ISSN - 2348-2397
APPROVED UGC CARE

SHODH SARITA

SHODH SARITA
Vol. 7, Issue 26, April-June, 2020
Page Nos. 160-166

AN INTERNATIONAL BILINGUAL PEER REVIEWED REFEREED RESEARCH JOURNAL

ROLE OF HEALTH MANAGEMENT INFORMATION SYSTEM (HMIS) : A COMPARATIVE STUDY WITH REFERENCE TO SANGLI DISTRICT

❒ Dr. Murlidhar Dhanawade*
Dr. Milind J. Joshi**
Dr. Prashant Gundawar***

ABSTRACT

Information Technology is turning every aspect of business today, be it education, health, library, entertainment or even agricultural sector. Indian rural population's standard of living is also progressing considering the technology improvements across the education, health, medical and agricultural services. Information Technology opens a new page with improvements in the old systems of recording and duplication. Tremendous developments in the process of data management, data sharing and data processing have run down the cost too. eHealth coming a latest jargon seems to be club arenas like healthcare, information and business. While doing so it can also lead to informed patients and public participation [2]. The existing systems needs to be reviewed for better solutions and coming challenges to be accepted with the very powerful tool we have of "Information Technology" [3]. Considering the increasing demand in the usage of the Health Management Information System (HMIS) for improving the quality of health services, a need arises in improving the quality and betterment of the system. Researcher has taken opinion on various HMIS roles like -To manage high volumes of data, To share common information & data access, To generate reports at different levels, To de-centralize data entry, To increase the performance of an existing system, To reduce duplication of information gathering, To increase the quality of data gathering and analysis, To Improve ability to identify and quantify gaps in the system. From the comparative analysis of staff and officers for each management tool it is observed that the to manage high volumes of data is most important role of HMIS.

Keywords : Information Technology (IT), Health Management Information System (HMIS), Health Centers, Health Services, Role of HMIS, Rural Development..

I. INTRODUCTION :

Information Technology is turning every aspect of business today, be it education, health, library, entertainment or even agricultural sector. The last two decades have seen sporadic rise in automation and computerization of processes hence offering an easier livelihood. Indian rural population's standard of living is also progressing considering the technology improvements across the education, health, medical and agricultural services. Even if computer is a mere information processing tool, it could come helpful to the villagers with information on seasons, agricultural inputs, nearest medical centers, education centers, government schemes and job opportunities.

The healthcare segment is one challenge for the I.T and can work wonders with the village paramedic staff being able to get access to latest schemes and seek advice with specialties and ailments they cannot diagnose or treat at rural level [1].

Health Management Information System (HMIS) is responsible for scrutinizing many factors like drug stocks, equipment status & availability, personnel & finances involved. This factors needs to be monitored on regular basis. Timely and accurate information is

*Professor & HOD, MCA - NCRD's Sterling Institute of Management Studies, Nerul, Navi Mumbai
**Ph.D. Guide, Shivaji University, Kolhapur (Maharashtra)
***Director - NCRD's Sterling Institute of Management Studies, Nerul, Navi Mumbai

required to improve serviced delivery. The HMIS renders data recording, retrieval and storage. This data is available at National, State and institutional level facilitating planning, organizing and control of health care facilities [3].

Health Management Information System (HMIS) is responsible for scrutinizing many factors like drug stocks, equipment status & availability, personnel & finances involved. This factors needs to be monitored on regular basis. Timely and accurate information is required to improve serviced delivery. The HMIS renders data recording, retrieval and storage. This data is available at National, State and institutional level facilitating planning, organizing and control of health care facilities [9].

Many academicians and practitioners are continuously striving for a standard HMIS which could be used across all situations. However for designing of HMIS it is mandatory to understand importance of HMIS role.

2. RESEARCH METHODOLOGY :

2.1 Objectives :

The specific objectives of this paper are as under -

1. To take overview of staff and officers from health centers about role of HMIS.
2. To find out most important role of HMIS according to staff and officers point of view.
3. To give suggestions on HMIS role based on comparative study of staff and officers.

