

# Patients Emotions during Meal Experience: Understanding through Critical Incident Technique

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## Abstract

**Background and Objectives:** It was established that eating experience may affected patients emotionally. Acknowledging the role and understanding the basis of patients' emotions in their food consumption may assist in identifying their nutritional status as well as their satisfaction with foodservice. To date, there are limited studies focusing on patients' food-related emotional experiences. Hence the present study sought to explore the issue using a qualitative approach.

**Methods:** The study was conducted in 3 Malaysian public hospitals, 2 of which from rural and 1 from urban areas. Information about aspects of the hospital food experience was gathered using semi-structured interview method. A total of 29 patients who felt well enough to provide information about the hospital food were identified with the help of the head nurses. Patients were recruited based on the concept of data saturation. The interview was implemented based on Critical Incident Technique (CIT), which enables systematic extraction of information from the wealth of data in the stories told by the interviewees about things which have happened to them. Data were analysed using content analysis method.

**Findings:** Patients were found to experience emotions including frustration, interest, enjoyment, hostility, shame, boredom, sadness, anger, surprise and satisfaction in relation to food provision. The frequency of incidents eliciting negative emotions (56.7%) was higher than that of positive incidents (43.3%). Frustration, interest, and enjoyment were the most frequently reported emotions.

**Conclusions:** Our study highlights emotion as an important aspect of patients' food consumption, and lays a ground for incorporation of food-related emotion into hospital services and patient management research. Our study also indicated the CIT to be effective and credible in elucidating hidden patients' emotions, which encourages its application in future relevant studies.

**Keywords:** Emotions, Food services, Hospital, Meal experience, Patient, Patient satisfaction

## Background and Objectives

The field of emotions is very old and often dominated by a clinical orientation, whereby the main focus of the traditional study of emotions has been the negative emotions associated with mental health, especially mental illness,<sup>1</sup> but there are more and more research on the role of emotion in various aspect, especially food consumption.<sup>2-6</sup> It is known that human's eating behaviours are very much affected by their emotions.<sup>3,5,7,8</sup> Sensory preferences specifically are related to emotional experiences, which in turn affects how an individual judges the food.<sup>5,6,9</sup> Generally, emotion has been determined as a key factor influenc-

ing individuals' food choice.<sup>9</sup> Although there are strong evidences indicating that emotions affects food consumption, there is lack of recognition that emotion plays an important role in patients' food consumption.

Changes in eating environment (from home to hospital), combined with stress of being unwell may not be the only factors affecting patients' eating behaviour. Consuming meals in a different environment from usual, particularly in hospital and being unwell could alter patients' wants and needs, and subsequently their food consumption. It was established that not only patients' health condition could have contributed to emotions they feel, but their eating experience itself could be a factor that affected them emotionally. Although emotion rarely emerged in studies due to its complexity and difficulty in explaining and inter-

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preting, it was obscurely emphasised by Vijayakumaran et al, creating grounds for further investigation.<sup>10</sup>

Emotion is a subjective experience during service encounters, which is given more recognition in various eating settings<sup>1,5</sup> but limited in hospital setting. This is because the issue of emotions experienced by patients and the potential role in satisfaction with food provided, compliance and eating behaviour as a whole have been neglected and regarded as less important.<sup>11</sup> Understanding the basis of patients' emotions and acknowledging their emotions in food provision will make important contribution towards food consumption, and perhaps their nutritional status. To date, there are not many studies focusing on patients' emotional experiences.

There is still no standard method or multiple methods for emotion measurement.<sup>1</sup> However, when conducting emotion research, perhaps the first question to be asked is what type of method to use: questionnaire, facial, physiological, or behavioural.<sup>1</sup> In the health research, both positive and negative emotions are being explored.<sup>12,13</sup> Belanger and Dube used the PANAS questionnaire to identify emotions that patients experience during meal times, where various emotions, mostly focusing on negative emotions were highlighted and has been used widely to measure subjective well-being of patients.<sup>11,14</sup> However, it was unclear how or what triggered the emotions they experienced. Besides, the study focused on emotions as a moderator of satisfaction with foodservice, not entirely focused on patients' food consumption. Johns et al, studied patients' emotional experience using the Profile Accumulation Technique (PAT), which allowed identification of the key words used by patients in conveying their eating experiences. The study was conducted on a small scale and focused on a more quantitative approach, which did not allow analysis of their experience in-depth. Johns et al suggested that a qualitative approach was essential to obtain deeper and broader insight from patients.<sup>15</sup>

