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ABSTRACT

Background: A slum and Resettlement Colony in a Metro is always vulnerable to diseases, social evils, political instigations and riots etc. The Community Health Department of a Tertiary Care Hospital which is situated in one such area has an Integrated Health Unit with 6 Auxiliary Nurse Midwives (ANMs). The aim of this study is to find out whether there is an increase in the knowledge of area population regarding Nutrition, Hypertension, Diabetes, and Mental Health when Health education was imparted using Health Modules.

Methodology: A little more than 5% sample of total area people was selected using purposive sampling technique after meeting the inclusion and exclusion criteria. A pre-test was conducted by ANMs, using a structured questionnaire in Hindi language after obtaining verbal consent. Health education was imparted using Health Modules on these four subjects. One and a half months later post-test was conducted using the same structured questionnaire.

Result: Total scores were added for each person for each topic. There were 333 (10.96%) males and 2705 (89.04%) females, making a total of 3038. The mean pre-test scores for Nutrition, Hypertension, Diabetes and Mental Health for respondents were 4.4±1.12, 5.89±1.47, 4.25±1.88 and 8.02±0.99 respectively. The mean post-test scores showed highly statistically significant improvement 1 and ½ months after the Health Education for Nutrition, Hypertension, Diabetes respectively (5.52±1.04; p<0.0001, t=-3.9077), (7.15±1.35; p<0.0001, t=1.256), and (6.26±1.66 p<0.0001). But the mean post-test score for Mental Health (8.05±0.87;p=0.2097,t=0.03809) was not statistically significant.

Conclusion: The results of the study demonstrated that the health education through health modules is an effective way of improving the health-knowledge of slum people.

Keywords: Health Education, Nutrition, Hypertension, Diabetes, Mental Health
Introduction

According to the World Bank, in 2002, approximately 750 million urban dwellers in developing countries lived on less than $2 a day and 290 million lived on less than $1 a day. An estimated 1 billion people around the world live in slums. UN-Habitat’s statistics show that of the 862 million people living in slums worldwide, over 60 percent of them live in Asia (including West Asia).

People coming to cities start living in slums, where dwellings are unfit for human habitation by reasons of dilapidation, overcrowding ... lack of ventilation, light or sanitation facility. The unhygienic living conditions pose high risk of communicable diseases and also the exposure to polluted air, contaminated water and food, and inadequate facilities for regular physical activity present acute and chronic disease hazards. Crowding, for example, tends to promote the transmission of infectious diseases like pneumonia, diarrhea, and tuberculosis. All characteristics of “slum-like” communities, are likely to produce poor health over and above the effects of simply living in a poor household and other individual-level characteristics.

The census report 2011 of India identified 13.8 million households-about 64 million people-located in city slums nationwide. That’s 17.4 per cent of all urban households, which account for roughly one-third of India’s 1.2 billion people. New Delhi, the Indian capital, had a relatively low 15 per cent of households in slums, while major cities Kolkata and Chennai had 30 per cent and 29 per cent respectively. One-third slum homes were without indoor toilets. However, 70 per cent had televisions and 64 per cent had cellphones. That’s about the same cellphone ownership rate as the general urban population and only slightly less than the number of general city dwellers with televisions. Around 49000 slum areas were estimated to be in existence in urban India between 2008 and 2009. In Delhi about 40% of the households have a BPL ration card (red or yellow) and are eligible for subsidized rations. Slum populations are mostly heterogeneous.

Slum people have barriers to accept healthy practices: 1. They may not understand why something being told to them is important for their health. 2. They may not have access to money and other resources.

Malnutrition is an endemic problem in India. The nutritional status and diet of slum children is very unsatisfactory. Their nutritional status is worst among all urban groups. In slums in addition to persisting challenges of communicable diseases and maternal health, people are confronted with a growing burden of Non-Communicable Diseases (NCDs). These are slow and generally cumulative in their effects and often become complicated as the subject becomes older. Mental well-being is associated with natural environment, sanitation, housing quality, sufficiency and durability, all of these are compromised in slums. They should be adequately educated and empowered to actively practice self-care and to utilize healthcare services. Awareness is an important determinant of health behaviors and actions to minimize health risks and injury.

The Community Health Department of a Tertiary Care Hospital is working in a slum community of Delhi. This study was taken up with the aim to find out whether exposure to Health awareness regarding Nutrition, Hypertension, Diabetes, and Mental Health issues in this community, brought about a change in the knowledge of community people or not.

Material and Methods

Study Site and Population: The study was carried out in the field practice area of a Tertiary Care Hospital in east Delhi. It has a population of 56502 (Males=28712 & Females=27790).

