Cross sectional study to estimate the morbidity pattern in ascetics visited to a largest religious gathering in west central part of India

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ABSTRACT

Background: Ascetics are otherworldly creatures that have thought of being ethereal. To be spiritual one has to be physically fit because a healthy body has an intimate connection with spiritual health. Methods: Cross sectional survey was accomplished in a festive gathering to estimate morbidity pattern among ascetics in central India. Results: The sample size was 960, 352 participants (36.6%) were either overweight or obese, 284 participants (29.6%) had hypertension, 236 (24.6%) were diagnosed with cataract and 194 (20.2%) had anemia. Diabetes was found in 58 participants (6%) and 28 (2.9%) had fever. Conclusion: Obesity (and overweight) and hypertension were the top two morbidities came across during study. Morbidities were found to be more associated with socio-demographical factors than spirituality.

Keywords: Ascetics, morbidities, religious gathering

Introduction

Ascetics engaged in religious practices. Religious practice may serve as both promoter and barrier to health as spirituality affects health behaviour, choice, and attitude. Health and religion have been a topic of engrossment. Religious practices and health have been positively correlated by various studies and have also been correlated negatively or with no protective effect. Three types of followers Shiva, Vishnu and Udaseen (neutral & other) divided in to 13 Akharas, joined Simhastha abided at Ujjayini in 2016. Ascetics are an inherent part of Indian culture so are their health and determinants. Providing primary care to this hidden population is key to achieving universal health coverage and health for all; for that, assessment is vital. This study aimed to estimate the disease burden in ascetics. Our primary objective was to estimate morbidities while our secondary objective was to find out the association of morbidities with socio-demographic factors and the spirituality of ascetics.

Methods and Material

Ethical acceptance was taken from the institutional ethics committee. Permission to conduct the study was taken from regional civil authorities. Approval was also taken from heads of akhadas. Participants were briefed about the procedure and purpose of the study. They were assured about the confidentiality of their personal information, and written informed consent was taken from them.

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Data was collected with the help of semi-structured pro-forma containing three sections. The first section was a socio-demographic profile; the second section was about spirituality; and the third and last section contained a questionnaire regarding various morbidities.

This information was collected by a team of 50 members, who were duly trained in their concerned field of work. The team consisted of faculty members of the Community Medicine Department of a teaching hospital: ophthalmologists with optometrists, physicians, nursing staff, lab technician, and medico-social workers.

Spirituality assessment was accomplished with SAI\textsuperscript{14} (spirituality assessment inventory). SAI draws on theoretical insight of object relations theory. Standard method was used to assess various morbidities. Hemoglobin, blood pressure, body mass index (BMI), random blood sugar level, and temperature were measured through standard instruments by trained staff. We also looked for senile cataract by torchlight examination.

Sample size calculation and sampling: The sample size was calculated with the help of Cochran formula:\textsuperscript{15}

\[
 n_0 = \frac{Z^2 pq}{\varepsilon^2}
\]

Where \( \varepsilon \) is the desired level of precision (i.e., the margin of error).

\( p \) is the (estimated) proportion of the population which has the attribute in question

\( q \) is \( 1-p \).

The \( z \)-value is found in a \( Z \) table.

As the prevalence of morbidities in ascetics could not be found, we took it as 50%. Thus, \( P = 0.5 \) was taken at 95% confidence, and at least 5%—plus or minus—precision. A 95% confidence level gives us \( Z \) values of 1.96, per the normal tables. We got \((1.96)^2 (0.5) (0.5))/(0.05)^2 = 385\), so a random sample of 385 was found to be enough to give us the confidence levels we needed. But as the population we were studying was not very large, we modified the sample size by using the following equation:\textsuperscript{15}

\[
 n = \frac{n_0}{1 + (n_0 - 1) \times \frac{E^2}{N}}
\]

Here \( n_0 \) is Cochran’s sample size recommendation, \( N \) is the population size, and \( n \) is the new adjusted sample size. We would calculate \( 385/(1+(384/1000)) = 278 \). So, for this smaller population, we used a sample size of 278. We also used stratified random sampling, a type of probability sampling. For this, we utilized the classification according to the ascetics, who were divided into three major subgroups based on the stream or view they follow. The same as already described in the introduction to the study, we took random sample from each subgroup.

We used disproportionate sampling as our subgroups were not having equal number of participants, and we took equal sample from each subgroup.

We had taken 278 participants from each of the three subgroups, as mentioned before. 15% (125) was added to a total of 834, for design effect. It added up to 959, which was rounded up to 960. The final sample size came out to be 960, 320 from each stream.

