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ROLE OF TECHNICAL, BEHAVIORAL, AND ORGANIZATIONAL FACTORS IN PERFORMANCE OF THE DISTRICT HEALTH INFORMATION SYSTEM IN DISTRICT NOWSHERA, PAKISTAN

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ABSTRACT

Objective: To assess the role of technical, behavior, and organizational factors in performance of the District Health Information System in the district Nowshera, Pakistan. **Methodology:** The study was conducted at district Nowshera, Khyber Pakhtun, Pakistan between the years 2015 and 2016. The questionnaire called Organizational and Behavior Assessment Tool (OBAT) has been modified and applied to gather data from the health care providers who were involved in the District Health Information System in District Nowshera. The SPSS version 25 was used to enter and analyze the data. Results were presented in tabular form. **Results:** The score on punctuality of staff was 1.7 while on the record keeping by staff it was 2.37. When asked if staff can develop appropriate criteria for selecting interventions for a given problem, develop appropriate outcomes for a particular intervention, evaluate whether the targets or outcomes have been achieved, the scores were 2.33, 2.07, and 1.93 respectively. The mean scores for self-efficacy items, "I can explain findings & their implications" and "I can use data for making various types of decisions and providing feedback" were 1.67 each. **Conclusion:** The main issues were lack of enthusiasm about the job, inability to understand the significance of the HIS, lack of proper skills to decrypt data or findings, and uncooperative attitude of the authorities. It should be noted that adequate leadership, appreciative attitude,regular training and practice can help make DHIS a more efficient system.

KEYWORDS: District Health Information System, PRISM, World Health Organization.

INTRODUCTION

The Health Information System (HIS) provides the health care sector with the data that could be utilized in multiple ways.[1] It could be used as a tool to predict the danger, alarm or emergency related to the health services and enables the researchers to find ways to tackle the emergency at its earliest and at the least cost of any damage to human health.[2] The researcher along with the health care workers, policy planners, policy makers, managers, community and population needs this information in their own understandable terms and language.[3] As there is a constant rise in the patients coming to the hospital for the treatment purpose that necessitate the establishment of a strong and well-coordinated health information system that could easily digest the data without being overburdening.[4]

Among all the developing countries few have been successful devising a health information system that could sufficiently meet the extensive requisite of its population (Guilbert, 2006). New technologies and soft wares are in the process of installation that could with greater hope contribute in solving this issue of the modern Era. For this the data compilation standards are needed to be calibrated according to the global standards and the process of information generation, compilation and processing need to be of optimal standards (Farias, 2010).

In developing countries health managers have very limited tendency for providence of data that could help in tracking the progress of public health programs. This is due to the reason that the data obtained from the health facilities has not been taken in consideration to improve performance and progress of the workers of health, medicine and logistics or in achieving the district and provincial targets. Although at the district level, routine HIS is improving day by day and is bridging the gaps between the availability and quality of the data available still it lacks in the determination and strengthening of the determinants that count for the effectiveness and the performance of the HIS.

There is a critical and dire requirement for enhanced improvement of the health information system in the health sector of the country in general and Khyber Pakhtunkhwa in specific. This study is planned to highlight the role of technical, behavior, and organizational factors in performance of the District Health Information System in the district Nowshera, Pakistan.

MATERIALS AND METHODS

This was an observational cross-sectional study conducted at all facilities of district Nowshera, Khyber Pakhtunkhwa between June 2015 and june 2016. the study included all districts and health information system (his) health workers.

the study used organization behavioral assessment tool (OBAT), which is part of the PRISM frame work developed by measure evaluation and john snow, inc., and has two key objectives: 1) to assess the role of technical, behavior, and organizational factors in performance of the health information system; and 2) to develop strategies to address gaps and weaknesses identified through the assessment.[7]

The questionnaire was administered to all health care workers and technical staff who were involved in the management of the health information system. All data was entered and analyzed using Microsoft excel and statistical software for social sciences (SPSS v. 24). Data was presented in tabular forms.

RESULTS

The mean scores for all items in the OBAT questionnaire are presented in tabular form below. For the item "In the health department, decisions are based on;" the lowest mean score was appointed to "Comparing data with strategic health objectives" followed by "health needs".

Seeking feedback from concerned persons or community, emphasizing the data quality in monthly reports, discussing conflicts openly, using HMIS data for setting targets and monitoring, and reporting data accuracy all yielded very low scores between 1.57 to 2.4.

The score on punctuality of staff was 1.7 while on the record keeping by staff it was 2.37.

When asked if staff can develop appropriate criteria for selecting interventions for a given problem, develop appropriate outcomes for a particular intervention, evaluate whether the targets or outcomes have been achieved, the scores were 2.33, 2.07, and 1.93 respectively.

Table 1: Mean Score of Study participants on OBAT.