Tools and approaches used to date focused on acquiring empirical data, while this study aimed to obtain subjective data that provides in-depth insight and complements the empirical findings presented by other researchers. Besides, based on previous research<sup>10</sup> it was decided that interview alone may not be adequate to understand emotions experiences, as patients felt difficult to relate their eating experience with emotions felt. The decision to include Critical Incident Technique (CIT) was governed by the fact that patients found it hard to relate to their experiences in other words, it was hard to persuade them to be involved in continuous conversations as answers were usually short and not elaborate. The CIT was helpful, as it encourages patients to be participative, relating to various

incidents which took place during hospitalisation.

The CIT was developed by Flanagan, and was introduced to social sciences as a set of procedures of collecting, analysing, and classifying observations of human behaviour.<sup>16</sup> The technique has since been used widely in various fields, from management, human resources, hospitality, medicine and education.<sup>17</sup> According to Lockwood, incorporating CIT in service based disciplines provides very rich data which are useful at the qualitative level to identify problems which might not otherwise be evident.<sup>18</sup> Inclusion of the CIT was considered as an extremely useful instrument, as most people were happy to recount their stories,<sup>17</sup> hence the CIT was expected to allow a wealth of data collected, and useful in understanding patients' emotional experiences in relation to provision of hospital food, an important service element in the hospital environment. Besides, the CIT allows a qualitative technique, which also generates quantitative data.<sup>19</sup>

## Methods

### Study Design

Information about aspects of the hospital food experience were gathered using semi-structured interview method.

A qualitative study based on semi-structured interview was designed. Before conduction of the interview themes patients often relate with food consumption were extracted from previous studies.<sup>10,20</sup> These included 'meaning of food', 'familiarity of food', 'influences of food attributes on eating behaviour', 'right to choose', 'influence of environment on eating behaviour' and 'feeling cared by staff'. These themes were useful in conducting the interview sessions. The concept of 'data saturation', was used in recruiting patients. A combined CIT and content analysis was used to analyse the data. The CIT was particularly used because it treats respondents' stories as reports of facts. The content analysis then focuses on the classification of such reports by assigning incidents into descriptive categories to explain the event. Main steps in incorporating the CIT was adopted from Lockwood, which includes 'collect the incidents', 'analyse the incidents' and 'prioritize the incidents'.<sup>18</sup>

### Ethical Issues

Permission from the Ministry of Health, Malaysia and the Ethical Committee of each targeted hospital were obtained prior to data collection. After identifying the potential patients with the help of ward sister, patients were briefed and their consent to participate was obtained.

### Data Collection

The study was conducted in 3 Malaysian public hospitals,

1 of which from rural and 1 from urban areas. A total of 29 patients who felt well enough to provide information about the hospital food were identified with the help of the head nurses. Patients with a specific health condition, such as cancer were excluded due to the effect of the disease itself on food consumption and appetite. Besides, only patients on normal diets were included, as patients on therapeutic diets might have their perceptions influenced by the type of meal itself.

In implementing the CIT, the patients were asked to share and describe meal time incidents, before further probing about their experience to understand the impact of emotion on their eating behaviour;

- Patients were questioned about both positive and negative experiences to identify incidents, with prompt questions such as *could you recall a meal experience that you really enjoyed? Could you recall a meal experience that was very unsatisfactory?*
- Patients were later asked to recall the incidents mentioned and describe them in detail, with prompt questions such as *What happened? Why was it good or bad? What was the outcome or results of the incident? How could it be better?*

### Data Analysis

Analysis of the incidents was carried out by Content Analysis method which has proven helpful in understanding the emotions, especially when CIT is used.<sup>17,21</sup> Particular steps that were used in content analysis included<sup>20</sup>:

1. Identifying content or themes represented by clusters of incidents and conducting 'retranslation' exercises.
2. Sorting incidents into content dimensions or categories to identify incidences that are judged to represent dimensions or the behaviour being considered (in this case – emotions). Examples of categories include identical, quite similar, possibly similar, positive, and negative.
3. Each category and sub-categories was given name and the number of responses in each category was counted.

