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A PILOT STUDY ON EVALUATION OF PATIENT SATISFACTION THROUGH DIETARY SERVICES IN GOVERNMENT MEDICAL COLLEGE AND HOSPITAL, SECTOR-32 CHANDIGARH, INDIA

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Abstract

Various research studies on hospital food services and patient satisfaction have been conducted globally. The quality of dietary services is one of the important aspects of health care. Indian studies in this field are very few, thus this pilot study was conducted as an insight for a similar future study on a large scale. A cross sectional study was carried out in Government Medical College and Hospital, sector 32, Chandigarh. Fifty-nine patients were selected randomly from private and general wards- mainly Obstetrics and Gynaecology, Oncology and Burn unit. A self-structured questionnaire was prepared for assessing satisfaction of the patients regarding food quality and food services. The data was collected and analyzed for all parameters of demographic profile of hospital patients selected, and their interview responses. Most patients (96.3%) were satisfied with the food and food service staff according to their responses. Correlations between most parameters were positive and highly significant at ($p<0.01$) and ($P< 0.05$) level. No impact of Age and BMI was seen on any of the variable at 95% confidence level as probability value greater than 0.05. Chi-square test of patient satisfaction responses showed asymptotic significance as p-value was 0.00. Effectiveness of results of this pilot study were understood as potential effectiveness. Focus was on feasibility and not on statistical significance. It also shows that the large-scale study will be feasible without changes in protocol. Confidence intervals showed that the pilot study testing can significantly reduce any flaws in the research approach. Amendments for future study are that the questions are properly framed to ensure that patients eat well, and leave the hospital with improved physical and mental health; and all aspects of dietary services should be well organized.

Key words: *Hospital diet, patient satisfaction, dietary survey, dietary management, food services.*

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1. INTRODUCTION

Hospital food services remain a widespread problem all over the world. Over the past 20 years, patient satisfaction surveys have gained increasing attention as meaningful and essential source of information for developing an effective plan of action for quality improvement in dietary services in Hospitals. The hospitals are using variety of techniques to improve patient's dietary satisfaction. Patients carry certain expectations before their visit to hospital and the resultant satisfaction or dissatisfaction is the outcome of their actual experience. The expectations of a hospitalized patients in general wards are different from the of private wards, the latter being more aware and demanding and thus particular about every aspect of food service and dietary staff of hospital. Patient satisfaction is considered a way of measuring the quality of services provided.

Dietetics Departments of hospitals are an integral part of the hospital dietary services which provides normal and therapeutic diets to the patients. Dieticians have a multitask of making sure that perfect meals are made and efficiently delivered by service staff. Meal rounds are a tool for evaluation of inpatients' food intake. Food service staff routinely visits patients to inquire about food intake and satisfaction and the dietetics department staff supervises the food distribution along with routine patient care rounds. Taste, variety, flavour, temperature of hot and cold foods, and texture of meat and vegetables are all key variables that influence patient satisfaction. Nutrition plays a major role in protecting health and slowing disease progression. Room service has several advantages, as the patient decides which type of diet he wants unless his diet is decided by the doctor according to the diagnosis. Here plate waste is reduced as a result there is decreased food cost. In general wards, trolley system for food distribution is followed. The patients here have no choice but to eat what is provided. This may affect their satisfaction towards diet and dietary services. In private wards, patients are served through pantry services from where hot food is distributed.

Patients satisfaction with hospital food service is difficult to assess, particularly because each patient has their expectations. More satisfied patients are more likely than the unsatisfied ones to continue using the health care services, maintaining their relationships with specific health care providers. Meal consumption of patients is a good indicator of dietary status and satisfaction with meal service[1].The food served needs to be hygienic and well displayed and also the hygiene of the staff who serves it is an essential factor.