Study Design: A before and after study design was used.

Study Duration: January 2020 to May 2020

Study Sample: A total of 3038 persons of both genders were surveyed by house to house survey. It was a purposive sampling.

Inclusion Criteria

• Residents of Sunder Nagari.
• Age > 18 years.
• Who gave the verbal consent to participate.

Exclusion Criteria

Visitors to area House-holds.

Study Instrument

• A Questionnaire Booklet: A structured pre-tested questionnaire booklet in Hindi with knowledge-based questions (eg. Symptoms of diseases, treatment) on the subjects of Nutrition, Hypertension, Diabetes and Mental Health was prepared. There were 5 questions on Nutrition with maximum marks up to 7, 6 questions on Hypertension with maximum marks up to 10, 7 questions on Diabetes with maximum marks up to 9 and 7 questions on Mental Health with maximum marks up to 12. In all four health topics the answers to the last questions are not taken under the scheme of marking. The questions were printed for each topic twice, so to use them before the Health Education and then after 1-1 and ½ months.

• Health Education Modules: Health Education Modules prepared by the Community Health Department were used to impart knowledge on the Hypertension, Diabetes, and Mental Health. The Auxiliary Nurse Midwives (ANMs) had been health educating on Nutrition regularly during their home visits using charts and flex material prepared by the department.
Ethical Issues

The study proposal was cleared by the Institutional Ethics Committee. Besides, informed verbal consent of the respondents was taken before eliciting information from each respondent.

Methodology

There are six ANMs in the Community Health Department. Each ANM has three to four blocks under her. Each ANM, home-visited one Block, one gali (lane) houses on first day (usually 20-22 houses). After exchanging the usual greetings she said that she wanted to know the household’s knowledge of above mentioned health problems. So she conducted the pre-test by asking the adult house-hold members (>18 years of age), questions related to these health problems as mentioned in the booklet and filled the pre-test paper for all the health problems. Then she found out what was cooked in the house and talked about healthy foods. She used Mental Health Module for each family at home and explained it in detail.

Next day she home-visited the same Block, second gali houses and after doing so called families of both the galies to attend Heath Education session. In this session she used 2 modules-Hypertension and Diabetes Modules to teach the area people. All the six ANMs home visited in the same manner.

They did the same in their next Block on day three and four. So each ANM tried to cover all four Blocks allotted to her in this manner. Data was collected from 3038 respondents in a period of one and a half months.

To do post-test they repeated the home-visits of same houses in the manner mentioned above, only difference being, this time no health education was given. This time they only had to fill the second set of paper in the booklet ie the post-test paper for each of the four topics. They could fill post-test for the same 3038 respondents in a month’s time.

Statistical Analysis

Once the data was collected it was entered on excel sheet and analyzed. Total scores were added for each topic for each person. Thus the scores ranged from a low of 0 to a maximum of 12 for each of these four topics. Data was summarized by percentages, and mean. The student T test was applied to find the statistically significant p value. A p-value <0.05 was taken as significant.

Result

The Socio demographic details of the respondents showed that there were 333 (10.96%) males and 2705 (89.04%) females making a total of 3038. Out of these maximum numbers ie 1014 (33.38) were in the age group of >18-30 followed by 910 (29.95) in >30-40 and then 581 (19.12) in >40-50. These three age groups covered more than 80% of participants [Table 1].

<table>
<thead>
<tr>
<th>Age</th>
<th>Total no.</th>
<th>%</th>
<th>Male</th>
<th>%</th>
<th>Female</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;18-30</td>
<td>1014</td>
<td>33.38</td>
<td>112</td>
<td>3.69</td>
<td>902</td>
<td>29.69</td>
</tr>
<tr>
<td>&gt;30-40</td>
<td>910</td>
<td>29.95</td>
<td>80</td>
<td>2.63</td>
<td>830</td>
<td>27.32</td>
</tr>
<tr>
<td>&gt;40-50</td>
<td>581</td>
<td>19.12</td>
<td>59</td>
<td>1.94</td>
<td>522</td>
<td>17.18</td>
</tr>
<tr>
<td>&gt;50-60</td>
<td>334</td>
<td>10.99</td>
<td>42</td>
<td>1.38</td>
<td>292</td>
<td>9.61</td>
</tr>
<tr>
<td>&gt;60</td>
<td>199</td>
<td>6.55</td>
<td>40</td>
<td>1.32</td>
<td>159</td>
<td>5.23</td>
</tr>
<tr>
<td>Total</td>
<td>3038</td>
<td>100.00</td>
<td>333</td>
<td>10.96</td>
<td>2705</td>
<td>89.04</td>
</tr>
</tbody>
</table>

