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Research Article

Information Management and Personnel Perceived Health Services Delivery at Health Centres In Busoga Region

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Abstract: The study was conducted basing on the following objectives; To establish the nature of information management in Health Centers in Busoga region. To analyse the levels of Personnel Perceived Health Services Delivery in Busoga region. To examine the relationship between support supervision and Personnel Perceived Health Services Delivery in Health Centers in Busoga Region.The study was based on the following methodological approaches; the research paradigm was post-positivistic; the research design was cross sectional survey design; total population Busoga Health Forum (2020) emphasized that among the health workers, 82 employees work at District Health Offices and 2967 employees work at health centers; target population was 1073; sample size of 651; data collection method questionnaire and interview guide and data was analysed using measurement of central tendency; Pearson's correlation moment, path analysis and content analysis.The study findings revealed that there is a correlation between information management and Personnel Perceived health services delivery in Busoga Region ($r = -0.146**$). This relationship is statistically significant ($p = .001 < 0.05$). Conclusion of the study: The study concluded that there is a correlation between information management and Personnel Perceived Health Services Delivery in Busoga Region. Recommendations of the study: The study recommended that the Ministry of Health should facilitate managers to seek for avenues that promote the review of the available information prior to decision making for Personnel Perceived Health Services Delivery.

Keywords: Information Management, Personnel Perceived Health Services Delivery.

1 INTRODUCTION

This subsection contains a conceptualization of Information management and Personnel Perceived Health Services Delivery.

1.1.2 Conceptualization of information management

There are several scholars that conceptualize information management as the process of acquiring, organizing, storing, and using information (Bytheway, 2015). Bytheway (2015) asserted that information management refers to the investment which must deliver meaningful results that are important to all organisations that depend on information and good decision-making for their success. The goal of information management is to ensure that information is delivered to the right audience at the right time, to the right place, and in the right format in an efficient and effective manner.

1.1.3 Conceptualizing Personnel Perceived Health Services Delivery

In the perspective of developing a conceptualized comprehension of personnel perceived health service delivery was propounded by authors in the same area of study. World Health Organization (WHO, 2010) report, states that Personnel Perceived Health Services Delivery is geared towards improving the health status of individuals, families and communities, defending the population against what threatens its health, protecting people against the financial consequences of ill-health, and providing equitable access to people-centered care. It is postulated that Uganda has instituted numerous health sector reforms and policies including an overall decentralization of government to improve the functioning and performance of the health sector and, ultimately, the health status of the population but health care and health status indicators for Uganda have remained poor to (Parkhurst & Ssengooba, 2009).

In bid of understanding the Ugandan health sector, Mukasa, *et al.,* (2012) reported that the health system in Uganda is so much worrying that Maternal Mortality Ratio (MMR) was estimated in 2006 at 435 maternal deaths per 100 000 live births, showing little progress towards the government's own goal of reducing maternal mortality from 500 to 300 between 2001 and 2008. This health condition indicates the main challenges faced by the nature of personnel perceived health service delivery.

According to Nakisozi (2014), Uganda's health system is comprised of the private health sector categorized into Private Not for Profit (PNFP), Private Health Practitioners (PHPs), and Traditional Contemporary Medicine Practitioners (TCMPs), which contribute to about 50% of the Health care delivery. It should be noted that this process on the other hand are the public sectors which include Government Health facilities; Health services departments of Ministries (Nakisozi, 2014). Munabi (2019) elucidated that the Health Services Delivery process is decentralized from national to district levels. District Health Facilities are categorized into Health Center I1, III and IV, with Health Center II providing a first level of interaction between the formal health sector and communities and these provide outpatient and community outreach services (Munabi, 2019). The different health center categorization postulates the levels through which health services are delivered.

The Health Center II provides basic preventive, promotion, outpatient, curative health services and emergency delivery. The next levels are Health Center III, which provide preventive, promotion, outpatient, curative, maternity, inpatient, and laboratory services. Health Center IV with broad services including ultrasound examinations (for obstetric cases), surgeries, blood transfusions and mortuary (Musinguzi, *et al*., 2015). General Hospitals in addition to services provided at the community health facility, provides services for general medical and surgical conditions specialist services, while Regional referrals provide more specialized clinical services and also involve teaching and research (Mujasi, 2016). The national referral Hospitals are most comprehensive as they provide the highest level of specialist services in addition to all the other clinical services; thus, the referral system is from the lowest to the highest level of care in the service delivery system(Ocailap, 2019). This reflects the levels of health service delivery.

