Interplaying role of healthcare activist and homemaker

Human Resources for Health

Interplaying role of healthcare activist and homemaker: a mixed-methods exploration of the workload of Community Health Workers (Accredited Social Health Activists) in India

--Manuscript Draft--

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Abstract:	Background Globally, Community Health Workers (CHWs) are integral contributors to many health systems. In India, Accredited Social Health Activists (ASHAs) have been deployed since 2005. Engaged in multiple health care activities, they are a key link between the health system and population. ASHAs are expected to participate in new health programmes, prompting interest in their current workload from the perspective of the health system, community and their family. Methods This mixed methods design study was conducted in rural and tribal Primary Health Centers (PHCs), in Pune district, Western Maharashtra, India. All ASHAs affiliated with these PHCs were invited to participate in the quantitative study, those agreeing to contribute in-depth interviews (IDI) were enrolled in an additional qualitative study. Key informants' interviews were conducted with the Auxiliary Nurse Midwife (ANM), Block Facilitators (BFF) and Medical Officers (MO) of the same PHCs. Quantitative data were analysed using descriptive statistics. Qualitative data were analysed thematically. Results We recruited 67 ASHAs from the two PHCs. ASHAs worked up to 20 hours/week in their village of residence, serving populations of approximately 800-1200, embracing an increasing range of activities, despite a workload that contributed to feelings of being rushed and constant tiredness. They juggled household work, other paid jobs and their ASHA activities. Practical problems with travel added to time involved, especially in tribal areas where transport is lacking. Their sense of benefiting the community and respect and recognition in village brought happiness and job satisfaction. They were willing to take on new tasks. ASHAs perceived themselves as "voluntary community health workers" rather than as 'health activists." Conclusion s:
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Response to Reviewers:	Responses to reviewer's comments and revision done accordingly: Sr. NoReviewer's CommentResponse and revisions Reviewer #1 The authors are to be commended for seeking to better understand ASHA workload; a key consideration in community health worker program design. That said, there are several key weaknesses in the article that keep it from making a substantial contribution Thank you. We have responded to each of the comments and revised our manuscript accordingly 1.In the introduction, the authors justify their line of inquiry by stating, "an assessment of workload from the perspective of the ASHA is not available." Yet, in the same introduction, they cite many studies that do exactly that: Saprii 2015 (qualitative - documents ASHA verbatim noting the unfairness of their workload: "our workload is much more than the [salaried community cadre]"); Gopalan 2012 (mixed methods, including survey and focus group discussions w/ASHAs - documents how "excessive workload...took away [ASHAs] personal time"; Guha 2018 (qualitative - "All the ASHAs said that the workload was excessive..."I hardly get time for my family members"); and Sarin 2016 (qualitative interviews w/ASHA - notes "The majority of ASHA respondents...complained that the amount of money they received was too low compared to their workload"). These and other studies not cited, e.g. Dagar 2016, cover much the same ground this study does. Despite superficially referencing many of them, this manuscript does not make it clear either in the introduction or conclusion how it planned to (or does) build on or deepen these earlier findings. As a result, the manuscript's conclusions (e.g. "ASHAs had a significant workload, and were struggling to balance domestic tasks and ASHA work. They were proud of their role as CHWs and were willing to take on new activities") - which have been widely documented elsewhere - feel like a re-hash and not particularly novel or noteworthy. response: We agree that other studies have researched in this area, though most are qualitative studies, and many focus on specific tasks. Only one is a mixed methods study including a workload survey of all the experienced ASHA in the area (Gopalan 2012) and that is nearly eight years out of date. •Saprii 2015 explored stakeholders' perceptions and experiences, opportunities and challenges of the ASHA specifically in context of maternal health. Several of the other studies cited were focused on a specific role in maternal and child health (e.g Bansal 2016; Shashank 2013; Karol 2104; Srivastava 2012; We were interested in the broader context of additional and varied tasks •Gopalan 2012 used mixed method research and have highlighted the performance motivation and its determinants, but this was 8 years ago and much has happened since the in terms of ASHA's perception of their role. •Guha 2018 has some overlap as it discusses the roles and responsibilities and reflects how the workload affects performance in the context of Village ASHA. However, it only reports a qualitative study and does not include the triangulation with a quantitative survey. •Sarin 2016 is a qualitative study (which we did cite : Ref 18) which reveals the role of incentives and family support in motivating ASHA but does not assess workload perception. •Dagar 2016 similarly focussed their qualitative research on the roles, challenges and experiences of ASHA while performing the duties.

	The novelty of our study is therefore: •We conducted a mixed method study triangulating our qualitative findings with a survey of all the ASHA in our locality. This provides breadth to our findings to complement the in-depth qualitative work. •We explicitly compared the workload and attitudes of 'rural' and 'tribal' ASHA and highlight some significant differences. None of the cited studies are able to make this comparison. •We were interested in the broad range of ASHA tasks and their potential for taking on even more diverse roles. •In addition, this is an evolving situation with some unrest at a national level so that an up-to-date exploration is important We have revised the our final paragraph of our introduction (page4) to acknowledge the previous work and to explain our aims better: "The role of ASHA is therefore evolving, and demands an up-to-date comprehensive assessment of the workload, incentives (18) and understanding of the work profile from the perspectives of the health system, community and ASHA herself in order to guide successful future implementation as well as sustainability of the programme. Previous evaluations, many commissioned by the National ASHA Mentoring Group,(7) provide qualitative exploration or quantitative assessment (9-12) of workload, often in one specific context.(19.,20) or the context of maternal/child health tasks (21-24)).We had a broad interest in both the full range of tasks and the different situations in which ASHA work and the changing context in which their role is interpreted. We therefore used a mixed-methods approach to assess and explore ASHAs' perspectives of their workload alongside that of local healthcare colleagues in both rural and village contexts We have also added a reference to previous research in our discussion (page 15) where we now state in the section on 'Evolution of ASHA role': "In common with previous research,[10,12,18,19,28,29,32,] although ASHAs in our survey were disappointed with incentives, they were generally happy and satisfied with the work and were motivated to continue. Our qualitative analysis, however reflected more fundamental contemporary attitudes to ASHA's status" 2.Another major issue is that the findings don't seem to line up with the data. For instance, the article notes "ASHAs perceived themselves as voluntary community health workers" yet nowhere is there evidence of this in the text. The ASHA clearly perceive themselves as *workers* but are never quoted as using the word voluntary. In fact, they bemoan their limited compensation. Similarly, the questions about job satisfaction and happiness are grouped under Table 4 "Honorarium and incentives." This is misleading. The qualitative data makes clear that ASHAs are satisfied with their tasks, but not their pay. Since those two questions are about their work, they should be in a separate table. This conflation of task-based satisfaction and overall satisfaction with the work environment happens throughout the piece. Response: The tight word count resulted in loss of some text that would have addressed these comments. The word 'voluntary' was widely used as shorthand for their 'non-salaried' status. We had already cited an example of its use by a BFF(on page 12) and have now added an example of where ASHA used the term about themselves (on page 9). "Medical officers have told us in one of the training that that our work is voluntary and at any point of time we can refuse to take up any assigned tasks to us" (Rural ASHA) Thank you highlighting this distinction and we have now clarified this explicitly (on page 10) which now reads: "These ASHAs though happy and satisfied with their respective tasks, but were disappointed with their honorarium which did not compensate them for the time required to complete the allotted work. They were willing to do more for the benefit of the communities they served, but wanted more realistic remuneration. Notablly they used the word 'Mobadla':which translates as 'money earned against work'. Some ASHAs suggested that a monthly payment of INR 2000-5000 (GBP 21.40-53.60) could be reasonable" In contrast , MOs and ANMs considered the payments as 'incentives' which they used to motivate ASHA's involvement in new activities". "We included ASHAs having at least 5-years standing so that they had experience of

ASHA work in the community" - this would seem to undermine theoretical saturation. Surely someone on the job for a year has a valid opinion. Given this, would re-do Table 1 to make clear there are 0 CHWs w/<5 (i.e. 004) years' experience included.
- How did participants contribute to interpretation? Are they the "lay stakeholders" referenced earlier? Make clearer
response:
The survey was completed by all the ASHA (as described in the section on quantitative methods on page 6). Table 1 is thus correct.
The restriction to ASHA of >5yr standing was imposed in our purposive sampling of ASHA for the qualitative study as experience and understanding of the evolving role. We recognise that this is a limitation and have now added a statement in the limitations (page 13):
"Although our study was limited to two diverse areas in one state, we recruited all ASHAs in those areas to the survey and their demographic profile was similar to that of other studies. Our decision to purposively sample ASHA of more than 5 years standing for the qualitative interviews enabled us to gain perspectives from experienced ASHA who would have understood the evolution of the role, but meant that we do not have in-depth views of relatively new ASHA"

A strength of our study is the engagement of lay stakeholders as part of the 'Community Engagement and Involvement' activities of RESPIRE (https://www.ed.ac.uk/usher/respire/about/supporting-platforms/platform-i-stakeholder-engagement-governance)
This is described on page 7 in the section 'Interpretation and stakeholder engagement' and we have now provided a link to the RESPIRE website so that readers unfamiliar with stakeholder engagement can clarify the description.
We have also enlarged on our description of the advantages of stakeholder engagement (on page 13):
"The final interpretation was a consolidation of the perspectives of participants (at the final feedback meeting), researchers, the lay and professional stakeholders (involved with the on-going project discussions) and the multidisciplinary research team"

- p. 2 Regulations don't expect - rephrase
- p. 2 To take *on* new tasks
- p. 2 Evolving perceptions - what does that mean? Specify
- p. 6 Complete reliant - should be reliance
- p. 12 "Has expressed differently" - rephrase
responses:
Thank you for spotting these typos
Page 2 line 20. Sentence rephrased to 'ASHAs are expected to…'
Page 2 line 38. Added *on*
Page 3 line 43,44 and 45 changed. Government of India's mandate state ASHA volunteer status and receipt of honorarium on the basis of amount of work done. However, since the progression in the years and the program there was shift in paradigm that started initiating in ASHA perception; expectation of full time recruitment with a fixed salary. We have explained that in the manuscript, but word counts preclude such detail. We have clarified as 'Evolving attitudes to the advantages/disadvantages of the current voluntary status…'
Page 5 line 93 We have corrected this
Page 11 line 239 is rephrased as 'One of the MO expressed this differently

Reviewer # 2
The results of the findings displayed in the tables is interesting but not directly presented in the narrative. While one recognizes the need to not duplicate information for text to table, the findings suggest areas not covered in the text that may have been better explained by responses to the survey questions. For example, when asking about tiredness it may be helpful to understand what aspect of their work fatigues them? Is it the travel or the tasks?
response:
This question reflects the tension between publishing a detailed account of the quantitative survey in a separate paper, or combining the two as a mixed methods study. After considerable discussion we opted for the latter, because we believe that triangulating the mixed-methods in one paper enhances the strengths of results. The disadvantage is that some results (the detailed quantitative tables) have had to be

placed on-line with only a summary in the manuscript. Page 10 line 223--225 explained the quantitative finding wherein three quarter of ASHA reported feeling tired because of ASHA work (includes tasks and travel).
We agree with the reviewer's comment regarding asking about what aspect of work fatigues them, but unfortunately, we did not ask the question in the survey. The importance of this issue emerged from qualitative work and our methodology (of using the survey to inform purposive sampling) precluded adding it in to the survey.