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The main aim for providing a meal service to people in hospital is to maintain their nutritional status over a vulnerable period of their life in order to reduce morbidity and mortality. The length of time a patient spends in hospital and the cost of that stay is linked to the patient's nutritional status. Undernutrition in sick patients is associated with impairment of every system in the body: muscle weakness, particularly in respiratory muscles, reduction of the ability of the immune system to function; and alterations in the structure and function of the gut; delayed wound healing, apathy and depression, reduction of appetite and ability to eat, thus leading to high rates of mortality. Undernutrition and malnutrition are common in hospitalized patients. Their combined prevalence on admission is estimated at 25% and is still rising[2]

Recommended dietary allowances (RDA)[3], 24 hours patient's intake is important for patients as well as dieticians to work towards improving the intake, for health improvement of patients. Making a food satisfaction questionnaire is an intensive effort. Thus, many investigators have relied on questionnaires that have already been developed, published and validated[4,5,6,7,8]. Studies from abroad are numerous, but only last five-year research was studied as reference for the present study [9,10,11,12,13]. Very few Indian studies are available and out of those latest five years were referred [14--18]. The present study was conducted as a pilot study - a part of a forthcoming similar project to be done on a large scale.

2. AIMS & OBJECTIVES

- To critically evaluate patient experience and perceptions with regard to food services hospitality, quality and hygiene & sanitation.
- To improve the dietary facilities and performance level in hospital patient care after assessing their responses.
- Gaps will be highlighted and modifications made from this pilot study for further similar study on a larger scale.

3. MATERIAL & METHODS:

4.1 Research Design

A cross sectional study was carried out in Government Medical College and Hospital, sector 32, Chandigarh, during the months of January and February 2020 respectively. Fifty-nine patients were selected randomly: Nineteen from private and forty from general wards -- Oncology, Burn and Obstetrics and Gynaecology. Self-structured proforma was designed for interview of patients (Appendix 1) and following parameters were noted accordingly: Hospital details---name of the hospital, total no. wards, patient strength each ward, diet compulsory or

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not, whether services were contractual services (outsourced) or in house, menu was fixed or flexible, what were the diet charges in General and Private wards, and what were the different types of diets given.

Patients demographic profile: name, age (years), socioeconomic status- upper, middle, lower, diagnosis /clinical history, diet prescribed according to diagnosis, height(cm), weight(kg) and BMI (calculated by weight (kg)/ height (m^2). Weight and height were recorded from patients file. However, in burn cases the pre admission weight was recorded by the nurse. BMI of burn patients was calculated[19]. Recommended dietary allowances RDA[3], 24-hour food intake was noted by recall method and caloric intake was calculated[3].

4.2 List of Questions for Interviewing the Patients:

a) Patient's perception of hygiene and hospitality of dietary personnel having 5 sub questions.
b) Patients perception of quality and quantity of food having 9 sub questions.
c) Patients perception regarding serving cutlery having 4 sub questions
d) Patient's opinion on dietetics department and staff having 4 sub questions.

Total number of questions were 23 (annexure1). The interview questions were closed- ended with responses either as "yes or no", as these were easily comprehensible by the patients. Their responses were noted and numeric value of 1, 2 were given to responses, respectively for analysis purposes. The patients in this study were informed about the survey and their verbal consent was taken. Permission for the study was obtained from the concerned authorities.

4.3 Statistical Analysis

The data was analyzed separately for Private ward and General wards- Oncology, Burn and Obstetrics and Gynaecology wards, for all parameters of demographic profile of patients and their interview responses. Descriptive analysis was done to calculate percentages and mean, SD for various parameters taken and Pearson's correlations (r) coefficient test was also applied to measure statistical association and direction of magnitude between these parameters. Chi-square was applied on food satisfaction responses. The data was analyzed with SPSS software 25.0.

4.4 Results and Discussion

The study hospital is 800 bedded, diet is compulsory, through contractual services (outsourced) menu is fixed, diet Charges are: general ward: Rs.156.75/day and private ward: Rs.224.20/ day. Therapeutic diets are -Diabetic diet, High Protein, Low Protein diet, burn diet, Hepatic

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diet, Low Fat diet, total no. of wards is 35. Patient strength in each ward is approximately 60 except for burn unit where there are less beds.

4.4.1 Frequency of Patients

Maximum patients were from obstetrics and gynaecology wards and private wards both having same frequency (32%) (*table 1*).

Table 1. Number and percentage of patients taken for study

Wards	N	Frequency
Burn	8	13.60%
Gynae	19	32.20%
Oncology	13	22.00%
Private	19	32.20%
Combined Wards	59	100.00%

Source: Primary Data

4.4.2 Socio-Economic Status (SES)

All patients of general wards belonged to lower socio-economic group (*table 2*).