Acheng (2020) report shows that along with the increased literacy rates and vibrant economic growth, health outcomes are improving which translates to better health indicators. According to the Acheng's (2020) report, over the last two decades, the Government of the Republic of Uganda has increased access to health services two fold. In addition, by 1997, only 47% of the population who needed health care could access outpatient services (NHP 1999). During that time, health facilities were few and far from communities, and the health system that was degraded by years of civil strife and mismanagement was just beginning to recover. It is well emphasized that this figure has since improved to about 110%, underscoring the ease of access to health facilities by the population (DHIS2 2015/16). Health service delivery was used in this study to refer to the extent to which timeliness, service quality and value for money is attained in as far as the provision of health services at the health Centres is concerned. The conceptual work environment and perspective of personnel perceived health service delivery were interrelated to the theoretical propositions as postulated in the section below.

Theoretical Perspective

For better comprehesion, it was theoretized that the major theory which informed this study was the Person Environment Fit Theory. Rauthmann (2020) postulated that the person–environment (PE) theory is grounded in Kurt Lewin's maxim (1935) that B=(PE); behavior is a function of both person and environment. It comprises four models having the person and environment as the most distinct, according to Edwards and Rothbard. (1999).

In the context of Busoga region, the maternal deaths per year at regional referral hospitals are very high, with an average of 37 maternal deaths per hospital (MOH.2009). In Jinja Regional Referral Hospital, the trends for the last three years has been an average of 30 maternal deaths per year and an infant death rate of about 14% in a month (Jinja Hospital 2010).

Statement of the problem

Work environment is fundamental in the offering of health services. Uganda's ministry of health urges various health centres to have physical infrastructural development, supply of drugs, tools and equipment.

However, the poor work environment leads to poor personnel perceived health service delivery in Busoga region. This is evidenced by the UBOS data for 2019/20 which indicates a reduction in health promotion strategies such that the average latrine coverage in Busoga region is at an average of 54.1% with no significant change from 51% in 2017 as opposed to 95% national target of coverage, the Out-patient Department (OPD) attendance is unnoticed in 2019/20 assessment, and this is much worse than it was at 40.2% in 2017, maternal morbidity and infant mortality in Busoga region is at an average of 33.3% every year (UBOS, 2020).

Study objectives
To establish the nature of Information management in Health Centers in Busoga region
To analyse the levels of Personnel Perceived Health Services Delivery in Busoga region

To examine the relationship between information management and Personnel Perceived Health Services Delivery in Health Centers in Busoga Region.

Hypothesis of the study
There is no relationship between information management and Personnel Perceived Health Services Delivery in Health Centers in Busoga Region

Scope of the study
Geographical Scope
The study was conducted in Busoga Region-Coordinates are latitude 0.55; longitude 30.75; precision 0.017 (UBOS, 2021). The region consists of 11 Districts, Bugiri, Buyende, Iganga, Jinja, Kaliro, Kamuli, Luuka, Mayuge, Namayingo, Namutumba and Bugweri District which was created recently in 2018 (UBOS, 2021). Busoga region has 23 Counties, 102 sub counties, 559 Parishes and 4,012 Villages (UBOS, 2021).

Content Scope
The study seeks to ascertain the relationship between Work Environment and Personnel Perceived Health Services Delivery at Health Centers in Busoga region.

Time Scope
The study considered a period from 2010 to 2021. This is the time Busoga region has been facing multiple questions about the Personnel Perceived Health Services Delivery system.

Significance of the study
The study generated results that will serve as checks and balances into the local system of health, that may in turn guide development of a framework to harmonize the relationship between work environment and Personnel Perceived Health Services Delivery in communities.

The researcher was to benefit from this study by getting insight on how certain factors work in the various Local Governments in Busoga Region. It will provide space to make comparisons in Personnel Perceived Health Services Delivery among local governments in Busoga region.

In the same way, results of this study will penetrate into accountability frameworks of district leaders and technocrats, for purposes of evaluation and design of a model for Personnel Perceived Health Services Delivery.

The study was a basis for other people to conduct related studies in other regions of Uganda putting into consideration that almost ¾ of Uganda's regions have issues with Personnel Perceived Health Services Delivery.

To policy makers, findings from this study may guide development of policies and guidelines to promote construction of infrastructure at health facilities.

