Original Research Article

Knowledge, skills of female health workers regarding selected non communicable diseases risk reduction and client satisfaction: a pilot study from western part of Rajasthan, India

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ABSTRACT

Background: The increasing burden of Non communicable diseases calls for added role on the part of health professionals. The female Health workers being the closest to population play an important role in alleviating the problem to great extent. Objective of this study was to assess the Knowledge, and skills of female health workers (FHWs) regarding selected non communicable diseases risk reduction and the client satisfaction with NCD skill services performed by FHWs.
Methods: This study was undertaken at selected health centres of Jodhpur. FHWs working at these centres and women receiving health services from FHWs were recruited for the study. Data were collected using predesigned NCD knowledge questionnaire, skill checklist and client satisfaction scale. Method of data collection were paper pencil questionnaire, observation and interview. Descriptive and inferential statistics were calculated to summarize demographics and key variables.
Results: Nearly 24% and 35% of FHWs had average knowledge regarding HTN/ diabetes, breast and cervical cancer respectively. 47% of subjects had good level of knowledge regarding mental health. Most of FHWs (77%) had adequate BP measurement and RBS testing skills. Majority had inadequate breast examination and waist circumference measurement skills. Level of knowledge related to hypertension and diabetes were found to be significantly associated with NCD training of health workers in past (p level=0.03). Nearly 67% of the women were satisfied with the NCD health services provided by FHWs.
Conclusions: Overall FHWs had average level of awareness regarding different NCDs' prevention and control. Routine skills pertaining to NCDs screening methods such as BP and blood glucose measurement were adequate among FHWs. Overall women were satisfied with the NCD related health services provided by FHWs. Being an important concern there is need to plan refresher training programs for these health workers so that their services can be effectively utilized for prevention and control of NCDs.

Keywords: Female health workers, Knowledge, Non communicable diseases, Skills

INTRODUCTION

Non communicable diseases (NCDs) are at surge in every part of the world. Globally NCDs are responsible for 54% of health life years lost as measured by disability-adjusted life years (DALYs). Amongst all the regions of globe, the NCD related mortality have increased the most in the WHO South-East Asia Region, from 6.7 million in 2000 to 8.5 million in 2012. Cardiovascular diseases alone accounted for nearly half of all NCD deaths followed by cancers and diabetes respectively.[1,2] Apart from these

major NCDs, mental disorders are slowly becoming important cause of morbidity and contribute to the overall burden of NCDs. As far as India is concerned more than 20% of the population has at least one chronic disease and more than 10% of the people have more than one. On larger scale, NCDs contribute to around 60% of all deaths in India.[3,4]

Upsurge of prevalence of non-communicable diseases call for the added role and responsibilities for health professionals especially in middle mid income countries (LMIC). Task shifting for the management of non-communicable disease (NCD) to non-physician health care worker is an effective solution to manage increasing problem of NCDs. Various studies conducted globally evidently showed that various tasks performed by Non physician health worker included screening for NCDs and providing primary health care etc. over a period of time resulted in remarkable improvement in health outcomes when compared with routine healthcare, and adoption of healthy lifestyle practices by general population.[5]

Female health workers (FHWs) play a central role in health service delivery in India especially at the outreach. They directly relate to masses and act as a link between the primary and higher health care settings. As health care providers these professionals are well positioned, have will, knowledge and skills to support health promotion and prevention efforts which can be utilized to combat NCDs risk. They play multiple roles in the care of NCDs ranging from screening, health educators, advisors, rehabilitation workers to group facilitators. National health policy, 12th five year plan (2012-2017) and National program for prevention and control of cancer, diabetes, cardiovascular diseases and stroke (NPCDCS revised guidelines) also laid out roles of FHWs in health promotion, opportunistic screening, follow up, identification of common cancers, referral and follow up in the context of prevention and control of NCDs. As they increasingly play a more prominent role in providing health services, there is an increasing need to ensure that they possess the necessary knowledge and competencies to satisfactorily perform their expanding roles.[6-9]

