

Decoding morbidity patterns in ASHA workers of Vadodara, Gujarat – A cross-sectional study

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ABSTRACT

Introduction: Accredited Social Health Activists (ASHA) play a pivotal role as village-level functionaries under the National Health Mission, driving community transformation, facilitating health planning, and ensuring access to healthcare services. **Objectives:** To assess the physical health status of ASHA workers and to investigate the prevalence of morbidities among ASHA workers. **Material and Methods:** This is a cross-sectional study, conducted in Vadodara's east zone, and involves 123 ASHA workers. A questionnaire focusing on health profiles, encompassing age, weight, height, body mass index, and blood pressure, as well as histories of acute and chronic illnesses, was employed for data collection. Descriptive statistics were employed to summarize demographic and professional characteristics, and inferential statistics, such as Chi-square tests, were applied to assess associations and factors influencing the morbidity profile of the ASHA workers. **Results:** The participant's mean age was 38.9 ± 6.85 years. The majority, 74 (60.2%), of them reported no morbidity, whereas 40 (32.52%) had a chronic illness and 9 (7.32%) had acute morbidity at the time of visit. Among the chronic morbidity, 50% of ASHA had poly morbidity. Anemia was found among most ASHAs, 32 (26.02%), followed by diabetes, 19 (15.45%), and hypertension, musculoskeletal problems, thyroid disorders, and obesity were the other major diseases found among the ASHAs in 14.63%, 13.82%, 13.01%, and 11.38%, respectively. Skin problems like fungal infection and rashes were found among 5.69%. Based on body mass index, 27 (21.95%) were found overweight and 14 (11.38%) were obese. **Conclusion:** The study revealed a 32% chronic morbidity prevalence among ASHA workers who are taking care of citizens' health. It is high time to take care of our health team. First, they should be healthy as they are the role models of the community.

Keywords: Community, health, health worker, prevalence

Introduction

The community health workers in India, known as Accredited Social Health Activists (ASHAs) are the workforce that is the most important factor in a country's success in reducing health disparities by improving maternal and child healthcare utilization and various national program implementations at

the grass-root level and making them more efficient. Every area of the workforce requires a healthy workforce, and the health of this workforce is even more important. It relies on the healthcare facilities, quality, and how healthy people are. A country like India has a large healthcare workforce. In the year 1978, Amla Ata hosted an international health conference that brought together people from all over the world.^[1] Primary healthcare services were chosen as the primary strategy for obtaining universal health. To achieve health for all, in 2005, the Indian system added another grassroots level of healthcare named ASHA.^[2] ASHA is intended to serve as a vital link between the healthcare system and rural communities. ASHA assists in

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keeping demographic records and improving village sanitation by motivating women to give institutional birth, immunizing children and pregnant women, encouraging family planning, treating basic illness and injury with first aid, and assisting multipurpose health worker females (MPHWFs) in keeping demographic records and improving village sanitation.^[3] There are around 38,102 ASHA workers across the Gujarat state.^[4] They work in difficult and hard-to-reach areas and are always available to serve the community in every situation. ASHA workers have made remarkable changes in the past 17 years in making public health services accessible. Most of the health services like maternal health services, child health services, nutrition, vaccination, and family planning services were being provided by ASHA in order to reduce the maternal mortality rate (MMR) and infant mortality rate (IMR) in India, the grassroots level in the Indian health system.^[5]

