

Evaluation of a training program on primary eye care for an Accredited Social Health Activist (ASHA) in an urban district

Pallavi Shukla, Praveen Vashist, Suraj Singh Senjam, Vivek Gupta

Purpose: An Accredited Social Health Activist (ASHA) available in community could be a potential primary eye care (PEC) worker. Training programme for ASHAs on PEC was undertaken & evaluated in a district of a capital city. **Methods:** ASHAs selected randomly from a district were imparted one day training on PEC & expected to refer patients to nearby Vision Centres (VC). Their knowledge was assessed before & after training and re-evaluated 1 year later. ASHAs were asked to conduct vision screening of 40+ population in their areas and ASHA referrals were noted by Optometrist in VC. Focus Group Discussions (FGD) of ASHAs were held to find barriers & facilitating factors in engaging ASHAs in PEC. Training was evaluated using Kirkpatrick's evaluation model for measuring reactions, learning, behaviour and results. **Results:** Mean knowledge score increased from 14.96 (± 4.34) pre-training to 25.38 (± 3.48) post-training and sustained at 21.75 (± 4.16) at 1 year. Monthly average OPD of vision centres increased by 23.6% after ASHA training. FGDs revealed that ASHAs were willing to work in eye care for awareness generation and patient facilitation but were hesitant in conducting vision screening. **Conclusion:** ASHAs can be trained as PEC workers provided they have adequate support.

Key words: ASHA, Delhi, Kirkpatrick, primary eye care, training

As per the Vision Loss Expert Group estimates of 2015, there are 8.8 million blind people in India with 56.6 million visually impaired.^[1] Nearly 80% of this visual impairment is avoidable. Universal Eye Health: Global Action Plan (2014–2019) sets itself a Global Target of 25% reduction in prevalence of avoidable visual impairment by 2019 compared with the baseline prevalence of 2010.^[2] The most important barrier in eliminating the avoidable blindness from India is unavailability and inaccessibility to eye care services. In urban areas, however, despite the supposed proximity of the urban poor to urban health facilities, their access to health facility is severely restricted. Ineffective outreach and weak referral system also limits the access of urban poor to eye-care services.

In order to bridge this gap between community and services, there is requirement of an educated workforce who are among the masses. They should be able to understand the felt and unfelt needs of the community and must be aware of availability of services and referral mechanism. Government of India made provisioning of one such worker, ASHA (Accredited Social Health Activist) in National Health Mission for every 1,000 rural population and every 2,000 urban vulnerable population.^[3] This workforce has been solely involved for the Maternal and Child Health services, though they were put in place for all healthcare needs of the community.

The present study was conducted to evaluate, using Kirkpatrick model, a training program aimed at engaging

ASHAs in delivering primary eye care to urban vulnerable population.^[4]

Methods

Study setting

Study was conducted in one of the capital cities of India, with a population of around 16.7 million divided into 11 districts and which is served by a tiered public health system.^[5] The lowest level of public health facility includes dispensaries, Maternal Child Health (MCH) centers. Each dispensary/MCH center has a Medical Officer and two or three Auxiliary Nurse Midwives (ANMs). In areas with vulnerable populations, ASHAs are attached to these centers and they are named ASHA units. Each ASHA caters to a population of 2000–3000.

Ethical approval for the study was obtained from Institution Ethics Committee. It was conducted in one of the district. There were 18 ASHA units in the district, out of which 12 ASHA units had the provision of vision centers, where an optometrist used to provide refraction, eye screening, and referral services on weekly basis.

Sample size estimation

Sample size was calculated as 96 assuming that after training 75% of ASHAs would have adequate knowledge about primary

Access this article online

Website:

www.ijo.in

DOI:

10.4103/ijo.IJO_1164_19

Quick Response Code:



Department of Community Ophthalmology, Dr Rajendra Prasad Centre for Ophthalmic Sciences, AIIMS, New Delhi, India

Correspondence to: Dr. Pallavi Shukla, Room No. 787, Community Ophthalmology, Dr Rajendra Prasad Centre for Ophthalmic Sciences, AIIMS, Ansari Nagar, New Delhi - 110 029, India. E-mail: dr.pallavishukla@gmail.com

