

ORIGINAL ARTICLE

Assessment of Knowledge and Practices towards Swine flu: A cross-sectional study among rural housewivesRashmi Kumari¹, Rajiv Kumar Gupta², Bhavna Langer³, Aruna Verma⁴¹Lecturer, ²Associate Professor, ³Lecturer, ⁴Medical Officer, ^{1,2,3}Department of Community Medicine, Government Medical College, Bakshi Nagar, Jammu Tawi, Jammu and Kashmir – 180001; ⁴Jammu and Kashmir Health Services, Jammu and Kashmir - 180001

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Kumari R, Gupta RK, Langer B, Verma A. Assessment of Knowledge and Practices towards Swine flu: A cross-sectional study among rural housewives. Indian J Comm Health. 2016; 28, 1: 35 - 41.

Source of Funding: Nil **Conflict of Interest:** None declared**Article Cycle****Submission:** 07/09/2015; **Revision:** 12/11/2015; **Acceptance:** 15/01/2016; **Publication:** 31/03/2016**Abstract**

Background: Swine flu is an emerging public health problem in various countries including India and was declared a “Phase 6 Pandemic” by WHO in 2009. India ranks as 3rd most affected country for cases and deaths of swine flu globally. **Objectives:** To assess the level of knowledge and practices regarding Swine flu among rural housewives of Jammu and to find out the association between the two. **Methods:** A cross-sectional study was conducted during the month of April 2015 using a pre-tested and semi-structured questionnaire among 310 housewives from two villages of Jammu district. **Results:** Adequate knowledge was seen in 61.9% of the respondents and 53.5% had followed good practices. Mean (SD) for knowledge and practices score was 11.4(2.37) & 10.3(2.58) respectively. Literacy levels were identified as a positive predictor for adequate knowledge and good practice score. A linear relationship was evident both between knowledge / practices as well as age upto 40 years after which there was a declining trend. Also significant positive association was found between knowledge and practices ($p < 0.001$). **Conclusions:** Age and education played a key role in attaining adequate knowledge and inculcating healthy practices towards prevention of swine flu. Continuous and sustained efforts are required on the part of government to impart scientific and necessary information to the target population.

Key Words

Knowledge; Practices; Swine flu; Rural housewives

Introduction

Pandemic influenza has been reported since 16th century, and is occurring at an interval of every 10-50 years (1). Researchers in 2009 found a new influenza strain different from human influenza and WHO referred this novel strain of influenza A (H1N1) as swine flu (2,3,4). Approximately 500 million people worldwide are estimated to be affected by H1N1 virus, killing 40-50 million worldwide and 10 - 20 million in India with mortality rate of 10% (5, 6). Further WHO raised its pandemic alert to phase 6,

indicating that a full global pandemic was under way (7).

India ranks as 3rd most affected country for cases and deaths of swine flu globally (8). Indian government has taken a series of preventive measures according to WHO guidelines, including the promotion of public knowledge about flu. There is an urgent need to assess the success of these efforts which help to ensure the preparedness of the public in facing subsequent outbreaks. Since very little is known regarding this in India and especially J&K, the present study was planned to explore the knowledge and practices level in rural Jammu which

has recently witnessed the outbreak of swine flu. Housewives were chosen as study subjects since they are the key persons who take care of the health of whole family during any episode of illness. This information will assist health sector authorities in developing further strategies for implementation of various health education programs.

Aims & Objectives

- 1) To assess the level of knowledge and Practices regarding swine flu in rural housewives.
- 2) To find out the association between knowledge and practices.

Material and Methods

The present community based cross-sectional study was conducted in RS Pura block of Jammu district to determine the level of knowledge & practices regarding Swine flu among housewives. Using a multi-stage random sampling technique, two villages from the block were chosen for the study. A house to house visit was made for data collection. The house which was found locked on first day of visit, was revisited on 2nd day and if, found locked on 2nd day also, was excluded from the study. Only those housewives were administered the questionnaire who had heard of swine flu. According to Guidelines for conducting KAP study, minimum sample size required is 200 but for the sample to be more representative, a total of 310 participants were included in the study (9). Participation in the study was absolutely voluntary and informed verbal consent was obtained at the start of study. Ethical approval was taken from the Institutional Ethical Committee of GMC, Jammu before the start of study.

