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Modified Workload Indicators of Staffing Need to Estimate Human Resources at a Health Facility

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ABSTRACT

Introduction:
Human resources planning is known as the most essential limitation in achieving health care quality in the world. The main component of health human resource planning is to determine the required staff. There are several methods for determining required staff in a health facility. In this regard, one of the most widely used methods is the workload indicator of staffing need (WISN) method. In 1998, the World Health Organization announced the WISN as a human resource planning tool for the rational distribution of staff at health centers at all levels. It has been used in some countries since then. There is a recommendation on the division of the workload components. According to the modified workload indicator of staffing need (MWISN), there are four kinds of workload component. The first one is common main activity accomplished by all employees of the job category and for which periodic statistics are regularly collected. Uncommon main activity is the second one performed by a limited number of employees of the job category and for which periodic statistics are regularly collected. Moreover, support activities performed by all employees of the job category but for which periodic statistics are not regularly collected. The last one is additional activities performed only by some employees of the job category and for which periodic statistics are not regularly collected. Following the new division of the workload components, the final formula for the estimation of required workforce requirements is modified. Therefore, the MWISN can increase the accuracy and precision of the measurement of the workload and determine the number of workforces required.

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Introduction

In order to improve health care delivery, health policymakers are faced with increasing problems in the provision of sufficient and suitable health care in the midst of inadequate numbers of the health workforce to meet the demand of the ever-growing population (World Health Organization, 2006). The availability of trained health workers is one of the most important limiting factors for the delivery of an acceptable health package (Govule et al., 2015). In the health sector, human resource is a critical input; moreover, its level and mix is a major determinant of cost and quality (Tabatabaee et al., 2017). Salaries and benefits of human resource in most health systems account for over 70% of the recurrent budgets worldwide (Russo et al., 2018). Therefore, human resource planning is one of the major tasks of human resource management.

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Failure in workforce planning may lead to many challenges, including shortages or excesses in workforce, unfair workforce distribution, and unsuitable use of staff in the organization. The determination of required workforce is vital to prevent the unfair distribution of workforce (Tabatabaee et al., 2016).

The use of an acceptable and practical method for determining and allocating the workforce is a vital and undeniable fact in health care centers (Bahadori et al., 2013), and from past to present, health policymakers are trying to find ways to prevent current inequalities in human resource distribution (Mobaraki et al., 2013).In the late 1990s, the World Health Organization published the Workload Indicators of Staffing Need (WISN) method to calculate the required workforces. The WISN method is a useful human resource management tool based on the real workload in the health sector (Ozcan and Hornby, 1999).

This method is technically acceptable, comprehensive, and realistic; moreover, it easy to operate and simple to use (Shipp PJ, 2010). The utilization of WISN in determining the required workforce can lead to the establishment of a new norm of the evidence-based workforce (McQuide, Kolehmainen-Aitken and Forster, 2013). Countries, such as Bangladesh, Turkey, Uganda, and Indonesia, have employed this method to improve human resource planning (Ozcan and Hornby, 1999; Mugisha and Namaganda, 2008; Namaganda et al., 2015; Vafaee-Najar et al., 2018).

This paper highlights the necessity to modify and improve the WISN method. This modification comes from the need for a new definition of workload components to make a new formula for determining the required staff for a health care facility. Due to the importance of this measure, this study also presents an example of the application of modified WISN (MWSIN) in determining optometrists' requirements in a hospital.

Workload Component

Generally, according to WISN, there are three kinds of workload components, namely, main activities, support activities, and additional activities. Main activities are health service-related activities accomplished by all employees of the job category and for which periodic statistics are regularly collected. Moreover, support activities are important activities that support health service activities and are performed by all employees of the job category; however, there are no periodic statistics that are not regularly collected for this activity. Additional activities consist of activities performed only by some employees of the job category and for which periodic statistics are not regularly collected. In addition, there is another type of activity (i.e., important activities) that is performed by certain and experienced (not all) employees of the job category and for which periodic statistics are regularly collected. These activities are perfectly professional and all employees of the job category cannot do it. For instance, amplitude (A) scan and brightness (B) scan are professional activities performed by experienced members of optometrists (BSc.) followed by a regular collection of annual statistics. This group of activities is usually of high importance and less experienced staff is not usually able to do it since they require high levels of skill and experience after taking specialized courses. The calculation of the required staff for uncommon main activities is similar to that in common main activities.