Received: 29-Jun-2019

Revision: 01-Oct-2019

Accepted: 08-Nov-2019

Published: 20-Jan-2020

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

Cite this article as: Shukla P, Vashist P, Senjam SS, Gupta V. Evaluation of a training program on primary eye care for an Accredited Social Health Activist (ASHA) in an urban district. Indian J Ophthalmol 2020;68:356-60.

eye care with absolute error margin of 15% (d), design effect of 3, and 95% confidence level. After accounting for possible attrition 100 ASHAs were recruited for study. On an average each ASHA unit had 15–20 ASHAs; therefore for enrolling 100 ASHAs, 7 ASHA units were selected randomly from those 12 ASHA units which had provision of vision center. Written informed consent was taken from eligible ASHAs.

Training

One day training was conducted for each centre using a movie on primary eye care, role plays, and a module on primary eye care used for training volunteers by the base hospital.^[6] The training was imparted by a medical research officer. The ASHAs were taught about the basic structure and function of eyes through an eye model. They were made aware about the definition of blindness and visual impairment and their causes. ASHAs were given an overview of common eye conditions and their referral.

ASHAs were given hands-on training in screening vision of individuals aged ≥ 40 years using two “E” charts of 6/60 and 6/18 optotypes. ASHAs were provided a training kit comprising of measuring tape, screening cards, referral slips, and educative material. ASHAs were briefed about their role in various eye diseases and the referral mechanism. They were motivated and counselled to make a note of all patients identified to have visual impairment/blindness. They were also made aware about the incentives in eye care available for ASHA workers in the State. (INR 400 for each eye operated for cataract and INR 100 for each pair of spectacles made by ASHA facilitation).

ASHAs were given a period of 3–4 months to screen the vision of all individuals aged ≥ 40 years in their field practice area. Apart from vision screening, ASHAs could indicate in referral slips if the person was having diabetes, diagnosed glaucoma, symptoms of presbyopia (near vision difficulties after 40 years of age), or any other eye conditions. ASHAs were at the liberty of referring anyone to the dispensary with eye trouble or vision problems irrespective of their age or gender. In the vision centers, one optometrist examined the referred patients and kept a record of those who came with ASHA referral slip.

Kirkpatrick evaluation

Training of ASHAs in primary eye care was assessed on four aspects of Kirkpatrick model.

1. **Reaction:** Immediate reaction of ASHAs toward training was assessed through an informal discussion held with the ASHA immediately after training
2. **Learning:** Learning of ASHA for primary eye care was evaluated through knowledge and skill assessments of ASHAs done after training and 1 year later. Knowledge assessment on primary eye care of ASHAs was done using pre-tested questionnaire thrice: first, prior to training; second, immediately after training; and last assessment after 1 year of training. The questionnaire had questions on common eye diseases, blindness and visual impairment and general eye care. Their skill in vision screening using 6/18 optotype was assessed immediately after training and 1 year later in their respective field practice areas. Vision screening skill of ASHAs was labeled as good, satisfactory, and poor based on four essential criteria: accurate distance estimation, correct card positioning and tumbling at least

four times, and taking uniocular vision and recording the vision. At least three out of four times, if a person responded correctly the direction of “E,” his vision was assumed to be “normal”

3. **Behavior:** In order to know about the change in behaviour of ASHA because of training, focus group discussions (FGDs) were held with the ASHAs from all 7 centers after 6 months of training. Through the FGDs, the perception of ASHAs toward their engagement in eye care was also assessed. Each FGD lasted for 40–50 min and had 10–12 participants. The FGDs were tape-recorded and content was transcribed
4. **Measurable outcome (result):** Finally, the model evaluates training program on the basis of measurable outcomes of training. This was ascertained through the secondary data collected at the integrated vision center by the optometrist. It included service utilization and ASHA referral changes after training.

Data analysis

Pre- and post comparisons in knowledge scores were done using paired *t*-test. For qualitative analysis of FGDs, the transcripts were coded. Thematic analysis technique was used for qualitative data. The codes were merged and patterns identified to generate themes. From the themes, a theory was framed. The analysis of qualitative data was done using Atlas.ti (version 7).