All ascetics who gave their consent for participation in the study were included and ascetics who did not belong to any recognized akhada and those who were busy in their religious practice at the time of data collection were approached three times.

But if they were not available even after the third visit, they were excluded from the study. The duration of the study was 6 months. Statistical analysis was done using SPSS version 20. Data from the 960 respondents were used for statistical analysis and interpretation of results. Data analyzed were subjected to descriptive and inferential analysis. Descriptive analysis was expressed in terms of frequency and percentages. Inferential analysis was done by using the Chi-squared test. The level of statistical significance was fixed at \( P \leq 0.05 \).

### Results and Observations

Table 1 shows that 68.4% of participants were elderly (> 60 years), most were males (97%), 73% were unmarried, 22.7% were married while the rest were separated. Most of them (74.2%) were literate.

Table 2 shows that almost 23% of the participants had average spirituality, 27.7% belonged to fair category of spirituality, 27.5% were from good spiritual category, and 21.9% participants were from high spiritual category.
Figure 1 shows that 352 participants (36.6%) were either overweight or obese, 284 participants (29.6%) had hypertension, 236 (24.6%) were diagnosed with cataract (immature or mature), 194 (20.2%) had anemia, 58 (6%) had diabetes, and 28 participants (2.9%) had fever.

Table 3 shows that most of the participants (68%) were elderly; thus, age stratification was done in two groups: ≥60 years and <60 years. Statistically significant association was found between age and hypertension, BMI category, cataract, and anemia as after applying Chi-squared test ($P < 0.05$).

Table 4 shows that statistically significant association was found between sex and BMI category and anemia ($P < 0.05$).

Table 5 shows that statistically significant association was found between marital status and BMI category, cataract and anemia ($P < 0.05$).

Table 6 shows statistically significant association was found between literacy and anemia, as Chi-squared test revealed $P$ value to be $< 0.05$.

Table 7 shows association of spiritual category of individual with morbidity (Anemia) and this shows ($P = 0.05$).

**Discussion**

Ascetics refuse to accept worldly comfort; most ascetics have no idea about their medical condition and this unawareness results into “delayed seeking” of primary care and would ultimately have led to a pathetic outcome for health. Identification of their health needs and meeting those needs through primary health care intervention is an immediate need of the hour. Thus, this study was planned with the objective to find the morbidity pattern in ascetics who attended the Simhastha 2016. The secondary objective of this study was to find the association of the concerned morbidities with socio-demographic factors and spirituality. The main results of the study were that 352 participants (36.6%) were either overweight or obese, 284 (29.6%) had hypertension, 236 (24.6%) were diagnosed with cataract (immature or mature), 194 (20.2%) had anemia, 58 participants (6%) had diabetes, and 28 (2.9%) had fever at the time of study.

Statistically significant association was found between age and hypertension, BMI category, cataract and anemia.

Statistically significant association was found between sex, BMI category and anemia; between marital status and BMI category, and cataract and anemia; and between literacy and anemia. The cause behind impendence of different morbidities is another topic of research itself. Typical morbidity that was found among ascetics was obesity (overweight). The possible causes behind this may be the lifestyle they usually follow, as they are also not unimpared by modernization, lack of physical activity and diet. There could be some other factors contributing to this, but to comment more firmly, we will have to go into detail about lifestyle. Next in the list was hypertension, obesity, and stress.

Which could be the likely cause for this, as they lack in “social support mechanism”. Cataract may be the age-related finding.
Table 4: Association between sex and various morbidities