The NVivo software was used to manage the qualitative data gathered.

## Results

### Demographic and Hospitalisation Information

Table 1 show the demographic and hospitalisation information of the patients. While 62% of the patients were female, 35% were between 35 to 53 years of age, 69% stayed 1-8 days at hospital and 41% were admitted in the hospitals for the first to third time(s), 45% used the third class services, and 52% used out-sources food

**Table 1.** Patients' Demographic and Hospitalisation Information

Variable	No.	%
Sex		
Female	11	38
Male	18	62
Age (y)		
21-34	7	24
35-54	10	35
≥ 55	12	41
Hospital stay (d)		
1-8	20	69
9-16	7	24
≥ 17	2	1
Admission (times)		
1 <sup>st</sup>	12	41
2 <sup>nd</sup> -3 <sup>rd</sup>	12	41
4 <sup>th</sup> -6 <sup>th</sup>	5	18
Class		
1 <sup>st</sup>	6	20
2 <sup>nd</sup>	10	34
3 <sup>rd</sup>	13	45
Cater system		
In-house	14	48
Out source	15	52

catering system.

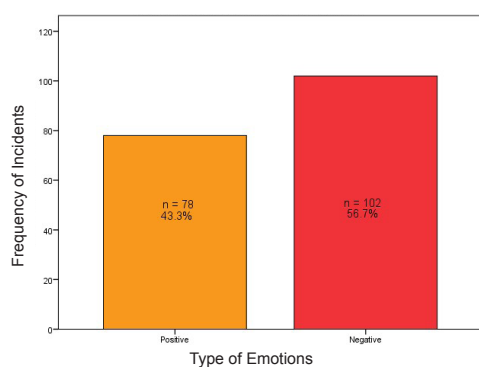
### Frequency Analysis of the Incidents Eliciting Emotions

Analysis of 180 incidents from 29 patients revealed higher frequency of negative incidents (56.7%) compared with positive incidents (43.3%) (Figure 1). Positive incidents elicited positive emotions and negative emotions elicited negative emotions. Analysis of the incidents indicated that the emotions elicited were specific to factors related to food consumption and not to how the patients generally felt during their hospitalisation or on a particular day.

A total of 17 emotional themes were elicited comprising 10 negative and 7 positive emotions (Table 2). 'Frustration', followed by 'Interest', and 'Enjoyment' were the most often reported emotions. The least reported emotions were 'comfort', 'relief' and 'loneliness', respectively.

### Frequency Analysis of Patients' Hospitalisation Factors in Relation to Incidents Eliciting Positive and Negative Emotions

Table 3 presents the types of incidents (eliciting positive or negative emotions) versus patients' hospitalization information. Patients from hospitals which practised 'in-house' catering system (n=42, 23.3%) and from small and rural hospitals (n=42, 23.3%) mostly reported positive inci-



**Figure 1.** Frequency of Incidents Eliciting Positive and Negative Emotions.

dents. Patients who were admitted for chest pain/observation reported the most positive incidents ( $n=24$ , 13.3%). Majority of positive incidents were also reported by patients who had stayed fewer days (1-8 days), were admitted twice to thrice ( $n=34$ , 18.9%), and hospitalized in the second class wards ( $n=31$ , 17.2%). On the other hands, patients who underwent surgery reported most of negative incidents ( $n=34$ , 18.9%). Majority of negative incidents were reported by patients from hospitals which practised 'outsourced' catering system ( $n=61$ , 33.9%) and from big and urban hospitals ( $n=61$ , 33.9%). Similar to positive incidents, most of the negative incidents were from patients who stayed 1-8 days ( $n=63$ , 35.0%) and admitted twice to thrice ( $n=50$ , 27.8%), and hospitalized in the third class wards ( $n=46$ , 25.6%).

### Positive Emotions Experienced

Positive emotions expressed were 'interest', 'enjoyment', 'satisfaction', 'surprise' and 'happiness'. These emotions were evoked either before food consumption or upon completing meals.