Rarely do I read a manuscript and find it answers all of the questions one would have. Particularly when it is based on an unknown health care sector. The authors provided adequate information for the reader to grasp the concepts presented in a clear and complete manner.
Thank you

Data analysis for qualitative data is well outlined and clear. It would be help to have seen the results of this compared to previous studies presented in the literature review section.
response:
We have interpreted our findings in the light of existing literature (page 14-16) but recognise that we are not able to address all the points from previous surveys.
In recognition of the word count restrictions, we have not extended the discussion, but would be pleased to do so if editorial advice is that this would be helpful.

However, the authors state they conducted inferential statistics but the results are not presented. They do provide descriptive statistics. Perhaps the sample size is too small to have done cross tabulations.
response:
We did perform inferential statistics, but decided not to present them because, with the large number of comparison a few were significant and with the small sample size we could not be sure of their significance. We therefore opted for descriptive approach to avoid over interpretation.
We deleted reference to interferential statistics in the manuscript, thank you for spotting this error which we have now corrected.

Future studies may consider the use of Participatory Action Research as a viable research design. As is this is a good descriptive study but leaves the reader without solutions or recommendations of what the outcome may be of the results.
response:
We agree that future studies need to focus on identifying solutions.
We have now added this to our conclusion which reads (page 16 line 366-368):
"An increasing range of health activities would demand investment of time, regular training, motivation, greater problem solving and leadership skills and future studies need to focus on developing strategies to recruit, train, incentivise, and retain ASHAs of the future"

Regarding vocabulary and English, obviously American English is not relevant but I am not well versed on British English to determine the correct use of some terms. Only one work in line 327 seems to be in error and that is "contributed".

We have corrected this typo (Page 15 line 331)

For those not familiar with the work of ASHAs it would be interesting to know why their title was that of an activist and not a "worker". Background on that could help the uninformed reader grasp the concepts with clarity.
response:
The term ' social health activist' goes back to the inception of the ASHA programme and (we presume from our reading of early documentation) reflects the original role of 'health educator, healthcare services facilitator and social health activist'. As we describe in the background (page 4) the terminology – and role have changed. The acronym 'ASHA is so widely used that few now remember that the second 'A' stands for 'activist' and the term is used (ungrammatically) with the description 'worker'.
We have clarified this with the addition of the word 'activist' on page 4 to the sentence that describes their original tasks. This now reads :
"As multitaskers, ASHAs took on the "social health activis"t roles of health educator

	and healthcare services facilitator.” This is further described in the section on page 15-16, where we highlight contemporary colloquial use of the terminology which reflects the evolution of the role Overall, a well written, rigorous mixed methods study with a solid qualitative component and descriptive statistics. Perhaps the authors visit the idea of use of the term inferential to describe their analysis. Minor clarifications could provide more support to this work, particularly for those not familiar with this health sector. Thank you. We have addressed the points you have raised (including deleting the term interferential from the abstract) which has helped us improve our paper.
Additional Information:	
Question	**Response**
Is this study a clinical trial?<hr>A clinical trial is defined by the World Health Organisation as 'any research study that prospectively assigns human participants or groups of humans to one or more health-related interventions to evaluate the effects on health outcomes'.	No

Interplaying role of healthcare activist and homemaker: a mixed-methods exploration of the workload of Community Health Workers (Accredited Social Health Activists) in India

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5. RESPIRE collaboration

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Abstract

Background:

Globally, Community Health Workers (CHWs) are integral contributors to many health systems. In India, Accredited Social Health Activists (ASHAs) have been deployed since 2005. Engaged in multiple health care activities, they are a key link between the health system and population. ASHAs are expected to participate in new health programmes, prompting interest in their current workload from the perspective of the health system, community and their family.

Methods:

This mixed methods design study was conducted in rural and tribal Primary Health Centers (PHCs), in Pune district, Western Maharashtra, India. All ASHAs affiliated with these PHCs were invited to participate in the quantitative study, those agreeing to contribute in-depth interviews (IDI) were enrolled in an additional qualitative study. Key informants' interviews were conducted with the Auxiliary Nurse Midwife (ANM), Block Facilitators (BFF) and Medical Officers (MO) of the same PHCs. Quantitative data were analysed using descriptive statistics. Qualitative data were analysed thematically.

Results:

We recruited 67 ASHAs from the two PHCs. ASHAs worked up to 20 hours/week in their village of residence, serving populations of approximately 800-1200, embracing an increasing range of activities, despite a workload that contributed to feelings of being rushed and constant tiredness. They juggled household work, other paid jobs and their ASHA activities. Practical problems with travel added to time involved, especially in tribal areas where transport is lacking. Their sense of benefiting the community and respect and recognition in village brought happiness and job satisfaction. They were willing to take on new tasks. ASHAs perceived themselves as "voluntary community health workers" rather than as 'health activists."

Conclusions:

ASHAs were struggling to balance their significant ASHA workload, and domestic tasks. They were proud of their role as CHWs and willing to take on new activities. Strategies to recruit, train, skill

enhancement, incentivise, and retain ASHAs, need to be prioritised. Evolving attitudes to the advantages/disadvantages of the current voluntary status of ASHAs need to be understood and addressed in terms of working arrangements if ASHAs are to be remain a key component in achieving universal health coverage.

Keywords: ASHA; Workload; Community Health Worker

Background:

Globally, Community Health Workers (CHWs) contribute to achieving universal health care coverage; a key target for meeting Sustainable Development Goals.[1] The World Health Organization's (WHO) definition of a CHW is a person living and working within the local community, being endorsed by the health system but not necessarily part of it and having shorter training than professional workers. The scope of CHW's work often encompasses large-scale programmes addressing local health problems in rural and remote areas of low- and middle-income countries (LMICs).[2]

In 2005, the National Rural Health Mission of the Government of India launched an "Accredited Social Health Activists "(ASHA) programme to facilitate accessible, affordable and quality healthcare to rural populations.[3] ASHA is a female resident of the village, educated at least to VIIIth grade (though may not be enforced in tribal areas) who receives 23 days training over a year and on-going refresher trainings. The primary role was intended to be liaison between healthcare systems and local communities across diverse geographical locations.[4] As multitaskers, ASHAs took on the ' social health activist' roles of health educator and healthcare services facilitator with evidence of a positive impact on healthcare-seeking behaviour, family planning, antenatal care and care in childbirth.[5-10]

Building on this success, policymakers have upscaled ASHA involvement in an increasing range of health-related activities and interventions[11-15] as well as implementing governmental non-health related schemes and surveys. For example, the Indian National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Disease and Stroke involves ASHAs in screening, early detection, referral and community mobilisation of Non-Communicable Diseases (NCDs). Thus, ASHAs are engaged in almost 30 different activities which sometimes means non-health related tasks might take priority over health-related issues.[16,17]

The role of ASHA is therefore evolving, and demands an up-to-date comprehensive assessment of the workload, incentives[18] and understanding of the work profile from the perspectives of the health system, community and ASHA herself in order to guide successful future implementation as well as

sustainability of the programme. Previous evaluations, many commissioned by the National ASHA Mentoring Group[7] provide qualitative exploration or quantitative assessment [9-12] of workload, often in one specific context.[19.,20] or the context of maternal/child health tasks [21-24)].We had a broad interest in both the full range of tasks and the different situations in which ASHA work and the changing context in which their role is interpreted. We therefore used a mixed-methods approach to assess and explore ASHAs' perspectives of their workload alongside that of local healthcare colleagues in both rural and village contexts.

Methods:

The study was conducted in two Primary Health Centres (PHCs), one rural and the other tribal (often remote, a defined inhabitants in India with shared ancestry and traditions) in Pune district of Western Maharashtra, India during September 2018 to March 2019.

Study area and context

Over the last five decades, Vadu Rural Health Program's research and implementation activities have developed a good collaboration with the local healthcare systems which facilitated the selection and recruitment of the PHCs functionaries and ASHAs.

The rural PHC is located in an agricultural area with increasing industrialisation. This high-density population had multiple sources of income, travel and communication facilities. Many private hospitals and clinics provide multiple choices for healthcare. In contrast, the tribal PHC is located in hilly terrain where a sparse, culturally homogenous population had fewer sources of income and poor access to travel and communication and almost complete reliance on public healthcare facilities. Selecting these diverse PHCs enabled us to study whether these contextual differences affected the workload perception of ASHAs. Study participants disposition is described in Figure 1.

Ethical approval and consent to participate

The study protocol was approved by the King Edward Memorial Hospital Research Centre Ethics Committee, Pune, India and was sponsored by Academic and Clinical Central Office for Research and

Development at the University of Edinburgh. Written informed consent was obtained from all study participants prior to data collection.