Effective training of health care workers in new topics and skills, ensures that health workers have the capacity to provide quality health education and services to their target populations. Several studies note that health workers level of knowledge and associated skills are important factors in determining the success of any health programme or service. Increased knowledge and up-to-date training leads to more acceptance of services among the people.[9] Awareness of FHWs regarding the current promotive and preventive strategies help to alleviate the high burden of NCDs. Despite being an important factor affecting delivery of quality health care, the knowledge regarding various NCDs, their risk factors and prevention and control is very limited among these professionals. A

study conducted by Semarya BL at Ethiopia revealed that outreach nurses and health workers whether working in hospital or field areas did not have satisfactory knowledge and highlighted the need to have more workplace training.[10]

Responsible, committed and competent health workforce is an essential requirement for effective health outcomes and favorable health indicators. Measurement and monitoring of performance of these health professionals further enhance commitment and productivity. Performance measurement is a multi-dimensional concept. Appraisal of skills of health workers and assessment of satisfaction level of the clients are important components of performance measurement.[8,9,11-13]

Research on the performance of female health workers remains quite limited and there is paucity of data. Till date very few research studies have been carried out globally and at national level related to measurement of performance outcome of female health worker in terms of NCDs risk reduction programme. With this view in mind the current study was planned to assess knowledge of female health workers on the said topic which would further help to know their training needs to control and manage the NCDs epidemic to some extent.

Objective of the study was to assess the knowledge and skills of female health workers regarding selected non communicable diseases risk reduction and the client satisfaction with NCD skill services performed by FHWs.

METHODS

This pilot study was carried out at randomly selected health centres of Jodhpur city, Rajasthan. Data was collected from October 2019 to November 2019. Approval and necessary permissions were taken from the concerned authorities. A list of all the health centres was retrieved from Chief Medical Health Office, Jodhpur, Rajasthan. 6 health centres (1 PHC, 1 Satellite hospital and 4 Government dispensaries) were randomly selected by lottery method for being part of this pilot study. Through total enumeration method, all female health workers working at these health centres who were willing to participate in the study and were available at time of data collection were recruited for the study. For assessing client satisfaction total of 5 women per health centre who were rendered health services by FHWs, willing to participate, available at time of data collection and understood Hindi language were recruited through convenient sampling technique.

Data was collected using predesigned, validated and reliable tools. The sociodemographic details were collected using self-structured sociodemographic data sheet. Knowledge of female health workers regarding selected non communicable diseases risk reduction was assessed using NCD knowledge questionnaire which

consisted of 26 questions related to hypertension and diabetes, 18 questions related to breast and cervical cancer and 7 questions related to poor mental health. Score 1 is allocated to every right answer. There was no negative marking. Total score 51, score <25 (poor knowledge level), score 25-27 (average knowledge level), score 38-51 (good knowledge level).

Skills related to blood pressure measurement, blood glucose measurement, breast examination, waist circumference measurement, height and weight measurement were assessed using skill checklists. Each right step was given score of 1 for respective skill.

Scoring criteria

- Blood pressure measurement skill: Total score 12, score ≤6 (inadequate skill), score >6 (adequate skill);
- Blood sugar measurement skill: Total score 15, score ≤8 (inadequate skill), score >8 (adequate skill);
- Waist circumference skill: Total score 8, score ≤4 (inadequate skill), score >4 (adequate skill)
- Breast examination skill: total score 12, score ≤6 (inadequate skill), score >6 (adequate skill)
- Weight measurement skill: Total score 8, score ≤4 (inadequate skill), score >4 (adequate skill)
- Height measurement skill: Total score 8, score ≤4 (inadequate skill), score >4 (adequate skill)

