Study of feasibility and effectiveness of ASHA-Soft (Online Payment and Performance Monitoring System) in Rajasthan

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Abstract

Objective: ASHA-Soft is the pioneer e-Health program which was launched to manage online payment and for monitoring performance of ASHA workers in Rajasthan. There is a paucity of studies which documents the feasibility and effectiveness of this program with aim to assess the feasibility and effectiveness of ASHA-Soft program.

Methods: Study was conducted in Jodhpur using quantitative and qualitative method. Primary and secondary data approach was used to assess feasibility and effectiveness of ASHA-Soft. Purposive sampling was done to recruit 150 ASHA workers having experience of more than 5 years to capture the perception before and after implementation of ASHA-Soft. Qualitative data was also obtained from ASHA workers and key stakeholders. To assess the effectiveness secondary data was obtained from various sources was analyzed.

Results: Mean age of participants were 35.51 $\pm$ 6.7 years. Most of ASHAs agreed that ASHA-Soft mediated timely payment (68%) and payment according to their performance (81%). It also increased their motivational level (96%).There were no significant difference in different work experience of ASHAs and perception towards ASHA-Soft regarding timely payment (p=0.99), improving quality of life (p=0.66) and motivation level (p=0.40). This program has provided standard online procedure of online payment and monitoring for ASHAs. Incentives received by ASHAs increased to 77%, performance increased by 7% and 9% for maternal health and child health respectively within one year of its initial implementation.

Conclusions: Study finding demonstrate that ASHA-Soft program is acceptable to the users and is effective in terms of meeting organizational requirement.

Keywords: Feasibility Study, Program Evaluation, Online system, Employee Performance Appraisal, Community Health Workers

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Introduction:

ASHA-Soft is one of the pioneer e-Health program which was implemented in Rajasthan for the very first time in India [1]. This program was developed by National Informatics Center, Rajasthan for helping Medical Health and Family Welfare Department, Government of Rajasthan in managing online payment and performance monitoring of ASHA (Accredited Social Health Activist) workers [2]. ASHAs are the grass-root-level community workers appointed by Ministry of Health and Family Welfare Government of India under NRHM (National Rural Health Mission) to function as a primary healthcare facilitators and health service provider [3]. The objective of launching this program were to develop timely and transparent payment system, monitoring performance of ASHAs, avoid human interference and also to build friendly work relationship between the NRHM and ASHA workers of Rajasthan state [4].

This e-Health program like other program has been launched based on the perception that digital health program improve and facilitate the functioning of health system [5]. There is a paucity of published studies which documents the feasibility and effectiveness of this e-Health program. Understanding feasibility and effectiveness of program allow the decision makers to guide further implementation and replication of the intervention [6]. In this context the current study is planned to highlight the feasibility and effectiveness of ASHA-Soft program.

Methods:

Primary and secondary data approach was used to assess feasibility and effectiveness of ASHA-Soft. This study was carried out during November 2019 to February 2020. Purposive sampling was done to recruit 150 ASHA workers of Jodhpur who were having experience of working as ASHA Sahyogini for more than 5 years. Work experience more than 5 years was considered for this study because ASHA-Soft was implemented in December 2014 and we wanted to capture the perception of those ASHAs who worked in both scenarios i.e. before and after implementation of ASHA-Soft [2]. To collect quantitative data from ASHA workers perception based interview schedule on 5 point likert scale was developed using extensive literature search. Qualitative data was also obtained from ASHAs and key stakeholders to meet the desired objective of the study. To assess the effectiveness of ASHA-Soft secondary data obtained from various articles, documents and reports were analyzed.

Result:

Feasibility of ASHA-Soft and perception of ASHA workers towards ASHA-Soft program:

A total 150 ASHA workers were interviewed. Mean age of ASHAs were 35.51 ±6.7 years. For the study purpose ASHAs were categorized by experience into three groups 6-8, 9-11 and >12 years. Around 35% and 38% ASHAs strongly agreed that ASHA-Soft provide full payment on time and according to their performance respectively. Most of the ASHAs feel that this program has improved their quality of life (77.33%) and has provided feeling of job security in them (52.67%). There was strong agreement among 68% ASHAs that ASHA-Soft program is a positive change brought by NRHM. Table 1 provide the detailed perception of ASHAs towards ASHA-Soft program.

Table 1: Perception of ASHA workers towards ASHA-Soft.