Table 2. Socio-economic status (SES) of patients ward wise (%)

	Private	Oncology	Burn	Gynae
Upper	10	-	-	
Middle	90	-	-	
Lower	-	100	100	100

Source: Primary Data

4.4.3 Duration of Stay in Hospital

The mean, maximum length of stay of patients in hospital was 7.7 days in case of burn patients and 7.8 days in Oncology patients (*table 3*).

Table 3. Mean and SD of duration of stay (days) of patients in hospital

Wards	Mean	S.D.
Private	5.2	4.1
Burn	7.7	2.4
Gynae	6.8	3.1

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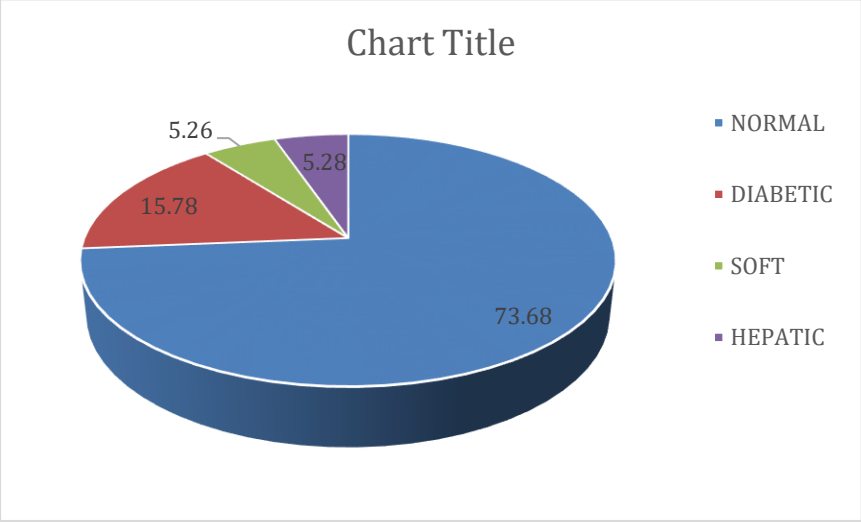
Oncology	7.8	3.1
Combined Wards	7.3	2.9

Source: Primary Data

4.4.4 Pie Diagram Showing Diets Prescribed in Private Ward

The diets were: diabetic diet- 3(15.78%), hepatic- 1(5.26%), normal- 14 (73.68%) and soft- 1(5.26%) (*Fig.1*).

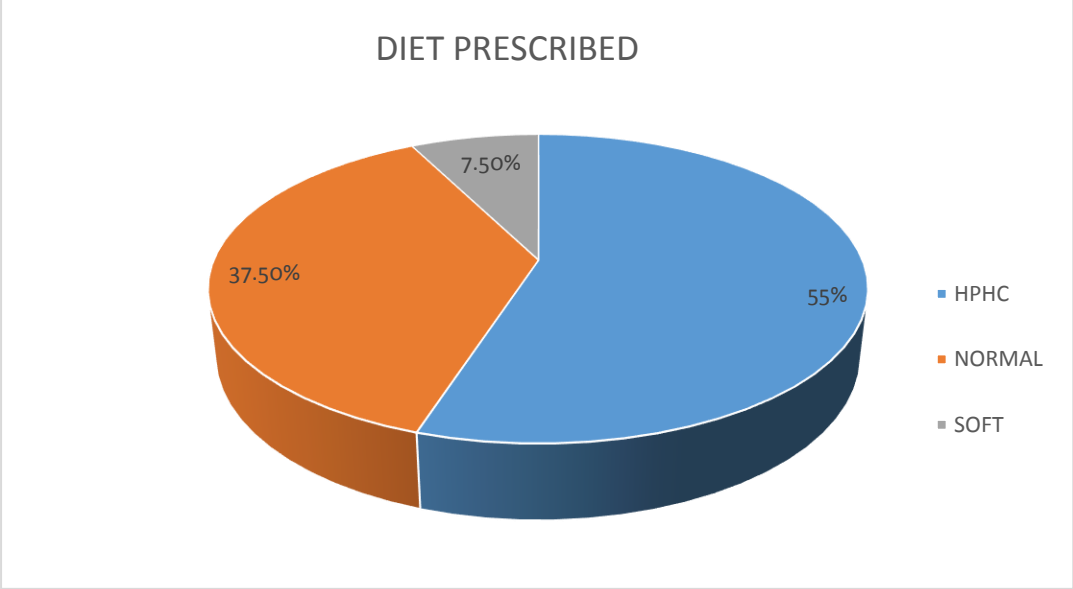
Fig 1. Pie diagrams showing diets prescribed in Private ward



