Introduction

The elderly have been defined as those above the age of 60 years.[1] The world’s population is rapidly ageing. Between 2000 and 2050, the proportion of the world’s population over the age of 60 years is expected to double from about 11% to 22%; more so in the developing countries. The prevalence of frailty and morbidity among the elderly is high. There is a need to assess the “preparedness” of the health care system including hospitals to respond to the needs of the elderly. Aim: 1. To develop criteria for a senior friendly hospital and 2. To assess the feasibility of application of these criteria. Materials and Methods: A descriptive study was done at Bangalore, India, involving 100 subjects sampled by purposive sampling. Study population consisted of senior citizens, their caretakers, physicians, hospital support staff, nurses, geriatricians, hospital administrators, and architects. They were interviewed using a validated translated interview schedule. The study consisted of two phases; Phase 1: Developing a checklist to assess senior friendliness of a hospital by using modified Delphi technique. Phase 2: Application of the checklist thus developed to selected hospitals in order to assess the feasibility of administration. The data was then analyzed using Statistical Package for the Social Sciences (SPSS) for frequencies, proportions, central tendency and dispersion, interclass reliability, intraclass reliability, and Cronbach’s alpha. Results: A checklist containing 44 items to assess the senior friendliness of a hospital was developed. The checklist was found feasible and easy to administer. Conclusions: The checklist thus developed to assess senior friendliness of a hospital has wider application as it has a potential to be considered for framing senior friendly hospital guidelines/policies.

Keywords: Checklist, criteria, delphi technique, elderly, senior friendly hospitals

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Original Article

Senior Friendly Hospitals: Development and Application of Criteria: A Descriptive Study

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ABSTRACT

Background: The world’s population is rapidly aging. Between 2000 and 2050, the proportion of the world’s population over the age of 60 will double from about 11% to 22%; more so in the developing countries. The prevalence of frailty and morbidity among the elderly is high. There is a need to assess the “preparedness” of the health care system including hospitals to respond to the needs of the elderly. Aim: 1. To develop criteria for a senior friendly hospital and 2. To assess the feasibility of application of these criteria. Materials and Methods: A descriptive study was done at Bangalore, India, involving 100 subjects sampled by purposive sampling. Study population consisted of senior citizens, their caretakers, physicians, hospital support staff, nurses, geriatricians, hospital administrators, and architects. They were interviewed using a validated translated interview schedule. The study consisted of two phases; Phase 1: Developing a checklist to assess senior friendliness of a hospital by using modified Delphi technique. Phase 2: Application of the checklist thus developed to selected hospitals in order to assess the feasibility of administration. The data was then analyzed using Statistical Package for the Social Sciences (SPSS) for frequencies, proportions, central tendency and dispersion, interclass reliability, intraclass reliability, and Cronbach’s alpha. Results: A checklist containing 44 items to assess the senior friendliness of a hospital was developed. The checklist was found feasible and easy to administer. Conclusions: The checklist thus developed to assess senior friendliness of a hospital has wider application as it has a potential to be considered for framing senior friendly hospital guidelines/policies.

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The prevalence of morbidity among older persons is high. A study done in Northern India reported that the mean number of morbidities among the elderly population studied was as high as 6.1. According to a cohort study done in South Korea, 78% of the elderly reported at least one morbidity and 23.1% of the subjects had more than three morbidities. The average length of stay of elderly people in hospitals is greater than that of general population. Medical services in India must prepare for this increasing demand for care needed by frail senior citizens who are high users of hospital services.

Therefore, considering this situation, there is a need to assess the “preparedness” of the health care system including hospitals to respond to the needs of elderly population where:

- The number of older persons is high and rising
- The prevalence of frailty and morbidity in older persons is high, representing a need for health care
- The usage of hospital services by the elderly population is high

This study is an attempt to develop and apply a set of criteria to assess if a hospital is “senior friendly”. The study has built upon and has adapted the suggestions of the World Health Organization’s (WHO) “Age-Friendly Primary Health Care Centres Toolkit”.

Objectives
1. To develop criteria for a senior friendly hospital and
2. To assess the feasibility of application of these criteria by applying them to selected hospitals

Materials and Methods

Study design
This is a descriptive study.