Table 2.Knowledge score of respondents about Nutrition assessed by pre-test and post-test in terms of Frequency, Percentage

<table>
<thead>
<tr>
<th>Scores</th>
<th>Pre-test</th>
<th>%</th>
<th>Post-test</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>0.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>121</td>
<td>3.98</td>
<td>1</td>
<td>0.03</td>
</tr>
<tr>
<td>3</td>
<td>489</td>
<td>16.10</td>
<td>66</td>
<td>2.17</td>
</tr>
<tr>
<td>4</td>
<td>965</td>
<td>31.76</td>
<td>313</td>
<td>10.30</td>
</tr>
<tr>
<td>5</td>
<td>1081</td>
<td>35.58</td>
<td>1393</td>
<td>45.85</td>
</tr>
<tr>
<td>6</td>
<td>239</td>
<td>7.87</td>
<td>493</td>
<td>16.23</td>
</tr>
<tr>
<td>7</td>
<td>137</td>
<td>4.51</td>
<td>772</td>
<td>25.41</td>
</tr>
<tr>
<td>Total</td>
<td>3038</td>
<td>100.00</td>
<td>3038</td>
<td>99.98</td>
</tr>
</tbody>
</table>

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The knowledge score of respondents on Nutrition (Table 2), Hypertension (Table 3), and Diabetes (Table 4), assessed by pre-test and post-test showed marked improvement respectively that were found to be statistically significant.
too. For Nutrition 2422 (79.72%) respondents scored more than 3 out of 7 in pre-test and 2971 (96.71%) in post-test. The mean pre-test score 4.4±1.12 showed highly statistically significant improvement, 1 and ½ months after Health Education, that is, (5.52±1.04; p=0.0001, t=-3.907). For Hypertension 2582 (85.03%) respondents scored more than Five out of 10 in pre-test and 3004 (98.85%) in post-test. The mean pre-test score 5.89±1.47 and post-test score (7.15±1.35; p<0.0001, t=1.256) with statistical significance. Similarly the knowledge score on Diabetes showed marked improvement, that is, 1258 (41.38%) respondents scored 5 and more out of 9 in pre-test and more than double number of respondents 2543 (84.7%) in post-test. The mean pre-test score was 5.52±1.88 which showed highly statistically significant improvement to (6.26±1.66; p<0.0001) in post-test.

The score of participants about Mental Health showed very little improvement as the pre-test score was already high 3003 (98.84%) respondents scored 6 and more out of 12 in pre-test and 3032 (99.72%) in post-test (Table 5). The mean pre-test score was 8.02±0.99 and after the Health Education, that is, (mean=8.05±0.87; p=0.2097, t=0.03809), which was not statistically significant.

**Discussion**

In our study, knowledge score of respondents on nutrition, hypertension, and diabetes, assessed by pre-test and post-test showed marked improvement. In a study, significant improvement in knowledge on Diabetes was observed among the general population of Sikkim after a diabetic education programme.11

The score of participants about Mental Health in our study showed very little improvement as the pre-test score was already high. This can be explained as a lot of work on Mental Health had been done in the field practice area of CHD in recent years. Capacity building of Community Mental Health Workers, Awareness generation activities including mental health awareness sessions, rallies, roadshows, mental health mela etc. had been done extensively in the area. This was done under a project supported by The Hans Foundation.12

Education of ... and sensitization of the community about the causes, symptoms, and treatment of ... disease have been emphasized by the Government of India. However, there is a need to strengthen the health and nutrition-education initiatives.13

A lot of emphasis is being given to Health and Education and their intercepting relationship. The 1978 Alma Ata International Conference on Primary Health Care defined “health” to include “a state of complete physical, mental and social well-being”14—which we see as largely products of education. Students go to schools to get education similarly a public health person uses health education methods to teach about diseases and their prevention and treatment to his/her community. Attainment of a certain level of formal education by young adults affects lifelong health through multiple pathways. Just as many areas of daily life are recognized domains of legitimate public health action ... so should education (beyond health education in schools) be recognized as a legitimate domain of public health action.15

Health Education of community is of utmost importance. As an example we find that in case of home management of diarrhoea, National Family Health Survey – 3 (NFHS – 3) though provided all information as recommended by UNICEF, yet only 8 percent of children with diarrhoea received what was recommended for proper management of diarrhea. This suggests the need for public education programmes ......16 Similarly one finds highly educated people lacking in health knowledge regarding their diseases such as Hypertension and/or Diabetes. They need to be health educated.