Perception of ASHA workers in context to ASHA-Soft	No. of Respondents in % (n=150)					
	Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree (1)	Mean
Timely payment of incentives	35.33%	32.67%	10.00%	14.67%	7.33%	3.7
Appropriateness of program for measuring performance	44.00%	37.33%	10.67%	2.67%	5.33%	4.1
Full payment based on work performance	38.00%	26.67%	16.67%	12.66%	6.00%	3.7
Creating a good work environment	52.67%	30.67%	4.00%	1.33%	11.33%	4.1
Providing improved quality of work life	77.33%	16.67%	3.33%	2.00%	0.67%	4.6
Reduced corruption at various levels	46.67%	28.00%	4.00%	10.00%	11.33%	3.8
Improving motivational level	61.33%	34.67%	3.33%	0.67%	0.00%	4.5
Opportunities for solving complaints	45.33%	28.00%	6.00%	4.00%	16.67%	3.8

Consider this program as an optimistic program of the National Health Mission	68.00%	18.67%	4.00%	1.33%	8.00%	4.3

It was found that there is no significant difference in different work experience of ASHAs and perception towards ASHA-Soft regarding timely payment (p = 0.9937); improving quality of life (p = 0.6614) and motivation level (p = 0.4063). Significant difference (p = 0.0162) was seen for perception regarding addressing complaint for solving payment issues (p-value < 0.05 considered statistically significant). Table 2 illustrate difference in work experience of ASHAs and related perceptions.

Table 2: Different work experiences of ASHA workers and related perception towards ASHA-Soft program.

Perception of ASHAs	Work Experience (years)	*Sum of Rank*	*x²**	*df***	*p-Value****
Timely payment of incentives	6-8	4332.5			
	9-11	4137	0.013	2	0.9937
	12 and above	2855.5			
Appropriateness of program for measuring performance	6-8	4450.5			
	9-11	4418.5	3.261	2	0.1959
	12 and above	2456			
Full payment based on work performance	6-8	3939.5			
	9-11	4239	2.377	2	0.3046
	12 and above	3146.5			
Creating a good work environment	6-8	4146.5			
	9-11	4116.5	0.761	2	0.6835
	12 and above	3062			
Providing improved quality of work life	6-8	4074.5			
	9-11	4329.5	0.827	2	0.6614
	12 and	2921			

			x^2*	df**	p-Value***
	above				
Reduced corruption at various levels	6-8	3881.5			
	9-11	4267	3.100	2	0.2123
	12 and above	3176.5			
Improving motivational level	6-8	4071			
	9-11	4495	1.801	2	0.4063
	12 and above	2759			
Opportunities for solving complaints	6-8	3713.5			
	9-11	4143	8.247	2	0.0162
	12 and above	3468.5			
Consider this program as an optimistic program of the National Health Mission	6-8	4230.5			
	9-11	3997.5	1.006	2	0.6048
	12 and above	3097			

x^2* = Chi square value, df** = degree of freedom, p-Value*** = level of significance

Additionally to gain the qualitative perception interviews with ASHAs and key stakeholders were conducted. While seeking qualitative perception we also documented challenges and recommendation to improve service delivery through ASHA-Soft program. Majority of ASHAs seems to be satisfied with this program and perceived that it has streamlined their work. One of the ASHA said that:

> *"We are happy with this initiative and we hope govt. should come up with these type of more programs in future".*

When we interviewed data operators they provided a positive perspective toward ASHA-Soft program. One of the data operator who was interviewed mention that:

> *"ASHA-Soft is a user friendly program and it provides convenience for retrieving the relevant information needed at any point of time."*

During interview few challenges and suggestions were also provided by the interviewees. An enthusiastic ASHA recommended that:

> *"We should be provided a copy of submitted claim form so that we can assess our claim status in case of any rejection of incentive".*

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One of ASHA supervisor provided a practical challenge and recommendation in context to ASHA-Soft program:

> *"Process of updating new details in central server such as change of ASHA's catchment area take some time which causes error while providing incentives".*

> *"If a dashboard has separate tab for providing information of all rejected payments then it will be more-easier for us to track the desired information sought by the concerned".*

Effectiveness of ASHA-Soft:

The effectiveness of this program was judged using the guidance provided by WHO on Monitoring and evaluating digital health interventions under the following criteria [7]:

Changes in process brought by ASHA-Soft:

Under this criteria we tried to find out that weather and how this intervention has changed processes. For this we compared work process scenario before and after implementation of ASHA-Soft. Before implementation of ASHA-Soft, there was non-existing of systematic standard procedures for providing payment to ASHAs and for monitoring and assessing their work performance [8]. Payment was provided using multiple payments points and there was requirement of cash to be maintained at relevant healthcare facilities [8]. There was complex payment mode for ASHAs as they were provided incentives for various activities under major health services at different time through various channels [9]. There was no designated way time frame for providing payments. This complexity lead to corruption, exploitations and delay in payments. These factors were posing negative impact on ASHAs and they were de-motivated in providing health services to the communities [10]. Monitoring and assessment of ASHAs were carried out during bi-monthly meetings at PHCs, where Axillary Nurse Midwifery was provided information from ASHAs regarding the progress made and the report was summarized to be provided to Medical officer [8]. This process was prone to bias and manual error in analysis and reporting [8], [9].