Study area
The study was carried out in Bangalore city, India, in the area under the jurisdiction of the Bangalore City Corporation (Bruhat Bengaluru Mahanagara Palike, BBMP).

Study population
Consisted of different sections of people as detailed below.
1. Senior citizens
2. Care takers of senior citizens
3. Physician
4. Support staff (Working at hospital support services outpatient department, laboratory, pharmacy, accounts/billing section, medical record section)
5. Nurses
6. Geriatricians (Physician with some form of postgraduate training in geriatrics and who is practicing in a hospital as defined above)
7. Hospital administrators (A graduate with formal postgraduate training in hospital administration or one who occupies the administrative post in a hospital as defined above)
8. Architects
9. Experts (A person in each of the above group who was willing to participate in first and subsequent rounds of data collection, using modified Delphi)

Inclusion criteria
All the above mentioned sections of people (except architects) who were present at the hospital (as defined below) when interviewer visited the hospital and b. those who consented for the interview.

Exclusion criteria
Those senior citizens who are seriously ill or in intensive/cardiac care units/emergency department.

The hospitals included in the study were those
- Located within BBMP limits, Bangalore City, India
- With ≥100 inpatient beds
- Having support services as defined above
- Not exclusively serving women and/or children

Sample size and sampling method
Since the data collected is entirely qualitative, purposive sampling was done within each of the groups defined above. The sample size for the study was decided based upon the principle that the interviews would stop when no further new information was available upon interview. It was found that this saturation point was reached when a total of 100 participants were interviewed.

The study was done in two phases:
**Phase 1.** Development of criteria and creation of a checklist: It consisted of the following three steps

Development of an interviewer-administered questionnaire
A questionnaire was developed aiming to identify attributes of a hospital which make it “senior friendly”. Section 1 of the questionnaire included the demographic details; Section 2 consisted of questions that asked the respondent about his/her opinion regarding suggested criteria which make a hospital senior citizen friendly. The basis for this section was the “WHO Age Friendly PHC Toolkit”. Questions were grouped under four heads, namely
- Access to hospital
- Medical care services at hospital
- Physical environment of the hospital and
- Inpatient services at the hospital
There were open-ended questions also under each of the above heads. The questionnaire was translated into the local language and was assessed for face validity. The questionnaire was pilot tested in Bangalore urban district outside the study area. Suitable modifications were made and the final version of the interviewer-administered questionnaire contained 36 questions.

**Interview with study subjects, obtaining draft criteria**

The above mentioned groups of people were interviewed using the questionnaire after taking informed consent. Data for phase 1 was collected from four hospitals (as defined above) — one government tertiary and three private tertiary hospitals, which are also teaching institutes. The responses for the 36 questions (both close and open ended) were then enumerated under the four heads. Those criteria which had a frequency of ≥5 (that is, more than five respondents had considered that criterion as being important) and a few of those criteria with frequency <5 but seemed to be important for a hospital to become senior friendly were selected. At the end of this step, 49 draft criteria were obtained for circulation to a set of “experts” to get their opinion.

**Obtaining final criteria for checklist**

The draft criteria with items arranged in the rank order of priority (proxy frequency) was then circulated to a set of “Experts” to achieve consensus. Experts were drawn from the same strata of participants as for phase 1A and from the same four hospitals included earlier for data collection. Number of experts from each stratum was proportional to the number of participants from each stratum.

This step followed the recommended Delphi technique of ranking and scoring criteria obtained at the end of the first round. The standard Delphi method continues to conduct further rounds to achieve perfect consensus. But this study adopted modified Delphi method and stopped at the end of the second round and obtained the basic form of the final checklist. This was done mainly considering the time and resource constraints involved in multiple rounds of consensus seeking.

Experts rated each of the draft criteria using a Likert 5-point scale, from “not at all important = 1” to “most important = 5”. Based on the scoring by the experts, the draft criteria were listed in descending order against a maximum obtainable score of 100 for each criterion (20 experts ranking each criterion over a scale of 5 with 5 marks being the maximum obtainable under each criterion).