2.2 Hypothesis :

1. There is no significant difference between mean rating given by Staff and Officers for role of HMIS to manage high volume of data.
2. There is no significant difference between mean rating given by Staff and Officers for role of HMIS to share common information & data access.
3. All the parameters i.e. HMIS roles are equally important.

2.3 Methodology Adopted :

The methodology adopted is a mixture of literature review, document analysis such as government gazettes, questionnaire and interview with staff and officers of health centers. The data required for this paper has been collected through questionnaire. The researcher has prepared two questionnaires one for staff and one for officers. The data collected at primary and secondary level is processed by tabulation, coding and analysis using various statistical methods as required.

3. DATA ANALYSIS AND INTERPRETATIONS :

The data collected from varied sources was analyzed in a systematic way through tabulation, percentage and graphical presentation by using Microsoft Excel. Similarly testing of hypothesis is done with the help of software tool 'Statistical Package for Social Science (SPSS) by referring to statistical tools such as t-test, post hoc (Duncan's test), ANOVA. and the interpretation of test result is given.

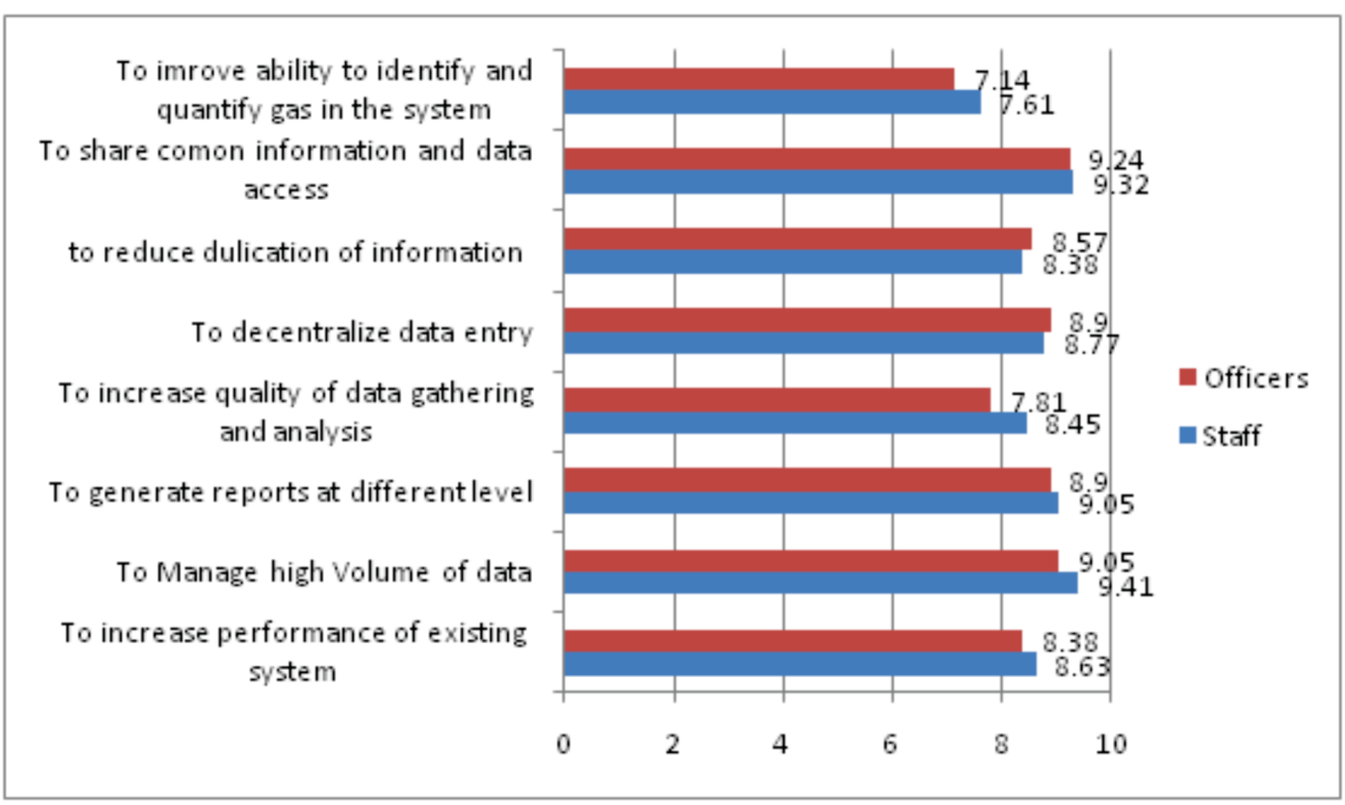
3.1 Roles of HMIS - Comparison of mean rating between staff and Officers :