Item	Mean Score
In health department, decisions are based on;	
Personal liking	4.83
Superiors' directives	6.7
Evidence/facts	2.17
Political interference	5.67
Comparing data with strategic health objectives	1.67
Health needs	1.87
In health department, superiors,	
Seek feedback from concerned persons	1.57
Emphasize data quality in monthly reports	2.03
Discuss conflicts openly to resolve them	1.97
Seek feedback from concerned community	2.03
Use HMIS data for setting targets and monitoring	2.1
Check data quality at the facility and higher level regularly	2
Provide regular feedback to their staff through regular report based on evidence	2.4
Report on data accuracy regularly	1.93
In health department, staff;	
Are punctual	1.7
Document their activities and keep records	2.37
Feel committed in improving health status of the target population	2.07
Set appropriate and doable target of their performance	1.7

Feel guilty for not accomplishing	2.2
Are rewarded for good work	2
Use HMIS data for day to day management of the facility and district	1.77
Display data for monitoring their set target	1.8
Can gather data to find the root cause(s) of the problem	1.8
Can develop appropriate criteria for selecting interventions for a given problem	2.33
Can develop appropriate outcomes for a particular intervention	2.07
Can evaluate whether the targets or outcomes have been achieved	1.93
Are empowered to make decisions	2.6
Able to say no to superiors and colleagues for demands/decisions not supported by evidence	1
Are made accountable for poor performance	5.97
Use HMIS data for community education and mobilization	2.3
Admit mistakes for taking corrective actions	2.47
Personal	
Collecting information which is not used for decision making discourages me	1.93
Collecting information makes me feel bored	5.97
Collecting information is meaningful for me	2.2
Collecting information gives me the feeling that data is needed for monitoring facility performance	2.2
Collecting information give me the Feeling that it is forced on me	1.9
Collecting information is appreciated by Co-workers and superiors	2
Self-efficacy	
I can calculate percentages/rates correctly	2.33
I can plot data by months or years	1.67
I can compute trend from bar charts SE5	1.67
I can explain findings & their implications	1.67
I can use data for identifying gaps and setting targets	1
I can use data for making various types of decisions and providing feedback	1.67

Only a minority were able to calculate percentages or rates correctly with a mean score of 2.33. The mean scores for self-efficacy items, "I can explain findings & their implications" and "I can use data for making various types of decisions and providing feedback" were 1.67 each.

DISCUSSION

The current study evaluated the organizational factors associated with the effectiveness of a district health information system (DHIS) at Nowshera - a city in Khyber Pakhtunkhwa. The study reported a myriad of factors responsible for lack of a proper functioning DHIS system. Firstly, the decisions in the hospitals were not based on evidence or facts derived from the health information system. The score for decisions based on political interference, personal liking, or directive's orders were comparatively higher than those of health needs. This indicated a need to establish a proper check and monitoring of health policies being instituted in the district. It should be made sure that the health policies and guidelines are devoid of any political element. By and large, the respondents expressed dissatisfied with the existing health management system within which HMIS operates in Pakistan. Our study highlights that in Nowshera, Pakistan, the health information system is on the brink of a collapse and the uncooperative attitude of the authorities lead to a broken system.

Qazi et al., in their study indicated that the public sector structure system and style of management in Pakistan are the main hurdles in the way moving forward.[12] The managers and the subordinates are not content with the authority above them supervising them and the existing information system. Personnel working in the HMIS feel a lack of sense of job security when taking any action independently. They feel a sense of fear and threat of being transferred and held accountable for doing anything against the management. Literature indicates that a true leadership could inculcate the essential values in the system and could play an important role in sustaining the values that could benefit the majority of the public. They should try to introduce a culture of submission of regular reports and data to the DHO and to the national level in particular, arranging the resources necessary for the usage of latest techniques in the HIS and minimizing the inaccuracies in the data.[13-14]

Our study also highlighted the dire need of training among the staff and health personnel involved in the data acquisition in DHIS. We observed very low scores for self-efficacy items. For instance, the score for the item, "I can explain findings & their implications", the mean score was 1.67. Capacity-building is another milestone that is needed to be achieved by Pakistan in order to fight any emergency situation. Right now, we are short of even basic facilities at many of the facilities of the Nowshera. The efforts for capacity building are needed to be institutionalized. Besides this, at the national level efforts should be made for conduction of training and

internship courses on a timely basis. Follow-up forms and feedback mechanisms are needed to improve so that the process of training could be monitored and evaluated effectively on a regular basis.[15-16]

It is of utmost necessity to up regulate and appraise the training process seriously. The possible reason behind the lack of implementation of an effective training process is lack of professional or ethical incentives for utilization of staff skills with maximum efficacy in routine work. Work ethics should be defined for all the workers and it should be implemented without any discrimination from the top level authority to the grass root level. Universal code of ethics should be institutionalized in every facility and its implementation should be followed strictly. Our study highlighted the extent of untrained and under skilled staff involved in the DHIS record and data keeping. Another factor highlighted was the unappreciative attitude of the authorities towards their subordinates. It's crucial to groom an environment where everyone feels welcomed and appreciated. It encourages them to work at their best and even put extra efforts into their jobs.[17-18]

In short our study indicates that there are lack of facilities to record the data systematically, lack of a feedback system, lack of utilization of information in taking decisions and disease surveillance, inefficient management, power politics and the incapability of the staff to adapt to the modern system. These are the core issues that have been pointed out by our study. Other than these there are many other issues that need to be addressed in the future for a more efficient health information system.

CONCLUSION

Our study highlighted some core issues involving the managerial staff of the DHIS at Nowshera. The main issues were lack of enthusiasm about the job, inability to understand the significance of the HIS, lack of proper skills to decrypt data or findings, and uncooperative attitude of the authorities.

It should be noted that adequate leadership, appreciative attitude, regular training and practice can help make DHIS a more efficient system.

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