Quantitative methods

The quantitative data were collected using paper-based self-administered questionnaires. All 67 ASHAs (44 from Rural PHC; 23 from Tribal PHC) responded when approached during their routine monthly meetings and vaccination camps. The closed questions were on socio-demographic profile, time spent on ASHA work and travel, perceptions of workload and its impact on them and their family, opinions about remuneration, job satisfaction and family support. (See Additional file 1: Study questionnaire)

Qualitative methods

Qualitative data were collected using in-depth interviews. We purposively sampled eight ASHAs, four from each of the Rural and Tribal PHCs, based on diversity of experience (> 5 years), educational background and other paid work. We also interviewed the two Medical Officers (MO), four Auxiliary Nurse Midwives (ANM) and four Block Facilitators (BFF) from the same PHCs, each of whom had at least a year's experience of supervising ASHAs. See footnote to Figure 1 for definitions of these roles

We developed a conceptual framework (figure 2) to inform the interview guide based on open-ended informal discussions with ASHAs and other colleagues. This helped us to understand the workload in terms of time investment, travel, energy and effect of the work on ASHA's family and self, and highlighted age, training, education, experience, work setting, incentives and other occupation as influencing factors. The volunteer status of ASHA was important in interpreting relative prioritisation of their work.

Topic guides were prepared in English (See Additional file 2 &3) and translated into the local language (Marathi) by the Field Research Assistants during their training, reviewed by researchers, and piloted before finalisation. During data collection, the conversation focused on enquiry around typical daily activities. This led to probing on ASHA activities, household activities and other

occupations, their perceptions of workload related to the different tasks, the challenges and motivations to continue the work. The qualitative interviews were conducted by graduate-level trained qualitative researchers, supported by a note-taker who had experience of working with the health and demographic surveillance system.

Data handling and analysis

The quantitative data were analysed using Stata version15.0 and described as means and percentages. In-depth interviews were audio-recorded, transcribed verbatim into Marathi and translated into English by an independent qualitative researcher. Analysis, facilitated by MAXQDA version11.0 was undertaken by MG (anthropologist) supported by UC (health scientist) and PL (epidemiologist and qualitative researcher) who were also involved in data collection, cleaning and coding. Using an inductive approach, the transcripts were read repeatedly to identify frequently reported patterns related to objectives with similarities and differences. These were coded, and categories developed, and emergent themes identified after discussion with wider team including an experienced anthropologist, medical and nursing experts. The data were triangulated using a 'connecting data' process [(25)] so that quantitative results were complemented by anecdotal evidence, reasons, examples and experiences from the qualitative data.

Interpretation and stakeholder engagement

Throughout the data collection and analysis, the multidisciplinary team met regularly to discuss emerging themes and to ensure balanced interpretation mitigating reflexivity. Supported by the stakeholder engagement platform of RESPIRE (https://www.ed.ac.uk/usher/respire/about/supporting-platforms/platform-i-stakeholder-engagement-governance), we engaged with professional and lay stakeholders including the participating MO, ANM and BF throughout the research process in order to broaden perspectives. A dissemination meeting was organised with all study participants and feedback encouraged.

Results

Participants' characteristics

We recruited 67 ASHAs who completed the questionnaire; two thirds were from rural area (n=43) with more than half (n=38) being in age group of 30-39 years. Almost all were married (n=64) and 82% (n=55) were engaged in family agricultural work in addition to ASHA work.

Conceptual framework

Figure 3 is the conceptual framework which illustrates our understanding of ASHA's perceived workload. The qualitative results are provided in Tables 1-5, with key findings presented in the text below. Perception of workload was influenced by multiple interacting factors such as characteristics, tasks, work settings of ASHA and modified by time, travel, energy and motivation. Finally, we present the evolving nature of ASHA's motivation.

Influencing factors: characteristics of ASHA, their tasks and work settings

Education, training and experience

There were significant differences between ASHAs from rural and tribal areas. (Table 1). Rural ASHAs had higher educational attainment (five were graduates) and most (81%) were from an open category compared to tribal ASHAs, most of whom were from scheduled tribes. (see foot note of table 1 for definitions). A third of tribal ASHAs had more than 10 years of experience as against none from rural. The relatively poor literacy of some of the tribal ASHAs affected documentation and record keeping. This was highlighted by an ANM who noted that these ASHAs required additional assistance and time for tasks completion:

"ASHAs with low education levels don't always remember everything from the trainings given to them".[ANM-1]

Domestic responsibilities and other occupations

Being married, many of ASHAs struggled to balance daily household chores and ASHA responsibilities. Most had additional jobs and seasonal work to supplement the family income which sometimes hampered routine ASHA tasks. Despite this, the BFF appreciated the work of tribal ASHAs who devoted considerable time to ASHA work.

Willingness for additional activities

During preceding six months, 58/67 (88%) of ASHAs had carried out up to 10 additional activities (surveys, epidemic survey, etc.). Despite time constrains and completion pressures, all of them were willing to take on more tasks (Table 2) with the hope of reasonable compensation and travel support.

"We are willing to accept new workload but, of course, in return for handsome compensation, we have put forth the same demand for survey work also. Family members expect us to bring money for additional efforts we are putting" [Rural ASHA-1]

The ANM supported ASHAs in taking up new activities especially if it didn't involve much travel or didn't disturb their existing schedule. One ANM stated:

"Health authorities at the state level have instructed us not to pressurise ASHAs for additional work as their incentives are very low" [ANM-2]

" Medical officers have told us in one of the training that that our work is voluntary and at any point of time we can refuse to take up any assigned tasks to us" (Rural ASHA-2)

Tasks of ASHA

Table 3 shows that most ASHAs [56 (85%)] worked in their village of residence, though 9 (39%) tribal ASHAs had responsibility for an additional village. Workload, in terms of household visits (typically 20-40 visits/week) and working hours (between 12-20 hours) was similar in the two areas, though tribal ASHA had responsibility for smaller populations (<800 vs > 800-1200 for rural ASHA). ASHAs visited their BFF and ANM between one and four times a month.

Work setting

Tribal ASHAs and the ANMs explained how the demography of remote populations affected workload and incentives. Urbanisation and migration meant young people had left the villages leading to loss of incentives from maternal and child health services. Although home visits were mandatory, when ASHAs working in remote areas were unable to do frequent home visits, then telephone follow-ups were acceptable. Some discrepancies were noted in workload assessment. A BF estimated that ASHAs worked for 1 to 1.5 hours daily (excluding Sundays). This comes to 6-9 hours/week, in contrast to the survey findings that 46% of ASHA reported working 12-20 hours/week.(Table 3).This

could be because of non-regular activities, e.g. ASHAs have to do home visits to facilitate scheme benefits to pregnant women such as "Pradhan Mantri Matru Vandana Yojana" (a national maternity benefit programme providing a cash incentive of INR 5,000 (GBP £53.64) to pregnant women and lactating mothers in respect of the first living child of the family.[26]

Honoraria and incentives

ASHAs received incentives for activities like family planning, antenatal and postnatal care, home based follow-up of new-born, immunisation. Almost all ASHAs were happy and satisfied with these activities, despite most receiving monthly incentives less than INR 1500 (GBP £16.09) (Table 4). These ASHAs though happy and satisfied with their respective work, showed disappointment on the honorarium they received when compared with time required to complete allotted work. They were willing to do more for the benefit of the communities they served , but expected more incentives (*'Mobadla'*: money earned against work). MOs and ANMs used incentives to motivate ASHA's involvement in different types of activities. Some ASHAs suggested that a monthly payment of INR 2000-5000 (GBP 21.40-53.60) could be reasonable.

''I wish to do full time ASHA work only, but for that I need to get a fixed salary, I expect that government should really look into this matter''. [Tribal ASHA-1]

The MOs, ANMs, and BF supported the need to increase the honorarium to reward good work.

"I advocate that the good work of ASHA should be awarded with increase in the honorarium" [ANM-3]

Modifying Factors affecting perception of workload: time, travel and energy

Most ASHAs described time spent for ASHA activities as moderate (2-4 hours/day), more so in tribal areas. (Table 5). Two thirds of ASHAs reported feeling tired and rushed in the previous week, mainly because of ASHA work. Almost three-quarters considered their ASHA role reduced the time they had to spend with their family and described how it encroached on time for other (paid) work.

The qualitative interviews explored a typical ASHA day. The results showed that they started early, completing household activities and then taking up ASHA duties. They had to leave home early when additional tasks (such as surveys, camps) were assigned to them periodically throughout the year. This contrasts with perceptions of senior staff who considered that ASHAs spend 80% of their time for household work and give only 20% time to ASHA activities. It was observed that during seasonal occupations (e.g. agriculture) ASHAs were unable to complete all activities.

"The seasonal work hampers regular work of ASHA" [ANM-4]

The residential status of ASHA was intended to limit travel time. However, villages located in mountainous areas were inaccessible with poor roads and lack of transport meant tribal ASHAs had to walk through the hills to reach remote settlements. Private vehicles had to be paid for from their own pockets, unless they were fortunate to get a free lift. Sometimes, antenatal visits to remote hamlets were skipped. ANMs were aware of these challenges. The BF demanded bicycles for ASHAs who travelled daily more than six kilometres.

One of the MO expressed this differently,

"ASHA need to mingle with people in the neighbourhood and chat with them and simultaneously do the work which is challenging to meet with timings". [MO-1]

Motivation of ASHA: Pride and Respect

Evolution of motivation for undertaking ASHA work

Most ASHAs were content with their job and "*proud"* of their work. They believed their work was *"social work"* for a good cause, beneficial to the community. Their attitude towards work was good; they worked happily and were committed to the role. Villagers appreciated their hard work. This trust helped them to gain entry to homes. ASHAs were considered as family members with whom even sensitive information could be shared.

"I feel proud (abhimaan) to work as ASHA worker. I feel I am doing social work and feel satisfied. I do not have any problem about payment, but I get an opportunity to do social work" [Rural ASHA-3]

Personal circumstances did not stop performance of ASHA work. In one situation,

"I was in an emotional turmoil for a month after my sister's death, but I continued with the duties even then". [Rural ASHA-4]

She further recognised that people acknowledged her efforts to bring positive change to health care in the hamlet and proudly stated:

"Now women go to hospitals for deliveries". [Rural ASHA-4]

Though envisaged as 'activists' ASHAs had started considering themselves as 'workers'. This was apparent in the terminology used. In none of the interviews was the word 'activist' used. ASHA typically described themselves as 'ASHA workers':

"Other women work in the farms only and are housewives, but I am an ASHA worker. I feel proud that I am engaged in government work also, I feel proud". [Tribal ASHA-2]

Cordial team relationships

ASHAs had cordial relations with colleagues and senior staff. Although they followed instructions and fulfilled their expected duties, the ANMs and BF were aware that ASHAs were voluntary workers and were in a position to refuse tasks, so they respected and supported them in personal matters.