| Variables          | Sex       | Total | Value | df | P    |
|--------------------|-----------|-------|-------|----|------|
| Hypertension       | Male      | 660   | 16    | 676 | 2.43 | 1   | 0.11|
|                    | Female    | 272   | 12    | 284 |      |     |     |
| Total              |           | 932   | 28    | 960 |      |     |     |
| BMI Category*      |           |       |       |     |      |     |     |
| Underweight        | Male      | 87    | 2     | 89  |      |     |     |
|                    | Female    | 508   | 11    | 519 | 19.02| 3   | 0.000|
| Normal             |           | 228   | 4     | 232 |      |     |     |
| Overweight         |           | 109   | 11    | 120 |      |     |     |
| Obese              |           | 932   | 28    | 960 |      |     |     |
| Cataract*          |           |       |       |     |      |     |     |
| No                 | Male      | 707   | 17    | 724 |      |     |     |
|                    | Female    | 660   | 16    | 676 | 4.13 | 2   | 0.101|
| Yes                |           | 193   | 9     | 202 |      |     |     |
| Immature           |           | 32    | 2     | 34  |      |     |     |
| Mature             |           | 932   | 28    | 960 |      |     |     |
| Temperature*       |           |       |       |     |      |     |     |
| Fieber             | Male      | 25    | 3     | 28  |      |     |     |
|                    | Female    | 907   | 25    | 932 | 0.5575| 1  | 0.4 |
| Total              |           | 932   | 28    | 960 |      |     |     |
| Anemia             |           |       |       |     |      |     |     |
| Absent             | Male      | 754   | 12    | 766 |      |     |     |
|                    | Female    | 178   | 16    | 194 | 5.74 | 2   | 0.05|
| Present            |           | 932   | 28    | 960 |      |     |     |
| Diabetes*          |           |       |       |     |      |     |     |
| No                 | Male      | 878   | 24    | 902 |      |     | 0.083|
|                    | Female    | 154   | 4     | 58  |      |     |     |
| Total              |           | 932   | 28    | 960 |      |     |     |

Table 5: Association between marital status and various morbidities

| Variables          | Marital status | Total | Value | df | P    |
|--------------------|----------------|-------|-------|----|------|
| Hypertension       | Unmarried/Separated | 525   | 151   | 676 | 0.17 | 1   | 0.67|
|                    | Married        | 217   | 67    | 284 |      |     |     |
| Total              |                | 742   | 218   | 960 |      |     |     |
| BMI Category       | Unmarried/Separated | 74    | 15    | 89  |      |     |     |
|                    | Married        | 382   | 137   | 519 | 19.02| 3   | 0.03|
| Total              |                | 466   | 252   | 718 |      |     |     |
| Cataract*          | Unmarried/Separated | 74    | 15    | 89  |      |     |     |
|                    | Married        | 189   | 43    | 232 |      |     |     |
| Total              |                | 263   | 298   | 561 |      |     |     |
| Temperature*       | Unmarried/Separated | 74    | 15    | 89  |      |     |     |
|                    | Married        | 97    | 23    | 120 |      |     |     |
| Total              |                | 218   | 250   | 468 |      |     |     |
| Anemia             | Unmarried/Separated | 143   | 59    | 202 |      |     |     |
|                    | Married        | 21    | 13    | 34  |      |     |     |
| Total              |                | 164   | 72    | 236 |      |     |     |
| Diabetes*          | Unmarried/Separated | 602   | 164   | 766 |      |     |     |
|                    | Married        | 140   | 54    | 194 | 3.64 | 1   | 0.05|
| Total              |                | 742   | 218   | 960 |      |     |     |

anemia may be because of anemia as typing was not done. Diabetes is multifactorial and may be attributed to hypertension and obesity. Only anemia was found to be significantly associated with spirituality.

A study \[16\] conducted on 97 Buddhist priests admitted to Priest Hospital were assessed for their nutritional status by using subjective global assessment (SGA) and body mass index (BMI). They found that 16.5% of participants were overweight. The results were not much similar with result of our own study because this study was conducted on admitted priests. Typically, admitted patients may have compromised nutritional status. In another study \[17\] conducted on priests, it was found that 16.25% were overweight or obese and around 31.8% had hypertension. More or less similar participants had hypertension in our study as well, but more overweight or obese participants were found in our study. The study was conducted on priests who used to work in different temples of Ujjain. Meanwhile our study was conducted on ascetics who had visited Simhastha 2016 from all over India, may be from different countries too.