The current table gives comparison of mean rating between staff and Officers for different roles of HMIS. The following table gives mean and standard derivation for each role of HMIS according to staff and officers perspectives.

Sr. No.	Role of HMIS	Staff		Officers	
		Mean	Standard Deviation	Mean	Standard Deviation
1	To increase the performance of an existing system	8.63	1.51	8.38	1.20
2	To manage high volumes of data	9.41	.97	9.05	1.07

3	To generate reports at different levels	9.05	.79	8.90	1.37
4	To increase the quality of data gathering and analysis	8.45	1.00	7.81	1.12
5	To de-centralize data entry	8.77	1.13	8.90	1.61
6	To reduce duplication of information gathering	8.38	1.19	8.57	.75
7	To share common information & data access.	9.32	.85	9.24	1.18
8	To Improve ability to identify and quantify gaps in the system	7.61	1.59	7.14	1.20

Table 1: Roles of HMIS – descriptive statistics



Graph 1: Roles of HMIS - Comparison of mean rating

Interpretations : Here from table 1 and graph 1 it is very clear that to manage high volume of data is most important role from staff point of view but to share common information & data access is most important role according to officers.

The t-test is used to compare the significance of difference between means of two independent groups when variables are defined on continuous scale. In this

study t-test is used to compare significance of difference between the mean scores of two groups i.e. staff and officers.

3.2 HMIS role to manage high volumes of data :

H_0: There is no significant difference between mean rating given by Staff and Officers for role of HMIS to manage high volume of data.

H_a: There is significant difference between mean rating given by Staff and Officers for role of HMIS to manage high volume of data.

t – test calculated	t - test table value	df	p - value
1.523	1.9816	111	0.0655

Table 2: Test Statistics - to manage high volumes of data

Interpretation : The calculated t-test value (1.523) is less than its table value and p-value > 0.025 at 5% level of significance. Hence it provides sufficient evidence to accept the null hypothesis and conclude that there is no significant difference between the mean rating given by staff and officers for role of HMIS to manage high volume of data.

3.3 HMIS role to share common information & data access :

H_0: There is no significant difference between mean rating given by Staff and Officers for role of HMIS to share common information & data access.

H_a: There is significant difference between mean rating given by Staff and Officers for role of HMIS to share common information & data access.