Formula

The new formula to calculate total required employees based on MWISN is: [(A × B) + C+D]. Where C indicates total required staff for uncommon main activity, A is total required staff for health service activities, B signifies category allowance factor, and D presents individual allowance factor. According to MWISN, total required staff for the uncommon main activity should be added to the WISN formula and can be calculated the same as common main activity through standard workload. Table 1 describes the way to calculate the required optometrists to cope with their workload in a hospital. Regarding the last years' service statistics, it was found that all optometrists in this hospital conducted 8470 optical coherence tomography, 51 eye angiography, and 3928 topography. The following formula can be used to calculate the standard workload for each workload component. For example, the

eye angiography standard workload numbers of an optometrist for an optical coherence tomography, eye angiography, and topography are 3568, 150, and 2500, respectively.

Table1: Example of determining staff requirements, based on MWISN

Staff category: optometrist in a hospital				
AWT: 1512 hours				
	Workload component	**Annual workload**	**Standard workload**	**Required number of staff members**
Common main activities of all cadre members	Optical coherence tomography	8470	3568	2.37
	Eye angiography	51	150	0.34
	Topography	3928	2500	1.57
	Perry Meters	2194	1556	1.41
	Keratometry	140	350	0.4
	Specular Microscopy	265	850	0.3
	Ultrasonography	350	1560	0.22
	Pachometry	669	856	0.78
	Orb scan	3939	2756	1.42
	Best Corrected Visual Acuity (BCVA)	35984	24980	1.44
	fluorescent angiography	1663	1423	1.16
	Aberrometry	3959	3897	1.01
	Hess screen test	24	356	0.07
	Contrast sensitivity	28	298	0.1
	Color vision	25	4800	0.01
	Lens prescreption	60	2560	0.02
	Electrophysiology	425	1850	0.23
A. Total required staff for common main activities				12.85
Support activities of all cadre members	Workload component	CAS(Actual working time)		CAS (percentage working time)
	Recording and reporting	30 minutes per day		6.9%
	Answering the phone	120 minutes per month		1.6%
	Answering the colleagues' questions	180 minutes per week		8.3%
Total CAS percentage				16.8%
B. Category allowance factor:{1/[1-(total CAS percentage/100)]}				1.2
Uncommon main activities of certain cadre members	Workload component	Annual workload	Standard workload	Required number of staff members
	Amplitude scan	10866	8100	1.34
	Brightness scan	3428	2400	1.42
C. Total required staff for uncommon main activities				2.76
Additional activities of certain cadre members	Workload component	Number of staff members performing the work	IAS (Actual working time per person)	Annual IAS (for all staff performing activities)
	Meetings	1	2 hours, 4 times a year	8 hours
	Supervision	1	6 days per year each	86.4 hours
	General administration	1	2 hours per week	104 hours
Total IAS in a year				198.4 hours
D. Individual allowance factor (Annual total IAS/AWT)				0.13
Total required number of staff based on MWISN: [(A × B) + C+D]				18.31

Standard workload= Available Working Time in a year divided by the unit time.

It is calculated that the hospital needs 2.37 optometrists to cope with the optical coherence tomography load (8470/3568). Moreover, it requires 0.34 (51/150) and 1.41 (3928/2500) optometrists for eye angiography and topography workload, respectively.

Therefore, this hospital requires a total of 12.85 optometrists to cope with all common main activities. Afterward, we calculate how many optometrists the hospital requires to cope with both common main and support activities of all optometrists. It is now known that the hospital requires 12.85 optometrists for the common main activities. According to the WISN method, the category allowance factor is 1.2 for the optometrists. As a result, there is a need for 15.42 optometrists to cover both workload groups (12.85×1.2). Some certain and experienced optometrists in the hospital have uncommon main activities. Considering the last years' service statistics, it was found that some optometrists in this hospital conducted 10866 and 3428 A and B scans, respectively. Following that, the standard workload was calculated for each workload component similar to common main activities, and it was found that that the hospital needed 1.34 optometrists to cope with the amplitude scan load (10866/8100).

Furthermore, it requires 1.42 optometrists for B scan (3428/2400). Accordingly, this hospital requires a total of 2.76 optometrists to cope with all uncommon main activities. Some certain optometrists in the hospital have additional activities that the hospital must be able to cover the staff time spent on these activities as well.

According to the WISN method, the individual allowance factor was estimated at 0.13. Therefore, this hospital requires 18.31 optometrists to cope with all four workload components (15.42+2.76+0.13).

Conclusion

The MWISN method is a systematic approach to make staffing decisions; moreover, based on all aspects, the workload of the health worker can be calculated using the activity standards applied for each workload component. The MWISN increases the precision and accuracy of the measurement of the WISN method.

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