Srimantayamas V et al. \[18\] found that 86% of monks were overweight in their study. That was much higher when compared to our study. Bhumisawasdi V et al \[19\] conducted a study and found that 11.20% of participants had diabetes, and 15.5% of participants had hypertension. Their results were not very similar to ours. Studies \[20-23\] done exclusively on priests’ eye health found 17.55% and 6.32% prevalence of cataract. In our study, we found more cataract cases. According to one study \[24\] conducted in central India, prevalence of diabetes was 19.5% and of hypertension was 31.7%, not matching our findings. Fichter JH \[25\] also conducted a study on catholic priests and their health status. A study \[26\] conducted on 415 Buddhist monks found diabetes in 10.8% of participants, hypertension in 6.7%, and overweight or obesity in 61.4%. Another study \[27\] conducted on 150 clergy concluded that more than three-fourths of the participating clergy (77.4%) reported weights and heights that classified them as either overweight or obese. High blood pressure (36%) was the most predominant condition reported (34%) followed by diabetes (11%). Baruth M et al. \[28\] concluded in their study that majority of pastors were overweight or obese (93%) with hypertension (68%) and diabetes (20%). According to results of Watson D W et al. \[29\] study, obesity and overweight were important health problems encountered in African-American clergy. The Center for Health of the General Board of Pension and Health Benefits conducted a survey \[30\] in which they explored multiple dimensions of health, including physical, emotional, social, and spiritual. According to that, 11% and 10% of the clergy had borderline hypertension and borderline diabetes,
How the study can be considerate in strengthening primary health: As ascetics belong to a different wing of community, they don’t fall under the usual catchment area of the health care system. We don’t have health provisions exclusively for ascetics. Moreover, we have no idea of their health problems and needs. If we want to achieve health for all, we will have to ensure equitable distribution of health care by surmounting the barriers. We can provide primary health care to ascetics. This study was an attempt to assess the health problems of ascetics, in the form of morbidities, so that we can address health needs of this underserved community. And we can structure health care as “accessible” to this inaccessible population of ascetics.

Key points: Spirituality and religion are perceived as paths to improve health, but religious people also have health problems and needs. Problem and need assessment gave us insight in to necessities related to population centre care interventions that direct us towards attainment of primary care.

Key take-home message: Ascetics are an inherent part of Indian culture and so is their health and determinants. Morbidities found among ascetics were noteworthy. We should try to reduce unmet need for health care among ascetics.

Novelty of the study: First of all, being a hidden population, ascetics are rarely researched. The current study was conducted with a relatively larger sample size.

Conclusion

In our study, obesity was the prevailing comorbidity among ascetics. We also found most of the morbidities to be associated with socio-demographic factors rather than spirituality. Perhaps we need to go into more meticulous and detailed consideration of the temporal relationship between disease and exposure to spirituality. Just to look into a casual inference to unfold and decorticate grey area which exists in association of diseases and its relationship with spiritual practice.

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Conflicts of interest
There are no conflicts of interest.

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Table 6: Association between literacy and various morbidities

| Variables | Literacy | Total | df | P   |
|-----------|----------|-------|----|-----|
|           | Illiterate | Literate |    |     |
| Hypertension | 0.18 | 1 | 0.68 |
| No        | 172 | 504 | 676 |
| Yes       | 76  | 208 | 284 |
| Total     | 248 | 712 | 960 |
| BMI Category |     |      |    |     |
| Underweight | 22  | 67  | 89  |
| Normal    | 134 | 385 | 519 |
| Overweight| 53  | 179 | 232 |
| Obese     | 39  | 81  | 120 |
| Total     | 248 | 712 | 960 |
| Cataract  |       |      |    |     |
| No        | 183 | 541 | 724 |
| Yes       |     | 1.48 | 2 | 0.47 |
| Immature  | 58  | 144 | 202 |
| Mature    | 7   | 27  | 34  |
| Total     | 248 | 712 | 960 |
| Temperature |   |     |    |     |
| Febrile   | 5   | 23  | 28  |
| Afebrile  | 243 | 689 | 932 |
| Total     | 248 | 712 | 960 |
| Anemia    |       |      |    |     |
| Absent    | 186 | 580 | 766 |
| Present   | 62  | 132 | 194 |
| Total     | 248 | 712 | 960 |
| Diabetes* |       |      |    |     |
| No        | 232 | 670 | 902 |
| Yes       | 16  | 42  | 58  |
| Total     | 248 | 712 | 960 |

respectively. The study concluded that obesity, hypertension and diabetes were significant findings among ascetics, similar to findings in our study.

Strength of the study: We can consider the results of this study more generalizable as the study was conducted on ascetics who came from all over India, and from different akharas and clans.

Limitation of the study: As this was a field-based study, it was not feasible to go into detail and conduct a more advanced investigation of each morbidity. Data collection was possible for a limited duration (22 April to 21 May 2016) only.

Table 7: Association of spirituality with morbidity

| Anemia | Total | Chi-squared value | df | P   |
|--------|-------|-------------------|----|-----|
| No     | Yes   |                   |    |     |
| Spiritual category |     |                   |    |     |
| Average | 183 | 37 | 220 | 7.44 | 3 | 0.05 |
| Fair    | 218 | 48 | 266 |
| Good    | 196 | 68 | 264 |
| High    | 169 | 41 | 210 |
| Total   | 766 | 194 | 960 |

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Conflicts of interest
There are no conflicts of interest.

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