'We cannot act as bosses of ASHA, as they are voluntary workers'. [BF-1]

Appreciation of efforts and good work by the community and team:

ASHAs earned respect and recognition in their villages and were acknowledged for their clinical knowledge. They felt very proud about their work. One ASHA described how the training and experience had equipped her to manage the care of pregnant woman, referring the woman to the PHC and ensuring safe delivery. This gave great satisfaction and people's blessings even though the

remuneration was small. Tribal ASHAs were appreciated for the time devoted to work and efficient service provision.

Discussion

Summary

ASHAs work up to 20 hours a week in their village of residence, serving populations of about 800-1200 embracing an increasing range of activities despite a workload that contributed to feeling rushed and tired. Practical travel problems added to time involved, especially in tribal areas with little/no transport. ASHAs have to prioritise between household work, other jobs and responsibilities (families; seasonal agricultural work) and their ASHA activities. Despite the small honorarium, their sense of benefiting the community, and the respect and recognition at village level brought pride, happiness and job satisfaction. Significantly, however, they described themselves as "workers", not "activists".

Strengths and limitations:

The study's strength is the triangulation of data that enables qualitative exploration of the quantitative survey data. The multi stakeholder perspective (interviews with ASHAs, ANMs, BFs and MOs) helped provide holistic understanding of the findings.

We were aware of reflexivity throughout the research process[27] Data collection aimed to ensure construction of topics between researchers and participants. Meanings were negotiated and understood within the particular social context and validated in discussion with other researchers. The final interpretation was a consolidation of the perspectives of participants (at the final feedback meeting), researchers, the lay and professional stakeholders (involved with the on-going project discussions) and the multidisciplinary research team.

Although our study was limited to two diverse areas in one state, we recruited all ASHAs in those areas to the survey and their demographic profile was similar to that of other studies. Our decision to purposively sample ASHA of more than 5 years standing for the qualitative interviews enabled us to

gain perspectives from experienced ASHA who would have understood the evolution of the role, but meant that we do not have in-depth views of relatively new ASHA.

The data were collected during monthly meetings that enabled 100% participation, but this may have affected the answers as, despite reassurances of confidentiality, ASHAs may have been reticent to give their honest opinions as they knew the study was being promoted by their managers. ASHAs were given a private space to complete the questionnaires and asked to consult a study researcher (not a colleague) in case of any difficulty. Interviews were conducted in Marathi, the language spoken and understood by ASHAs, though with a different dialect in rural and tribal areas . Interview guides were not back-translated due to lack of resources. English translations might have lost nuances of speech, though the researchers were fluent in both languages.

Interpretation in the light of existing literature

Characteristics of ASHA

As originally envisaged, ASHA must be the resident female volunteer of age 30-39 years, educated to at least 8th grade.[2] These selection criteria were fulfilled by rural ASHAs in our study and similar characteristics have been reported in the states of Madhya Pradesh and Uttar Pradesh [21, 22]. However, tribal ASHAs were younger and many were less educated; reflecting findings from the state of Gujrat [20] and Orissa who similarly showed some relaxation of these criteria. [28]. This suggests our findings might have wider applicability within India and potentially in similar global contexts. [29].

Workload: time, travel and energy:

Reflecting the remote topography and poor transport links, we observed significant differences between working arrangements in tribal settings compared to rural areas with respect to work area, number of villages and population served.

Village residence was intended to limit travel, but we found that in reality ASHAs have to travel regularly for home visits, camps ,surveys, meetings, training etc. and those from tribal areas had exhaustive travel as they served sparse populations in remote areas with poor transport. This echoes findings from a time-motion study from South India which found that travel encroached on the time

tribal ASHAs spent performing duties [30] . We found that most ASHAs work in their own village serving populations of less than 1200. This is in contrast with populations as low as 454 persons/ASHA in Chhattisgarh to 1431 persons /ASHA in the State of Uttar Pradesh. Our survey reported working around 12 hr/week and conducting 20 household visits /week, which is less than in Karnataka where, ASHAs worked for 3.8 hours per day, covering a similar population but only undertaking 10 household visits per week [22]. Substantiating findings from other studies, [31] our participants explained how they have to juggle their ASHA work with family commitments and other work, which contributed to feelings of tiredness and being rushed. The impact of lower educational status on efficiency in performing regular tasks is supported by a study in Rajasthan, India [12].

Incentives

Many studies have reported the discontent over the small incentives and the demands for a simpler process of payment without any administrative delays. [32] Having a regular flow of funds is important to avoid demotivation [33]. In Punjab, incentives were found to be both empowering and conversely, a source of distress to ASHAs and family members. Incentives gave a sense of freedom, but the small, irregular and incomplete payments put pressure on families and was a major factor influencing prioritisation between ASHA activities and other paid jobs [18]. In Pakistan, Lady Health Workers have requested some stability of payment to sustain themselves [19]. Case studies from Iran, Ethiopia, India, Bangladesh and Nepal have reported that minimal incentives limit the focus of CHW work and improving the financial incentives results in the activities being prioritised [29]. In Orissa, a higher income and improved recognition contributed to feelings of self- efficacy.[28]

Evolution of ASHA role

In common with previous research,[10,12,18,19,28,29,32,] although ASHAs in our survey were disappointed with incentives, they were generally happy and satisfied with the work and were motivated to continue. Our qualitative analysis, however reflected more fundamental contemporary attitudes to ASHA's status.

At its inception, it was envisaged that ASHAs would perform the role of activists, with the status of volunteers to mobilise the community, facilitate health promotion and be the community representatives working directly with health system functionaries to enhance health system performance [3]. Colloquial terminology, however, describes ASHAs as 'ASHA workers' and not 'Accredited Social Health Activists' [9,10,12]. This reflects the move of many ASHAs to re-formulate their status as workers within the public health system, answerable to line managers such as ANM or MO. This change in perceived role has prompted some ASHAs to claim permanent jobs as employees of the health system,[34] though the impact of such a change on their pride as "social activists" and the respect that they gain in the community is not yet clear [35].

This evolution is apparent in other areas of India and other countries where CHWs have a pivotal role. In Pakistan, LHW wanted a position to meet their new aspirations [19]. Within culturally diverse regions of India, other studies have highlighted that the voluntary status of ASHA workers brought a sense of honour and motivation [18,30]. In contrast, a study in a tribal area of Maharashtra reported that community did not always appreciate the voluntary status of ASHA, leading to some mistrust about their incentives which adversely affected the community response. [32]

Conclusion:

Despite struggle between household commitments and ASHA activities, they are happy, satisfied and willing to take on newer responsibilities .An increasing range of health activities would demand investment of time, regular training, motivation, greater problem solving and leadership skills and future studies need to focus on developing strategies to recruit, train, incentivise, and retain ASHAs of the future [36-38]. The growing debate regarding voluntary status of ASHAs need to be understood and addressed in term of working arrangements if ASHAs are to be remain as a key in achieving universal health coverage in India[39].

List of abbreviations:

ANM: Auxiliary Nurse Midwife

ASHA: Accredited Social Health Activists

BFF: Block Facilitator Female

CHW: Community Health Worker

LMIC: Low-Middle Income Countries

MO: Medical Officer

NCD: Non-communicable disease

PHC: Primary Health Centre

WHO: World Health Organization

Declarations

Ethics approval and consent to participate

The study protocol was approved by the King Edward Memorial Hospital Research Centre Ethics Committee, (KEMHRC, EC Ref No KEMHRC/MHS/EC/134) Pune, India and was sponsored by Academic and Clinical Central Office for Research and Development (ACCORD) at the University of Edinburgh. Written informed consent was obtained from all study participants prior to data collection.

Consent for publication

Not applicable

Availability of data and materials

The data that support study findings are available from the corresponding author on reasonable request.

Competing interests

All authors declare no competing interests

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Author contributions

AK, SJ, PL and HP with PS led the development of the protocol. PL and UC undertook data collection supported by AK and SJ. AK and MG led the analysis in discussion with, SJ, PS and HP. AK wrote the first draft of the manuscript with MG which was critically reviewed and refined by PL, UC, SJ, PS and HP. AS was PI of RESPIRE, contributed to the design of the study and commented critically on the draft manuscript. RESPIRE UMC members provided advice and contributed to

discussions from time to time. All authors contributed to critical revision of the manuscript and approved the final version.

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Interplaying role of healthcare activist and homemaker: a mixed-methods exploration of the workload of Community Health Workers (Accredited Social Health Activists) in India

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Abstract

Background:

Globally, Community Health Workers (CHWs) are integral contributors to many health systems. In India, Accredited Social Health Activists (ASHAs) have been deployed since 2005. Engaged in multiple health care activities, they are a key link between the health system and population. ASHAs are expected to participate in new health programmes, prompting interest in their current workload from the perspective of the health system, community and their family.

Methods:

This mixed methods design study was conducted in rural and tribal Primary Health Centers (PHCs), in Pune district, Western Maharashtra, India. All ASHAs affiliated with these PHCs were invited to participate in the quantitative study, those agreeing to contribute in-depth interviews (IDI) were enrolled in an additional qualitative study. Key informants' interviews were conducted with the Auxiliary Nurse Midwife (ANM), Block Facilitators (BFF) and Medical Officers (MO) of the same PHCs. Quantitative data were analysed using descriptive statistics. Qualitative data were analysed thematically.

Results:

We recruited 67 ASHAs from the two PHCs. ASHAs worked up to 20 hours/week in their village of residence, serving populations of approximately 800-1200, embracing an increasing range of activities, despite a workload that contributed to feelings of being rushed and constant tiredness. They juggled household work, other paid jobs and their ASHA activities. Practical problems with travel added to time involved, especially in tribal areas where transport is lacking. Their sense of benefiting the community and respect and recognition in village brought happiness and job satisfaction. They were willing to take on new tasks. ASHAs perceived themselves as "voluntary community health workers" rather than as 'health activists."

