



Interprofessional Health Camps to Improve Health Outcomes in Rural Areas of Himachal Pradesh-A Novel Intervention

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ABSTRACT

Background: There is a lack of proper health care in rural Himachal Pradesh. Our hospital had been organizing medical camps where a team of doctors, nurses, and technicians attended the camp. There was no or minimal involvement of local panchayats, NGOs, and other professionals. Though patients attended the camp the number was less and very few patients visited the hospital for follow-up. **Objectives:** To find out whether organizing these camps with interprofessional collaboration improves the camp outcomes and benefits the rural patients in terms of health outcomes. **Methods:** These camps were held with interprofessional collaboration in the same villages where medical camps were held earlier. The interprofessional team was formed. During camp along with medical checkups, healthy living and hygiene were emphasized. Post camp follow-up was done and data compared with earlier only medical camps. Statistical data for quantitative analysis was mean, average, range, median, and percentage and for qualitative analysis, information was gathered from interviews and feedbacks. The improvement of health outcomes concerning certain chronic disorders was evaluated. **Results:** A total of 18 camps were held and the mean of 571 patients attended which is higher than the mean of 426 patients who attended only medical camps. The percentage of referred patients attending the hospital was also higher. There was greater patient satisfaction. Regarding the disease outcomes, there was significant cure/control of some chronic disorders like Diabetes, Hypertension, Cataract, CSOM, and Allergies. **Conclusion:** These camps are more effective in terms of the number of patients attending, percentage of referred patients visiting the hospital, and patient satisfaction. This collaboration benefits the rural population in terms of health outcomes.

Keywords: Feedback, Health camps, Interprofessional collaboration, Panchayats, Professionals, Rural areas

INTRODUCTION

There is a lack of proper health care in rural areas because of limited resources and lack of supplies in these areas because of poor road infrastructure and transportation [1]. This is also because of ignorance, poverty, and traditional beliefs among the rural population [2]. More ever in rural areas, mostly untrained and unskilled practitioners see the patients [3]. Most of the specialists prefer to operate in urban areas [4]. High transportation costs and long travel time also inhibit access to healthcare [5]. This problem becomes more evident in hilly terrain [6].

Himachal Pradesh being a hilly state, most of its rural areas fall in difficult terrain [7]. The lack of health care negatively

affects the well-being of the rural population here. The idea of the health camps is to make quality healthcare accessible to the rural population. Our hospital has been organizing various health camps in these rural areas of Solan, Sirmour, and Shimla district. These were medical camps where a team of doctors, nurses, and technicians attended the camp. The pre-camp analysis of the problems faced in this area was never done, nor the villagers properly counseled. There was no or minimal involvement of local panchayats, NGOs, health workers, and other professionals. Though patients attended the camp the number was less, minimal post-camp follow-up was available, and very few patients visited the hospital for follow-up.

Interprofessional collaboration for health camps means involving various professionals belonging to different professions to work together as a team for organizing these health camps. According to the literature available, interprofessional collaboration is required to improve the quality of health services [8]. So our study aimed to find out whether organizing these health camps with interprofessional collaboration improves the health outcomes and benefits the rural patients by:

- Studying the patient satisfaction as these Interprofessional (IP) camps
- Comparing the number of patients attending the IP camps with earlier held camps
- Comparing the number of referred patients attending the hospital in one week between IP camps and earlier held camps
- Evaluating the improvement in disease outcomes for certain chronic disorders like Diabetes, Hypertension, Chronic Suppurative Otitis Media (CSOM), Cataract and Allergies

MATERIAL AND METHODS

This study was conducted in two phases. The study was approved by the Institutional Ethics Committee of our hospital. The first phase was from July 2018 to June 2019 where interprofessional collaborated health camps were conducted in rural areas of Solan, Sirmour, and Shimla district, and the second phase from July 2019 to October 2019 where disease outcomes of the camp patients were analyzed. Various professionals constituted the IP team for these IP camps and had their well-defined roles and responsibilities (Table 1).