In another project, The STEPS project they aimed at making available information, Health education through counseling, demonstration, exhibition, to bring about attitudinal and behavioral changes in the target groups about health issues.17 These health education activities should be done on a regular basis. In another study, the health awareness and health promotion activities in slums were found to be not on regular basis and not throughout the year.18

In our study though the respondents comprised 5% of the whole community, yet it was a big number and it was represented from each block.

**Conclusion**

The study reveals that contact through lane-approach and reinforcement by use of Health Modules, were instrumental in creating Nutrition, Hypertension, Diabetes, and Mental Health issues awareness, improved knowledge and better retention amongst the respondents. This could encourage them to adopt a positive attitude towards healthy life-style.

In this study, Auxiliary Nurse Midwives (ANMs) formed the backbone of our intervention. Similarly Government Organizations (GOs) and NGOs need to focus on capacity building of community health workers (CHWs) including ASHA Workers, ANMs, LHV, PHNs and Anganwadi Workers by imparting more and more knowledge on Health issues. The CHWs should be encouraged to use flip charts/modules/communication materials for health awareness in the communities they serve.

**Acknowledgement**

The authors acknowledge the good work of ANMs under...
Integrated Health Unit of Community Health Department, St. Stephen’s Hospital in imparting the health knowledge to the area people - the participants of this study.

**Financial Implication:** None

**Conflict of Interest:** None

**References**


10. MIS 2020. Community Health Department, St. Stephen’s Hospital.


The Questionnaire Booklet in Hindi

हाई ब्लड प्रेशर (उच्च रक्त चाप)
1. नामः त्वमेव ब्लड प्रेशर (महैते) किताबा होता है |
(क) 140/90 ख (155/80 न) <120/80 घ (120/90
2. हाई ब्लड प्रेशर के लक्षण क्या हैं |
(क) सिरदर्द ख (कफकर आता ग) छूल की कमी घ (पैरों में खुजली ़) नकसौर पूड़ना |
3. मुख्य रोगियों में हाई ब्लड प्रेशर के लक्षण नहीं हों चेक करने पर ही पता लगाना है क्या यह सही है |
हाँ / नहीं |
4. हाई ब्लड प्रेशर के किस हिस्से पर तुषारभाप पड़ता है |
हाथ दाँत /हार्थ / चम्की / आँख / ताफ / विच / काल |
5. मतलबखित प्रश्न के एक गाढ़ा उत्तर पर दिख लगायें |
हाई ब्लड प्रेशर होने पर |
(क) दसवें सिरदर्द की लताए के अनुसार निर्यातित रूप से खानी है |
(ब) नमक कम खाना है |
(ग) धी, तेल, मक्खन अधिक खाना है |
(घ) व्यायाम करता है |
6. हाई ब्लड प्रेशर की दवाई सरिज को कब तक खानी होती है |
(क) 1 साल तक (ख) 6 माह तक (ग) जब मर (घ) 5 साल तक |
7. घर में इनको ये ज़िंदगी है, बच्चे हाँ, तो नाम लिखें -
डायबिटीज़ ( मधुमेह )

1. डायबिटीज़ की बीमारी से आप क्या समजते हैं |

2. खुल में खाली पट शुगर की मात्रा कितनी होने पर हम कहेंगे की किसी रोगी को डायबिटीज़ है| एक अगर उसर पर चिन्ता लगाएं |
क ) 130 mg %  ख ) 126 mg %  ग ) 86 mg %  घ ) 110 mg %

3. क्या शुगर के रोगी को शकरकंदी और आतुर खाना चाहिए |
(क ) है (ख ) नहीं

4. शुगर की बीमारी के कोई लेख द्वारा बताएं |
(क ) (ख ) (ग)

5. क्या शुगर के रोगी को हां दें रोज़ भी हो सकता है
क ) हैं (ख ) नहीं

6. क्या शुगर की बीमारी परिवारी है |
क ) हैं (ख ) नहीं

7. डायबिटीज़ का इलाज़ किस्मत तक करना होगा |
क ) 1 साल तक  ख ) 6 माह तक  ग ) 6 माह तक  घ ) 1 साल तक

8. घर में इनको भी बीमारी है, यदि हैं, तो नाम लिखें -

डायबिटीज़ ( मधुमेह )

1. डायबिटीज़ की बीमारी से आप क्या समजते हैं |

2. खुल में खाली पट शुगर की मात्रा कितनी होने पर हम कहेंगे की किसी रोगी को डायबिटीज़ है| एक अगर उसर पर चिन्ता लगाएं |
क ) 130 mg %  ख ) 126 mg %  ग ) 86 mg %  घ ) 110 mg %