Conclusions:

ASHAs were struggling to balance their significant ASHA workload, and domestic tasks. They were proud of their role as CHWs and willing to take on new activities. Strategies to recruit, train, skill

enhancement, incentivise, and retain ASHAs, need to be prioritised. Evolving attitudes to the advantages/disadvantages of the current voluntary status of ASHAs need to be understood and addressed in terms of working arrangements if ASHAs are to be remain a key component in achieving universal health coverage.

Keywords: ASHA; Workload; Community Health Worker

Background:

Globally, Community Health Workers (CHWs) contribute to achieving universal health care coverage; a key target for meeting Sustainable Development Goals.[1] The World Health Organization's (WHO) definition of a CHW is a person living and working within the local community, being endorsed by the health system but not necessarily part of it and having shorter training than professional workers. The scope of CHW's work often encompasses large-scale programmes addressing local health problems in rural and remote areas of low- and middle-income countries (LMICs).[2]

In 2005, the National Rural Health Mission of the Government of India launched an "Accredited Social Health Activists "(ASHA) programme to facilitate accessible, affordable and quality healthcare to rural populations.[3] ASHA is a female resident of the village, educated at least to VIIIth grade (though may not be enforced in tribal areas) who receives 23 days training over a year and on-going refresher trainings. The primary role was intended to be liaison between healthcare systems and local communities across diverse geographical locations.[4] As multitaskers, ASHAs took on the ' social health activist' roles of health educator and healthcare services facilitator with evidence of a positive impact on healthcare-seeking behaviour, family planning, antenatal care and care in childbirth.[5-10]

Building on this success, policymakers have upscaled ASHA involvement in an increasing range of health-related activities and interventions[11-15] as well as implementing governmental non-health related schemes and surveys. For example, the Indian National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Disease and Stroke involves ASHAs in screening, early detection, referral and community mobilisation of Non-Communicable Diseases (NCDs). Thus, ASHAs are engaged in almost 30 different activities which sometimes means non-health related tasks might take priority over health-related issues.[16,17]

The role of ASHA is therefore evolving, and demands an up-to-date comprehensive assessment of the workload, incentives[18] and understanding of the work profile from the perspectives of the health system, community and ASHA herself in order to guide successful future implementation as well as

sustainability of the programme. Previous evaluations, many commissioned by the National ASHA Mentoring Group[7] provide qualitative exploration or quantitative assessment [9-12] of workload, often in one specific context.[19.,20] or the context of maternal/child health tasks [21-24)].We had a broad interest in both the full range of tasks and the different situations in which ASHA work and the changing context in which their role is interpreted. We therefore used a mixed-methods approach to assess and explore ASHAs' perspectives of their workload alongside that of local healthcare colleagues in both rural and village contexts.

Methods:

The study was conducted in two Primary Health Centres (PHCs), one rural and the other tribal (often remote, a defined inhabitants in India with shared ancestry and traditions) in Pune district of Western Maharashtra, India during September 2018 to March 2019.

Study area and context

Over the last five decades, Vadu Rural Health Program's research and implementation activities have developed a good collaboration with the local healthcare systems which facilitated the selection and recruitment of the PHCs functionaries and ASHAs.

The rural PHC is located in an agricultural area with increasing industrialisation. This high-density population had multiple sources of income, travel and communication facilities. Many private hospitals and clinics provide multiple choices for healthcare. In contrast, the tribal PHC is located in hilly terrain where a sparse, culturally homogenous population had fewer sources of income and poor access to travel and communication and almost complete reliance on public healthcare facilities. Selecting these diverse PHCs enabled us to study whether these contextual differences affected the workload perception of ASHAs. Study participants disposition is described in Figure 1.

Ethical approval and consent to participate

The study protocol was approved by the King Edward Memorial Hospital Research Centre Ethics Committee, Pune, India and was sponsored by Academic and Clinical Central Office for Research and

Development at the University of Edinburgh. Written informed consent was obtained from all study participants prior to data collection.

Quantitative methods

The quantitative data were collected using paper-based self-administered questionnaires. All 67 ASHAs (44 from Rural PHC; 23 from Tribal PHC) responded when approached during their routine monthly meetings and vaccination camps. The closed questions were on socio-demographic profile, time spent on ASHA work and travel, perceptions of workload and its impact on them and their family, opinions about remuneration, job satisfaction and family support. (See Additional file 1: Study questionnaire)

Qualitative methods

Qualitative data were collected using in-depth interviews. We purposively sampled eight ASHAs, four from each of the Rural and Tribal PHCs, based on diversity of experience (> 5 years), educational background and other paid work. We also interviewed the two Medical Officers (MO), four Auxiliary Nurse Midwives (ANM) and four Block Facilitators (BFF) from the same PHCs, each of whom had at least a year's experience of supervising ASHAs. See footnote to Figure 1 for definitions of these roles

We developed a conceptual framework (figure 2) to inform the interview guide based on open-ended informal discussions with ASHAs and other colleagues. This helped us to understand the workload in terms of time investment, travel, energy and effect of the work on ASHA's family and self, and highlighted age, training, education, experience, work setting, incentives and other occupation as influencing factors. The volunteer status of ASHA was important in interpreting relative prioritisation of their work.

Topic guides were prepared in English (See Additional file 2 &3) and translated into the local language (Marathi) by the Field Research Assistants during their training, reviewed by researchers, and piloted before finalisation. During data collection, the conversation focused on enquiry around typical daily activities. This led to probing on ASHA activities, household activities and other

occupations, their perceptions of workload related to the different tasks, the challenges and motivations to continue the work. The qualitative interviews were conducted by graduate-level trained qualitative researchers, supported by a note-taker who had experience of working with the health and demographic surveillance system.

Data handling and analysis

The quantitative data were analysed using Stata version15.0 and described as means and percentages. In-depth interviews were audio-recorded, transcribed verbatim into Marathi and translated into English by an independent qualitative researcher. Analysis, facilitated by MAXQDA version11.0 was undertaken by MG (anthropologist) supported by UC (health scientist) and PL (epidemiologist and qualitative researcher) who were also involved in data collection, cleaning and coding. Using an inductive approach, the transcripts were read repeatedly to identify frequently reported patterns related to objectives with similarities and differences. These were coded, and categories developed, and emergent themes identified after discussion with wider team including an experienced anthropologist, medical and nursing experts. The data were triangulated using a 'connecting data' process [(25)] so that quantitative results were complemented by anecdotal evidence, reasons, examples and experiences from the qualitative data.

Interpretation and stakeholder engagement

Throughout the data collection and analysis, the multidisciplinary team met regularly to discuss emerging themes and to ensure balanced interpretation mitigating reflexivity. Supported by the stakeholder engagement platform of RESPIRE (https://www.ed.ac.uk/usher/respire/about/supporting-platforms/platform-i-stakeholder-engagement-governance), we engaged with professional and lay stakeholders including the participating MO, ANM and BF throughout the research process in order to broaden perspectives. A dissemination meeting was organised with all study participants and feedback encouraged.

Results

Participants' characteristics

We recruited 67 ASHAs who completed the questionnaire; two thirds were from rural area (n=43) with more than half (n=38) being in age group of 30-39 years. Almost all were married (n=64) and 82% (n=55) were engaged in family agricultural work in addition to ASHA work.

Conceptual framework

Figure 3 is the conceptual framework which illustrates our understanding of ASHA's perceived workload. The qualitative results are provided in Tables 1-5, with key findings presented in the text below. Perception of workload was influenced by multiple interacting factors such as characteristics, tasks, work settings of ASHA and modified by time, travel, energy and motivation. Finally, we present the evolving nature of ASHA's motivation.

Influencing factors: characteristics of ASHA, their tasks and work settings

Education, training and experience

There were significant differences between ASHAs from rural and tribal areas. (Table 1). Rural ASHAs had higher educational attainment (five were graduates) and most (81%) were from an open category compared to tribal ASHAs, most of whom were from scheduled tribes. (see foot note of table 1 for definitions). A third of tribal ASHAs had more than 10 years of experience as against none from rural. The relatively poor literacy of some of the tribal ASHAs affected documentation and record keeping. This was highlighted by an ANM who noted that these ASHAs required additional assistance and time for tasks completion:

"ASHAs with low education levels don't always remember everything from the trainings given to them".[ANM-1]

Domestic responsibilities and other occupations

Being married, many of ASHAs struggled to balance daily household chores and ASHA responsibilities. Most had additional jobs and seasonal work to supplement the family income which sometimes hampered routine ASHA tasks. Despite this, the BFF appreciated the work of tribal ASHAs who devoted considerable time to ASHA work.

Willingness for additional activities

During preceding six months, 58/67 (88%) of ASHAs had carried out up to 10 additional activities (surveys, epidemic survey, etc.). Despite time constrains and completion pressures, all of them were willing to take on more tasks (Table 2) with the hope of reasonable compensation and travel support.

"We are willing to accept new workload but, of course, in return for handsome compensation, we have put forth the same demand for survey work also. Family members expect us to bring money for additional efforts we are putting" [Rural ASHA-1]

The ANM supported ASHAs in taking up new activities especially if it didn't involve much travel or didn't disturb their existing schedule. One ANM stated:

"Health authorities at the state level have instructed us not to pressurise ASHAs for additional work as their incentives are very low" [ANM-2]

" Medical officers have told us in one of the training that that our work is voluntary and at any point of time we can refuse to take up any assigned tasks to us" (Rural ASHA-2)

Tasks of ASHA

Table 3 shows that most ASHAs [56 (85%)] worked in their village of residence, though 9 (39%) tribal ASHAs had responsibility for an additional village. Workload, in terms of household visits (typically 20-40 visits/week) and working hours (between 12-20 hours) was similar in the two areas, though tribal ASHA had responsibility for smaller populations (<800 vs > 800-1200 for rural ASHA). ASHAs visited their BFF and ANM between one and four times a month.