ASHAs are the ones who ensure the most national programs in a methodical, well-ordered, and efficient manner at the local level, ensuring that services are delivered to beneficiaries without interruption. Because of their particular work environment, ASHA health is influenced by the physical, mental, social, and emotional levels. Work is beneficial to one's physical and mental health, yet a toxic work place can lead to physical and mental health issues. Low pay, tedious register work, long meetings held outside of normal working hours, and low attendance of children and adolescent girls despite repeated information, education, and community activities, as well as a lack of adequate space, have all been long-standing issues among ASHA workers.^[6] Despite their crucial role, there is a noticeable scarcity of studies focusing on the morbidity or health status of ASHA workers in India.^[7] Recognizing the scarcity of research in this domain, this study aims to address the critical gap in understanding the health challenges faced by ASHA workers. By investigating their morbidity profile, we aspire to shed light on the unique health concerns experienced by this integral cadre within the healthcare system. The findings are anticipated to contribute valuable insights for informed policy-making, targeted interventions, and the overall well-being of ASHA workers, ultimately enhancing the effectiveness of the National Health Mission (NHM).^[8] ASHA is an important component of the program for bringing about change in the community, engaging the community in health planning, and providing equal access to health services to all. There are very limited studies on the morbidity or health status of the grassroots level primary care health workers in India.^[9] The objectives of the study are to assess the physical health status of ASHA workers and to investigate the prevalence of morbidities among ASHA workers.

Material and Methods

The present study is a community-based cross-sectional study conducted over 6 months from February to July 2022 in selected areas of Vadodara City, Gujarat, specifically focusing on the east zone of Vadodara Municipal Corporation (VMC), where eight urban health and wellness centers are located,

and the study involves the participation of ASHAs registered in these selected centers. The study was started after getting permission from Institutional Ethics Committee of Sumandeep Vidyapeeth [SVIEC/ON/MEDI/SRP/22004]. Written consent was obtained from each of the subjects before they were included in the study.

In the selected zone, there were 136 registered ASHA workers and all were selected for the study. Data collection involved a diverse approach, with 44% of information gathered at Urban Health Centres (UHCs) following their monthly meetings. Additionally, 21% of data was acquired at Dhiraj Hospital during ANC (antenatal care) and PNC (postnatal care) check-up visits, while the remaining 35% was collected at their respective field practice areas. The retrieval process utilized self-created closed-ended questionnaires, meticulously designed with the guidance of occupational stress among community health workers. To ensure accuracy and clarity, one-on-one interactions were conducted, with ASHA workers personally sharing and completing the questionnaires based on their knowledge.

Inclusion criteria: ASHAs should be registered in the selected zone UHCs, should be willing to give consent, and should be healthy at the time of the interview.

Exclusion criteria: ASHAs currently not working or not in service, not ready to give consent, and not available even after 3 visits.

Out of the 136 registered ASHAs, 123 ASHAs have participated in the study based on inclusion and exclusion criteria.

The age, marital status, religion, educational status, family type, working hours per day, job duration, and history of diseases like hypertension, diabetes, obesity, anemia, musculoskeletal problems, skin problems, and thyroid disorders were obtained from the subjects by using a study tool. The questionnaire was made based on common health indicators relevant to ASHA workers, such as physical health conditions, mental health, workload-related stressors, and any occupational health concerns they may face. The diseases that occur suddenly and last for a few days are known as acute diseases. This condition can be treated with medical treatment or may be resolved on its own. Many times, acute diseases turn into chronic if they continue to persist for months, years, or sometimes lifelong.^[10] The risk factors involved in chronic diseases may be age, gender, an unhealthy lifestyle, and so on. A chronic disease may or may not be cured by medications.^[11] The predominant categories of the participants had a constellation of two or more types of morbidity. Poly-morbidity means the coexistence of at least two chronic diseases.^[12]

Anemia was defined for the study as pallor observed in the conjunctiva and lip with some symptoms like weakness, lethargy, and tiredness during the work.^[13] The blood pressure of each subject was measured by using the same mercury sphygmomanometer with a cuff size of 12.5 cm and a