Conceptual Framework
The figure 1.1 below is a summary of the connections between variables.
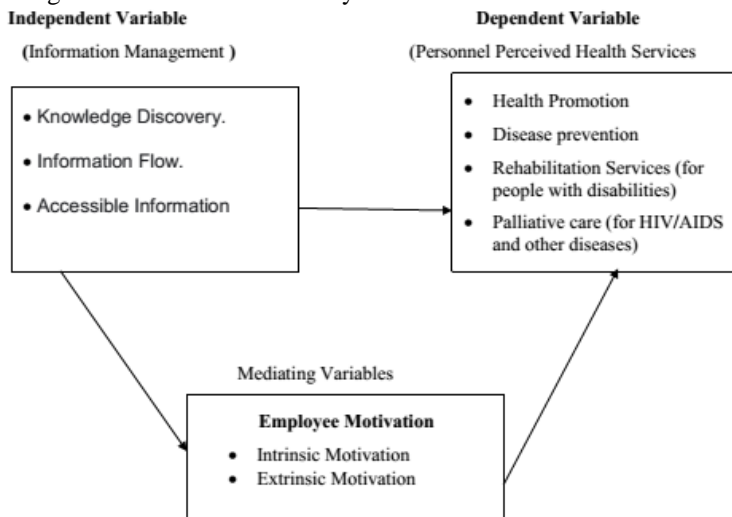
Source: Modified from the works of Adhanom, Kim, & Angel, (2018); Acheng, (2014); Adi., (2012)
Figure 1: Work Environment and Personnel Perceived Health Services Delivery

The illustration in Figure 1.1 above illustrates a conceptual analysis of the study variables. According to the illustration, the independent variable (Work Environment) is categorized as health Information Management. The underlying assumption to be tested is that each of the aspects of Work Environment has something to do with Health Services Delivery. In other words, the illustration demonstrates that the state of

Health Services Delivery is defined as negative or positive, favorable, desirable, etc. basing on the positivity or negativity of the Work Environment. At the same time, work motivation is viewed as a mediating variable. The assumption is that whereas Work Environment may demonstrate a positive relationship with Health Services Delivery, work motivation may be an eventual hindrance.

Methodology of the study
Research Philosophy and paradigms
A combination of ontological objectivity, epistemological subjectivity and axiological objectivity led to post- positivism. This combination was the foundation of quantitative and qualitative approaches that were employed in this current study.

Research design
This study used a cross sectional survey and case study design adopting quantitative and qualitative approaches.

Study population
The study population constituted Busoga region 3049 health workers from of 311 health centers and eleven district s (11) (MoH, 2021). Busoga Health Forum (2020) emphasized that among the health workers, 82 employees work at District Health Offices and 2967 employees work at health centers.

The target population of study was from the districts of Namutumba, Iganga, Jinja, Buyende, Namayingo and Kaliro. From the DHOs office in the 6 selected districts, the target population was 24 individuals, while at health centers, the target population was 1073 as explained below.

Sample Size
The sample size of the study was determined using Krejce and Morgan (1970) formula.
The Krejcie and Morgan Sample Size Calculation was based on P=0.05 where probability of committing type 1 error is less than 5% or P<0.05. Formulae below applies since the population is finite:

$$S = \frac{x^2 NP(1-P)}{d^2(N-1)+x^2P(1-P)}$$

$$S = \frac{(3.841) *1073*0.5*0.5}{(0.05)^2*1073-1+(3.841) *0.5*0.5}$$

$$S = 283 \text{ health workers}$$

The sample size was also adjusted with a design effect of 2 (283*2=566) due to clustering of districts thus bringing our overall sample size to 651 health workers of which there was excess of 85 respondents due to the response rate in the field.

Sampling Techniques
In this study, the researcher adopted three sampling strategies-stratified, simple random and purposive sampling.

Table.1 Categorization of respondents

No	Category	Population	Sample	Sampling techniques
1.	Doctors	20	12	Purposive
2.	Clinical officers	220	133	SRS and Convenient
3.	Nurses and midwifery	650	394	Simple random sampling
4.	DHOs,	24	15	Purposive
5.	Laboratory technicians	146	89	Simple Random Sampling
6.	Pharmacists	13	8	Convenient
7.	Total	1073	651	

Source: Primary Data (2021)

Data Collection Methods
This study was conducted using a survey, interview, and document analysis as explained under the subsequent subheadings.