Results

In total, 102 ASHAs were recruited for the study from seven vision centers. The mean age of ASHA was 37.5 years ranging from 22 to 56 years. Majority of them (77.5%) had completed education above class 10th. Mostly were currently married (95.1%) and majority (66.7%) lived in a nuclear family.

Reaction

From an informal discussion held immediately after ASHA training it was found that ASHAs were quite satisfied with the primary eye-care training program. They said it enhanced their knowledge. After training, they felt they would be able to talk confidently in community about eye care. ASHAs gained knowledge about common eye diseases, such as cataract, glaucoma, effect of diabetes on eyes, presbyopia and conjunctivitis. ASHAs also recommended that this training should be repeated at frequent intervals of 6–12 months.

Learning

In order to assess the learning achieved by ASHAs through this training, knowledge assessment was done using a pre-tested questionnaire.

Immediately after training, there was improvement in knowledge related to all sections. The overall score increased from 14.96 (± 4.34) prior to training to 25.38 (± 3.48) after training. The sustained increase in knowledge (21.75 ± 4.16) was seen after 1 year using the same questionnaire [Table 1].

There was a significant change in knowledge ($P < 0.001$) in all sections immediately after training. When scores after one year were compared with the pre-training scores, again there was a significant increase ($P < 0.001$) [Table 1].

Skill in vision screening of 102 ASHAs was assessed immediately after training and after 1 year in their field practice area. Immediately after training, 45 (44.1%) ASHAs conducted

good vision screening, whereas 43 (42.2%) performed satisfactorily and 14 (13.7%) were poor performers. After 1 year, 36 of them (35.3%) were good, 43 (42.2%) were satisfactory and 23 (22.5%) were poor in conducting vision screening. The mean score immediately after training was 3.29 ± 0.73 and after a year was 3.08 ± 0.85 . The score ranged from 1 to 4. The criteria for assessment were correctly measuring 6 m distance for vision assessment, screening one eye at a time, tumbling of the card and recording vision. Score 1 was given for each criteria met and given 0 if not met.

Behavior

Behaviour of ASHA toward this program was assessed through FGD. ASHAs were enquired about vision screening and their contribution to primary eye care. According to ASHAs, it was noticed that attendance at vision center increased after ASHAs were involved in training "More crowd coming than before" (translated). In their opinion, this had benefitted the elderly "elderly are happy since ASHAs are engaged in eye care because earlier ASHAs used to work only for children and pregnant ladies" (translated). ASHAs perceived a heightened level of respect in community after engaging in activities other than just maternal and child health "it's a feeling of pride in doing some good for the community" (translated). They confessed that although they had eye care as one of their activity, but they ignored it till they were trained "eye care was mentioned in our diary column, but we didn't do much for it. We paid attention to it only after training." (translated).

ASHAs were committed toward referring symptomatic eye patients to vision centers: "we enquire for any eye related complaint and inform them to get examined by a doctor who visits the centre every Friday" (translated). ASHA reported following hurdles while conducting vision screening in

community like there was lack of adequate distance for vision screening in urban localities: "houses lack 6 metre distance required for vision screening" (translated). They expressed their inability to screen working individuals as they were unavailable most of the time: "the time when we visit houses only females are available males are out on duty" (translated). They also expressed their resentment in screening vision of males in certain communities on account of social barriers like veil: "we can't screen the males by looking in their eyes" (translated).

Another major problem they encountered was that they were engaged in multiple activities of MCH services and had to assist Auxiliary Nurse Midwifery (ANMs) and Medical Officer in Charge (MOICs) most of time. ASHAs had willingness to work for eye care but hesitated in conducting vision screening. ASHAs being an incentive-based workers, they requested for incentive for vision screening; they already received incentive for cataract surgeries: "we already get cataract incentive without even screening by simply motivating people for cataract surgery. If we especially do screening, give time, then we can do things better if we get incentive for the same" (translated).

Measurable outcome (result)

Last aspect of Kirkpatrick model was to find out measurable output. In our case, it was service utilization.

Secondary data was taken from vision centre records, which contained demographic details of the patient, examination finding and information on whether patient was referred through ASHA worker or not. The vision center OPD attendance 3 months before training was compared to 9 months after training. Average monthly OPD attendance increased by 23.6%, ranging from 4% in Jaunapur to 69.4% in Chhatarpur [Table 2].