Client satisfaction was assessed by interviewing women using client satisfaction rating scale consisting of 10 items related to interpersonal skills, and skills related to prevention and management of NCDs. The responses of women were graded as yes (score 1) or no (score 0). Total score was 10. The satisfaction levels were categorized as dissatisfied (score 1-3), neutral (score 4-6) and satisfied (score 6-10). Method of data collection were paper pencil questionnaire, observation and interview. Informed written consent was taken from all the FHWs and women before the start of the study after telling them about objectives of the study. Thereafter knowledge questionnaires were distributed to FHWs and they were asked to mark the right answers. Skills related to Blood pressure measurement, blood glucose monitoring, waist circumference measurement, height and weight measurement and breast examination were assessed using skill checklist via observation method. Exit interviews of the women who were rendered health services by FHWs at health centres were conducted to assess satisfaction.

Statistical analysis

Collected data were analysed using SPSS 20.0 (IBM SPSS statistics for windows, version 20.0. Armonk, NY: IBM Corp). Descriptive statistics were calculated to summarize demographics and key variables. Inferential statistics (Chi square, Fisher's exact test) were applied to determine the association of level of knowledge and skills with selected personal variables. For all associations, $p<0.05$ was considered statistically significant.

RESULTS

Sociodemographic details of FHWs

Total 17 female health workers were enrolled in this study, of which the youngest was 26 years of age and oldest was 59 years old. Mean age of FHWs was 42.94±10.5 years. About 88% of them were from Hindu religion. As per the work experience of FHWs was concerned, about 83% of FHWs were having ≥10 years of experience. Only 6 (35.3%) FHWs had undergone any kind of training related to NCD in the past (Table 1).

Table 1: Frequency and percentage distribution of personal variable details of FHWS (n=17).

Variable	n (%)
Mean age ±SD (years)	42.94±10.5
Religion	
Hindu	15 (88.2%)
Muslim	1 (5.9%)
Christian	1 (5.9%)
Marital status	
Married	17 (100%)
Work experience	
<10 years	3 (17.6%)
≥10 years	14 (82.4%)
Working at current health centre	
<1 year	1 (5.90%)
1-5 years	11 (64.7%)
>5 years	5 (29.4%)
NCD training	
Yes	6 (35.3%)
No	11 (64.7%)

Table 2: Knowledge levels regarding prevention and control of NCDs among FHWs (N=17).

Knowledge levels	n (%)	Mean score ± SD
Poor	7 (41.2%)	
Average	8 (47.0%)	26.1±8.1
Good	2 (11.8%)	

Knowledge levels regarding selected NCDs

Table 2 and Figure 1 illustrate the knowledge levels of FHWs with regard to selected NCDs. Mean knowledge score was 26.1±8.1. Nearly 17.6% of FHWs had good knowledge regarding HTN and diabetes whereas more than half of subjects (59%) reported poor knowledge levels. A good number of FHWs knew the definition of NCD. All the female health workers rightly responded to sphygmomanometer as BP measurement instrument whereas very scanty (5.9%) of FHWs knew the criteria for diagnosis of HTN. About 23.5% of the health workers were aware about the frequency of screening in case of normal BP and blood glucose findings. About 35% of health workers had average level of knowledge with

regard to prevention and control of breast and cervical cancer. FHWs were quite aware about the warning signs of cervical cancer and least aware about the risk factors. Only 35.3% of FHWs were aware about the advice to be given to woman is her VIA test results comes out to be negative. Nearly 29% of health workers had good knowledge and 53% had poor level of knowledge regarding mental health. Nearly 41% of the health workers were aware about the adverse factor which increases risk for development of poor mental health whereas 35% knew about the warning sigh requiring immediate attention of health worker. Nearly half of the subjects were knowing the strategy to be adopted in case someone is suffering from any mental illness.
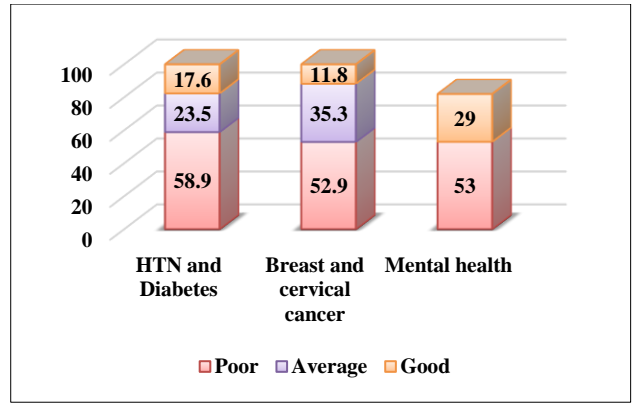