Data collection Tool: A pre-tested, semi-structured questionnaire, consisting of 3 parts was used as a tool for data collection. This questionnaire was based on previous studies done by various researchers and was pilot tested among 30 housewives in another village. This pre-designed instrument consisted of socio-demographic characteristics (age, religion, education and occupation of husband), knowledge and awareness about the disease (nature, mode of transmission, clinical features and preventive measures) and the practices followed (regarding hygiene, self-care and safety measures taken during the outbreak). For both knowledge and practices, there were 15 close ended questions with the options of Yes & No. Option of Don't Know was also added for assessment of Knowledge. A score of 1 was given for a correct

response. The incorrect response and don't know were classified as incorrect answer and 0 score was given for that. Total score for both knowledge and practices was 15. Respondents that scored \geq the mean score were considered as having "adequate knowledge" and following "good practices".

Statistical Analysis

The data was checked thoroughly for its consistency and analyzed using SPSS (version 20). Demographic variables were presented as proportions. Chi-square test was used to determine the statistical significance of association between knowledge and practices. A probability of less than 0.05 was considered statistically significant.

Results

Study population comprised of 310 participants. The demographic profile of respondents. Mean age of respondents was 37.1 ± 12.1 years. In terms of educational status, out of 83.6% of literate respondents, only 11.3% had studied higher secondary and above. ([Table 1](#))

Mean (SD) of the knowledge score was 11.4 ± 2.37 . 192 (61.9%) respondents scored more than 11 points and were classified as having adequate knowledge. As far as practices were concerned, mean score was 10.3 ± 2.58 . Good practices were followed by 166 respondents (53.5%) as they scored more than 10 points.

57.7% of the respondents were aware of the fact that it is a viral infection. Good knowledge was seen for most of the questions asked except for a few like, whether pork acts as a source of transmission of infection and vaccine availability to prevent infection ([Table 2](#)).

The distribution of respondents as per their practices ([Table 3](#)). More than 80% of the respondents had good cough and sneeze etiquettes. High percentage of the respondents reported that they washed their hands using soap (>95%). Face mask was used while coughing or sneezing by 53.8% of respondents. Practices on social distancing were generally good. Majority (87.7%) of the respondents avoided going to crowded places and 78.7% avoided bringing their children unnecessarily to busy places like markets or cinema halls. As for self-health care, only 55.8% of the respondents had the initiative to seek for additional information regarding swine flu.

The level of knowledge and practices was significantly associated with both age and literacy status ($p < 0.001$) ([Table 4](#)). There was also significant

association between knowledge and practices pertaining to swine flu ($p < 0.001$) as shown in [Table 5](#).

[Figure 1](#) & [Figure 2](#) shows the trend of relationship between age and literacy with the level of knowledge and practices respectively.

Discussion

The present study adds to the information on the level of knowledge and practices towards swine flu and the association between the two. It was revealed that more than 90% of total respondents had heard about swine flu which concurs with the findings of earlier studies (10,11,12). However, the results of study conducted by Nagar *et al* are contrary to these findings (13).

Knowledge was found to be adequate in 61.9% of respondents which is in line of agreement with the figures reported by Gupta RK *et al* (11), Zairina AR *et al* (14) and Damor R *et al* (15). Slightly lower level of knowledge (50%) was found in a study conducted by Latiff AL *et al* (16). About 70% of our participants had knowledge about the disease symptoms. However, another study conducted in Jammu reported a higher level of knowledge up to 92.5% (11). It may be due to the reason that in present study only housewives were taken into consideration who are likely to have lower level of knowledge in comparison to their male counterparts. Fever and cough as symptoms were known to 72.9% and 68.7% of respondents in this study. These findings concur with earlier results reported by various authors (17,18). Misconception that eating pork can spread swine flu was alarmingly high (60.3%) among housewives, this figure is even higher than that reported in previous studies (19,20).

Similar to the findings of earlier studies, a high percentage of participants had knowledge about population at risk (14,21). These results show that efforts of Government & Non-Governmental Organizations (NGOs) regarding continuous spread of information about swine flu is showing positive trend even in rural housewives. On the contrary, lack of knowledge about vaccine availability for swine flu (24.8%) is a cause of concern for health authorities, almost similar (27.3%) to results reported by Kour H *et al* (22). This is in contrast to the levels (55-80%) reported by Kawanpure H *et al* in their study in Kerala, the most probable reason being, Kerala, one of the most literate states of India (17).