Table 1: Change in knowledge immediately after training and a year later

Section	Max	Pre-training Mean (SD)	Post-training Mean (SD)	P	After 1 year of training Mean (SD)	P
Section I: Blindness	5	2.22 (0.90)	3.80 (1.04)	<0.001	3.10 (1.22)	<0.001
Section II: Cataract	10	5.93 (1.92)	8.41 (1.56)	<0.001	7.67 (1.37)	<0.001
Section III: Glaucoma	3	1.51 (0.84)	2.41 (0.68)	<0.001	1.96 (0.86)	<0.001
Section IV: Refractive Error	6	1.84 (1.36)	3.68 (1.05)	<0.001	3.56 (1.74)	<0.001
Section V: Diabetic Retinopathy	3	0.79 (0.72)	2.45 (0.78)	<0.001	1.69 (0.66)	<0.001
Section VI: General Eye Care	5	2.67 (1.23)	4.63 (0.64)	<0.001	3.78 (0.82)	<0.001
Total score	32	14.96 (4.34)	25.38 (3.48)	<0.001	21.75 (4.16)	<0.001

Table 2: Monthly average OPD at vision centers before and after training

	Before training (monthly average)			After training (monthly average)		
	Female	Male	Total	Female (% increase)	Male (% increase)	Total (% increase)
Dakshinpuri	136	54	190	150 (10.3)	59 (9.3)	209 (10)
Khanpur	115	60	175	148 (28.7)	71 (18.3)	219 (25.1)
Fatehpur Beri	125	50	175	168 (34.4)	61 (22)	229 (30.9)
Chhatarpur	73	38	111	131 (79.5)	57 (50)	188 (69.4)
Sangam Vihar K2	89	38	127	134 (50.6)	43 (13.2)	178 (40.2)
Sangam Vihar L2	106	27	133	109 (2.8)	38 (40.7)	147 (10.5)
Jaunapur	151	74	225	158 (4.6)	76 (2.7)	234 (4)
Total	796	340	1136	998 (25.4)	405 (19.1)	1,404 (23.6)

Even before training, ASHAs did refer some patients to vision center, but after training, the ASHA referral increased more than four times. However, after 1 year, there was decline in ASHA referral and it was sustained at nearly 18% above baseline [Fig. 1].

Discussion

ASHAs were meant as a link health worker between the community and health facility. They were responsible for all healthcare needs of the people in their community. However, in order to achieve the millennium development goals, the focus of the public health system of the country was tilted toward MCH. With the growing popularity of ASHAs in India, it was realized that this work force had immense potential if utilized intelligently as a comprehensive grass root level healthcare volunteer. Recently, almost every healthcare program of our country has one or the other component for ASHA workers so that the services could penetrate deeper in the community.

India was the first country to launch a National Program for Blindness Control way back in 1976.^[7] However, the country still has second maximum number of avoidable visual impairment and blindness.^[1] The underlying problem is either the eye-care services are not available universally or inaccessible. One of the mechanisms to tackle inaccessibility was to engage ASHA workers in primary eye care.

Challenge was to make the primary eye-care program more feasible for ASHAs so that they willingly participated in the activities. The training given to ASHAs was evaluated using the Kirkpatrick model. It provided a comprehensive assessment of training, since it involved multiple facets of assessment. It did not focus on a single outcome measure rather it took into account multiple aspects like learning and behavior.

Kirkpatrick model has been used in various health sector studies. In a study from Laos, it was used to assess continuing professional development training of physician and physician assistant. In that study “Learning” was assessed based on performance score, which increased from 2.39 (out of 5) prior to training to 3.88 after training.^[8]

Kirkpatrick model was also used in China to evaluate the training course for international development assistance for health. The study had evaluated a fairly new course using three aspects of Kirkpatrick model. However, they were not able to