The internal reliability of this 49 item scale was tested by studying the Cronbach’s alpha for items under each domain. Based on the decrease of the value of Cronbach’s alpha (if a particular item is deleted), a list of items was obtained from each of the four domains, which represented good internal consistency. Using this method a checklist containing 36 items was created. However, considering that many items considered important by the experts were not retained using this method, it was decided to use an absolute cut off level of score 70 (out of a maximum score 100) to identify criteria to create the checklist. A cut off of score 70 was selected because those criteria which had scored less than 70 had scored very low and those criteria which had scored above 70 had very high and uniform scores. This yielded a checklist with 44 criteria. (Refer to Figure 1 for “evolution of checklist”)

**Phase 2. Check the feasibility of administration of criteria to assess “Senior Friendliness” of a hospital**

Two hospitals were selected for the administration of the checklist developed. One was a government tertiary-level hospital and the other was a private tertiary hospital. Both were teaching hospitals.

After obtaining permission from the administrators of the hospitals, the investigator applied the checklist to the hospitals. This comprised a mix of direct observation and interview done with key hospital personnel. The data thus obtained was categorized as “strengths” and “weaknesses” of the hospital with respect to its senior friendliness.

The feasibility of administration was judged by

- The process of obtaining permission to administer the checklist
- The actual process of administration, including the process of direct observation and the interviews with key informants
- The process of obtaining information from the completed checklist, which is useful in inferring about the senior friendliness of the hospital

![Figure 1: Phase 1: Evolution of final checklist to assess senior friendliness of a hospital](image)
Data analysis
Data for each of the phases was entered in Microsoft excel spread sheet. The data was then analyzed using SPSS for frequencies, proportions, central tendency and dispersion, interclass reliability, intraclass reliability, and Cronbach’s alpha.

Results
Phase 1. Development of criteria and creation of a checklist

There was a good representation from all the categories of respondents [Refer to Table 1]. Among the respondents, the proportion of senior citizens was the highest (37%) and the proportion of architects was the lowest (2%). Thirty (30%) of the respondents were interviewed at government tertiary hospital and 68 (68%) were interviewed from three private tertiary hospitals. Two (2%) were architects who had independent practice [Refer to Table 2]. A total of 20 experts were interviewed (20% of n = 100).

The study resulted in the development of a tool/checklist to assess the senior friendliness of a hospital. This tool consisted of 44 criteria under five domains. Spiritual environment in the hospital emerged as the fifth domain.

The 44 criteria were divided into “mandatory” and “desirable” criteria under respective domains for a hospital to be senior citizen friendly [Refer to Table 3]. Criterion 1–3, 6–16, 19–32, 36, 37, 40, 41, and 44 were listed as “mandatory criteria” and criterion 4, 5, 17, 18, 33–35, 38, 39, 42, and 43 were listed as “desirable criteria” for a senior friendly hospital.

Phase 2. Feasibility of administration of the final checklist

In order to check the feasibility of administration of the final checklist, the same was administered to two hospitals — one government tertiary hospital and one private tertiary hospital. The feasibility of administration of the checklist was judged by the following criteria:

1. The process of obtaining permission to administer the checklist to assess the “senior friendliness” of a particular hospital.

It consisted of the following steps:

a. Seeking permission to administer the checklist by submitting a requisition letter to the concerned official. The process of obtaining permission varied from 3 to 10 days. This process took a longer time in government hospital when compared to private hospital.

b. Fulfilling the formalities like paying the fee prescribed by the hospital (fee to obtain any sort of information from the hospital) to which checklist had to be administered.

2. Next step was the actual process of administration of the checklist.

This included:
- Direct observation and
- The interviews with key informants

The whole process of administration of the checklist took around 60 to 90 minutes.

3. Final step was compilation of findings from completed checklist to infer about the senior friendliness of the hospital.

After administering the checklist in two hospitals, the findings were listed under the heads of “strengths” and “weaknesses” of a hospital with respect to senior friendliness. This process took around 30 to 45 minutes for each hospital.

Thus, the whole process of administration of checklist to a particular hospital and its interpretation took about 90 to 135 minutes, excluding the process of taking permission.