stethoscope (Littmann USA). The left arm of the subjects was used, with the patient in the sitting position after 5 minutes of rest. The cuff of the sphygmomanometer was applied evenly and snugly around the bare arm with the lower edge at least 2.5 cm above the antecubital fossa. Hypertension was defined as a systolic blood pressure of ≥ 140 mmHg and/or a diastolic blood pressure of ≥ 90 mmHg.^[14] Those who have normal blood pressure at the time of measurement but were on medication are also considered hypertensive. Body weight was determined with a weighing scale that was calibrated daily. Subjects were weighed barefooted in light clothing, and the same weighing scale was used for all the subjects and readings were expressed to the nearest 0.5 kg. The body mass index (BMI) (kg/m^2) was used to define obesity. The BMI was calculated by using the formula: $\text{BMI} = \text{weight (kg)} / (\text{height squared (m}^2\text{)})$. The BMI (kg/m^2) was classified as follows: BMI < 18.5 (i.e. underweight), BMI 18.5–24.9 (i.e. normal weight), BMI 25.0–29.9 (i.e. overweight), and BMI ≥ 30.0 (i.e. obese).^[15] The self-administered questionnaire contained 11 items that concerned the health status of the individual, including the vital signs measurement. The items were measured as per guidelines based on their particular suitability for measuring health status in a heterogeneous population.^[16]

Statistical analysis

For the data entry and statistical analysis, Excel 2019 was used. Median values, percentages, Chi-square, and significant correlations were observed between poly-morbidity and both duration categories (≤ 8 hours and > 8 hours) and job duration categories (≤ 10 years and > 10 years), indicating a potential relationship between the presence of multiple health conditions and the working hour duration per day and job duration in the years of the ASHA workers aiming to derive meaningful insights for the gradual onset of the chronic disease. The statistical analysis was further enhanced using SPSS software version 26, which provided a robust platform for advanced statistical procedures.

Results and Discussion

A healthy body and mind may function at their highest potential and offer their all at home and at work. In order to get the most out of their employees and increase the workforce's productivity, the private sector in India and overseas has begun to provide the best possible working conditions and health care. An individual's health or morbidity status depends on a variety of variables because health is a multifaceted concept. Along with the physical, mental, and social elements, the occupational dimension is crucial to a person's health.

The current study was carried out among the ASHA workers in the Vadodara east zone of the municipality area. These workers are crucial in providing nutritional education and maternal and child health care services to the general public, particularly in the urban slum areas. So, the assumption is that they should be healthy.

The findings of the current study on urban ASHA workers reveal a diverse demographic profile. The majority of participants fall within the age range of 31–40 years (50.41%), with a mean age of 38.87 years. Most ASHA workers are married (86.99%) and come from nuclear families (56.91%). Regarding the occupation of their husbands, a significant proportion are in semiprofessional roles (56.10%). Hinduism is the dominant religion among the participants (95.93%), and there is a diverse caste distribution, with SC comprising the largest group (33.33%). Education-wise, a substantial proportion of ASHA workers have completed higher secondary education (52.03%). These demographic insights provide a comprehensive understanding of the urban ASHA workforce, laying the foundation for targeted interventions and support based on their unique sociodemographic characteristics [Table 1].

The study's findings on disease distribution highlight a notable prevalence of both acute and chronic health issues among the population under investigation [Table 2]. The acute case in laboratory settings involves rapid onset conditions requiring immediate and accurate laboratory testing for timely diagnosis and intervention. In contrast, a chronic case requires ongoing monitoring and consistent laboratory testing to manage long-term conditions and ensure effective treatment over time.^[17] Acute conditions, including cold and cough, leg pain, fever, and wrist pain, collectively account for 7.32% of reported cases, with cold and cough being the most frequently encountered at 3.25%. In contrast, chronic diseases exhibit a higher overall prevalence, constituting 32.52% of cases. Symptomatic anemia emerges as the most prevalent chronic condition, affecting 26.02% of the population, followed by diabetes mellitus (DM), hypertension, and other musculoskeletal and skin problems. In the study, it was observed that among the 123 participants, a total of 40 individuals had at least one chronic condition; this highlights the prevalence of comorbidities within the ASHA worker population, emphasizing the need to consider the potential for multiple chronic conditions when interpreting the overall health profile of the participants.