As far as practices were concerned, frequent hand washing was practiced by a good proportion of respondents (> 90%) in the current study. These findings were in line of agreement with other studies (14,20,23). Further, Farhat T *et al* reported that 51.7% respondents considered frequent hand washing as a simple effective preventive measure (24). In contrast, Sharma S *et al* reported that only 2.1% of participants believed hand washing as a mode of prevention (10). 87.7% of the respondents avoided going to crowded places in the present study which is in contrast to the findings of Lin Y *et al* (25). Of interest, was the finding that higher education level was a significant positive predictor for knowledge and practice scores. This finding was supported by Abbate R *et al* (26) and Dayanand G *et al* (27). Contrary to this, Zairina AR *et al* reported a negative association between the two (14).

The present study also reported a significant association of knowledge and practices with age supported by results of Janahi *et al* (28). A positive linear relationship between the two was seen till 40 years, after which there was a declining trend. The most probable reason being that females aged >40 years were either illiterate or educated up to primary level and were not exposed to media or other sources of information which has led to their low knowledge level and thus resulting in poor practices towards swine flu.

It was evident in this study that knowledge scores predict practice scores with strong positive association between the two. This shows that good knowledge is of paramount importance to enable individuals to have good practices in risk reduction of swine flu in particular and disease prevention in general. These findings corroborate the results reported by other authors (14,16,29).

Conclusion

Knowledge has a significant influence on attitude and practices.

Recommendation

Government should make sustained efforts to provide scientific and relevant information to the target population.

Limitation of the study

The study being cross-sectional and conducted in a small rural sample of housewives lacks the ability of generalizability.

Relevance of the study

KAP studies play a vital role in development of communicable disease containment strategies.

Authors Contribution

RK: conception, design, collection of data, analysis and interpretation of data, literature search, drafting and critical revision of manuscript. RKG: interpretation of data, drafting and critical review of final manuscript. BL: collection of data, drafting and review of manuscript. AV: literature search and drafting of manuscript.