Difficulties in administering the checklist

- Permission to administer the checklist could take time, depending on the level of involvement and interest of the hospital.
- It is difficult to assess the criterion “attitude of the staff towards elderly patients” as it is difficult to objectively assess one’s attitude.
- It is practically very difficult to observe the physical environment of the whole hospital. For example, nonslippery flooring in all the toilets in a hospital.
Table 3: Checklist to assess senior friendliness of a hospital
(Please tick “yes” against criteria which the hospital satisfies and “no” against those which the hospital does not satisfy)

| Criteria                                                                 | Yes | No |
|-------------------------------------------------------------------------|-----|----|
| **Domain I — Accessibility**                                             |     |    |
| Mandatory criteria:                                                     |     |    |
| There is a separate parking lot for senior citizens in this hospital    |     |    |
| The hospital has a separate entrance for senior citizens               |     |    |
| The hospital outpatient department is open for seniors from 10 am to 2 pm |     |    |
| Desirable criteria:                                                     |     |    |
| The hospital is located near a bus stop/railway station                 |     |    |
| The hospital is located along the main road or not in a crowded area     |     |    |
| **Domain II — Medical care services at the hospital**                    |     |    |
| Mandatory criteria:                                                     |     |    |
| There is a system of priority for seniors in pharmacy to collect drugs  |     |    |
| Volunteers are available to guide senior citizens through different sections of the hospital |     |    |
| There is a system of priority for seniors in all service sections of hospital |     |    |
| Senior citizens are explained about the prescribed drugs at pharmacy    |     |    |
| There is a separate queue for seniors at all counters                   |     |    |
| In general, the staff are kind, respectful and patient, and are willing to listen |     |    |
| There is a system of concession for senior citizens in the cost of services |     |    |
| There is a home health service by the hospital staff for the senior citizens where staff visit homes of the seniors if required |     |    |
| There is a system of giving appointments and reminders for seniors      |     |    |
| Group insurance schemes available for seniors in this hospital          |     |    |
| The doctors/nurses/staff are trained in basics of geriatric medicine — the branch which deals with health of seniors) |     |    |
| Desirable criteria:                                                     |     |    |
| There is a separate reception counter for seniors                       |     |    |
| There is a separate multispecialty clinic for senior citizens in this hospital |     |    |
| **Domain III — Physical environment at the hospital**                    |     |    |
| Mandatory criteria:                                                     |     |    |
| Telephone booths available in all important areas of hospital — OPD, ward, every floor |     |    |
| The doors are wide                                                      |     |    |
| There is good lighting in the hospital                                  |     |    |
| There are elevators (lift) available for seniors to every floor of the hospital |     |    |
| The floor of the hospital is nonslippery                                |     |    |
| There are ramps for wheelchair users and railings for staircases        |     |    |
| Toilets                                                                 |     |    |
| Toilets are available in all important areas of hospital — OPD, ward, every floor |     |    |
| There is an alarm in the toilets                                       |     |    |
| The toilet floors are nonslippery/clean and dry                        |     |    |
| There are grab rails in the toilet                                     |     |    |
| There is a Western closet in every toilet                              |     |    |
| Signboards                                                             |     |    |
| Signboards are put up in all important areas of the hospital — OPD, service areas, corridors, on every floor |     |    |
| The lettering size on signboards is big                                |     |    |
| The lettering is bold for better visibility                           |     |    |
| The lettering and signage is also displayed in the local language      |     |    |
| Desirable criteria:                                                     |     |    |
| The elevators and corridors are wide and spacious, with enough space to move |     |    |
| There is a system of availability of an escort for seniors when they use the toilet |     |    |
| The toilet has doors which open both ways                              |     |    |
| **Domain IV — Inpatient services at the hospital**                      |     |    |
| Mandatory criteria:                                                     |     |    |
| There is a separate ward for senior citizens                            |     |    |
| Caregivers should be allowed to stay with seniors                       |     |    |
| Desirable criteria:                                                     |     |    |
| Caregivers for senior citizens should be made available from the hospital, if required |     |    |
| There is some form of recreation facility for seniors                   |     |    |
| Admission and billing                                                   |     |    |
| Mandatory criteria:                                                     |     |    |
| There is a system of priority for seniors in the admission process      |     |    |
| There is a system of priority for seniors at the billing counter        |     |    |

(Continued)
• It may be advisable to fix different categories with respect to the criterion — “hospitals training their staff in geriatrics”, that is, categories like <10% of the staff are trained, 10 to 50% of the staff are trained, and >50% of the staff are trained.