Work setting

Tribal ASHAs and the ANMs explained how the demography of remote populations affected workload and incentives. Urbanisation and migration meant young people had left the villages leading to loss of incentives from maternal and child health services. Although home visits were mandatory, when ASHAs working in remote areas were unable to do frequent home visits, then telephone follow-ups were acceptable. Some discrepancies were noted in workload assessment. A BF estimated that ASHAs worked for 1 to 1.5 hours daily (excluding Sundays). This comes to 6-9 hours/week, in contrast to the survey findings that 46% of ASHA reported working 12-20 hours/week.(Table 3).This

could be because of non-regular activities, e.g. ASHAs have to do home visits to facilitate scheme benefits to pregnant women such as "Pradhan Mantri Matru Vandana Yojana" (a national maternity benefit programme providing a cash incentive of INR 5,000 (GBP £53.64) to pregnant women and lactating mothers in respect of the first living child of the family.[26]

Honoraria and incentives

ASHAs received incentives for activities like family planning, antenatal and postnatal care, home based follow-up of new-born, immunisation. Almost all ASHAs were happy and satisfied with these activities, despite most receiving monthly incentives less than INR 1500 (GBP £16.09) (Table 4). These ASHAs though happy and satisfied with their respective work, showed disappointment on the honorarium they received when compared with time required to complete allotted work. They were willing to do more for the benefit of the communities they served , but expected more incentives (*'Mobadla'*: money earned against work). MOs and ANMs used incentives to motivate ASHA's involvement in different types of activities. Some ASHAs suggested that a monthly payment of INR 2000-5000 (GBP 21.40-53.60) could be reasonable.

''I wish to do full time ASHA work only, but for that I need to get a fixed salary, I expect that government should really look into this matter''. [Tribal ASHA-1]

The MOs, ANMs, and BF supported the need to increase the honorarium to reward good work.

"I advocate that the good work of ASHA should be awarded with increase in the honorarium" [ANM-3]

Modifying Factors affecting perception of workload: time, travel and energy

Most ASHAs described time spent for ASHA activities as moderate (2-4 hours/day), more so in tribal areas. (Table 5). Two thirds of ASHAs reported feeling tired and rushed in the previous week, mainly because of ASHA work. Almost three-quarters considered their ASHA role reduced the time they had to spend with their family and described how it encroached on time for other (paid) work.

The qualitative interviews explored a typical ASHA day. The results showed that they started early, completing household activities and then taking up ASHA duties. They had to leave home early when additional tasks (such as surveys, camps) were assigned to them periodically throughout the year. This contrasts with perceptions of senior staff who considered that ASHAs spend 80% of their time for household work and give only 20% time to ASHA activities. It was observed that during seasonal occupations (e.g. agriculture) ASHAs were unable to complete all activities.

"The seasonal work hampers regular work of ASHA" [ANM-4]

The residential status of ASHA was intended to limit travel time. However, villages located in mountainous areas were inaccessible with poor roads and lack of transport meant tribal ASHAs had to walk through the hills to reach remote settlements. Private vehicles had to be paid for from their own pockets, unless they were fortunate to get a free lift. Sometimes, antenatal visits to remote hamlets were skipped. ANMs were aware of these challenges. The BF demanded bicycles for ASHAs who travelled daily more than six kilometres.

One of the MO expressed this differently,

"ASHA need to mingle with people in the neighbourhood and chat with them and simultaneously do the work which is challenging to meet with timings". [MO-1]

Motivation of ASHA: Pride and Respect

Evolution of motivation for undertaking ASHA work

Most ASHAs were content with their job and "*proud"* of their work. They believed their work was *"social work"* for a good cause, beneficial to the community. Their attitude towards work was good; they worked happily and were committed to the role. Villagers appreciated their hard work. This trust helped them to gain entry to homes. ASHAs were considered as family members with whom even sensitive information could be shared.

"I feel proud (abhimaan) to work as ASHA worker. I feel I am doing social work and feel satisfied. I do not have any problem about payment, but I get an opportunity to do social work" [Rural ASHA-3]

Personal circumstances did not stop performance of ASHA work. In one situation,

"I was in an emotional turmoil for a month after my sister's death, but I continued with the duties even then". [Rural ASHA-4]

She further recognised that people acknowledged her efforts to bring positive change to health care in the hamlet and proudly stated:

"Now women go to hospitals for deliveries". [Rural ASHA-4]

Though envisaged as 'activists' ASHAs had started considering themselves as 'workers'. This was apparent in the terminology used. In none of the interviews was the word 'activist' used. ASHA typically described themselves as 'ASHA workers':

"Other women work in the farms only and are housewives, but I am an ASHA worker. I feel proud that I am engaged in government work also, I feel proud". [Tribal ASHA-2]

Cordial team relationships

ASHAs had cordial relations with colleagues and senior staff. Although they followed instructions and fulfilled their expected duties, the ANMs and BF were aware that ASHAs were voluntary workers and were in a position to refuse tasks, so they respected and supported them in personal matters.

'We cannot act as bosses of ASHA, as they are voluntary workers'. [BF-1]

Appreciation of efforts and good work by the community and team:

ASHAs earned respect and recognition in their villages and were acknowledged for their clinical knowledge. They felt very proud about their work. One ASHA described how the training and experience had equipped her to manage the care of pregnant woman, referring the woman to the PHC and ensuring safe delivery. This gave great satisfaction and people's blessings even though the

remuneration was small. Tribal ASHAs were appreciated for the time devoted to work and efficient service provision.

Discussion

Summary

ASHAs work up to 20 hours a week in their village of residence, serving populations of about 800-1200 embracing an increasing range of activities despite a workload that contributed to feeling rushed and tired. Practical travel problems added to time involved, especially in tribal areas with little/no transport. ASHAs have to prioritise between household work, other jobs and responsibilities (families; seasonal agricultural work) and their ASHA activities. Despite the small honorarium, their sense of benefiting the community, and the respect and recognition at village level brought pride, happiness and job satisfaction. Significantly, however, they described themselves as "workers", not "activists".

Strengths and limitations:

The study's strength is the triangulation of data that enables qualitative exploration of the quantitative survey data. The multi stakeholder perspective (interviews with ASHAs, ANMs, BFs and MOs) helped provide holistic understanding of the findings.

We were aware of reflexivity throughout the research process[27] Data collection aimed to ensure construction of topics between researchers and participants. Meanings were negotiated and understood within the particular social context and validated in discussion with other researchers. The final interpretation was a consolidation of the perspectives of participants (at the final feedback meeting), researchers, the lay and professional stakeholders (involved with the on-going project discussions) and the multidisciplinary research team.

Although our study was limited to two diverse areas in one state, we recruited all ASHAs in those areas to the survey and their demographic profile was similar to that of other studies. Our decision to purposively sample ASHA of more than 5 years standing for the qualitative interviews enabled us to

gain perspectives from experienced ASHA who would have understood the evolution of the role, but meant that we do not have in-depth views of relatively new ASHA.

The data were collected during monthly meetings that enabled 100% participation, but this may have affected the answers as, despite reassurances of confidentiality, ASHAs may have been reticent to give their honest opinions as they knew the study was being promoted by their managers. ASHAs were given a private space to complete the questionnaires and asked to consult a study researcher (not a colleague) in case of any difficulty. Interviews were conducted in Marathi, the language spoken and understood by ASHAs, though with a different dialect in rural and tribal areas . Interview guides were not back-translated due to lack of resources. English translations might have lost nuances of speech, though the researchers were fluent in both languages.

Interpretation in the light of existing literature

Characteristics of ASHA

As originally envisaged, ASHA must be the resident female volunteer of age 30-39 years, educated to at least 8th grade.[2] These selection criteria were fulfilled by rural ASHAs in our study and similar characteristics have been reported in the states of Madhya Pradesh and Uttar Pradesh [21, 22]. However, tribal ASHAs were younger and many were less educated; reflecting findings from the state of Gujrat [20] and Orissa who similarly showed some relaxation of these criteria. [28]. This suggests our findings might have wider applicability within India and potentially in similar global contexts. [29].

Workload: time, travel and energy:

Reflecting the remote topography and poor transport links, we observed significant differences between working arrangements in tribal settings compared to rural areas with respect to work area, number of villages and population served.

Village residence was intended to limit travel, but we found that in reality ASHAs have to travel regularly for home visits, camps ,surveys, meetings, training etc. and those from tribal areas had exhaustive travel as they served sparse populations in remote areas with poor transport. This echoes findings from a time-motion study from South India which found that travel encroached on the time

tribal ASHAs spent performing duties [30] . We found that most ASHAs work in their own village serving populations of less than 1200. This is in contrast with populations as low as 454 persons/ASHA in Chhattisgarh to 1431 persons /ASHA in the State of Uttar Pradesh. Our survey reported working around 12 hr/week and conducting 20 household visits /week, which is less than in Karnataka where, ASHAs worked for 3.8 hours per day, covering a similar population but only undertaking 10 household visits per week [22]. Substantiating findings from other studies, [31] our participants explained how they have to juggle their ASHA work with family commitments and other work, which contributed to feelings of tiredness and being rushed. The impact of lower educational status on efficiency in performing regular tasks is supported by a study in Rajasthan, India [12].

Incentives

Many studies have reported the discontent over the small incentives and the demands for a simpler process of payment without any administrative delays. [32] Having a regular flow of funds is important to avoid demotivation [33]. In Punjab, incentives were found to be both empowering and conversely, a source of distress to ASHAs and family members. Incentives gave a sense of freedom, but the small, irregular and incomplete payments put pressure on families and was a major factor influencing prioritisation between ASHA activities and other paid jobs [18]. In Pakistan, Lady Health Workers have requested some stability of payment to sustain themselves [19]. Case studies from Iran, Ethiopia, India, Bangladesh and Nepal have reported that minimal incentives limit the focus of CHW work and improving the financial incentives results in the activities being prioritised [29]. In Orissa, a higher income and improved recognition contributed to feelings of self- efficacy.[28]

Evolution of ASHA role

In common with previous research,[10,12,18,19,28,29,32,] although ASHAs in our survey were disappointed with incentives, they were generally happy and satisfied with the work and were motivated to continue. Our qualitative analysis, however reflected more fundamental contemporary attitudes to ASHA's status.