Table 1 IP team members

IP Member	Role
Specialist Doctors	Treat the patients of their specialty at camp
Nursing staff	Patient care and assist the doctors
Pharmacist	Dispense medicines
Lab technicians	Perform tests
Yoga specialists	For teaching yoga exercises
Dietician	For dietary advise
Public relation officer	Camp publicity and feedback
Local health workers	Health and hygiene awareness and publicity, patient contact and feedback
Village Sarpanch and panchayat members	Publicity and villagers mobilization
Local-level administrative officer	Permissions and arrangement
Local govt. health officer	Permission and area disease profiling
NGO	Camp organization and publicity
Media persons	Camp publicity
Area drug controller	For arranging medicines

The 1st phase was done between July 2018 and June 2019. These camps were held with interprofessional collaboration in the same villages where only medical camps were held earlier. The inclusion criteria were the villages where our hospital medical camps were held earlier. The exclusion criteria were the urban areas or those rural areas where no medical camps were organized earlier by our hospital. For each camp first, the location was finalized, the publication material was made ready and the interprofessional team including doctors, nurses, yoga specialists, dietician, lab technicians, pharmacist, health workers, panchayat members, government officers, media persons was formed (the earlier held medical camps had only specialist doctors, nursing staff, lab technicians and pharmacists as the camp

team). Pre-camp meetings were held where the role and responsibility of each member were defined. Camps were held with the collaboration of all members and feedback taken by local health workers to reduce bias. During camp along with medical checkups, the focus was on teaching healthy living and hygiene through expert talks by health workers and on learning allied specialties like yoga and dietary advice by a dietician.

Post camp meeting was held where feedback was analyzed. The demographic and disease profile of the patients was recorded. Post camp analysis was done by comparing with earlier held camps by the number of patients attending the camp and number of such patients visiting the hospital in 1 week for identification of which they were issued a Camp Card with discount benefits. With the help of a feedback form, from a sample of patients attending the camp, patient satisfaction and approval ratings for the camp were obtained. The comparison with earlier held pure medical camps was also done. Statistical data for quantitative analysis was mean, average, range, median, and percentage, and for qualitative analysis was by information obtained from interviews and feedbacks.

In the 2nd phase from July 2019 to October 2019, the disease outcomes for common disorders were evaluated for the villagers who attend the IP camps from July 2019 to October 2019. This was done by the local health workers who kept track of the patients. The diseases evaluated were Diabetes, Hypertension, Cataract, CSOM, and Allergies. The version of software used for statistical analysis was windows 7 ultimate.

RESULTS

18 interprofessional camps were held between July 2018 and June 2019. A mean of 571 patients has attended the camps which are significantly higher than a mean of 423 patients who attended only medical camps. Regarding the percentage of patients attending the hospital, the median of the interprofessional camp is 14% (range 11% to 17%) which is higher than earlier camps 8% (range 6% to 13%) (Table 2).

Table 2 Comparison between IP camps and earlier held pure medical camps

Location	I P CAMPS			PURE MEDICAL CAMPS		
	Date held	Patients	NPH	Date held	Patients	NPH
Kotkhai	18-07-18	2505	351	07-04-18	1309	105
Rabon	24-07-18	357	43	04-03-18	246	22
Balag	16-09-18	488	74	26-11-17	334	23
Kuthar	23-09-18	284	45	07-01-18	186	14
Kunehar	30-09-18	228	25	05-03-17	93	6
Chambaghat	04-11-18	356	43	06-11-16	248	15
Chamkadi	25-11-18	285	45	26-03-17	224	18
Pattabarori	09-12-18	408	49	17-12-17	196	19
Arki	24-12-18	187	32	18-03-18	190	15
Mehendo Baag	24-02-19	355	56	17-06-18	282	28
Jaman Ki Sher	28-02-19	256	31	13-11-16	120	8
Darlaghat	09-03-19	410	62	16-10-16	290	40
Mamlig	24-03-19	350	53	17-09-17	210	25
Noradhar	31-03-19	418	71	30-05-18	340	41
Dadahu	07-04-19	374	51	19-03-17	336	36
Mandal	20-04-19	1350	139	05-08-17	1215	90
Pulvahal	26-05-19	1100	133	18-11-17	810	80
Kandaghat	02-06-19	586	80	12-11-17	205	15