References

- World Health Organization. Avian Influenza: assessing the pandemic threat. USA. WHO/CDS/2005.29.
- World Health Organization Regional Office for Europe. Influenza A ((H1N1)): pandemic alert phase 6 declared, of moderate severity. 2009 June.
- Novel Swine-Origin Influenza A (H1N1) Virus Investigation Team, Dawood FS, Jain S, Finelli L, Shaw MW, Lindstrom S, Garten RJ, Gubareva LV, Xu X, Bridges CB, Uyeki TM. Emergence of a novel swine-origin influenza A (H1N1) virus in humans. *N Engl J Med*. 2009 Jun 18;360(25):2605-15. doi: 10.1056/NEJMoa0903810. Epub 2009 May 7. Erratum in: *N Engl J Med*. 2009 Jul 2;361(1):102. PubMed PMID: 19423869. [PubMed].
- Michaelis M, Doerr HW, Cinatl J Jr. Novel swine-origin influenza A virus in humans: another pandemic knocking at the door. *Med Microbiol Immunol*. 2009 Aug;198(3):175-83. doi: 10.1007/s00430-009-0118-5. Epub 2009 Jun 20. Review. PubMed PMID: 19543913. [PubMed]
- Fineberg HV. Pandemic preparedness and response--lessons from the H1N1 influenza of 2009. *N Engl J Med*. 2014 Apr 3;370(14):1335-42. doi: 10.1056/NEJMra1208802. Review. Erratum in: *N Engl J Med*. 2015 Jan 8;372(2):197. PubMed PMID: 24693893. [PubMed]
- Chandra S, Kassens-Noor E. The evolution of pandemic influenza: evidence from India, 1918-19. *BMC Infect Dis*. 2014 Sep 19;14:510. doi: 10.1186/1471-2334-14-510. PubMed PMID: 25234688; PubMed Central PMCID: PMC4262128. [PubMed]
- World Health Organization (WHO). Pandemic (H1N1) 2009-Update. Disease Outbreak News (WHO); 2010 May 14. http://www.who.int/csr/don/2010_05_14/en/
- Sinha NK, Roy A, Das B, Das S, Basak S. Evolutionary complexities of swine flu H1N1 gene sequences of 2009. *Biochem Biophys Res Commun*. 2009 Dec 18;390(3):349-51. doi: 10.1016/j.bbrc.2009.09.060. Epub 2009 Sep 19. Review. PubMed PMID: 19769939. [PubMed]
- Kaliyaperumal K (IEC Expert) Diabetic Retinopathy project, Guidelines for conducting Knowledge, Attitude and Practice study. *Community Ophthalmology* 2004;4 (1):7-9.
- Sharma S, Arora VK, Mahashabde P. Knowledge and Behavior Regarding Swine Flu among Interns at Index Medical College, Hospital & Research Center, Indore (M.P.) *JEMDS* 2014; 3(10): 2590-94.
- Gupta RK, Khajuria V, Rani R and Langer B. Gender based Knowledge, Attitude and Practices about Swine flu in a rural Indian population. *JK Science* 2015 Apr-Jun;17(2):79-83.
- Kamate SK, Agrawal A, Chaudhary H, Singh K, Mishra P, Asawa K. Public knowledge, attitude and behavioural changes in an Indian population during the Influenza A (H1N1) outbreak. *J Infect Dev Ctries*. 2009 Nov 30;4(1):7-14. PubMed PMID: 20130372. [PubMed]
- Nagar S, Kartha G, Nagar S, *et al*. A cross sectional study of awareness regarding influenza among the urban population of Surenderanagar. *Healthline* 2012;3(1):55-58.
- Zairina AR, Nooriah MS, Yunus AM. Knowledge and practices towards influenza A (H1N1) among adults in three residential areas in Tampin Negeri Sembilan: a cross sectional survey. *Med J Malaysia*. 2011 Aug;66(3):207-13. PubMed PMID: 22111442. [PubMed]
- Damor R, Bhabhor H, Kosambiya JK, Gohil A, Rani G, Parmar P. Knowledge, Attitude and Practices Regarding Swine Flu among OPD Attendees of Tertiary Care Hospital, Surat. *IOSR Journal of Dental and Medical Science* 2015 July; 14(7):60-64
- Latiff AL, Parhizkar S. Pandemic Influenza A (H1N1) and Its Prevention: A Cross Sectional Study on Patients' Knowledge, Attitude and Practice among Patients Attending Primary Health Care Clinic in Kuala Lumpur, Malaysia. *Global Journal of Health Science* 2012 March; 4(2):95-102.
- Kawanpure H, Ugargol AR, Padmanabha BV. A study to assess knowledge, attitude and practice regarding swine flu. *IJHSR* 2014; 4(8):6-11.
- Jhummon-Mahadnac ND, Knott J, Marshall C. A cross-sectional study of pandemic influenza health literacy and the effect of a public health campaign. *BMC Res Notes*. 2012 Jul 26;5:377. doi: 10.1186/1756-0500-5-377. PubMed PMID: 22830499; PubMed Central PMCID: PMC3502135. [PubMed].
- Singh S, Kaur P, Singh G. Study to assess the awareness, perception and myths regarding swine flu among educated common public in Patiala District. *Int J Res Dev Health* 2013 Apr;1(2):54-60.
- Shilpa K, Praveen Kumar BA, Kumar SY, Ugargol AR, Naik VA, Mallapur MD. A study on awareness regarding swine flu (influenza A H1N1) pandemic in an urban community of Karnataka. *Med J DY Patil Univ*. 2014;7(6):732-37.
- Atheer J, Abdul Ameer. Influenza –A(H1N1) Knowledge and Perceptions among Al-Nahrain Medical Students. *The Iraqi Postgraduate Medical Journal* 2012;11(4):453-57.
- Knowledge, Attitude and Practices regarding Swine Flu among adult population .Kaur H, Sidhu TK, Singh P. *Indian J Of Community Health* 2015 JUL – SEP ;27 (3): 402-410
- Rubin GJ, Potts HW, Michie S. The impact of communications about swine flu (influenza A H1N1v) on public responses to the outbreak: results from 36 national telephone surveys in the UK. *Health Technol Assess*. 2010 Jul;14(34):183-266. doi: 10.3310/hta14340-03. PubMed PMID: 20630124. [PubMed]
- Farahat T, Al-Kot M, Al-Fath AO, Noh A, Diab N. Promotion of knowledge, attitude and practice towards swine flu A/H1N1. *Menofia Med J* 2010;23:83-94.
- Lin Y, Huang L, Nie S, Liu Z, Yu H, Yan W, Xu Y. Knowledge, attitudes and practices (KAP) related to the pandemic (H1N1) 2009 among Chinese general population: a

