HYPOTHESES TESTING

Hypotheses test 1: Library modern technology:

H_1, House-keeping operation, OPAC web, Library 2.0 are the most preferred modern Technique   in Libraries of medical college libraries in Maharashtra.

Research question:

Is there a difference in the preference   usage of modern technology across libraries?

Variable and measurement:

Libraries were present with following modern library technique.

Sr. No.	Services
1.	Housekeeping operation
2.	Bar code system
3.	Book Mark
4.	. Wi Fi system
5.	RFID
6.	OPAC OWN WEB
7.	Separate web page
8.	Web block
9.	. Library 2.0
10.	ICT
11	Smart card

Each technique was measured usaging a nominal Scale with two response option (1=Yes, 2 =No).

Statistical test: Cochran test:

H_0 **:** There is no difference in the usage of modern technique across allopathic medical college libraries in Maharashtra

H_1 **:** There is significance difference in the usages of modern technique allopathic medical college libraries in Maharashtra.

Level of significance : = 0.05

Test Statistic

N	32
Cochran's Q df	102.35910
df	10
Asymp Sig	.000

a 1. Is treated as success.

Hence there is significance difference   in the usages of modern technique libraries to understand were the   difference lies we refer to frequency table.

From the frequency table it can be seen that housekeeping operation has frequency of 21, Bar-code system has 6 frequency, smart card has 1 frequency, RFID has 3 frequency, OPAC OWN WEB has 11 frequency, separate web page has 7 frequency, web blog has 9 frequency, library 2.0 has 11 frequency,   ICT has 2 frequency and   book mark has 0 frequency.

Hence it can be concluded that the most commonly use modern technique in libraries are housekeeping operation , OPAC own web , Library 2.0 , Web blog 9 , and separate web page.

Hypothesis:

Observation Q (10) = 102.35,   P = 0.000 , N =32. Housekeeping operation, OPAC web, Library 2.0 are the most prepared modern technique in libraries of medical college libraries in Maharashtra.

Conclusion:

Since P value (0.000) is less than level of significance (0.05), the null hypothesis is rejected. Hence there is significance difference in the usages of modern technique libraries. To understand were the difference lies we refer to frequency table.

Frequency Table

Sr. No.	Library modern technique	Value	
		1	2
1.	Housekeeping operation	21	11
2.	Bar code system	6	26
3.	Book Mark	0	32
4.	Wi Fi system	5	27
5.	RFID	3	29
6.	OPAC OWN WEB	11	21
7.	Separate web page	7	25
8.	Web block	9	23
9.	Library 2.0	11	21
10.	ICT	2	30
11.	Smart card	1	31

From the frequency table it can be seen that housekeeping operation has frequency of 21, Bar-code frequency has 6, Book mark frequency has 0.WIFI system frequency 5, RFID 3, OPAC OWN WEB frequency 11,separate web page frequency has 7, web blog 9, library 2.0 frequency has 11, ICT frequency OPAC OWN WEB 2 and smart card frequency has 1

Hence it can be concluded that the most commonly use modern technique in libraries are housekeeping operation , OPAC , OWN PAGE, Library2.0, Web blog, and separate page.

Hypotheses test 2 : Library services:

H $_2$

Book circulation services, current awareness services, bibliographic services and reprographic services are commonly provide services at libraries in Maharashtra.

Research questions: Is there a difference in the library services provided by libraries in Maharashtra?.

Variable and measurement: Libraries were presented with thirteen commonly providing library services.

Sr. No	Services
1.	Current awareness services
2.	Content page services
3.	Bibliographic
4.	Inter library loan services
5.	Books circulation services
6.	News paper clipping services
7.	Document delivery services
8.	Reference services
9.	Reprographic services
10.	Indexing & Abstract services
11.	Citation analysis

Each services was measured of using nominal scale, with two response option (1=Yes, 2=No).

Statistical test:

Cochran's Q-Test

Level of Significance: **ά =0.05**

H= There is no difference in library services provide at libraries in Maharashtra.

H_1 There is significance difference in library services provide at library provide at libraries in   Maharashtra.

Test Statistics:

N   = 32

Cochran's Q   = 171.179

df   = 11

Asymp. Sig.   = .000

a. 1 is treated as a success

Observation:

1 Q (11) = 171.179 , P =0.000, N=32

Since P=0.000 is less than level of significance (0.05) the null hypothesis is rejected, hence it is concluded that the difference in library services provide of libraries in Maharashtra. In order to find out where the difference lies we refer to frequency table.