These findings underscore the importance of addressing both acute and chronic health concerns within the studied population for comprehensive healthcare planning and intervention strategies. A thorough review conducted in the United States reveals a notably high prevalence and incidence of common endocrine and metabolic disorders.^[19] A study conducted at Nigeria have shown that endocrinological problems are increasing among health workers.^[20] A study conducted by Cesana *et al.*^[21] has concluded that job stress might act in conjunction with genetic susceptibility and interface with additional lifestyle factors contributing to hypertension, including obesity, lack of physical activity, overeating, smoking, high salt intake, and excessive alcohol consumption. An article published in the *Lancet* with the title "The increasing burden of diabetes and variations among the states of India: The Global Burden of Disease Study 1990–2016" shows that diabetes mellitus (DM) was discovered in 10% of healthcare professionals, which is slightly more than the

Table 1: Sociodemographic characteristics of ASHA workers (n=123)

| Variables | Urban ASHAs | | |
|---|--------------------------------|-----------|------------|
| | Range | Frequency | Percentage |
| Age of participants | <30 | 12 | 9.76 |
| | 31-40 | 62 | 50.41 |
| in year (Mean 38.870 Std. Deviation 6.8496) | 41-50 | 44 | 35.77 |
| | 51-60 | 4 | 3.25 |
| | >60 | 1 | 0.81 |
| Marital status | Unmarried | 1 | 0.81 |
| | Married | 107 | 86.99 |
| | Widowed | 13 | 10.57 |
| | Divorced | 2 | 1.63 |
| Type of family | Nuclear | 70 | 56.91 |
| | Joint | 53 | 43.09 |
| Husband occupation | Semiskilled worker | 3 | 2.44 |
| | Skilled worker | 25 | 20.33 |
| | Shopkeeper/farmer/vendor/Clerk | 13 | 10.57 |
| | Semiprofessionals | 69 | 56.10 |
| | Professionals | 11 | 8.94 |
| | Pensioner | 2 | 1.63 |
| Religion-wise distribution | Hindu | 118 | 95.93 |
| | Muslim | 3 | 2.44 |
| | Other | 2 | 1.63 |
| Castewise distribution | General | 29 | 23.58 |
| | OBC | 35 | 28.46 |
| | SC | 41 | 33.33 |
| | ST | 16 | 13.01 |
| | Other | 2 | 1.63 |
| Education-wise distribution | Primary | 3 | 2.44 |
| | Secondary | 43 | 34.96 |
| | Higher secondary | 64 | 52.03 |
| | Graduate | 13 | 10.57 |

Table 2: Prevalence and distribution of morbidities among ASHA workers (n=123)

| Variables | Frequency | Percentage |
|---------------------------------|-----------|------------|
| Distribution of acute disease | | |
| Cold and cough | 4 | 3.25 |
| Leg pain | 3 | 2.44 |
| fever | 1 | 0.81 |
| Wrist pain | 1 | 0.81 |
| Total | 9 | 7.32 |
| Distribution of chronic disease | | |
| Symptomatic anemia | 32 | 26.02 |
| DM | 19 | 15.45 |
| Hypertension | 18 | 14.63 |
| Obesity | 14 | 11.38 |
| Musculoskeletal problem | 17 | 13.82 |
| Skin problem | 7 | 5.69 |
| Thyroid disorders | 16 | 13.01 |
| Menstrual problem | 9 | 7.32 |
| Total | 40 | 32.52 |

national norm of 7%.^[22] In the present study, diabetes prevalence was almost double to national average. This is a serious issue and needs to focus.

A study conducted by Anchala *et al.*^[23] found that 12.2% of research participants had hypertension, which was the most common chronic condition. This incidence is below the national average of 29.8% and 34.5% for East India. In the present study, 14.63% of ASHA had hypertension.

The study’s examination of BMI distribution among ASHA workers reveals a varied weight status within the population. A majority of ASHA workers, constituting 55.28%, fall within the normal weight range (18.5–24.9), indicating a generally healthy BMI distribution. However, a significant proportion of workers, 33.71% in total, are classified as either underweight (11.38%) or overweight/obese (21.95%/11.38%) [Table 3]. This highlights the need for targeted health interventions to address both ends of the BMI spectrum among ASHA workers, promoting a balanced and healthy workforce. Strategies for nutrition and wellness may be beneficial to ensure the well-being of these frontline healthcare providers.