Data Collection Instruments
In this study, three instruments to wit, self-administered questionnaires, interview guide and Observation guide were used.
Validity and Reliability
This consists of validity and reliability of the research instruments

Validity of the instruments
Validity refers to how a test measures what it is purported to measure, (Mokkink et at., 2010a). Validity is the ability of the research instrument to measure what it is intended to measure. For quantitative data, the researcher endeavored to attain validity of coefficients

of at least 0.70 or 70%. Mokkink et at., (2010b), argues that items with validity coefficients to at least 0.70 are accepted as valid and reliable in research. Validity was determined by using Content Validity Index (C.V.I).
CVI = Number of items considered valid on the draft
Number of items on the draft instruments

As a rule of research methodology, the researcher aimed at a CVI of at least 0.7, in accordance with Davis, L.L. (1992). After calculating the C.V.I, all the results were above 0.7. This meant that the instrument was valid.

Predictive validity was used, itemized and the formula for Content Validity Index (CVI) below was used to calculate accepted items:

$$CVI = \frac{Number\ of\ items\ originally\ set\ by\ the\ researcher}{Number\ of\ items\ vetted\ and\ accepted\ by\ experts} \times 100$$

Table.2 Validity Results

Variable	Number of Items	CVI
Information Management	7	0.857
Motivation	19	0.944
Service delivery	13	0.769
Total	**39**	**0.857**

Source: Primary Data (2021)

Reliability of the instruments

Reliability refers to the degree of consistency of a measure to the effect that a test can give the same repeated result under the same conditions (Martyn & Wilson, 2019). Stemler (2004) states that reliability is the degree to which an assessment tool produces stable and consistent results. The researcher used Cronbach Alpha (α) coefficients to determine the reliability of the instrument. According to Cronbach, for an instrument to be reliable, its Cronbach Alpha must be at least from .70 and above. Cronbach Alpha's scale of measuring reliability indicates that any scores less than .60 is an unacceptably low reliability, 0.60-0.69 defines marginally reliable results, 0.70-0.79 describes reliable results, 0.80-0.90 scale describes highly reliable results and >0.90 is a scale for very highly reliable. Reliability results in Table 3.5 therefore show that all variables meet the Cronbach average score of more than 0.70. On this note, all results of the study are acceptable and subject to analysis.

Table.3 Reliability Results

Variable	Number of Items	Cronbach's Alpha
Information Management	7	.762
Motivation	19	.712
Service delivery	13	.914
Total	**39**	**0.796**

Source: Primary Data (2021)

Data Analysis

Quantitative data analysis

Descriptive statistics were analyzed through measurement of central tendency whereby Demographic characteristics was presented in summary tables and analyzed using frequency and percentage ratings were used to derive the mean and standard deviation. Individual items for supervision, Physical Work Environment, and Information Management was rated using mean and standard deviation. Inferential statistics were analyzed to get the relationship between supervision, Physical Work Environment, Information Management and Health Services Delivery was established using Pearson Correlation model. The study used Structural equation modelling in order to get the mediation effect the study. The model revealed significant relationship at 95% confidence interval leaving a p-value of 0.05. Path analysis was used to get structural equation modeling of the study.

Qualitative data analysis;

The data from key informant interviews was analyzed using content analysis. The narrations and statement from key informants were analyzed to get the perception of the informant about the Work Environment and Personnel Perceived Health Services Delivery.

Limitations of the study

Data collection challenges during covid 19 lockdown.

Because of lockdown, it was hard to collect data as many people were suffering from covid 19. It was hard to access respondents and informants. However, the researcher sought clearance from the Resident District Commissioner Namutumba allowing him to traverse Busoga region for data collection.

Misinterpretation for the structured research instruments. The researcher and the research assistants had to resort to interpreting the research instruments to the informants and respondents.

During data collection, some respondents and informants were hesitant to participate in the data collection process. However, the researcher sought for their hospitability as he explained to them the rationale of the research and in return they accepted to participate in the study.

Ethical Considerations

An official permission letter was obtained from the Office School of Postgraduate Studies and Research to indicate that this study is purely academic and limit possible bias from respondents. Participants/respondents' right to privacy was observed by withholding individual identities to guard against traceability.

In terms of confidentiality, every effort was made by the researcher to preserve utmost confidentiality through: assigning code names/numbers for participants on all research notes and documents, keeping notes, and any other identifying participant information under key and lock. In addition, participant data was kept confidential all through since there may be no instances

that may oblige the researcher to report on incidents of abuse or suicidal risks.