3.4.5 Pie Diagrams Showing Diets Prescribed in General Wards

The diets were: normal- 15(37.5), HPHC 22(55%) and soft- 3(7.5%) (fig.2)

Fig 2. Pie diagrams showing diets prescribed to patients in General ward



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4.4.6 MEAN, SD of BMI, RDA, 24-Hour Intake & Deficit Intake in Patients of Both Wards:

Body mass index private ward patients showed maximum mean obesity value of 24.5. Mean RDA required were maximum in Burn patients to maintain their BMR (basal metabolic rate). The mean 24 hour intake of patients was close to the RDA(recommended dietary allowances) in burn patients as they were prescribed high protein ,high calorie diet: provided approximately 3000 calories and approximately 160 gm of protein for the whole day (HPHC diet). The mean deficit caloric intake was maximum in Obstetrics and Gynaecology patients as they were under stress during pregnancy, which affected their intake (table 4).

Table 4. MEAN, SD of BMI, RDA, 24-hour intake, and Deficit intake in patients of both wards

	General Ward			**Private Ward**
	BURN	**GYNAE**	**ONCOLOGY**	**PRIVATE**
Mean BMI	21.9	23.5	20.3	24.5
S.D.	2.8	3.5	3	5.4
Mean RDA	3096.3	2343.5	2128.8	2296.1
S.D.	850.8	153.9	285.4	230.5
Mean 24-HR INTAKE	2902.3	1555.1	2033.2	2208.2
S.D.	391.7	340	522	923.3
Mean DEFICIT INTAKE	194	771.3	95.7	87.9
S.D.	1092.6	392.7	635	989.1

Source: Primary Data

4.4.7 Histogram Showing Comparison of RDA and 24-Hour Dietary Intake In Private Ward Patients:

Comparison of RDA and 24-hour dietary intake in Private ward showed 9 (47.4%) patients' caloric intake was even higher than the RDA values, while 2(10.5%) cases showed exact intake of RDA and 8 (42.1%) cases showed deficit intake (*Fig. 3*).

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Fig 3. Histogram showing comparison of RDA and 24-hour dietary intake in Private ward