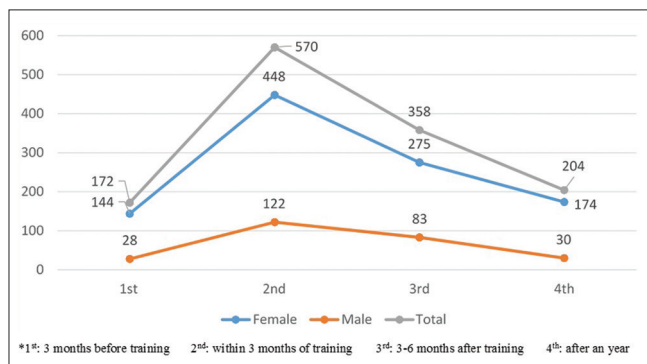


Figure 1: Quarterly trend of patients referred by ASHAs to Vision Center/Eye OPD

assess the impact of the training program as the duration was not long enough to assess the impact.^[9]

A similar evaluation of ASHA training on hypertension was done in South India. That study recruited 15 ASHA workers, whose mean knowledge score about hypertension, its risk factors, and complications increased from 64% at baseline to 76%.^[10]

Reaction of ASHA toward this training is positive. They showed interest in training program. This is also obvious from the fact that almost all the ASHAs of the designated centers attended training and undertook evaluation tests even at 1 year. There were minimum dropouts even when there was no incentive given to them for training.

ASHAs showed a significant increase in knowledge immediately after training, which was sustained even after a year. There is another study conducted on ASHA training though on a different concept, newborn care. It was found in that study that knowledge increased more after 3 months and not immediately, signifying that people learn more by doing.^[11] The mean (SD) knowledge scores of ASHAs were 6.45 (2.44), 6.50 (2.01), 7.45 (1.36), and 7.15 (1.27) at pre-training, immediately after training, and after three and six months respectively.

In our study, there was a decline in ASHA referral after 1 year of training signifying the need of refresher training. Even ASHAs felt the same and told in FGDs. An evaluation study conducted in Gujarat had a similar outcome; there was significant relation between performance score and time elapsed since last training.^[12]

Till date there are not many studies conducted to understand the role of ASHA workers in eye care. In one study conducted in Ranpur taluka of Ahmedabad district, 40 ASHAs were able to identify 434 people with vision less than 6/60.^[13]

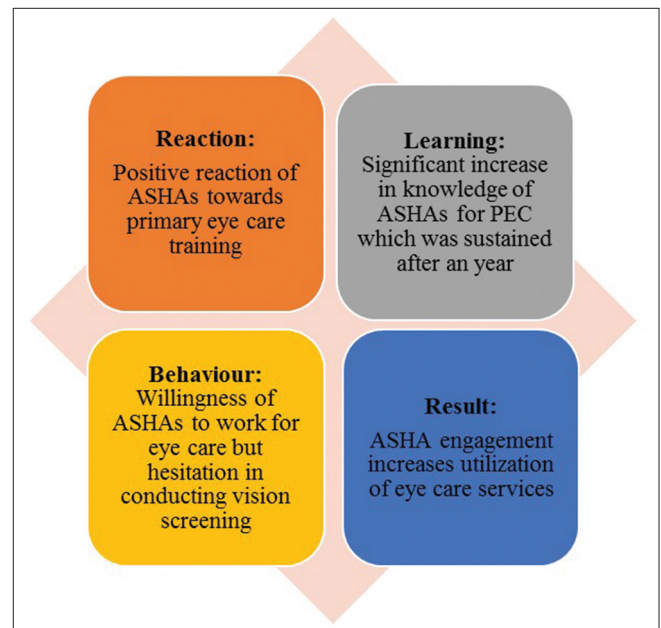


Figure 2: Evaluation of ASHA training program on primary eye care using Kirkpatrick model of evaluation

There are many examples from across globe where primary level workers are utilized for primary eye care as well. When people are motivated by those who are from the same community, their response rate improves. In Southern Egypt, a community-based health education program with door-to-door screening significantly increased the uptake of Trachomatous Trichiasis surgical services.^[14]

In Malawi, a study was done to compare primary healthcare workers, health surveillance assistants (HAS) and key informants in detecting childhood blindness and it was found that performance of HSAs, who are integrated workers, was not very effective as they were busy in many other activities; however, involving KIs or independent volunteers could be a more costly affair.^[15]

Conclusion

Through Kirkpatrick model, it can be concluded that ASHAs were extremely positive in attending training on primary eye care. They also had willingness to work for eye care in terms of awareness generation in community and facilitate the needy to access the eye-care services. However, they required extra motivation in terms of incentives and supportive supervision for conducting vision screening in community. ASHA training and involvement definitely increased eye-care service utilization [Fig. 2].