To cater for anonymity, all respondents and participants were given equal treatments to enable each of them participate willingly without bias, and unrealistic expectations. The researcher had an agreement with respondents on the specific dates, time and convenient place to obtain data.

Findings of the study
Introduction

This chapter as per the third objective of the study provides findings regarding the in-depth information about the relationship between Information Management and Personnel Perceived Health Services Delivery at Health Centers in Busoga region. In its start, the descriptive results to describe the state of information management at Health Centers in Busoga Region are provided and discussed.

Information management and Personnel Perceived Health Services Delivery at the district

When the informants were asked whether information management eases Personnel Perceived Health Services Delivery at the district, health facilities and the villages levels, the following responses were availed;

Information is the backbone of health services delivery. In this era of scarce resources, we are doing what we call evidence based planning and this is the basis of logistics supplied to various health centres as this is based on the information they avail. Information helps us to plan for service delivery. It helps us to allocate resources. It helps to advocate for more resources. It helps to plan for the intervention we give to the health service practitioners and the community. The VHTs avail us with the vital information necessary so as we come up with the entire statistics within the district. This helps to map up the vital statistics in the villages. It helps in monitoring performance. (Key Informant – II, 2021).

Descriptive Results

In the third objective of the study regarding the in-depth information about the relationship between Information Management and Personnel Perceived Health Services Delivery at Health Centers in Busoga region, Information Management is considered the independent variable. The descriptive results describing the state of Information Management are presented in **Table 7.1**.

Table 4: Descriptive statistics for Information management in Health Centres in Busoga Region

Information management	Mean	Std. Deviation
Patients' documents are kept and follow-up	3.68	1.26
Each patient is registered	3.75	1.11
Prescriptions are made clearly and written down on paper	3.73	1.27
Individual level data about the patient's profile, health care needs, and treatment serve as the basis for clinical decision-making.	3.76	1.47
Health facility level data, both from aggregated facility-level records and from administrative sources such as drug procurement records, is available to enable health care managers determine resource needs, guide purchasing decisions for drugs, equipment and supplies, and develop community outreach	3.60	1.26
Population level data are essential for public health decision-making and generate information not only about those who use the services but also, crucially, about those who do not use them.	3.29	1.32
Public health surveillance brings together information from both facilities and communities with a focus mainly on defining problems and providing a timely basis for action.	3.58	1.25
Pooled Mean & Standard Deviation	**3.63**	**1.28**

Legend: 4.20-5.00 Very High, 3.40-4.19 High, 2.60-3.39 Average, 1.80-2.59 Low, 1.00-1.79 Very Low
Source: Primary data (2021)

The results from table.1 show high levels of information management at Health Centers in Busoga Region ($M = 3.63$, $SD = 1.28$). There was however high levels of variation or inequality in information management with some workers rating it high and others low ($SD > 0.5$) This result could be attributed to past experiences in managing information among the working staff members at the health Centers.

Table 5: Descriptive Results on Personnel Perceived Health Services Delivery in Health Centers in Busoga Region

Personnel Perceived Health Services Delivery	Mean	Std. Deviation
Timeliness		
Patients are always worked on with high responsiveness	2.98	1.41
There is proper management of appointment scheduling for patients	3.02	1.35

Patients have filed a lot complaints for long waiting hours	2.93	1.37
Timeliness and accessibility to healthcare services are essentially important when it comes to diagnostic procedures	2.73	1.39
We deliver health service to our clients on time	2.89	1.43
Mean & Standard Deviation	**2.91**	**1.39**
Service quality		
Health Centre has got health specialists in every department delivering quality services to patients	2.84	1.41
Hospital handles patients/ clients politely	2.81	1.36
Patients are reliably attended to and on time	2.81	1.26
There is assurance in the services provided by the health center	2.65	1.23
health services are easily accessible and staff exhibits credibility during service provision	2.78	1.32
Mean & Standard Deviation	2.78	1.32
Value for money		
There is effective accountability and efficiency in the hospital operations and projects	3.02	1.33
VHT forms part of performance management systems at the Health Centre	2.74	1.31
There is high rate of client satisfaction at the health center	2.83	1.32
Mean & Standard Deviation	**2.86**	**1.32**
Pooled Mean & Standard Deviation	**2.85**	**1.35**

Legend: 4.20-5.00 Very High, 3.40-4.19 High, 2.60-3.39 Average, 1.80-2.59 Low, 1.00-1.79 Very Low
Source: Primary Data (2021)