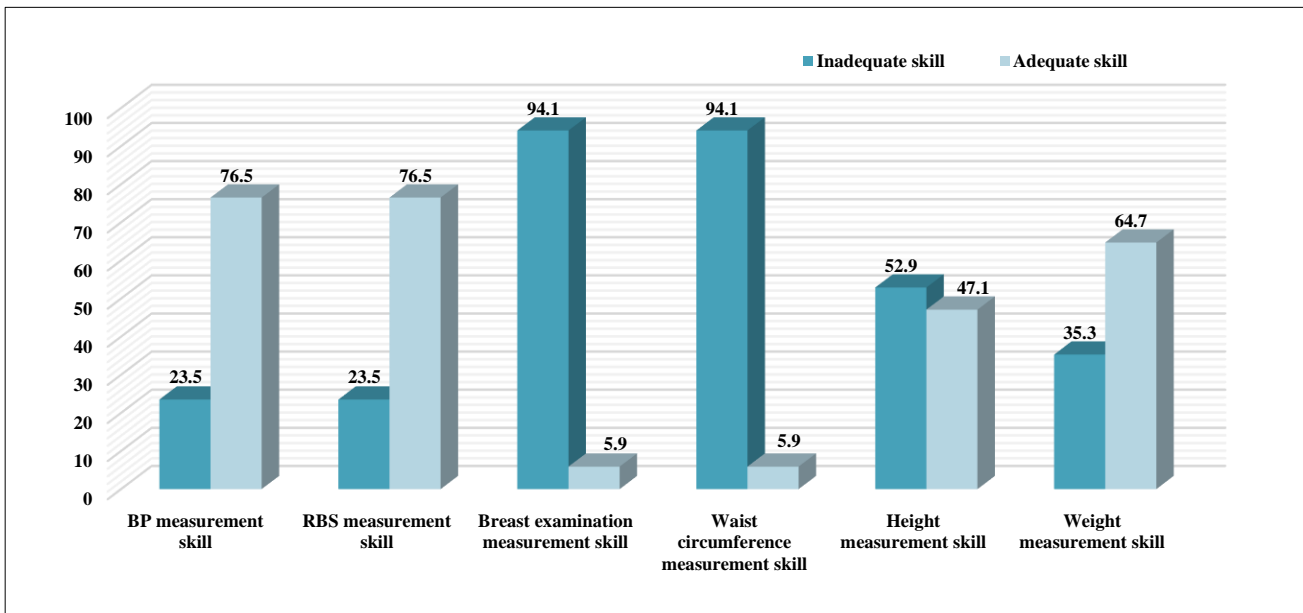**Figure 1: Percentage distribution of knowledge levels as per different NCDs (N=17).**

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Figure 2: Percentage distribution of selected NCD screening skills among FHWs (N=17).

NCD screening skills among FHWs

Figure 2 depicts the frequency and % distribution of selected NCD screening skills among FHWs. About 77% of FHWs had adequate BP and RBS measurement skills. Majority of the FHWs (94%) had inadequate breast examination and waist circumference measurement skills. As per height and weight measurement skills are concerned about 47% and 65% of the FHWs has adequate height and weight measurement skills respectively.