#### Interest

The emotion category 'interest' encapsulates emotions such as 'anticipated', 'determined', 'confident' and 'enthusiastic' to eat. This emotion was usually expressed based on patients' experience at the point food was served. Patients indicated that they were 'interested' to eat mostly when they were pleased with aspects related to food attributes (freshness), followed by staffs' attitude towards them. More specifically, most of them were 'interested' to eat when presentation (garnishing, neatness) of food was considered excellent, and when they were content with cleanliness of food trays and cutlery. Whenever the word 'interested' to eat were expressed, it was an assurance that patients had the intention to eat;

*"Cleanliness of the trays and cutleries, kitchen staffs' appearance, and tidiness of food presented are excellent! I'm interested ... and confident to eat"* (Patient 10,

**Table 2.** Frequency of Emotions in the Incidents Described

Emotion Category	Total		Type of Emotion
	Category	%	
1.	32	17.8	Negative
2. Interest	28	15.6	Positive
3. Enjoyment	19	10.6	Positive
4. Hostility	14	7.8	Negative
5. Shame	11	6.1	Negative
6. Boredom	9	5.0	Negative
7. Sadness	9	5.0	Negative
8. Anger	8	4.4	Negative
9. Surprise	8	4.4	Positive
10. Satisfaction	8	4.4	Positive
11. Disgust	7	3.9	Negative
12. Happiness	7	3.9	Positive
13. Lack of Interest	6	3.3	Negative
14. Guilt	5	2.8	Negative
15. Comfort	4	2.2	Positive
16. Relief	3	1.7	Positive
17. Loneliness	2	1.1	Negative
Total	180	100	

*Male, Outsourced).*

*"I was interested to eat because the vegetable and fish were very fresh, but I'm assuming quality was maintained because its 1st class food, don't think same quality is provided in 2nd or 3rd class."* (Patient 23, Female, Outsourced).

#### Enjoyment

Patients expressed this emotion using words such as 'enjoyment' 'pleasurable' and 'nostalgic'. This emotion was often expressed after consumption of the meals. The majority of patients said they 'enjoyed' the food when food was tasty, particularly dishes like pudding and a selection of fruits. Other patients expressed 'enjoyment' when the food served was viewed as familiar food. Meal times were particularly 'pleasurable', a reminder of pleasant memories of home-cooked food when the food was well-executed.

*"It was a pleasurable experience... I enjoyed when they served tasty fried noodles. It was just like how I eat at home... so I really felt that I enjoyed the meal."* (Patient, In-house).

#### Satisfaction

'Satisfaction' was an emotion expressed after meals, and was similar to the emotion - 'enjoyed'. The majority of patients were influenced by food attributes. They were also 'satisfied' because adequate attention was given to food preparation, and high-quality products were used to prepare the meals. Provision of a variety of dishes led to 'sat-

**Table 3.** Analysis of Patients' Hospitalisation Factors in Relation to Incidents Eliciting Positive and Negative Emotions

	Incidents Eliciting Positive Emotions		Incidents Eliciting Negative Emotions		Total	
	No.	%	No.	%	No.	%
Catering system used						
In-house	42	23.3	41	22.8	83	46.1
Outsourced	36	20.0	61	33.9	97	53.9
Hospital size/location						
Small/rural	42	23.3	41	22.8	83	46.1
Big/urban	36	20.0	61	33.9	97	53.9
Reason admitted						
Surgery	15	8.3	34	18.9	49	27.2
Accident	8	4.4	18	10.0	26	14.4
Dengue fever	22	12.2	27	15.0	49	27.2
Chest pain/observation	24	13.3	16	8.9	40	22.2
Others	9	5.0	7	3.9	16	8.9
Duration of stay						
1-8 days	45	25.0	63	35.0	108	60.0
9-16 days	22	12.2	27	15.0	49	27.2
17-20 days	11	6.1	12	6.7	23	12.8
Class of wards						
1st Class	20	11.1	27	15.0	47	26.1
2nd Class	31	17.2	29	16.1	60	33.3
3rd Class	27	15.0	46	25.6	73	40.6

isfaction' and affected their food consumption.