4.4.8 Histogram Showing Deficit Caloric Intake Of Patients Of Private Wards: (Fig. 4).

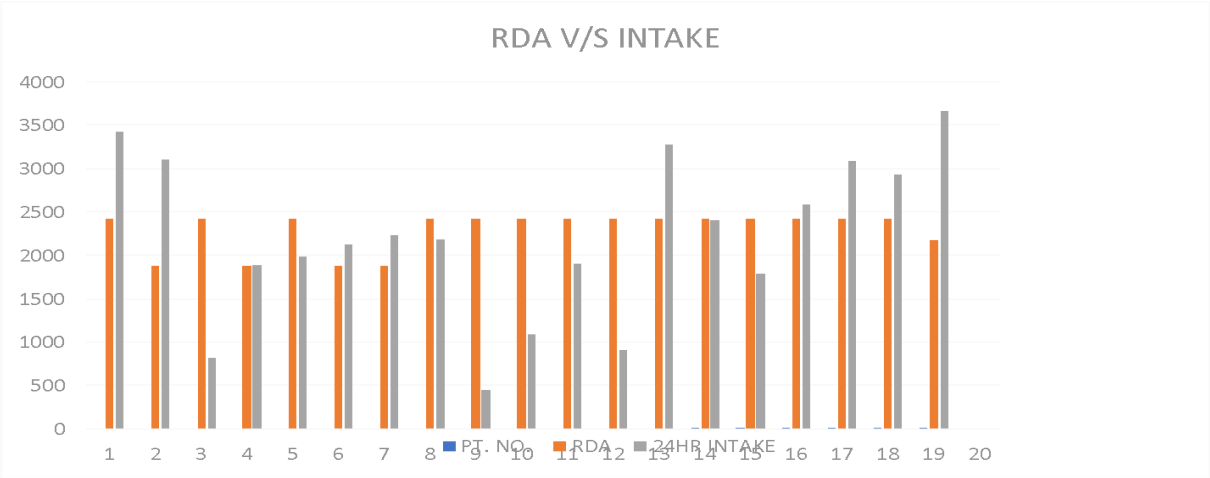
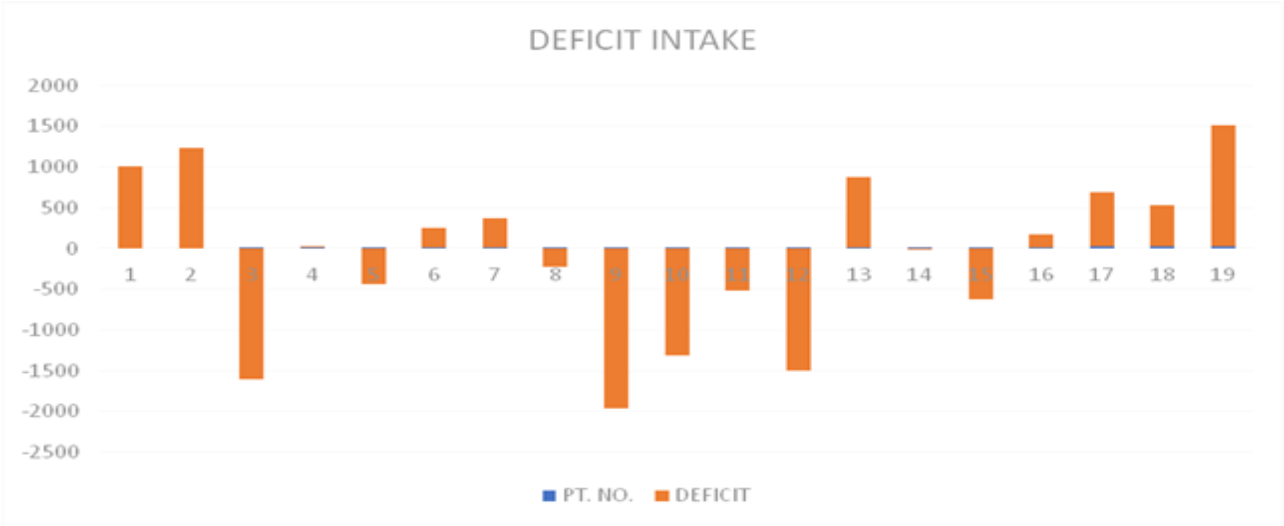


Fig 4. Histogram showing Deficit calorie intake of patients of Private wards

4.4.9 Histogram Showing Comparison of RDA and 24-Hour's Dietary Intake of Patients



of General Wards

RDA and 24-hour dietary intake of patients of General wards showed 10 (25%) showing caloric intake to be higher than the RDA (*Fig 5*).