- telephone survey. BMC Infect Dis. 2011 May 16;11:128. doi: 10.1186/1471-2334-11-128. PubMed PMID: 21575222; PubMed Central PMCID: PMC3112099. [\[PubMed\]](#).
26. Abbate R, Di Giuseppe G, Marinelli P, Angelillo IF. Knowledge, attitudes, and practices of avian influenza, poultry workers, Italy. Emerg Infect Dis. 2006 Nov;12(11):1762-5. PubMed PMID: 17283632; PubMed Central PMCID: PMC3372355. [\[PubMed\]](#).
27. Dayanand G, Rana MM. Knowledge, Awareness, Practice and Preventive measures regarding Swine flu among community people: a cross-sectional study from Pokhara Nepal. Medical Science 2015 June;225-232
28. Janahi E, Awadh M, and Awadh S. Public knowledge, risk perception, attitudes and practices in relation to the swine flu pandemic: A cross sectional questionnaire-based survey in Bahrain. International Journal of Collaborative Research on Internal Medicine and Public Health 2011 Jun; 3(6):451-64.
29. Yap J, Lee VJ, Yau TY, Ng TP, Tor PC. Knowledge, attitude and practices towards pandemic influenza among cases, close contacts and health care workers in tropical Singapore: a cross-sectional survey. BMC Public Health 2010;10:442. **(PubMed) PMCID: PMC 2916908** doi: 10.1186/1471-2458-10-442

Tables

TABLE 1 DEMOGRAPHIC PROFILE OF PARTICIPANTS (N=310)

A	AGE GROUP (Years)	NO.	%
	<20	13	4.2
	20-30	98	31.6
	30-40	65	20.9
	40-50	79	25.9
	≥ 50	55	17.7
B	LITERACY STATUS		
	ILLITERATE	51	16.4
	PRIMARY	64	20.6
	MIDDLE	92	29.6
	HIGH	68	21.9
	HR.SEC. & ABOVE	35	11.3
C	OCCUPATION of HUSBAND		
	FARMER/LABOURER	76	24.5
	BUSINESSMAN	71	22.9
	SERVICE	98	31.6
	EX-SERVICEMAN	65	21.0
D	RELIGION		
	HINDU	248	80.0
	MUSLIM	14	4.5
	SIKH	47	15.1
	OTHERS	1	0.3

TABLE 2 RESPONDENTS ACCORDING TO KNOWLEDGE ON VARIOUS ASPECTS OF SWINE FLU

Questions	Correct Response	Incorrect Response
Etiologic agent		
Swine flu is a viral infection	179(57.7)	131(42.2)
Symptoms		
High grade fever	226(72.9)	84(27.1)
Cough >3 days	213(68.7)	97(31.3)
High Risk Groups		
Pregnant women	207(66.7)	103(33.2)
Children <5 yrs.	257(82.9)	53(17.1)
Complications		
Severe illness can lead to death	275(88.7)	35(11.3)
Routes of Transmission		
Person to person	282(90.9)	28(9.1)
Touching contaminated objects	245(79)	65(20.9)

Consuming pork	123(39.6)	187(60.3)
Moving in crowded places	274(88.4)	36(11.6)
Prevention		
Washing hands frequently	288(92.9)	22(7.1)
Using facemask while moving in crowded places	259(83.5)	51(16.5)
Covering mouth and nose with tissue while coughing & sneezing	279(90)	31(10)
Treatment		
Drugs available to treat infection	223(71.9)	87(28.1)
Vaccine available to prevent infection	77(24.8)	233(75.2)

TABLE 3 FREQUENCY DISTRIBUTION OF RESPONDENTS’ RESPONSE TO PRACTICE QUESTIONS PERTAINING TO HYGIENE, SELF-CARE AND SAFETY MEASURES DURING OUTBREAK