NPH: Number of referred patients attending the hospital in 1 week

Regarding patient satisfaction, more than 80% of patients were satisfied in each of the camps. Nearly 80% of patients found these camps to be better than earlier held pure medical camps (Table 3 and Table 4).

Table 3 Patient feedback-camp 1 to 9

Location		Kotkhai	Rabon	Balag	Kuthar	Kunehar	Chambaghat	Chamkadi	Pattabarori	Arki
Sample size for feedback		100	30	40	30	30	30	30	40	30
Patient satisfaction	Satisfied	80	27	36	25	27	24	28	31	29
	Not satisfied	20	3	4	5	3	6	2	9	1
Rating	Very Good	18	6	10	6	7	6	9	12	10
	Good	46	16	15	12	10	10	9	7	9
	OK	25	7	14	10	11	10	12	14	11
	Bad	9	1	1	2	2	2	0	5	0
	Very Bad	2	0	0	0	0	2	0	2	0
Better than previous camps	Yes	-	-	-	-	-	-	21	23	22
	No	-	-	-	-	-	-	0	6	0
	Can't say	-	-	-	-	-	-	9	11	8

Table 4 Patient feedback-camp 10 to 18

Location		Mehendo Baag	Jaman Ki Ser	Darlaghat	Mamlig	Noradhar	Dadahu	Mandal	Pulvahal	Kandaghat
Sample size for feedback		30	30	40	30	40	30	80	80	50
Patient satisfaction	Satisfied	28	25	37	24	33	28	66	69	49
	Not satisfied	2	5	3	6	7	2	14	11	1
Rating	Very Good	12	5	12	6	10	11	17	19	18
	Good	8	18	15	10	12	12	33	32	21
	OK	9	4	13	12	15	5	22	24	10
	Bad	0	2	0	2	2	2	6	5	1
	Very Bad	1	1	0	0	1	0	2	0	0
Better than previous camps	Yes	24	25	37	22	30	27	62	62	41
	No	0	1	0	0	2	1	6	4	1
	Can't say	6	4	3	8	8	2	12	14	8

There was equal gender distribution among patients with the majority of patients in middle and younger age groups (Table 5).

Table 5 Age and sex distribution

Age group	Males	Females	Total
<18 yrs	1646	1748	3394
18-40 yrs	1493	1615	3108
41-60 yrs	1125	1187	2312
>60 yrs	744	739	1483
Total	5008	5289	10297

Most of the patients had medical illness-including respiratory diseases (35%) followed by orthopedic complaints (32%), pediatric diseases (27%), and Eye problems (21%). Some of the patients even got checkups done in 2-3 departments as per their ailments (Figure 1).