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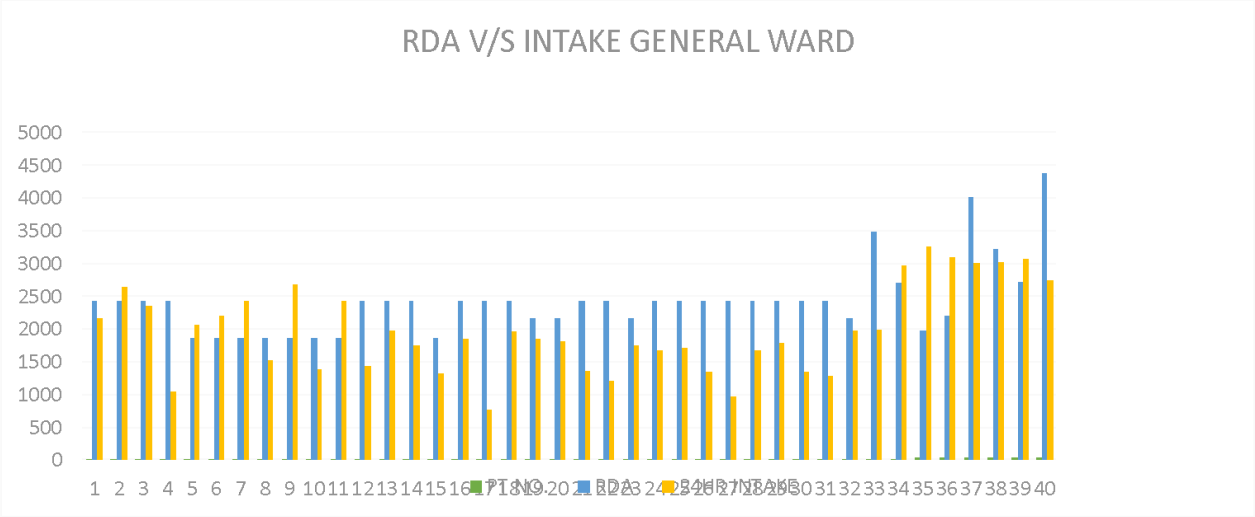
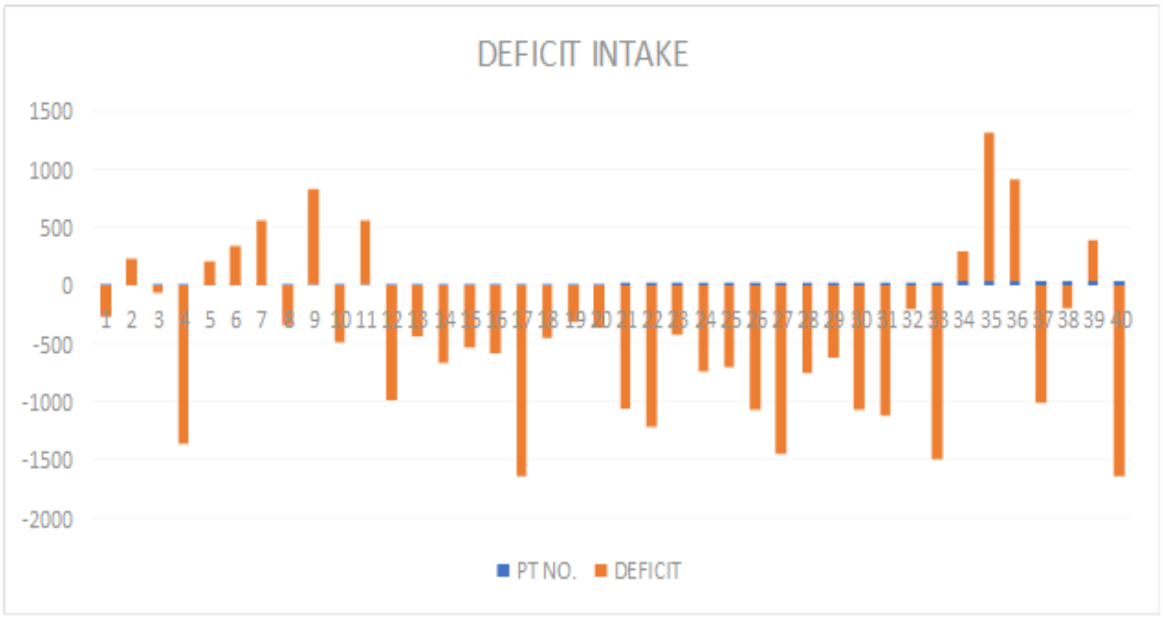
Fig 5. Graph showing RDA and 24-hour dietary intake of patients of General wards



4.4.10 Histogram Showing Deficit Caloric Intake in Patients Of General Wards.

Thirty patients (75%) showed deficit caloric intake (*fig.6*).

Fig 6. Deficit caloric intake of patients of General wards in relation to RDA



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4.4.11 Pearson's Correlations

Correlations of all parameters with SEGs were positive and highly significant with wards ($p < 0.01$) and length of stay in hospital ($p<0.05$). RDA showed highly significant correlation with deficit caloric intake ($p<0.01$) and 24 hr. caloric intake showed highly significant correlations with deficit caloric intake ($p< 0.01$). Diet prescribed showed highly significant correlation with SEGs and wards ($p< 0.01$). At confidence level of 95% and probability value greater than 0.05, no impact of age and BMI was seen.