Financial support and sponsorship

Funded by Sightsavers India.

Conflicts of interest

There are no conflicts of interest.

References

1. GBVI-Country Estimates of Distance-Vision Loss • IAPB Vision Atlas [Internet]. Available from: <http://atlas.iapb.org/global-burden-vision-impairment/gbvi-country-estimates-distance-vision-loss/#table 4>. [Last cited on 2019 Oct 24].
2. WHO | Universal eye health: A global action plan 2014–2019 [Internet]. WHO Available from: <http://www.who.int/blindness/actionplan/en/>. [Last cited on 2019 Oct 25].
3. ASHA PIP 2014-15 (8).pdf [Internet]. Available from: [http://dshm.delhi.gov.in/pdf/ASHA_Material/ASHAPIP and ROP/ASHA%20PIP%20%202014-15%20\(8\).pdf](http://dshm.delhi.gov.in/pdf/ASHA_Material/ASHAPIP and ROP/ASHA%20PIP%20%202014-15%20(8).pdf). [Last cited on 2019 Oct 25].
4. The Kirkpatrick Model [Internet]. Available from: <https://www.kirkpatrickpartners.com/Our-Philosophy/The-Kirkpatrick-Model>. [Last cited on 2019 Oct 25].
5. Delhi (NCT) | DISTRICTS OF INDIA [Internet]. Available from: <http://districts.nic.in/districts.php?sid=DL>. [Last cited on 2019 Oct 25].
6. Senjam SS, Gupta N, Shukla P, Mishra V, Gupta V, Bharadwaj A *et al*. Manual on training of trainers for volunteers in primary eye care. Community Ophthalmology, Dr Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences. 2015 Dec. Available from: <https://www.aiims.edu/images/department/PC/Reports%20for%20web/Manual%20on%20Training%20of%20Trainers%20for%20Volunteers%20in%20Primary%20Eye%20Care.pdf>. [Last cited on 2019 December 09].
7. Directorate General of Health Services [Internet]. Available from: https://dghs.gov.in/content/1354_3_National_Programme_forControlofBlindnessVisual.aspx. [Last cited on 2019 Oct 25].
8. Yoon HB, Shin JS, Boupavanh K, Kang YM. Evaluation of a continuing professional development training program for physicians and physician assistants in hospitals in Laos based on the Kirkpatrick model. *J Educ Eval Health Prof* 2016;13:21.
9. Gao P, Xiang H, Liu S, Liu Y, Dong S, Liu F, *et al*. Evaluation of a consulting training course for international development assistance for health. *BMC Med Educ* 2018;18:234.
10. Abdel-All M, Thrift AG, Riddell M, Thankappan KRT, Mini GK, Chow CK, *et al*. Evaluation of a training program of hypertension for accredited social health activists (ASHA) in rural India. *BMC Health Serv Res*.2018 May 2;18(1):320.
11. Stalin P, Krishnan A, Rai SK, Agarwal RK. ASHA's involvement in newborn care: A feasibility study. *Indian Pediatr* 2011;48:897-9.
12. Bhandari DJ, Varun AR, Sharma DB. Evaluation of accredited social health activists in Anand District of Gujarat. *J Family Med Prim Care* [Internet]. Available from: <http://www.jfmpc.com/article.asp?issn=2249-4863;year=2018;volume=7;issue=3;spage=571;epage=576;aulast=Bhandari>. [Last cited on 2019 Oct 25].
13. Soni P, Bhatt SB, Gupta P. Role of ASHA (Accredited Social Health Activist) Worker in Screening for Low Vision at the Grass Root Level International Journal of Recent Trends in Science And Technology 2014;9:358-60.
14. Mousa A, Paul C, Kazanjian A, Bassett K. A Community-based eye care intervention in Southern Egypt: Impact on trachomatous trichiasis surgical coverage. *Middle East Afr J Ophthalmol* 2015; 22:478-83.
15. Kalua K, Ng'ongola RT, Mbewe F, Gilbert C. Using primary health care (PHC) workers and key informants for community based detection of blindness in children in Southern Malawi. *Hum Resour Health* 2012;10:37.