Table 4 shows differentiation of anthropometric measures of ASHA workers with reference females. The mean weight of 57.20 kg falls within a broad range of 35–90 kg, with 43.09% of the ASHA workers having a weight below the reference female value of 55 kg. Similarly, the mean height of 1.55 meters aligns with a range of 1.22–1.82 meters, with a substantial 74.80% of ASHA workers being shorter than the reference female height of 1.62 meters. The BMI findings indicate a mean value of 23.79 kg/m², with 34.96% of ASHA workers having a BMI below the reference female BMI of 20.99 kg/m². These findings suggest potential variations in nutritional and health statuses among ASHA workers, warranting further investigation and targeted health interventions.

The investigation led by Shahnawaz, Mohd, Arokiasamy P. reveals a noteworthy escalation in mean BMI, coupled with a surge in the prevalence of overweight and obesity across India. This trend, documented through the National Family Health Surveys conducted in 1998–1999, 2005–2006, and 2015–2016, mirrors our findings.^[24] Notably, our study aligns with the reference female criteria outlined by the Indian Council of Medical Research.^[18]

The study conducted by Tandon *et al.*^[22] found that approximately 76.9% of the study participants were found to be obese or overweight, which is substantially higher than the national average of 20.4% and one of the most significant modifiable risk factors of chronic diseases. In the present study, it was found that the majority of them, 55.28%, had normal weight, 21.95% were overweight, and 11.4% were obese.

The economic development of a nation is impacted by anemia since it is linked to children’s and adults’ reduced ability to think, move, and work. According to the World Health Organization in 2019, the prevalence of anemia among women of reproductive age was 29.9% [95% confidence interval (CI) 27.0%, 32.8%], which translates to more than 500 million women between the

ages of 15 and 49. In nonpregnant women of reproductive age, the prevalence was 29.6% (95% CI 26.6%, 32.5%), whereas in pregnant women, it was 36.5% (95% CI 34.0%, 39.1%).^[25] In the present study, it was found that 26.01% of total participants were anemic and among the chronic illness, the majority of them, 80%, were found anemic.

The primary care health worker’s physical and mental health have an impact on their ability to do quality work, which in turn has an impact on how much work primary care doctors have to do. Primary care health workers can take measures to reduce the morbidity due to chronic disease among their team members by scheduling regular interval health checks because the study’s findings indicate that there is a higher prevalence of chronic disease, 35.2%, and acute in 7.32% among health

workers and that a significant number of them are not receiving treatment.

Table 5 shows most of the ASHA workers exhibit normal blood pressure, with 18 out of 40 individuals with chronic diseases experiencing high blood pressure. There was significant association between poly-morbidity and work duration ($\chi^2 = 20$, $P = 0.000095$), indicating that the prevalence of poly-morbidity differs significantly between individuals working 8 hours or less and those working more than 8 hours per day and prevalence of poly-morbidity varies significantly based on whether individuals have been employed for 10 years or less or more than 10 years, indicating potential health implications related to work hours and duration. It may be due to the COVID-19 pandemic as ASHA workers were active volunteers during the pandemic. The majority of them, 94 (76.42%), were exposed to covid-19 once during their work. Very few, 3.2%, were infected more than twice. The majority of them, 99%, were fully vaccinated with their second dose and some also received a booster dose.

The total population served by ASHA employees is outside of the norm, which could result in a heavier workload and more

Table 3: Body mass index of the ASHA workers (n=123)

| BMI | Number of ASHA workers | Percentage |
|-------------------------|------------------------|------------|
| <18.5 underweight | 14 | 11.38 |
| 18.5–24.9 normal weight | 68 | 55.28 |
| 25.0–29.9 overweight | 27 | 21.95 |
| ≥30.0 obese | 14 | 11.38 |