Only levels of knowledge related to hypertension and diabetes among FHWs were found to be significantly associated with any NCD training of health workers in the past (Fischer exact value=6.596, p-level=0.03).

Regular training and refresher courses help the health workers in improving their knowledge.

Level of satisfaction among women with NCD health services given by FHWs

Table 3 presents the personal characteristics of women. The women under study had age range from 30 years to 57 years. Mean age of the women was 39.2±7.8 years. Majority of the women were Hindu. About 61% of the women were homemaker. Only 10 women reported history of selected NCDs. As far as health services given by FHW are concerned, BP measurement and Blood glucose measurement was done for 10 women.

Figure 3 illustrates the level of satisfaction among women with NCD health services given by FHWs. About 67% of women were satisfied whereas only 18% of women reported dissatisfaction with the services. Mean satisfaction score is 6.4±2.8 which inferred that overall women were somewhat satisfied with the health services provided by FHWs.

Based upon the findings of the study, a structured training program on selected non-communicable diseases (hypertension, diabetes, breast and cervical cancer, mental health issue) risk reduction for FHWs has been framed and currently being carried out at selected health settings of Jodhpur, Rajasthan, India.

Table 3: Frequency and percentage distribution of personal variable details of women (N=33).

| Variable	f
Mean age (years)	39.8±7.8
Religion	
Hindu	30 (90.9%)
Jain	1 (3.0%)
Muslim	2 (6.1%)
Education	
Illiterate	10 (30.3%)
Primary	12 (36.4%)
10th	5 (15.2%)
12th	2 (6.1%)
Diploma and above	4 (12.1%)
Occupation	
Homemaker	20 (60.6%)
Working	13 (29.4%)
Any disease (n=10)	
Diabetes	3 (30.0%)
HTN	3 (30.0%)
Stress	4 (40.0%)
Health service given by FHW	
No	3 (9.1%)
Health assessment	10 (30.3%)
BP measurement/RBS measurement	10 (30.3%)
Weight recording	9 (27.3%)
Health education	1 (3.0%)
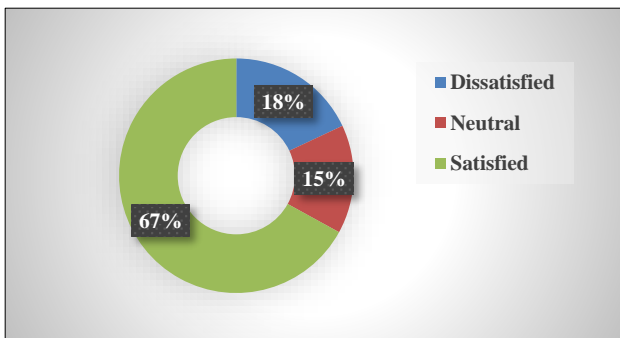
Figure 3: Level of satisfaction among women with NCD health services given by FHWs (N=33).

DISCUSSION

Non-communicable diseases are at peak in both developed and developing countries. Slowly and slowly India is becoming hub to these chronic ailments which are otherwise easily preventable through simple measures. Owing to its increasing burden, task shifting of NCD related health care services to non- physician health care worker such as female health workers is an effective solution to manage the problem of NCDs. Involvement of FHWs in prevention and control of hypertension, diabetes, breast and cervical cancer and poor mental health demands up to date knowledge and skills on the part of FHWs.

The current study illustrates that very few numbers of FHWs had undergone any kind of training related to NCD in the past. Overall health workers had average knowledge regarding NCDs. Disease wise more than half of the health workers had poor awareness and a very small proportion of workers were found to have average to good knowledge regarding HTN/diabetes, breast and cervical cancer and mental health respectively. Patel S and colleagues in their study designed to assess knowledge about GDM and its management among health care providers specially ASHA and ANM found that knowledge about GDM is poor amongst these health care providers which calls for training.[14] A study conducted by Mali NR revealed that auxiliary and midwifery final year student Nurses had average knowledge regarding prevention of cervical cancer.[14] Another study conducted by AI-Dharrab SA in Dammam City, Saudi Arabia reported little level of knowledge regarding basic information about hypertension and diabetes among physicians and primary care nurses.[16] Kim and researchers evaluated a community health worker training program for hypertension and diabetes management for Korean-American seniors, which revealed that the overall CHW knowledge was satisfactory.[17]