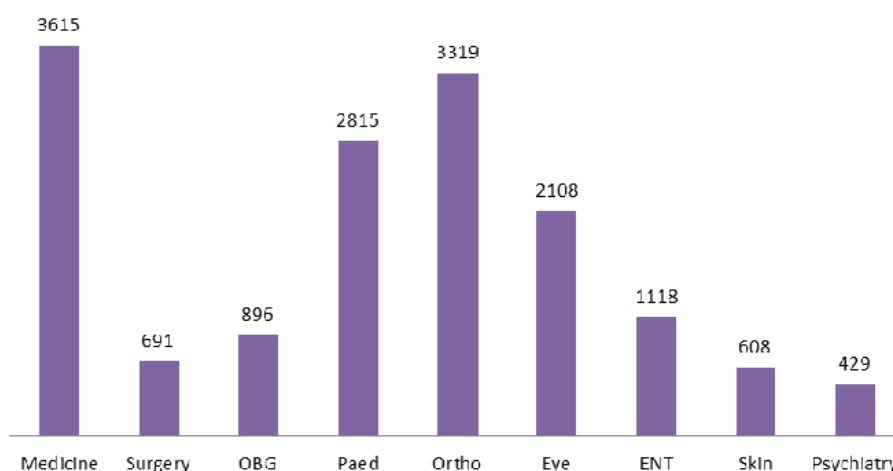


Figure 1 Department wise distribution of patients

There was a significant improvement in health outcomes concerning all disorders evaluated particularly Cataract (63%), CSOM (44%), and Diabetes (41%) (Table 6).

Table 6 Disease outcomes

Diseases analyzed	Camp patients followed up	The treatment was taken and cured/controlled	Treatment was taken but not cured/controlled	Treatment not taken after health camp
Diabetes	456	190 (41%)	53 (12%)	213 (47%)
Hypertension	705	188 (27%)	95 (14%)	422 (59%)
Cataract	512	320 (63%)	28 (5%)	164 (32%)
CSOM	205	90 (44%)	18 (8%)	97 (48%)
Allergies	608	105 (17%)	114 (18%)	389 (65%)

DISCUSSION

A total of 18 interprofessional camps have been organized in hilly rural areas in the last 1 year. There was excellent collaboration between various IP team members and there was a better understanding of each other's working and this led to great mutual respect. The final beneficiary was the rural population who got better health care at their doorsteps. This led to improved health and sanitation in the rural area. The hospital facilities were utilized by the rural population in a better way. There was a significant improvement in disease outcomes for common disorders.

Health camps are short-term mobile interventions for a target community generally lasting for a day to a week [9]. The importance of health camps is more in difficult geographical conditions. Interprofessional collaboration is working together with professionals from different backgrounds to achieve a common goal. It helps to be more responsive to the needs of the service users [10]. According to the standard definition, Interprofessional collaboration is defined as "when multiple health workers from different professional backgrounds work together with patients, families, carers (caregivers), and communities to deliver the highest quality of care [11]. According to an expert panel report, interprofessional collaboration leads to improve quality in health care and patient safety [8]. According to Gajuryal, et al. involvement of local clubs and volunteers must be encouraged during such camps and it forms a bond of community participation and makes the camp more fruitful and harmonious [12]. Other studies by Hudson et al also show the benefits of interprofessional practice [13]. Other studies as one by Mwala, et al. have also shown health camps to be beneficial to the community and at the same time acceptable to them especially in personnel and financially starved areas [2]. In another study by MacDowell et al, the one-to-one interaction between various interprofessional workers leads to a better understanding of skills and functioning of each other's profession which improves patient care especially in rural areas [3].

These camps helped in providing medical treatment to the rural population at their doorsteps. As many of these rural communities remain cut off from main cities because of difficult terrain, this led to the improved health status of these societies. These camps also led to collaborative interprofessional working. This in the future can fulfill the dream of integrated health care with a focus on the patient needs and will improve the overall health of society.

The challenges faced in the study were convinced all the IP members to be part of the camp team and working together on equal footing. This required a lot of effort which was possible because of pre-camp meetings. The limitations of the study were that these were general health checkup camps where analysis of only a few disorders as possible. The focus on more age-specific diseases and their outcomes could not be achieved. In the future, age-specific camps could be organized and the disease outcomes of other disorders would be evaluated.

CONCLUSION

The interprofessional camps are more effective in terms of the number of patients attending, percentage of referred patients visiting the hospital, and patient satisfaction. This collaboration benefits the rural population in terms of health outcomes. Furthermore, studies could be done in other parts of the country covering other major disorders as this collaboration if successful on a national scale can improve the health index of the nation.

DECLARATIONS

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Conflicts of Interest

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