Table 4: Differentiation of ASHA workers with reference to Indian females

| Variables | Range | Reference female | Mean | 95 CI | Std. Deviation | No. of ASHA less than Reference |
|--------------------------|-------------|------------------|-------|-------------|----------------|---------------------------------|
| Weight (kg) | 35-90 | 55 | 57.20 | 55.32–59.08 | 10.65 | 53 (43.09%) |
| Height. Meter | 1.22-1.82 | 1.62 | 1.55 | 1.534–1.566 | 0.09 | 92 (74.80%) |
| BMI (kg/m ²) | 15.55-36.58 | 20.99 | 23.79 | 22.96–24.62 | 4.71 | 43 (34.96%) |

*Reference for the reference value of females (weight, height and BMI)^[18]

Table 5: Association between working hours and poly-morbidities (n=123)

| Poly-morbidity | ≤8 hours | >8 hours | Total | P |
|-------------------------|-------------|-------------|-------|---|
| Present | 9 (45%) | 11 (55%) | 20 | The P is 0.000095. |
| Absent | 87 (84.46%) | 16 (15.53%) | 103 | The result is significant at P<0.05 |
| Poly-morbidity | ≤10 years | >10 years | Total | P |
| Present | 7 (35%) | 13 (65%) | 20 | The P is 0.000014. |
| Absent | 84 (81.55%) | 19 (18.44%) | 103 | The result is significant at P<0.05 |
| Anemia | ≤8 hours | >8 hours | Total | P |
| Present | 14 (43.75%) | 18 (56.25%) | 32 | The P is<0.00001. The result is significant at P<0.05 |
| Hypertension | ≤8 hours | >8 hours | Total | P |
| Present | 8 (44.44%) | 10 (55.56%) | 18 | The P is 0.636. The result is not significant at P>0.05 |
| Diabetes | ≤8 hours | >8 hours | Total | P |
| Present | 7 (36.84%) | 12 (63.16%) | 19 | The P is 0.226675. The result is not significant at P>0.05 |
| Thyroid Disorders | ≤8 hours | >8 hours | Total | P |
| Present | 9 (56.25%) | 7 (43.75%) | 16 | The P is 0.616209. The result is not significant at P>0.05 |
| Musculoskeletal Problem | ≤8 hours | >8 hours | Total | P |
| Present | 7 (41.18%) | 10 (58.82%) | 17 | The P is. 645492. The result is not significant at P>0.05 |
| Skin problem | ≤8 hours | >8 hours | Total | P |
| Present | 5 (71.43%) | 2 (28.57%) | 7 | The P is 0.170492. The result is not significant at P>0.05 |

occupational stress.^[26] Similar to the present study finding, most of the ASHAs reported being overburdened with the work, while among a total of 5.7% of respondents reported that they feel tired of the work. The danger of work-related stress and being overburdened with the work can be reduced by having regular checkups and making early interventions if required. Very limited studies have been conducted in Gujarat regarding ASHA worker health status and its determinants.^[27] Except for studies on work stress or mental health of frontline healthcare workers, there is a scarcity of literature disclosing the morbidity or health status of primary healthcare workers in India or overseas.^[28] Therefore, more thorough evaluations are required to comprehend the health of ASHA workers.

Limitations of study

The study had some limitations: It was a self-administrated questionnaire-based study and job stress was replied as a subjective answer, not objective in that question. Also, chronic disease management like drug compliance was not asked. The health insurance and Medclaim-related questions were not asked.

Conclusion

The study underscores the crucial role of ASHA workers in delivering essential healthcare services, particularly in urban slum areas. Despite their importance, a concerning proportion of ASHA workers report feeling overburdened, highlighting potential risks to their physical and mental well-being. The findings suggest that addressing the health and workload challenges faced by ASHA workers is imperative for sustaining a robust and effective healthcare workforce. The study revealed that the ASHA workers are having diseases, a large number of chronic morbidities. There is high time to incorporate the wellness program for the health workforce as the first contact health workers are not healthy. Their regular health checkups and morbidity management should be key areas. Also, they need to teach the management of workload and time management, which will help to reduce the morbidity and strategies to alleviate the workload and stressors they face. The findings underscore the importance of prioritizing the well-being of primary healthcare workers to ensure the effectiveness of healthcare services and contribute to the overall health and productivity of the workforce.

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Conflicts of interest

There is no conflict of interest.

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