Frequency

Sr. No.	Library Services	Value	
		1	**2**
1.	Current awareness services	22	10
2.	Content page services	11	21
3.	Bibliographic	20	12
4.	Inter library loan services	18	14
5.	Books circulation services	27	5
6.	News paper clipping services	19	13
7.	Document delivery services	10	22
8.	Reference services	11	21
9.	Reprographic services	15	17
10.	Indexing & Abstracting services	0	32
11.	Citation analysis	0	32

From the frequency table seen that current awareness service frequency has 22, content page service frequency has 11, Bibliographic frequency has 20, Inter library loan services frequency 18, Books circulation services has 27, News paper clipping services 19, Document delivery services has frequency 10, Reference services 11, Reprographic services 15 Indexing & Abstracting services has frequency 0 and Citation analysis frequency has 0.

Hence it concluded that the most commonly book circulation services, current awareness services, Bibliographic services and reprographic services are commonly provide services at libraries in Maharashtra.

Hypotheses test 3: Safety measure:

H_3 Insurance policy, visitor record and automatic electric system are most preferred safety by medical libraries in Maharashtra test.

Research questions: Is there a difference in the safety measure adopted at libraries in Maharashtra.

Variable and measurement: Respondent were present with 8 safety measure following

Sr. No.	Safety measure
1.	RFID system
2.	Automatic tripping of electrical systems
3.	Fire alarm system
4.	Smoke detectors system
5.	Humidity and temperature control
6.	Preservation and conservation
7.	Visitor record
8.	Insurance policy
9.	CCTV

Each safety measure was measured using a nominal scale with two response option (01 =Yes, 02= No)

Statistical test**:**   Friedman (Chi-Square)

H**:** there is no difference in the safety measure adopted across libraries in Maharashtra.

H_1: there is a significant difference in the safety measure adopted across libraries in Maharashtra.

Level of significant**:** ά =0.05

Test Statistics:

N   = 32

Cochran's Q   = 81.206

df   = 8

Asymp. Sig.   = .000

a. 1 is treated as a success.

Observation: Cochran's Q (8) =81.206 P Value =0.000, N=32.

Conclusion:

Since P value (0.000) is less than level of significance (0.05) the null hypothesis is rejected. Hence it is concluded that significant difference in the safety measure adopted across libraries in Maharashtra.

Frequency

Safety measure	Value	
	1	2
RFID system	3	29
Automatic tripping of electrical systems	11	21
Fire alarm system	10	22
Smoke detectors system	7	25
Humidity and temperature control	7	25
Preservation and conservation	5	27
Visitor record	15	17
Insurance policy	22	10
CCTV	15	17

To find out were difference lies we refer to frequency table from the frequency table seen that RFID has frequency of 3, Automatic tripping of electrical systems11, Fire alarm system 10, Smoke detectors system frequency has 7, Humidity and temperature control frequency has 7, Preservation and conservation frequency has 5,visitor record frequency has 15, Insurance policy frequency has 22 and CCTV frequency has 15.

Hence it is concluded that the top 2 safety measure adopted by medical libraries are insurance policy and visitor record

Hypotheses test 4: Crosstabs test:

H4

There is relation between qualification of the librarian and salary paid to the librarian in medical college libraries in Maharashtra. (better qualification better salary)

Research question: Is there any relation between qualification and scale of allopathic medical college libraries.

Variable and measurement

Qualification was nominal variable with four response option 1 =B.Lib,2 = M.Lib. 3 =M.Phil and 4 = Ph.D. Scale was nominal variable with 3 response option (1= consolidated scale, 2 =Basic scale and 3= Higher grade scale)

Statistical test:

Chi –square test of contingency

H_0 **:** There is no relation between qualification and scale.

H_1 **:** There is signification relation between qualification and scale

Level of significance ά = 0.05

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	30.982[a]	6	.000
Likelihood Ratio	27.036	6	.000
Linear-by-Linear	12.839	1	.000
Association	32		
No. of Valid Cases			

a. 10 cells (83.3%) have expected count less than 5. The minimum expected count is .16.

Observation:

X^2 (6) = 30.98, p =0.000, N = 32.

Conclusion:

Since P value (0.000) is less than level of significance (0.05) the null hypothesis is rejected, hence it is concluded that there significant relation between qualification and scale. To understand nature of relationship we refer to cross tabulation table.

Qualification * Scale Cross tabulation

Qualification	Scale			Total
	Consulate Scale	Basic Scale	Higher grade	
B. Lib.	6	0	0	6
M .Lib.	10	11	1	22
M .Phil.	0	0	3	3
Ph .D.	0	0	1	1
Total	**16**			**32**

From the cross tabulation table it can be seen that out of 6 B.Lib cases all are paid consolidated salary, Out of 22 M.Lib cases, 45.5% are paid in consolidated, 50 % of libraries given basic salary and 4.5 % higher grade scale .Out of 3 M.Phil cases all are given higher grade scale , the one Ph.D case is given higher grade salary. Hence it can conclude that there is relationship between qualification and salary.