Practices	YES	NO
A While coughing & Sneezing		
Covered mouth & nose with tissue or handkerchief	263(84.8)	47(15.1)
Threw away used tissue into bin	241(77.7)	69(22.2)
Turned my face from others	260(83.8)	50(16.1)
B Washing of hands with soap		
Before eating	299(96.4)	11(3.5)
After toilet	303(97.7)	7(2.2)
After sneezing	254(81.9)	56(18.1)
C Use of Face mask		
Never used it	111(35.8)	199(64.2)
Wear facemask while having fever, cough or running nose	167(53.8)	143(46.1)
Changed to a new mask after using it once	148(47.7)	162(52.2)
D Social distancing during outbreak		
Avoided going to crowded places	272(87.7)	38(12.2)
Avoided bringing children to busy markets/cinema hall	244(78.7)	66(21.3)
E Crowded areas		
Wear facemask	179(57.7)	131(42.3)
Used hand sanitizer	119(38.4)	191(61.6)
F Self-health care		
Consumed food supplements like vitamins	114(36.7)	196(63.2)
Seeked additional information about swine flu	173(55.8)	137(44.2)

TABLE 4 ASSOCIATION BETWEEN KNOWLEDGE AND PRACTICES REGARDING SWINE FLU AND SOCIO-DEMOGRAPHIC CHARACTERISTICS

Socio-demographic characteristic	Knowledge level		Practices level	
	Adequate	Inadequate	Good	Poor
Age				
<20	8(61.5)	5(38.5)	7(53.8)	6(46.2)
20-30	71(72.4)	27(27.5)	69(70.4)	29(29.6)
30-40	49(75.4)	16(24.6)	47(72.3)	18(27.7)
40-50	42(53.2)	37(46.8)	32(40.5)	47(59.5)
>50	22(40)	33(60)	11(20)	44(80)
X²= 23.39 p<0.001			X²=50.68 p<0.001	
Literacy status				
Illiterate	12(23.5)	39(76.5)	11(21.6)	40(78.4)
Primary	33(51.6)	31(48.4)	26(40.6)	38(59.4)
Middle	65(70.6)	27(29.4)	60(65.2)	32(34.8)
High School	53(77.9)	15(22.1)	44(64.7)	24(35.3)

Higher Secondary & Above	29(82.8)	6(17.2)	25(71.4)	10(28.6)
X²= 51.68	P<0.001		X²=38.2	p<0.001

TABLE 5 ASSOCIATION BETWEEN KNOWLEDGE - PRACTICES AMONG RESPONDENTS REGARDING SWINE FLU

	Practices			Total
		Poor	Good	
Knowledge	Inadequate	76	42	118
	Adequate	68	124	192
	Total	144	166	310
	P<0.001	X² = 23.54		

Figures

FIGURE 1 RELATIONSHIP BETWEEN AGE AND LEVEL OF KNOWLEDGE AND PRACTICES FOLLOWED

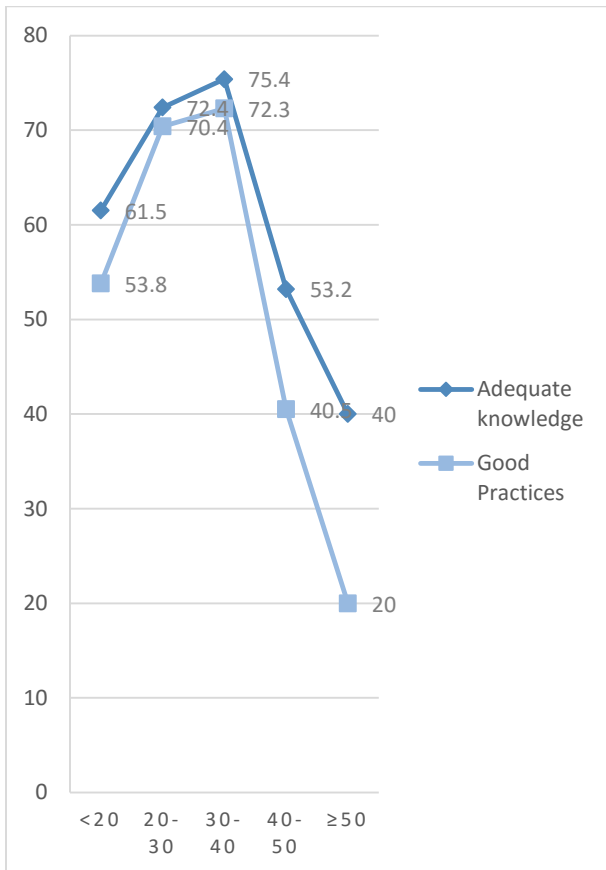


FIGURE 2 RELATIONSHIP BETWEEN LITERACY AND LEVEL OF KNOWLEDGE AND PRACTICES FOLLOWED