At its inception, it was envisaged that ASHAs would perform the role of activists, with the status of volunteers to mobilise the community, facilitate health promotion and be the community representatives working directly with health system functionaries to enhance health system performance [3]. Colloquial terminology, however, describes ASHAs as 'ASHA workers' and not 'Accredited Social Health Activists' [9,10,12]. This reflects the move of many ASHAs to re-formulate their status as workers within the public health system, answerable to line managers such as ANM or MO. This change in perceived role has prompted some ASHAs to claim permanent jobs as employees of the health system,[34] though the impact of such a change on their pride as "social activists" and the respect that they gain in the community is not yet clear [35].

This evolution is apparent in other areas of India and other countries where CHWs have a pivotal role. In Pakistan, LHW wanted a position to meet their new aspirations [19]. Within culturally diverse regions of India, other studies have highlighted that the voluntary status of ASHA workers brought a sense of honour and motivation [18,30]. In contrast, a study in a tribal area of Maharashtra reported that community did not always appreciate the voluntary status of ASHA, leading to some mistrust about their incentives which adversely affected the community response. [32]

Conclusion:

Despite struggle between household commitments and ASHA activities, they are happy, satisfied and willing to take on newer responsibilities .An increasing range of health activities would demand investment of time, regular training, motivation, greater problem solving and leadership skills and future studies need to focus on developing strategies to recruit, train, incentivise, and retain ASHAs of the future [36-38]. The growing debate regarding voluntary status of ASHAs need to be understood and addressed in term of working arrangements if ASHAs are to be remain as a key in achieving universal health coverage in India[39].

List of abbreviations:

ANM: Auxiliary Nurse Midwife

ASHA: Accredited Social Health Activists

BFF: Block Facilitator Female

CHW: Community Health Worker

LMIC: Low-Middle Income Countries

MO: Medical Officer

NCD: Non-communicable disease

PHC: Primary Health Centre

WHO: World Health Organization

Declarations

Ethics approval and consent to participate

The study protocol was approved by the King Edward Memorial Hospital Research Centre Ethics Committee, (KEMHRC, EC Ref No KEMHRC/MHS/EC/134) Pune, India and was sponsored by Academic and Clinical Central Office for Research and Development (ACCORD) at the University of Edinburgh. Written informed consent was obtained from all study participants prior to data collection.

Consent for publication

Not applicable

Availability of data and materials

The data that support study findings are available from the corresponding author on reasonable request.

Competing interests

All authors declare no competing interests

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Author contributions

AK, SJ, PL and HP with PS led the development of the protocol. PL and UC undertook data collection supported by AK and SJ. AK and MG led the analysis in discussion with, SJ, PS and HP. AK wrote the first draft of the manuscript with MG which was critically reviewed and refined by PL, UC, SJ, PS and HP. AS was PI of RESPIRE, contributed to the design of the study and commented critically on the draft manuscript. RESPIRE UMC members provided advice and contributed to

discussions from time to time. All authors contributed to critical revision of the manuscript and approved the final version.

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Table 1- Demographic characteristics of study participants

Sr. No	Variable	Total N* (%)	Rural N (%)	Tribal N (%)
		67	N=43 (64)	N=24 (36)
1	**Age**			
	<=29	12 (17.9)	8 (18.6)	4 (16.6)
	30- <=39	38 (56.8)	22 (51.2)	16 (66.7)
	40-<=49	13 (19.4)	9 (20.9)	4 (16.6)
	50 & above	4 (5.9)	4 (9.3)	0
2	**Education**			
	Secondary School Certificate (SSC)	48 (71.6)	25 (58.1)	23 (95.8)
	Higher Secondary Certificate (HSC)	13 (19.4)	12 (27.9)	1 (4.2)
	Graduate	5 (7.4)	5 (11.6)	0
	Postgraduate	1(1.4)	1 (2.4)	0
3	**Social Category****			
	Open	37 (55.2)	35 (81.3)	2 (8.4)
	Other Backward Class (OBC)	5 (7.4)	5 (7.4)	0
	Nomadic Tribes (NT)	1 (1.7)	1(1.4)	0
	Scheduled Caste (SC)	2 (2.9)	1(1.4)	1 (4.1)
	Scheduled Tribes (ST)	22 (32.8)	1(1.4)	21 (87.5)
4	**Marital status**			
	Married	64 (95.6)	42 (97.6)	22 (91.6)
	Divorce	2 (2.9)	0	2 (8.4)
	Widow	1(1.5)	1 (2.4)	0
5	**Other occupation**			
	Family agriculture work	55 (82.2)	32 (74.4)	23 (95.8)
	Home servant	2 (2.9)	1 (2.4)	1(4.2)
	Labor work	1(1.5)	1 (2.4)	0
	Personal business	6 (8.9)	6 (13.9)	0
	Seasonal	3 (4.5)	3 (6.9)	0
6	**Experience in years**			
	0-5 years	21 (31.4)	12 (27.9)	9 (37.5)
	6-10 years	37 (55.2)	31 (72.1)	6 (25)
	>10 years	9 (13.4)	0	9 (37.5)

**One participant withdrew their participation after first questionnaire and hence N=66 for tables hereafter*
*** Social categories are the different categories in which the population is segregated depending on the caste system. As per policy of Government of India the reserved categories; Schedule Caste (SC), Schedule Tribe (ST), Nomadic Tribe (NT), Other Backward Class (OBC) are entitled for affirmative action programmes as per Constitution and get privileges in employment and academic admissions. Population from higher classes not falling into the reserve categories comes in open category[35]*

Table 2- Interest to take up new tasks

Sr. No	Variables	Total, N (%)	Rural, N (%)	Tribal, N (%)
1	**No. of activities last 6 month**			
	< = 5	32 (48.8)	12 (27.9)	10 (76.9)
	>5 & <=10	26 (39.1)	23 (53.1)	3 (23.1)
	>10 & <= 15	8 (12.1)	8 (18)	0
2	**Possibility of new work**			
	Yes	62 (93.9)	40 (93)	22 (95.6)
	No	4 (6.1)	3 (7)	1 (4.4)

Table 3- Work settings

Sr. No	Variable	Total N (%)	Rural N (%)	Tribal N (%)
1	**No. of villages served**			
	One	56 (84.8)	43 (100)	14(60.8)
	more than one	10 (15.2)	0 (0)	9 (39.2)
2	**Population served**			
	1200-1800	12 (18.2)	12 (27.9)	0
	800-1200	29 (43.9)	27 (62.7)	2 (8.6)
	<800	25 (37.9)	4 (9.4)	21 (91.4)
3	**Household visits/week**			
	<20	18 (27.2)	10 (23.2)	8 (34.7)
	20-40	35 (53)	23 (53.6)	12 (52.1)
	>40	13 (19.8)	10 (23.2)	3 (13.2)
4	**No. of hours per week**			
	<12	19 (28.7)	13 (30.3)	6 (26)
	12 to 20	31 (46.9)	21 (48.8)	10 (43.4)
	>20	16 (24.4)	9 (20.9)	7 (30. 6)

5	**Visits to BF per month**			
	1 to 4	51 (77.2)	33 (76.7)	18 (78.2)
	>4	15 (22.8)	10 (23.3)	5 (21.8)
6	**Visits to ANM/ month**			
	1 to 4	36 (54.6)	20 (46.5)	16 (69.5)
	>4	30 (45.4)	23 (53.5)	7 (30.5)

Table 4- Honorarium and incentives

Sr	Variables	Total, N (%)	Rural, N (%)	Tribal, N (%)
1	**Incentives for ASHA work**			
	<INR 1500/month *	52 (78.2)	32 (74.2)	20 (86.9)
	1500-3000/month	11 (16.2)	8 (18.6)	3 (13.1)
	> INR 3000/month	3 (4.6)	3 (6.2)	0
2	**Satisfied with Asha work**			
	Yes	62 (93.9)	39 (90.6)	23 (100)
	No	4 (6.1)	4 (9.4)	0
3	**Happy with Asha work**			
	Yes	63 (95.5)	40 (93)	23 (100)
	No	3 (4.5)	3 (7)	0

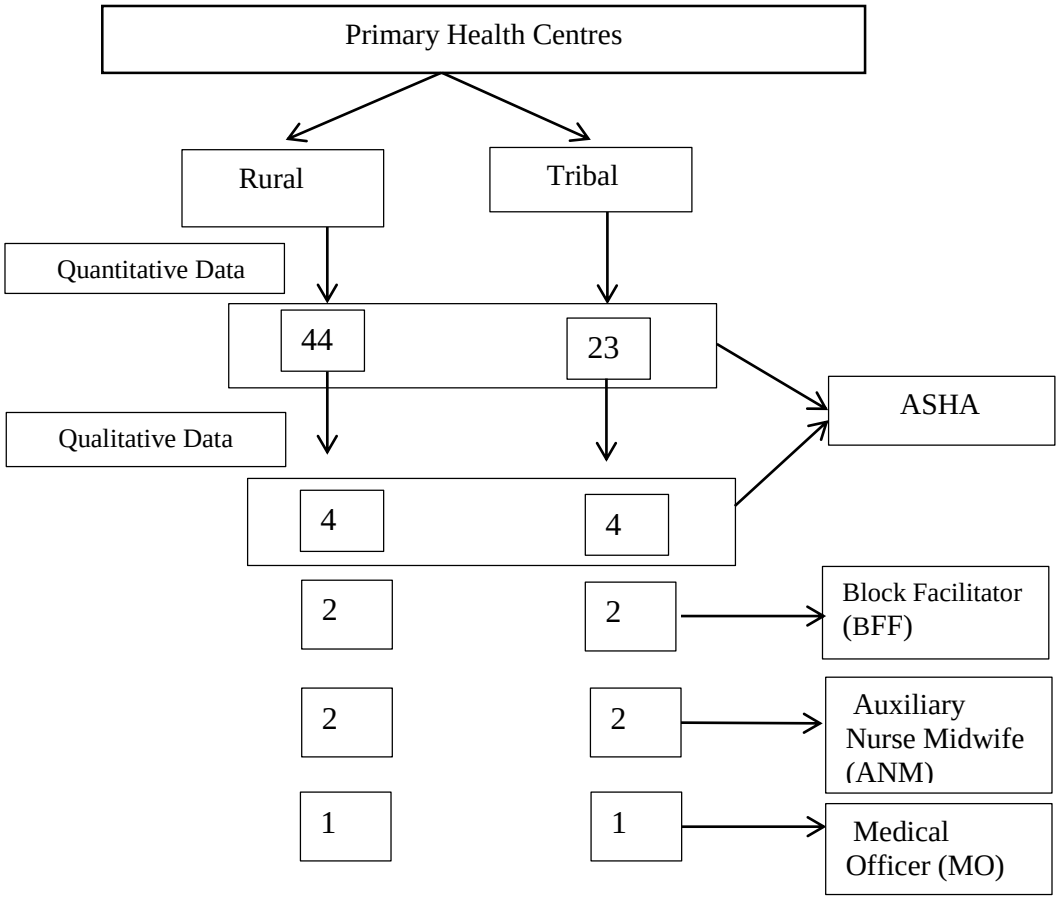
* INR 1500/month is approximately £16.00. For comparison the national minimum wage in Maharashtra is around INR 9000/.