Hypothesis 4 Qualification * Scale Cross tabulation

Qualification		Scale			Total
		Consolidated scale	Basic scale	Higher grade scale	
BLib	Count	6	0	0	6
	Expected Count	3.0	2.1	.9	6.0
	% within Qualification	100.0%	0.0%	0.0%	100.0%
M.Lib.	Count	10	11	1	22
	Expected Count	11.0	7.6	3.4	22.0
	% within Qualification	45.5%	50.0%	4.5%	100.0%
M. Phil.	Count	0	0	3	3
	Expected Count	1.5	1.0	.5	3.0
	% within Qualification	0.0%	0.0%	100.0%	100.0%
Ph.D.	Count	0	0	1	1
	Expected Count	.5	.3	.2	1.0
	% within Qualification	0.0%	0.0%	100.0%	100.0%
Total	Count	16	11	5	32
	Expected Count	16.0	11.0	5.0	32.0
	% within Qualification	50.0%	34.4%	15.6%	100.0%

Hypotheses test 5: Total no. of books:

H$_5$,   The average number books available at allopathic medical libraries is more than the required the 10 thousands.

Research questions whether the average number books available at allopathic medical libraries is more than the required the 10 thousands

Statistical test: One sample T test

H$_0$: μ $\leq$ 10,000

H$_1$: μ $\geq$ 10,000

Level of significance 0.05

One-Sample Statistics

	N	**Mean**	**Std. Division**	**Std. Error Mean**
Number of total books	32	17731.9375	10028.49581	1772.80435

	Test Value = 10000				
	t	*df*	*Sig. (2-tailed)*	*Mean Difference*	*95% Confidence Interval of the Difference Lower*
Number of total books	4.361	31	.000	7731.93750	4116.2792

Observation: Mean =   17731.9

 Standard Deviation =   10028.49

N = 32

t (31) =4.361, P 0.000

Conclusion:

Since   P Value (0.000)   is less than level of significance null hypothesis rejected , hence it can be concluded that average no. of books available allopathic medical libraries in is more than Maharashtra   required no. is ten thousands (10).

Hypotheses test 6:   No. of average area:

H$_6$, The average area of allopathic medical college libraries in Maharashtra is less than or equal 10,000

Research question **:** whether the library area is more than minimum require area of 10,000 sqf . Statistical T test one sample test

H₀ **: μ ≤ 10,000**

H₁ **: μ ≥ 10,000**

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Total library area	32	11042.3438	9104.47917	1609.45974

One-Sample Test

	Test Value = 10000				
	t	*df*	*Sig. (2-tailed)*	*Mean Difference*	*95% Confidence Interval of the Difference Lower*
Total library area	.648	31	.522	1042.34375	-2240.1710

	Test Value = 10000, 95% Confidence Interval of the Difference Upper
Total library area	4324.8585

Mean is 11042.34, Standard deviation = 9104.47 N=32 t (31) = 0.648, P=0.522, (two tailed). Hence one tailed P =0.261

Conclusion: Since P value (0.561) is more than level of significance (0.05) the null hypothesis is accepted.

Hence it is concluded that the average area of allopathic medical college in Maharashtra is less than or equal 10,000

Hypotheses test 7: T. Test Sample:

Sr. No	Variable	Mean	SD	Skewness	Kurtosis
1.	Books budget	1117083.8	853462.4	1.439	2.027
2.	Journal budget	3257278.3	2333463.3	1.811	.414
3.	No. of National Journal	57.5313	27.91344	.414	-.585
4.	No. of international Journal	72.8125	48.01172	1.366	1.256
5.	Library working hours	10.6250	2.40631	.770	-.152
6.	No. of books issue return per day	95.8125	47.97677	.698	-.095

The above table shows descriptive static for variable book budget, journal budget, Number of national journal and number of international journal, library working hours, Number of book issue resumed ref day. Books budget has mean of 111.7083 and standard deviation 853462, (standard deviation less than mean) hence average book budget is 1117083.8.

Journal budget has mean of 3257278.3 and standard deviation 2333463.3 (standard deviation less than mean), hence average journal budget is . 3257278.3

No. of National journal has mean of 57.5313 and standard deviation 27.91344 (standard deviation less than mean), hence average no .of national journal is 57.5313

No. of International journal has mean of 72.8125 and standard deviation 48.01172 (standard deviation less than mean) ,hence average no. of international journal is 72.8125.

Library working hours has mean of 10.6250 and standard deviation 2.40631 (standard deviation less than mean) hence average no. of library working hours is 10.6250.

No. of books issue return per day has mean of 95.8125 and standard deviation 47.97677 (standard deviation less than mean) hence average no. of library working hours is 10.6250

Conclusion:

The average book budget is 1117083.8.%, journal budget 3257278.3 %, Total no. of National journal 57.5313%, Total no. of international Journal 72.8125%, library working hours 10.6250% and average no. of books issue return per day 95.8125% .