reason that the researcher team had a very good relationship with all THPHs in

Chonburi. ProvinceHence, good collaboration was well established resulting in a high response rate of nearly 70%. The completeness of data gathered from the study survey should be considered as another point of discussion. The researcher team found that almost all the questionnaires returned had very less missing data. This might be because the researcher team had provided the directors of THPHs with a comprehensive information regarding the importance of this study before distributing the questionnaires. Therefore, all THPHs had good awaereness and good cooperation was well noticed.

Second and third discussion points concern with the results from the study. The study revealed a surprising fact about the training records of the staff involving in the drug management of each THPH. The fact that more than 90% did not attend any training courses on drug management before the starting point of their job in this position and nearly 70% reported that they did not participate in any training programs during their work, is very interesting to the researcher team. This could be one of the reasons explaining why the competency score for some difficult criteria which require adequate knowledge and skill were low. Therefore, base on the finding regarding the training issue, there is a need for the government to emphasize more on providing sufficient taining programs for staff at all THPHs to ensure that they could be able to work properly.

The third point involves the comparison of the two competency appraisal. This study revealed that drug management competency of staff evaluated by using the different methods was not statistically different. The reason why statistical difference could not be drawn might be because the director, colleague and staff who all were the competency raters, worked together very closely in the same place. They had the same understanding and focus on achieving the same goal thus the score rated by them was quite similar. However, when looking at the actual score retrieved from the survey, small variation in the competency score was observed. In the manager assessment, the staff were assessed only by the supervisor which might lead to some kinds of bias. The fact that the managers gave higher score for most of the criteria might be because the directors focused on the final outcomes of their staff's performance not the detailed operational steps of each task. They might see that their staff already worked very well for overall process in the drug management system. On the other hand, in the 360-degree appraisal, each staff was evaluated by multi-source i.e. director, peers and the staff themselves. The evaluators especially the peers worked with the staff so that they would be able to observe the details of drug management operation. Thus they could be able to evaluate the staff based on the actual performance whether the staff could perform the tasks properly in accordance with the standard criteria on drug management.

Therefore, it is the advantage of the 360-degree appraisal that it could reduce the over or under estimation usually raised when applying the single source evaluation method such as the manager assessment. The result of the comparison conforms with the study of Alexander which found that if the staff were evaluated only by the director, the evaluation result was not reliable and might cause disagreement within the organization. Besides, the directors generally had a positive view on the staff's performance so that they provided high score in the staff's assessment[16]. Another study by Miller and Thornton also concluded that there should be more than one person as the rating sources to reduce the bias from assessors[17]. The result of this study also conforms to the study by Phawornram which revealed that the 360-degree appraisal was better than the manager evaluation as the directors considered only the final achievement of work while the staff and their peers focused more on work operation so that they would know the realistic work performance. Therefore, the outcome of the evaluation could be more valid and reliable than single source evaluation method[18].

In contrast, the results found that the actual competency score evaluated in the manager assessment was lower than that of the 360-degree appraisal in four competency evaluation criteria. The reason might be due to the fact that the outcome of each criterion could be obviously observed by looking at the documents and reports i.e. annual report, temperature log card, stock card and inventory record. Hence

they would be able to check whether their staff could perform these tasks very well or not. One possible reason could be because the staff might not reallize the importance of completing the documents and reports due to their increasing number of duties assigned. The result from this study conforms with the study by Kitikannakorn which found that the staff did not completely report the data about the drug expenditure and drug management because they felt that the THPH had a small number of medicines so it was unnecessary to do this task and they had more workload thus ignoring this task[4].

According to the result of this study, the more appropriate assessment tool for the evaluation of staff's competency could be the 360-degree appraisal as this method was developed to address the limitation of the manager assessment i.e. the bias and inadequate interactions of the assessors. The results conform to many earlier research studies. The 360-degree appraisal is an assessment tool that judges the performance of the employees from other assessors' perspectives therefore a broader view on weaknesses and strengths of the staff could be noticed [19, 20]. This assessment instrument played a vital role in developing the suitable training courses to enhance the staff's knowledge, skills, and abilities as the outcome of the evaluation could reflected the actual competency and developmental needs of the staff [21, 22]. However, the strength of the 360-degree appraisal might be lessened in the absence of anonymity. Ones will always shy away from providing their actual views about their superiors and peers because of fear of being confronted. This can affect the relationships among the employees and thus can affect the performance of the organization due to strained relationships among departments. Therefore, they might be reluctant to provide the feedback seriously or negatively while giving their opinion about the competency of staff. Hence, to conduct this method, special concern should be placed on retaining the raters' privacy and confidenciality.

Nevertheless, one important limitation of this study should be concerned. The questionnaire was used as the only tool to evaluate the drug management competency of the staff due to budget and time constrain. Therefore, the real competency of the staff might not be deeply examined. Interview approach should be considered to employ as additional data collection instrument for further study as it could assist the researchers to better understand the real knowledge and skills of the staff.

5. CONCLUSION

This study compared the drug management competency of staff working at Tambon Health Promoting Hospitals (THPHs) in Chonburi Province, Thailand evaluated using the 360-degree appraisal and the manager assessment. The results of this study showed that the competency level evaluated by the two different methods was not significantly differed. However, differences in competency score were observed for some competency criteria. It was also obviously noticed that the manager assessment gave higher competency score for almost all criteria comparing to the 360-degree appraisal which implies overestimation of the competency level. Therefore, comparing to the manager assessment, the 360-degree appraisal could be considered as one of the suitable assessment tools in the evaluation of staff's competency due to its benefit in reducing the bias from single assessor in the manager assessment. The actual competency of staff obtained from this assessment tool could lead to enhanced reliability of the evaluation and result in better acceptance from the staff being evaluated.

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