Table 5. Correlations of Age and Other Variables

Correlations with Age and Other Variables				
Variables	**Pearson Correlation**	**Sig. (2-tailed)**	**N**	**Results**
S.E.G	-0.162	0.221	59	No Impact of Age on any of the variable at 95% confidence level. Probability value is greater than 0.05
Wards	0.021	0.873	59	
BMI	-0.053	0.692	59	
RDA	-0.164	0.215	59	
24hr Intake	-0.041	0.757	59	
Deficit Intake	-0.049	0.712	59	
Length of Stay	0.219	0.096	59	
Diet Prescribed	-0.059	0.658	59	
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Source: Primary Data

Table 6. Correlations with SEG and Other Variables

Correlations with SEG and Other Variables				
Variables	**Pearson Correlation**	**Sig. (2-tailed)**	**N**	**Results**
Age	-0.162	0.221	59	Significant impact of SEG has been found with the variables like Wards, length of stay and diet prescribed at 95% confidence level. Probability values of these parameters is less than 0.05.
Wards	.852**	0	59	
BMI	-.277*	0.033	59	
RDA	0.134	0.311	59	
24hr Intake	-0.133	0.317	59	
Deficit	0.192	0.145	59	
Length of Stay	.289*	0.026	59	
Diet Prescribed	.864**	0	59	
**. Correlation is significant at the 0.01 level (2-tailed).				

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*. Correlation is significant at the 0.05 level (2-tailed).

Source: Primary Data

4.4.12 Percentage of Positive Responses, Mean, S.D., Chi-Square Test on Food Satisfaction

Thirty-four (57.6%) patients responded as "yes" for the question on 'Did you consume all the food served to you?' and 52 (96.3%) yes responses were received for the question 'Was the prescribed diet written by your bedside served to you?' The question on "Was the serving staff wearing gloves while serving food received 100% "no" responses but it was not in the protocol at that time and similar for "Was any utensil broken or damaged", but this indicates a positive response. Thus, most patients were satisfied with the food and food service staff according to their responses, similarly chi-square test showed asymptotic significance or p-value was 0.00 thus significant.

Table 7. Percentage of Positive Responses, Mean, S.D., Chi-Square Test on Food Satisfaction

Questions	Yes		Mean±	Chi-Square	df	Asymp. Sig.
	N	%	SD			
Q1: Was the Food Service Personnel Neat In His Appearance?	59	100%	1±0	56.1	1	0.00
Q2: Did the Food Service Personnel Wear A Cap While Serving Food	59	100%	1±0	56.1	1	0.00
Q3: Was He Wearing an Identity Card?	59	100%	1±0	56.1	1	0.00
Q4: Did the Food Service Personnel Wear Gloves?	59	0%	2±0	56.1	1	0.00
Q5: Did You Like the Conduct of The Personnel While Providing the Service?	59	100%	1±0	56.1	1	0.00
Q1: Was the Food Hot When Served?	59	100%	1±0	56.1	1	0.00
Q2: Did You Like the Appearance of The Food Served to You?	59	100%	1±0	56.1	1	0.00
Q3: Did You Like the Aroma of The Food?	59	100%	1±0	56.1	1	0.00

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Q4: Was the Prescribed Diet Written on Your Bedside Served to You?	52	88%	1.12±0.33	77.7	2	0.00
Q5: Did You Consume All the Food Served to You	34	58%	1.42±0.49	29.1	2	0.00
Q6: Was the Menu Changed Daily	59	100%	1±0	56.1	1	0.00
Q7: Were Seasonal Vegetables Provided in Your Meal	59	100%	1±0	56.1	1	0.00
Q8: Did You Find the Quantity of Food Sufficient	59	100%	1±0	56.1	1	0.00
Q9: Did You Find the Food Served Tasty	59	100%	1±0	56.1	1	0.00
Q1: Did You Like the Quality of The Utensils/Tiffins Provided to You	59	100%	1±0	56.1	1	0.00
Q2: Was Clean Cutlery Provided to You?	59	100%	1±0	56.1	1	0.00
Q3: Was Any Utensil Damaged or Broken?	0	0%	2±0	56.1	1	0.00
Q4: Were the Utensils Removed Immediately	59	100%	1±0	56.1	1	0.00
Q1: did Your Dietitian Visit You Regularly?	59	100%	1±0	56.1	1	0.00
Q2: did You Receive Satisfactory Dietary Advice?	59	100%	1±0	56.1	1	0.00
Q3: were Amendments Made in Your Diet as Per Your Choice?	59	100%	1±0	56.1	1	0.00
Q4: did You Receive Any Go Home Dietary Advice?	59	100%	1±0	56.1	1	0.00
Q5: are You Happy with The Overall Experience with The Dietetics Department?	59	100%	1±0	56.1	1	0.00

Source: Primary Data

Present study respondents' response rate was 100%. This study showed a retention rate of 100% thus the large-scale study is likely to be feasible. Effectiveness of results of pilot study were understood as potential effectiveness. Focus was on feasibility and not on statistical significance. Majority of inpatients were satisfied with food services in hospitals in India (89.1%) Syed Shuja qadri[16]. A study conducted in Kenya found that majority of the respondents rated food services as average[19]. Other studies conducted in Saudi Arabia and Egypt have reported that more than half of patients interviewed were satisfied with hospital food[19]. Possible reasons for the variation in satisfaction is that each hospital offers a unique

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menu, the target population, methodological influences and individual values of patients may vary.