t – test calculated	t - test table value	df	p-value
0.347	1.9816	111	0.3645

Table 3: Test Statistics - to share common information & data access

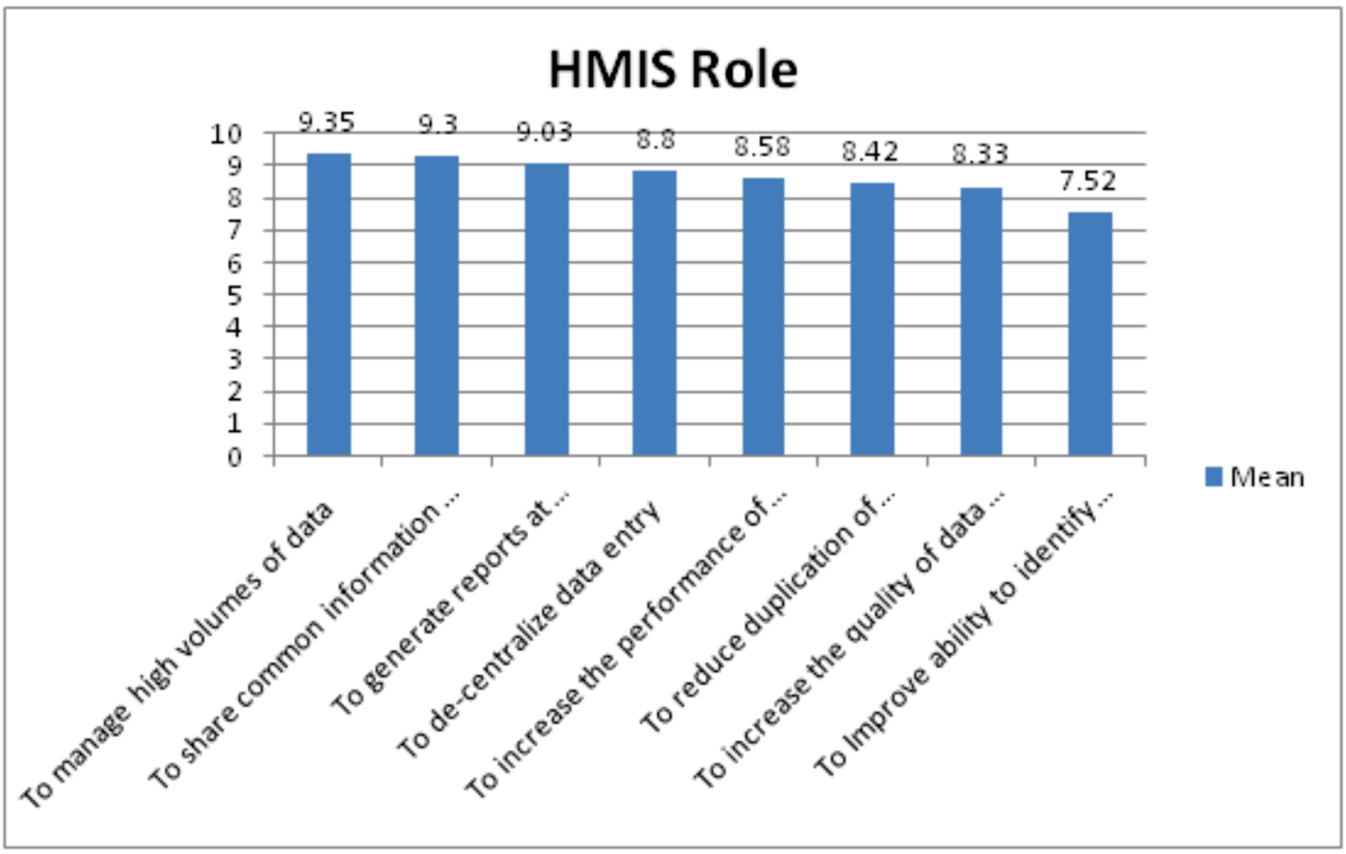
Interpretations : The calculated t-test value (0.347) is less than its table value and p-value > 0.025 at 5% level of significance. Hence it provides sufficient evidence to accept the null hypothesis and conclude that there is no significant difference between the mean rating given by staff and officers for role of HMIS to share common information & data access.

3.4 Most important role of HMIS :

The current table shows the combined mean of rating given by staff and officers as well as ranking of each role of HMIS. Here mean of rating given by total 113 respondents is calculated to find out which is most important and ranking of each HMIS role is displayed in descending order.

HMIS Role	Mean	Ranking
To manage high volumes of data	9.35	1
To share common information & data access	9.3	2
To generate reports at different levels	9.03	3
To de-centralize data entry	8.8	4
To increase the performance of an existing system	8.58	5
To reduce duplication of information gathering	8.42	6
To increase the quality of data gathering and analysis	8.33	7
To Improve ability to identify and quantify gaps in the system	7.52	8

Table 4: Ranking of HMIS role by staff & Officers



Graph 2: Ranking of HMIS role staff & Officers

H_0: All the parameters i.e. HMIS roles are equally important.

H_a: Some parameters i.e. HMIS roles have significantly high rating than other and are most important one.