Female health workers need to acquire or have skills related to prevention and control of NCDs. The current study results indicated that FHWs were adequately skilled in routine procedures such as BP measurement, Blood glucose measurement, height and weight recording respectively, whereas majority of the FHWs were lacking practical skills in breast examination and waist circumference measurement.

These findings are consistent with the findings of the study conducted by Chauhan G and Thakur JS, which showed a gap of 39% in health workers skills pertaining to non-communicable diseases prevention and control.[18] Contrary to results of present study, Shastri SS in his study found exceptionally good skills among FHWs with regard cervical cancer screening by VIA ($\kappa = 0.84$).[19] Another study by Sami A. AI-Dharrab showed that about 58% of primary care nurses especially field nurses had adequate practical skills related to hypertension and

diabetes.[16] One of the mental health training programme for PHC staff in Sri Lanka reported that after proper training, nearly 85% of subjects were able to provide clear instructions and explanations for the patient about his or her problem.[20]

Knowledge and skills are dependent upon various variables and factors. The current study findings reported that level of knowledge related to hypertension and diabetes among FHWs was significantly associated with any NCD training of health workers in the past. Study conducted by Alebiosu OC in Nigeria revealed that knowledge regarding hypertension and diabetes among health care providers was significantly associated with treating more than 50 patients per month and working in a tertiary center.[21]

Client satisfaction is an important parameter to assess the performance of health workers. It has been evident from the results that women who were rendered blood pressure measurement, blood glucose measurement, breast examination, waist circumference measurement, height and weight measurement skills/services by FHWs were quite satisfied. Similar results were seen in a study conducted by Agosta LJ which reported high levels of client satisfaction with health care services delivered by primary care nurses.[22]

CONCLUSION

This study highlights the importance of role of FHWs in prevention and control of NCDs. Most of the FHWs had poor to average level of knowledge regarding different NCDs prevention and control. The female health workers were skillful in routine skills pertaining to BP measurement, blood glucose measurement, height and weight measurement. Breast examination and waist measurement skills were evidently inadequate among these workers. On the other part as a receiver of health care services the women who received NCD related services from these workers were quite satisfied and happy with the skills of FHWs. As a pilot project this study has helped to identify the key lacking areas with respect to knowledge and skills and would serve as an important input in planning and implementing suggestive measures with an aim to lower down the burden of NCDs. However, there is need to carry out the study on larger sample in order to generalize the findings.