3. क्या शुगर के रोगी को शकरकंदी और आतुर खाना चाहिए |
(क ) हैं (ख ) नहीं

4. शुगर की बीमारी में कोई तीन सलग बताएं |
(क ) (ख ) (ग)

5. क्या शुगर के रोगी को हां दें रोज़ भी हो सकता है
क ) हैं (ख ) नहीं

6. क्या शुगर की बीमारी परिवारी है |
क ) हैं (ख ) नहीं

7. डायबिटीज़ का इलाज़ किस्मत तक करना होगा |
क ) 1 साल तक  ख ) 6 माह तक  ग ) 6 माह तक  घ ) 1 साल तक

8. घर में इनको भी बीमारी है, यदि हैं, तो नाम लिखें -
मानसिक चतुर्वेदि

1. स्वयं अपने किसी मानसिक दौड़ को देखा है?
   यदि हैं तो उसके विशेष निर्देशों निम्नलिखित -
   (i) ठीक: (8) बत्ते हुए (8) पिलाए हुए
   (ii) समभार: (8) हैक (8) हैक नहीं
   (iii) सार: (8) ठपकती हुई (8) नहीं ठपकती हुई
   (iv) सान: (8) साफ सुपर (8) नदी
   (v) तेजस्: (8) कम बोलता (8) भीतर बोलता
   (vi) नहीं देखना: (8) नहीं करना (8) साफ रहता है
   (vii) अपने आप से बात करता

2. बहुत व्यापक दृष्टि होता (विशेष)
   (8) एक बीमारी है (8) भौतिक स्थिति को भी हो सकती है

3. बहुत व्यापक चिन्ता करता:
   (8) एक बीमारी है (8) भौतिक स्थिति को भी हो सकती है

4. बहुत व्यापक गुस्सा करता:
   (8) एक बीमारी है (8) भौतिक स्थिति को भी हो सकती है

5. बहुत व्यापक बोलता:
   (8) एक बीमारी है (8) भौतिक स्थिति को भी हो सकती है

6. घर में इनको ये समझते हैं, यदि होंगे तो क्या किया?

मानसिक चतुर्वेदि

1. स्वयं अपने किसी मानसिक दौड़ को देखा है?
   यदि हैं तो उसके विशेष निर्देशों निम्नलिखित -
   (i) ठीक: (8) बत्ते हुए (8) पिलाए हुए
   (ii) समभार: (8) हैक (8) हैक नहीं
   (iii) सार: (8) ठपकती हुई (8) नहीं ठपकती हुई
   (iv) सान: (8) साफ सुपर (8) नदी
   (v) तेजस्: (8) कम बोलता (8) भीतर बोलता
   (vi) नहीं देखना: (8) नहीं करना (8) साफ रहता है
   (vii) अपने आप से बात करता

2. बहुत व्यापक दृष्टि होता (विशेष)
   (8) एक बीमारी है (8) भौतिक स्थिति को भी हो सकती है

3. बहुत व्यापक चिन्ता करता:
   (8) एक बीमारी है (8) भौतिक स्थिति को भी हो सकती है

4. बहुत व्यापक गुस्सा करता:
   (8) एक बीमारी है (8) भौतिक स्थिति को भी हो सकती है

5. बहुत व्यापक बोलता:
   (8) एक बीमारी है (8) भौतिक स्थिति को भी हो सकती है

6. घर में इनको ये समझते हैं, यदि होंगे तो क्या किया?
1. पोषण शत्रुदं देश के आय क्रम समझते हैं।

(क) भोजन (ख) दूध, शाक (ग) मात्रा (घ) ब्रह्मा

2. भोजन के लाभ क्या कहना है? निशान लगाईये।

(क) प्रोटीन (ख) मस्फ़ती (ग) वसा (घ) कब्ज़ाहाइड्रेट (घ) एक्ज़िजी

3. चीज़, दही, पनीर, दाल, मांस, मछली में क्या क्रम पाया जाता है? 

(क) प्रोटीन ख) वसा ग) कब्ज़ाहाइड्रेट

4. लोह तत्व की कमी से होने वाली वीमेनी कौन कौन हैं?

(क) टाइफाइड (ख) मलरिया (ग) अनीमिया (घ) दास्त (घ) उन्ठी

5. हड़प्पिया की मजबूती के लिए जरूरी है?

- फल / सब्जियाँ / कैस्टिलियम / विटामिन / प्रोटीन

6. क्या आपने घर में किसी को कुश्ती कहा है, तो नाम लिखें?

(क) भोजन (ख) दूध, शाक (ग) मात्रा (घ) ब्रह्मा