This program has benefited state health department in many ways [11]. It has provided standard online procedure for capturing beneficiary wise details of services delivered by an ASHA to the community, providing online payment of ASHA in their bank accounts based on the details and generating various kinds of reports to aid in monitoring the progress of various programs [12]. Implementation of this program made the process of payment and monitoring transparent and eliminated the manual error and bias, hence reducing the corruption and complexities [12], [13]. The time period for providing the payment has been reduced significantly from about 67 days to 12 days [14]. Variety of monitoring and analytical reports are generated through the system, which are available and accessible at any point of time [14], [15]. ASHAs receives payment for their work between 5th to 7th of the every month and additionally a SMS is sent to ASHA's mobile number as soon as the payment is transferred in their bank account [13], [15], [16], [17].

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Changes in outcome brought by ASHA-Soft:

Under this criteria we tried to find out that weather and how this intervention has changed outcomes. We documented the changes in the selected health indicators of Rajasthan (related to tasks of ASHA workers), incentives paid and performance transpired after one year of implementation of ASHA-Soft.

ASHA workers have important role in mobilizing the community and facilitating them for accessing healthcare services such as Ante Natal Check-up (ANC), Institutional delivery, Immunization, Family Planning, Integrated Child Development Services and other public healthcare services [18].

The ANC registration in the first trimester is an important indicator which shows the effectiveness of a health service delivery system [19]. In Rajasthan proportion of ANC registered within first trimester against total registrations of pregnant women increased from 60.7% to 62.8% from 2015-16 to 2017-18. Similarly for the same year institutional deliveries increased from 73.85% to 74.83%, full immunization increased from 78.06% to 87.59% and under five child mortality per 1,000 births decreased from 50 to 45 [19], [20], [21].

Through ASHA-Soft, ASHA workers are provided incentives for various activities performed under six major categories of health services viz. Maternal Health, Child Health, Immunization, Family Planning, Monthly Meeting of ASHA's, and National Health Programs [18]. Incentives received by ASHA workers increased to 77% within one year of initial implementation of ASHA-Soft program [8]. [[10], Data revealed that there was huge surge in the incentives (42% increased for immunization, 35% for routine monthly activities) provided to ASHA workers for the same period [8], [9], [10].

After the implementation of ASHA-Soft within one year performance of ASHA workers increased by 7% and 9%, for maternal health and child health [8].

Discussion:

This study was conducted to assess feasibility and effectiveness of ASHA-Soft. For assessing feasibility we focused on operational and technical practicality of this program. Interview with end users showed that this program is highly acceptable to the users. Perception of ASHAs were exceedingly positive and most of them were in agreement that ASHA-Soft is a proper tool for monitoring performance (mean 4.1), it has improved their quality of work life (mean 4.6) and motivational level (mean 4.5). Both ASHAs and other users perceived ASHA-Soft program as an optimistic initiative taken by Medical Health and Family Welfare department, NRHM, Government of Rajasthan [2], [4], [8]. Since experiences can shape perception, we also analyzed whether perception towards ASHA-Soft program depends on work experience of ASHAs [22]. We found that there was no significant difference in the perception of ASHA workers with different experiences which indicates that technically ASHA-Soft program is a feasible program and even ASHAs with less experience can adopt to this program easily. Similar findings were seen in study conducted by Rathore S. and Rai M. (2018) in Barmer district of Rajasthan [15].

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Though all the interviewed users were of consensus that this program is a user friendly and technically sound program but they also mentioned few areas of improvement which could be easily adopted such as providing copy of submitted claim forms and creation of separate tab for line listing of rejected claims forms.

Change in process was evident by transformation which was brought by introduction of ASHA-Soft in context to creating a standardized procedure for performance monitoring and online payment to ASHAs. It helped drastically in reducing cumbersome clerical process and heavy pen-paper work involved at various level which caused delay in payment by two to three months [8]. To assess the change in outcome we compare the health indicators related to the work profile within one year implantation of ASHA-Soft [8], [10], [17]. We analyzed that most of the indicators were on improving track, additionally we also documented that performance and incentive paid to ASHAs were upraised [8], [10].

This study indicates that ASHA-Soft program which has made entire health system available on dashboard and has created a well-accepted timely payment and monitoring system is a feasible and effective program [8], [10], [11], [16].

Conclusion:

The findings of this study demonstrate that ASHA-Soft program is acceptable to the users and is able to meet the organizational requirement. It is a pioneer initiative which has helped in improving health services in Rajasthan.

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