Table 5- ASHAs perception of workload

Sr. No	Variable	Total, N (%)	Rural, N (%)	Tribal, N (%)
1	**Time spend for ASHA work**			
	Less (0-2 hrs) everyday	8 (12.2)	5 (11.6)	3 (13)
	Moderate (2-4 hrs) everyday	30(45.4)	21 (48.8)	9 (39.5)
	More (above four hours) everyday	28(42.4)	17 (39.6)	16 (69.5)
2	**Travel time for ASHA work**			
	Less (0-1hrs per day)	9(13.1)	7 (16.3)	2 (8.7)
	Moderate (1-2 hrs per day)	25(37.8)	20 (46.5)	5 (21.8)
	More (above 2 hrs per day)	32(48.1	16 (37.2)	16 (69.5)
3	**Last week feel tired**			

	Yes	45(68.2)	29 (67.5)	16(69.5)
	No	21(31.8)	14(32.5)	7(30.5)
4	**Reason for tiredness**			
	Asha work	32 (71.1)	22 (75.8)	10 (62.5)
	Household activity	8 (17.7)	4 (13.6)	4 (25)
	Social activity	5 (11.2)	3 (10.6)	2 (12.5)
5	**Less time for family last week**			
	Yes	33 (50.0)	23 (53.4)	10 (43.4)
	No	33 (50.0)	20 (46.6)	13 (56.6)
6	**Reason for less time for family**			
	Asha work	24 (72.7)	17 (73.9)	7 (70%)
	Household work	7 (21.3)	5 (21.7)	2 (20%)
	Other paid work	1 (3)	0	1 (10%)
	Social activity	1 (3)	1 (4.4)	0
7	**Not enough time for work last week**			
	Yes	32 (48. 5)	22 (51.1)	10 (43.4)
	No	34 (51.5)	21(48.9)	13 (56.6)
8	**Reason for not enough time for work**			
	Asha work	22 (68.8)	17 (77.2)	5 (50)
	Household work	6 (18.8)	2 (9)	4 (40)
	Other paid work	2 (6.2)	1 (4.8)	1 (10)
	Social activity	2 (6.2)	2 (9)	0
9	**Felt rushed last week**			
	Yes	43 (65.2)	29 (67.5)	14 (60.8)
	No	23 (34.8)	14 (32.5)	9 (39.2)
10	**Reason for felt rushed**			
	Asha work	36 (83.7)	26 (89.6)	10 (71.4)
	Household work	5 (11.7)	2 (6.8)	3 (21.4)
	Other paid work	1 (2.3)	1 (3.6)	0
	Social activity	1 (2.3)	0	1 (7.2)

Figure 1- Flow chart showing distribution of study participants

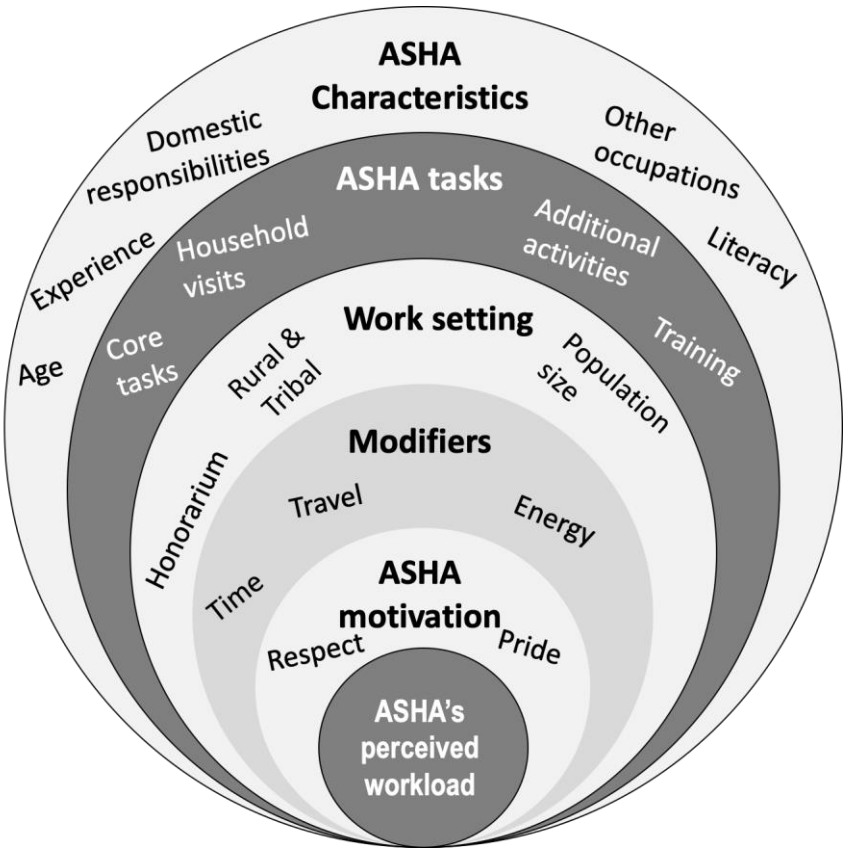


- **Block Facilitator** (BFF) Block facilitator oversees 10 to 25 ASHAs, to provide hand-holding and mentoring support, and monitor performance. They have to support ASHA activities. The BFF is in direct touch with the frontline ASHA workers and provides supportive supervision.[36].
- **Auxiliary Nurse Midwife** (ANM) are regarded as the grass-roots workers in the health organisation pyramid. Their services are considered important to providing safe and effective care to village communities. The role help communities achieve the targets of national health programmes [37].
- **Medical Officer** (MO) is in charge of the Primary Health centre. He/she takes an active role in overseeing medical care of patients and other functions relevant to **medical staff.** They may participate directly in implementation of care and may also help assess and diagnose needs and plans of action for individuals and families [38].

Figure2: conceptual frame work-initial version

1		2	3		
FACTORS		**MEDIUM-DOMAIN**	**EXPRESSION**		
These are the characteristics of ASHAs which are likely to influence "perceived workload"		These are the aspects of life through which ASHAs are likely to experience load	These expressions are outcome of influence from multiple domains	Tools Qualitative inquiry guides	Conceptual framework reference column no. 2 *We do not stop into column 3
Age Training Education Experience Work setting Incentives Other Occupations	**W O R K L O A D**	**TIME** **TRAVEL** **ENERGY** QUALITATIVE	**TIREDNESS** **RUSHED FEELING** **INSUFFICIENT TIME** QUANTITATIVE	Survey (Quantitative)	3

Figure 3- Schema for conceptual framework of ASHA workload perception



Professor James Buchan,
Editor-in-Chief,
Human Resources for Health

8th June 2020

Dear Professor Buchan,

Re: Interplaying role of healthcare activist and homemaker: a mixed-methods exploration of the workload of Community Health Workers (Accredited Social Health Activists) in India

I have pleasure in submitting our paper which explores the perceptions of Accredited Social Health Activists (ASHA) about their workload in the context of competing demands from domestic responsibilities and other paid work.

Our mixed methods study revealed that they were proud of their role and ready to contribute to new activities despite a significant workload and low incentives. We identified discrepancies with the concept as defined when ASHA were launched in 2005. ASHA were intended to be resident within the communities they serve, but in remote tribal areas this was not possible and significant time was spent travelling – often on foot- to distant hamlets. At its inception, it was envisaged that ASHAs would perform the role of social health activists to enhance health system performance . Colloquial terminology, however, describes ASHAs as 'ASHA workers' (as opposed to 'activists') reflecting the move of many ASHAs to re-formulate their status as workers within the public health system, though the impact of such a fundamental change of status on their pride and the social respect is not yet clear.

We believe our paper will be of interest to your readers as it throws light on fundamental concerns about ASHAs' status, working arrangements, incentives, motivating factors which are important for primary healthcare policies in many low and middle income countries. We look forward to discussion with the broader community of health analysts, policy makers, academics, practitioners and others involved with optimising human resources to improve population health, equity, access, social inclusion, and economic growth.

I confirm that all the authors have approved the manuscript for submission and there are no competing interests and that content of this manuscript has not been published or submitted for publication elsewhere.

We hope you enjoy our paper.

Yours sincerely

Dr. Anand Kawade

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Professor James Buchan,
Editor-in-Chief,
Human Resources for Health

19th Aug 2020

Dear Professor Buchan,

Re: Interplaying role of healthcare activist and homemaker: a mixed-methods exploration of the workload of Community Health Workers (Accredited Social Health Activists) in India

I have pleasure in resubmitting our paper which explores the perceptions of Accredited Social Health Activists (ASHA) about their workload in the context of competing demands from domestic responsibilities and other paid work.

We are very thankful to reviewers for their excellent comments. We appreciated that and responded to their comments point by point. It helped us to project our study findings more clearly and explicitly.

We believe our paper will be of interest to your readers as it throws light on fundamental concerns about ASHAs' status, working arrangements, incentives, motivating factors which are important for primary healthcare policies in many low and middle income countries. We look forward to discussion with the broader community of health analysts, policy makers, academics, practitioners and others involved with optimising human resources to improve population health, equity, access, social inclusion, and economic growth.

I confirm that all the authors have approved the revised manuscript for submission and there are no competing interests and that content of this manuscript has not been published or submitted for publication elsewhere.

We hope you enjoy our paper.

Yours sincerely

Dr. Anand Kawade