Another study concluded that ongoing education and communication with patients and dieticians is important in improving satisfaction with food service. The satisfaction level of patients on food and food staff services in the present study found a positive association. Limitations of the present study were that a larger sample could have been taken; trolley services in general wards and tray services in private wards should have been compared. Every study has its limitation as all aspects related to dietary services cannot be discussed in a single paper.

Recommended amendments for large scale study are --not to take these same patients; to keep the name of patient anonymous and they should be told that. Few questions on responses should be reframed. Food service system should consider the food preferences of patients especially the geriatric group in order to improve the nutrient intake. An assessment of diet satisfaction and working of dietetics staff can make the hospital administrators and policy makers aware about the deficiencies in hospital dietary management system from grass root levels and thereby help making workable government policies and regular checks to improve this area of patient satisfaction in hospitals.

5. SUMMARY

The present pilot study is an attempt to assess food satisfaction of patients admitted in private and general wards of a Government hospital in Chandigarh. The results showed positive response to questions regarding diet given and dietary services. Few drawbacks were less number of sample and biased answers due to non-anonymity of patients.

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APPENDIX 1

Questionnaire Proforma: -

A. Hospital Details

1. Name: Government Medical College and Hospital (Chandigarh)
2. Total strength of hospital 850 bedded
3. Wards selected:

- Private
- General Ward
- Burn
- Obstetrics and Gynaecology
- Oncology

4. Number of Patients taken
   - Private ward=19
   - Burn = 8
   - Gynaecology = 19
   - Oncology = 13

5. Dietary service provided: Contractual (outsourced) M/s catering services
6. Dietary Charges:

- General Ward: Rs 156.75 /-day
- Private Ward: Rs 224.20/-day

7. Menu: Fixed Therapeutic diet:

- Diabetic Diet □
- High Protein □
- Low Protein Diet □
- Burn Diet □

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- Hepatic Diet □
- Low Fat Diet □

B. Patient Demographic Profile

1. Name of Patient _____

2. Age(years) _____

3. Gender: Male □ / Female □

4. Marital Status: Married □ / Unmarried □

5. Diagnosis /Clinical History _____

C. Anthropometric Measurements

1. Height - Ht (cm) _____
2. Weight- Wt (kg) _____
3. BMI-Wt(kg)/Ht $^{(m2)}$ _____
4. Diet Prescribed _____

D. Patient Perception of Hospitality And Cleanliness Of Food Service Provider

- Was the Food Server Looking Neat? Yes □ No □
- Was His Dress Clean? Yes □ No □
- Was His Beard Shaved? Yes □ No □
- Was His Hair Cut Short? Yes □ No □
- Was He Wearing a Cap? Yes □ No □
- Was the food service person polite? Yes □ No □
- Did he serve food in a polite manner? Yes □ No □

E. Patient Perception of Food

- Do you like the aroma food? Yes □ No □
- Do you like the appearance of food? Yes □ No □
- Was the food right temperature? Yes □ No □
- Was the quantity of food enough? Yes □ No □
- Was the food tasty? Yes □ No □

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- Did you consume all the food served to you? Yes □ No □
- Was the prescribed food given to you? Yes □ No □
- Was the menu changed daily? Yes □ No □

- Did your appetite increase compare to your home with hospital food? Yes □ No □
- Was the food easily digestible? Yes □ No □
- Are you allergic to specific food group? Yes □ No □
- Are you given any support when you can't eat at your own? Yes □ No □
- Are you satisfied with the time of food distribution? Yes □ No □
- Are you satisfied with cleaniness of cutlery? Yes □ No □
- Are you visited by the dietician regularly? Yes □ No □
- If you have any problems regarding diet are they solved? Yes □ No □
- Is your diet changed on demand? Yes □ No □

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