ANOVA					
	Sum of Squares	**Df**	**Mean Square**	**F**	**p-value**
Between Groups	282.910	7	40.416	29.381	0.000
Within Groups	1232.531	896	1.376		
Total	1515.441	903			

Table 5 : Test statistics – ANOVA test for HMIS role

Interpretations : Since the p-value for the ANOVA is less than that 0.025, indicates that there is significant difference in the ratings of parameter. To find out which of the parameter differ significantly, post hoc (Duncan's test) is carried out. The results of the Duncan test are as below:

Parameters (HMIS role no.)	Sample Count	Subset for alpha = 0.05				
		1	2	3	4	5
8	113	7.5221				
4	113		8.3274			
6	113		8.4159			
1	113		8.5841	8.5841		
5	113			8.7965	8.7965	
3	113				9.0265	9.0265
7	113					9.3009
2	113					9.3451
p-value		1.000	.121	.174	.141	.053

Table 6 : Test statistics – Duncan's test for HMIS role

Interpretations : HMIS role to manage high volumes of data is most important among 8 roles which are given in above table as it mean of rating is 9.3451 which highest mean than that of other roles of HMIS.

4. OBSERVATIONS, FINDINGS & SUGGESTIONS :

The present study would like to make certain suggestions about the roles of HMIS are as given below.

1. It is revealed by the study that HMIS role to manage high volumes of data is most important among 8 roles as its mean rating [9.3451], is highest among the ratings of all the roles of HMIS. But it is found that other roles which are ranked 2nd and 3rd i.e. to generate reports at different levels and to share common information and data access respectively are also equally important.
2. It is suggested to give data access at different levels of health units of the government for decision making and deciding further health policies for further health programs of the government.
3. It is suggested based on the observations made during the study that manual system of evaluation of health indicators should be replaced by HMIS to increase accuracy of current evaluation system.

5. CONCLUSION :

The process of rural development is ongoing and needs to achieve many levels. In doing so many inaccessible geographies need to be covered, many volunteers need to be deputed and above all their work needs to be monitored. In such a case ICT, could come as a helping hand in consolidation, monitoring and processing of data. The Health Management Information system serves as a backbone to the health industry by offering faster and easier services in data collection, reporting, comparing, processing and implementation.

During the study, opinion from staff and officers of the health centers and health offices was taken for the 8 (eight) roles of HMIS: (i) to increase the performance of an existing system (ii) to manage high volume of data (iii) to generate reports at different levels (iv) to increase the

quality of data gathering and analysis (v) to de-centralize data entry (vi) to reduce duplication of information gathering (vii) to share common information and data access and (viii) to identify and quantify gaps in the system. It is found that for 7 (seven) roles of HMIS there is no significant difference between the mean rating given by staff and officers, this means these roles of HMIS are very important from staff and officers' perspective except the role to increase the quality of data gathering and analysis.

It is concluded that HMIS role to manage high volumes of data is most important among eight roles. Also other roles which are ranked 2nd and 3rd i.e. to generate reports at different levels and to share common information and data access respectively are also equally important because they are falling in same group and as there is no significance difference in their mean rating given by staff and officers.

To provide health care data which is generated by HMIS, creation and management of a comprehensive knowledge database, provide IT support to enable government health program and to improve effectiveness of existing public health system in rural area.

6. References :

1. Paper presented by Anita Kelles-Viitanen at the IFAD Workshop on, "What are the Innovation Challenges for Rural Development".
2. Information Economy and Healthy Citizenry: Role of Internet in Implementing India's Health Policy by Shobhna Gupta,Sridhar Papagari Center for Research in Information Management, University of Illinois at Chicago.
3. Evaluation of Health Management Information System in India, Need For Computerized Databases In HMIS -Ranganayakulu Bodavala, Takemi Fellow in International Health, Harvard School of Public Health 665, Huntington Ave, Boston, MA 02115 USA.
4. Kothari C. R. (2004), "Research Methodology, Methods and techniques" (2nd ed.), New Delhi: New age International (p) Ltd.
5. "Sampling Theory of Surveys with Applications", Book published jointly by Indian Society of Agricultural Statistics and Iowa State University Press (1954).
6. Waman S. Jawadekar, "Management Information Systems: Text and cases", The McGraw-Hill Publishing Company Limited, Third Edition, 2006.
7. http://www.hsph.harvard.edu
8. http://heapol.oxfordjournals.org
9. http://www.maha-arogya.gov.in