Discussion

From this study, a checklist with 44 criteria was developed, which could be used to assess a hospital for senior friendliness. Similar tool has been used in Canada for hospitals’ audit to assess senior friendliness.[10,11]

The “Age friendly Primary Health Centre toolkit” developed by WHO was based on direct observations at the Primary Health Centers (PHCs), focus group discussions involving the elderly, and the health care providers. Whereas the tool developed by our study is based on a) interview with many stakeholders involved in the care of the elderly and also b) modified Delphi technique involving experts among the same stakeholders. The WHO tool, mainly focuses on the PHCs, whereas the tool developed by this study focuses on hospitals with 100+ beds and therefore is applicable to PHCs as well as bigger tertiary hospitals.

In order to develop a checklist for criteria for a senior friendly hospital, various studies[12-15] have used a) environmental assessments including assessment of physical, social, cultural, and institutional environments and administration of b) open-ended questionnaire to consulting geriatricians, clinical staff, professionals in acute care operations, housekeeping staff, nurses, occupational therapists, architects, social workers, and physiotherapists. The methodology adopted in this study is also similar.

The checklist developed at the end of the study to assess senior friendliness of a hospital duly addresses the following aspects, as discussed below.

Accessibility
Accessibility and approachability of any hospital is very important to make a hospital user friendly.

Medical care services
Many of the elderly may have physical limitation to wait in a queue for long hours. Assuring priority in all sections of hospital, giving appointments and reminders for the same, volunteers appointed by the hospital to guide elderly through various sections are some of the alternatives for waiting. Rarely any such system exists in India.

Training doctors/nurses in geriatric medicine is a recent development in India but it is neither uniform nor compulsory. Professionals who have received such training may be more sensitive to the needs of the elderly.

Home health service is a good option for elderly who have physical limitations to visit hospital regularly or who have social limitations like staying alone.

Physical environment
It is very vital to have a conducive physical environment to prevent falls in the elderly, which is very common among them due to balance disorders. Effects of a fall may vary from fractures, inability to perform the Activities of Daily Living (ADL) to restricting the victim to bed. Toilets are one of the most common places for falls because of slippery floors. Good lighting, antiskid flooring, good grips in the form of grab rails are some of the measures known to prevent falls.

Most of the elderly find it difficult or impossible to squat in Indian type of toilets as arthritis is a common problem among them. Therefore most of the respondents might have opined that having Western closet is an essential criterion.

Visual impairment is a highly prevalent among the elderly. Therefore, it is essential for a hospital to have signboards with big letters and contrast background.

All of the above-mentioned points are very well brought out as criteria for senior friendly hospitals in the final checklist.

Limitations
The study is a descriptive and exploratory study. Since the data collected is entirely qualitative, purposive sampling was followed.

Apart from the domains focused in this study; organizational support, psychosocial environment, ethics in clinical care and research, online services by the hospital (booking appointments, health care services, health advices/tips, facility to pay bills, etc.), counseling facility at hospital, home
In our study, special focus was not given to the “left out elderly” (those persons equal to or above the age of 60 years who are forced to live apart from their children or primary caregivers) under the purview of a hospital. Further study may be undertaken to address the same.

One of the authors was a postgraduate resident and another author was a Professor working with one of the hospitals included in the study. This particular hospital also has geriatric health services in place. The responses of the respondents from this particular hospital may be influenced by the geriatric facilities already existing there. Agreement of the respondents with “suggested criteria” due to acquaintance with the investigators is also a possibility.

Conclusions
Thus a comprehensive and easy to administer checklist to assess the senior friendliness of a hospital was successfully developed at the end of this study. This is the first of its kind in the developing countries like India. The checklist developed is very much applicable to all developing countries. The checklist was considered feasible for administration at a tertiary-level hospital since the criteria in the checklist are easy to understand and assess, and there is no ambiguity with respect to criteria and the time needed to administer the checklist was reasonable compared to the quantity of useful information gathered regarding senior friendliness of a hospital at the end of administration of the checklist.

The findings of the study may be used as a basis to prepare, alter, or set up health care systems to be senior friendly. This may be the first step towards creating age-friendly health care institutions in developing countries.

The results have a wider application as they have the potential to be considered for framing senior friendly hospital guidelines/policies. However validation of tool in different settings would be desirable before it is recommended for use in the country.

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Conflicts of interest
There are no conflicts of interest.

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