Timeliness

The finding in **Table 5** indicated that Patients in Health Centers in Busoga Region were sometimes worked on with high responsiveness *(M =2.98)*. The results from table.5.4 as well showed that there was sometimes appropriate management of the scheduled appointments for the patients *(M =3.02)*. The findings from table.5 show that there is average timeliness and accessibility to healthcare services when it came to diagnostic procedures (M =2.73) in addition to average levels of delivery of health services to their clients on time (M =2.89). The study results from table.5.4 however show that patients in Health Centers in Busoga Region sometimes file complaints for long waiting hours *(M =2.93)*. This result illustrates the need to improve the time management in patient handling.

Service quality

The results in **Table 5** indicated that Health Centers in Busoga Region had fair health specialists in every department that delivered quality services to patients *(M=2.84)*, fairly handled patients/ clients politely *(M=2.81)* and sometimes Patients were reliably attended to on time *(M=2.81)*.

The findings in **Table 5** showed that the health workers in Health Centers in Busoga Region were fairly assured in the services provided *(M=2.65)*, services were fairly accessible and staff sometimes exhibited credibility during service provision*(M=2.78)*.

Value for money

The finding in **Table 5** indicate fairly effective accountability and efficiency in the hospital operations and projects *(M=3.02)*, sometimes VFM formed part of performance management systems at the Hospital *(M=2.74)* and often there was high rate of client satisfaction at the Health Centers in Busoga Region *(M=2.83)*.

Correlational Results

The third and last objective of this study was to get in-depth information about the relationship between Information Management and Personnel Perceived Health Services Delivery at Health Centers in Busoga region. In order to address this objective Pearson Correlation Analysis was undertaken and the results are in **Table.6**.

Table.2: Correlation results between information management Personnel Perceived Health Services Delivery in Health Centers in Busoga Region

Correlations		Information management	Personnel perceived Health Services Delivery
Information management	Pearson Correlation	1	0.1535 **
	Sig. (2-tailed)		.001
	N	528	528
Personnel perceived Health Services	Pearson Correlation	0.1535 **	1

Delivery	Sig. (2-tailed)	.001	
	N	528	528

***. Correlation is significant at the 0.01 level (2-tailed).**

Source: Primary Data (2021)

The findings in **Table.6** reveal little but positive correlation/relationship between the level of information management and Personnel Perceived Health Services Delivery in Lower district health facilities of Busoga Region (*r* = 0.1535 **). This relationship is however statistically significant (*p* = .001 < 0.05). This results from table.6 shows that as the level of information management improves, level of Personnel Perceived Health Services Delivery also improves. The poorer the level of information management the lower the level of Personnel Perceived Health Services Delivery in Health Centers in Busoga Region.

This finding is somewhat similar to what was found by Ondoa (2011) that better routine health information systems that comprise a very broad range of health data including health system inputs improves processes, and outcomes. The result is equally in agreement with what was found by Mbondji et al., (2014) countries that had civil registration systems permitted adequate and regular tracking of mortality and causes of death bettering health service delivery.

Role of information management in enhancing Personnel Perceived Health Services Delivery

When the informants were asked about the role of information management in enhancing Personnel Perceived Health Services Delivery, the following responses were availed; *It enables the service provide the services. It helps in decision making thus improving service delivery*. (Key Informant – II, 2021).

Another key informant responded that; *Information helps in planning. It helps in situation analysis. It helps to monitor performance. It helps to do good priotization and do advocacy for the requiring areas* (Key Informant – II, 2021).

Information management assisted you during this era of covid-19

When the informants were asked whether information management assisted them during this era of Covid-19, the following responses were availed; *It has enabled us do surveillance and contact tracing. It generally helps in breaking the chain of covid* (Key Informant – II, 2021).

Importance of information management in informing the health centres

When the informants were asked on how information management is applied in informing the centre, the following responses were availed*; It helps in*

discussing patient management with the stake holders (Key Informant – II, 2021)

Conclusion of the study

The study concluded that there is a correlation between information management and Personnel Perceived Health Services Delivery in Busoga Region. This implies that the better the level of information management the higher the level of Personnel Perceived Health Services Delivery and vice versa.

Recommendation of the study

The study recommended that the Ministry of Health should facilitate managers to seek for avenues that promote the review of the available information prior to decision making for Personnel Perceived Health Services Delivery.

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