*"There are quite a lot different dishes served here, although it is normally fish and chicken every day. After eating, usually I feel satisfied because of the variety element. And because I'm satisfied, I'm able to consume more...Hahaha."* (Patient 19, Male second class, Outsourced)

### Surprise

Patients were generally 'surprised' when a particular food was served and the food was tasty, which indicated the important role of food attributes. In general, 'surprise' was elicited when the service they received exceeded their expectations, as the patients tend to have low expectations of hospital food. Serving food that was usually eaten on special occasion's results in the element of 'surprise'. This included food like 'tomato rice' and 'Chicken Korma' and 'Tom yam' – Thai spicy clear soup.

*"Last week they served chicken 'korma' and 'tomato rice', I didn't expect the dish in the hospital menu, as it's usually served during special occasions...I was very surprised! The moment I saw the dish, I ate quickly... was really tasty. It's good to have this kind of surprises, I finished the food."* (Patient 6, Female second class, In-House)

### Happiness

'Happiness' was described using words such as 'cheerful', 'glad' and 'happy'. The main factor eliciting this emotion was staff's empathy during meal times. Staff (both nurses

and kitchen staff) being friendly, allocating time for a short conversation or simple greetings elicited this emotion. Other factors included tasty, familiar food.

*"When I eat alone, I tend to think too much about my illness...Don't really have the appetite to eat. A quick greeting and exchange of words with the staff makes me feel better... make me feel happy... cheerful... and in a way, that makes me eat more!"* (Patient 25, Male, second class, Outsourced).

### Comfort

'Comfort' was expressed as an emotion by patients when delicious and familiar dishes were served. Being able to consume in a comfortable environment also elicited the emotion - 'comfort'.

*"I felt there was a sense of comfort when they served food that was similar to home. Serving food that I usually eat is very important, as I'm persuaded to eat."* (Patient 10, Male, second class, In-house)

### Relief

At most times, patients needed assistance during meal-times, but were often embarrassed or shy to ask for help from the nurses. A sense of 'relief' was present when nurses identified them before help was requested, and nurses were polite in providing the assistance.

*"At lunch time, I was dreading because I had to ask for help. I felt embarrassed to ask... I have been independent for so long. I couldn't eat with my left hand. Luckily, the nurse came by and helped without me asking. I*



*was so relieved... I could eat... emotionally I was feeling better... relieved!" (Patient 12, Male, second class, In-House)*

### Negative Emotions Experienced

Negative emotions were mentioned more often than positive emotions. This included emotions such as 'frustrated', 'hostile', 'shame', 'bored', 'sad', 'angry', 'disgust', 'uninterested', 'guilty' and 'lonely'. It is not uncommon to find that patients tend to experience more negative emotions, as many studies have indicated patients as being dissatisfied with hospital food. In this section, each negative emotion elicited is examined, to understand its impact on patients' food consumption, especially in relation to decisions to eat food brought from outside.

#### Frustration

'Frustration' was the most widely mentioned negative emotion. Patients expressed 'frustration' also by using words like 'irritated' and 'annoyed'. Food attributes were most often associated with patients' 'frustration'. They were 'frustrated' because of poor taste, especially bland food. The effect of bland food was evident when patients' food consumption was reduced or food from outside was consumed, although their appetite was good.

*"The vegetables and curry was bland. When they serve like that, I get really irritated because I want to eat... hungry you see. But after one or two spoons, I usually stop eating. It's really frustrating!" (Patient 22, Male, first class, Outsourced)*

Other factors related to alternatives were no choice offered in terms of portion size and vegetarian options, disregarding patients' eating habits, allergies and preferences, and no option to choose when they could consume.

*"I can't eat spicy food... And I enjoy when something that I'm familiar is served. Here, it is very difficult because all the dishes are spicy and I can't eat. I get frustrated every meal time because I have to wait for food from home... and I'm usually really hungry, I want to eat. It's so frustrating that I don't feel like I want to eat..." (Patient 15, Male, third class, Outsourced)*

#### Hostility

'Hostility' was the second most common negative emotion elicited. The emotion was expressed using words such as 'fear', 'scared', 'hostile' and 'unpleasant surprise'. Experiencing 'hostility' caused a refusal to accept hospital food on subsequent occasions. As a consequence, patients chose to eat food from outside, which elicited positive emotions like 'happiness' and 'enjoyment'. Food attributes and eating environment were the major contributors to this

emotion. In terms of food attributes, compromised food quality, freshness and taste were often mentioned, and stopped patients from eating.