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REFERENCES

1. Park K. Park's Textbook of Preventive and social medicine 23rd Ed, Epidemiology of chronic non communicable diseases and conditions. Banarasidas Bhanot publishers, Jabalpur India; 2005:41.
2. World Health Organization. Global status report on Non- communicable diseases, 2014. Available at: http://www.who.int/nmh/publications/ncd-status-report-2014/en/. Accessed on 22nd April 2020.
3. World health statistic report, 2015. Available at: http://www.who.int/gho/publications/world_health_statistics/2015/en/. Accessed on 17th December 2019.
4. Non-communicable diseases progress monitor, 2015. Available at: http://apps.who.int/iris/bitstream/10665/184688/1/9789241509459_eng.pdf?ua=1. Accessed on 20th February 2020.
5. Joshi R, Alim M, Kengne AP, Jan S, Maulik PK, Peiris D, Patel AA. Task shifting for non-communicable disease management in low- and middle-income countries-a systematic review. PLoS One. 2014;9(8):e103754.
6. Ministry of Health and Family welfare Government of India, NPCDCS: Operational guidelines, Directorate General of Health Services Ministry of Health and Family welfare Government of India. Available at: http://health.bih.nic.in/Docs/Guidelines/Guidelines-NPCDCS.pdf. Accessed on 17th December 2019.
7. Ministry of Health and Family Welfare, NHP, Ministry of Health and Family Welfare December, 2014. Available at: http://www.mohfw.nic.in/showfile.php?lid=3014. Accessed on 20th February 2020.
8. Leena KC, Shakuntala BS. Non-communicable disease (NCDs) control activities by female health workers (FHWs) and availability of related facilities at selected sub centres of DK District, Karnataka, India. IJHSR. 2014;4(3):167-73.
9. Why is 2018 a strategically important year for NCDs? - World Health. Available at: http://www.who.int/ncds/governance/high-level.../why-2018-important-year-for-NCDs.pdf. Accessed on 20th February 2020.
10. Semarya BL, Worknish S, Mignote H, Mesfin A, Alemseged A. Assessment of knowledge of breast cancer and screening methods among nurses in University Hospitals in Addis Ababa, Ethiopia. 2011. Int Scholar Res Not. 2013:1-8.
11. Tsolekile LP, Puoane T, Schneider H, Levitt NS, Steyn K. The roles of community health workers in management of noncommunicable diseases in an urban township. Afr J Prm Health Care Fam Med. 2014;6(1):8.
12. Menon J, Joseph J, Thachil A, Attacheril TV, Banerjee A. Surveillance of non-communicable diseases by community health workers in Kerala: the epidemiology of non-communicable diseases in

rural areas (ENDIRA) study. Glob Heart. 2014;9(4):409-17.

13. Kisokanth G, Prathapan S, Indra KJ, Joseph J. Does nurse case management improve the health care outcomes of patients with non-communicable diseases (NCDs): a narrative review. Int J Endocr Metab Disord. 2015;1(2).

14. Patel S, Vyas S. Program about awareness of gestational diabetes mellitus (GDM) among health care workers of Ahmedabad Municipal Corporation. Natl J Com Med. 2018;9(2):114-9.

15. Mali N R, Mali R. Effect of structured education on knowledge regarding prevention of cervical cancer among A.N.M. students. Inter J Sci Res. 2014;3(3):610-6.

16. AI-Dharrab SA, Mangoud AM, Mohammad F, Mohsen M. Knowledge, attitude and practice (KAP) of primary health care physicians and nurses towards hypertension: a study from Dammam, Saudi Arabia. J Family Community Med. 1996;3(2):57-63.

17. Kim K, Choi JS, Choi F, Hae-Ra H. Effects of community-based health worker interventions to improve chronic disease management and care among vulnerable populations: a systematic review. Am J Public Health. 2016;106(4):e1-e26.

18. Chauhan G, Thakur JS. Assessing health workers' capacity for the prevention and control of noncommunicable diseases in Haroli health block of district Una in Himachal Pradesh, India: a mixed methods approach. Int J Non-Commun Dis. 2016;1:26-9.

19. Shastri SS, MittraI I, Mishra GA, Gupta S, Dikshit R, Singh S, et al. Effect of VIA screening by primary health workers: randomized controlled study in Mumbai, India. J Natl Cancer Inst. 2014;106(3):dju009.

20. Budosan B, Jones L. Evaluation of effectiveness of mental health training program for primary health care staff in Hambantota District, Sri Lanka post-tsunami. J Humanitarian Assis. 2009:509.

21. Alebiosu OC, Familoni OB, Ogunsemi OO, Adeleye JO, Balogun WO, Kolawole BA, et al. Knowledge of diabetes and hypertension care among health care workers in southwest Nigeria. Postgrad Med. 2009;121(1):173-7.

22. Agosta LJ. Patient satisfaction with nurse practitioner-delivered primary healthcare services. J Am Acad Nurs Pract. 2009;21(11):610-7.