*"On my first day here, they served fish... it was old stock... couldn't bear the smell. After that day, I just couldn't eat any fish dishes they served. I have this feeling... hostile to any fish dishes after that day." (Patient 8, Male, second class, In-House)*

#### Shame

The emotion 'shame' was the third most common negative emotion elicited. In addition to 'shame', other words such as 'embarrassed', 'humiliated', 'lowly' and 'feel small' were used to express this emotion. Staff attitude (both nurses and kitchen staff) was most to elicit this emotion.

*"They just leave the food on the table...when they do like that, I feel lowly because I have seen how they treat the 1st class patients. It is not a good feeling... it affects my food consumption....They don't bother to acknowledge me because I'm in 3rd class." (Patient 13, Female, third class, Outsourced)*

#### Boredom

Patients were 'bored' mostly because of lack of food choices or variety. The majority of patients were 'bored' by the monotonous meals and repetition of fish and chicken every day. Patients were also 'bored' when they had to consume alone. Eating alone was unusual for many; hence they preferred to eat in the presence of others.

*"I can't tolerate and I'm extremely bored with the routine of serving fish and chicken every day. I have to eat, but really can't eat much... very boring... can't eat." (Patient 16, Female, first class, Outsourced)*

#### Sadness

'Sadness' encompassed emotions such as 'depressed', 'unhappy', 'distressed' and 'disturbed'. In relation to food attributes, factors such as food texture, taste and ingredients were directly implicated with the emotion category 'sadness'. They were 'upset' when compromised quality food was provided and could not eat.

*"They don't care about the taste. I get very sad because often my favourite food is served, I can't eat. The texture really makes me distressed!" (Patient 14, Female, second class, Outsourced)*

#### Anger

Patients were 'angered' when cold food was served or less attention was given to ingredients and taste.

*"It really angered me when they served cold fried noodles every time... I stopped eating after that." (Patient*

2, Male, third class, In-House).

### Lack of Interest

Patients indicated that they felt 'uninterested', 'discouraged' or were 'tired of eating', which was associated with familiarity of food and the choices available. Serving unfamiliar food was the main issue associated with this emotion. Particularly, dishes based on one particular ethnicity, as gradually patients became 'uninterested' to eat. This was common among patients who were hospitalised for longer.

*"Malay dishes are not something that I eat usually... I feel I'm discouraged or become uninterested when Malay dishes were served, particularly when I was feeling unwell."* (Patient 19, Male, second class, Outsourced)

### Guilt

A small number of patients felt 'guilty' after their meal experience. Being 'guilty' was associated with aspects such as food attributes, choice and the staff's attitude. Regardless of the reason, patients felt 'guilty' because they wasted a substantial amount of food. Patients were discouraged by presentation of large portions, taste or choices, which elicited guilt.

*"The taste... the texture and large portion of food... ugh! I cannot eat at all! I have tried, but I couldn't eat... I feel guilty... very guilty because I'm wasting food. Sometimes the nurses encourage me to eat, but still cannot... feel guilty they take the effort to encourage me but I can't eat."* (Patient 14, Female, second class, Outsourced)

### Disgust

This emotion was expressed when patients could not tolerate the hospital food at all. 'Disgust' was described using words such as 'disgusted', 'hate', 'horrible' and 'revolting'. 'Disgust' was a strong negative feeling, which was not often mentioned. However, when it was evoked, patients' perceptions towards hospital food changed drastically, and they avoided hospital food afterwards. Factors that elicited this emotion included the presentation (neatness and food spillage) and perceived freshness of food.

*"I was disgusted by the sight of food spillage and messiness of the tray... I felt so disgusted that I couldn't eat... I don't have the confidence to eat."* (Patient 3, Male third class, In-House).

### Loneliness

Feeling 'lonely' was not mentioned very often, but patients felt 'lonely' when they had to eat unaccompanied, especially on the bed. They were positive that their food con-

sumption would improve if a communal dining area was provided, which would allow them to eat with others.

*"Whenever I eat alone... I feel so lonely. I prefer to eat with the other. It will make a big difference if there was a dining area here... a bit of socialising with others... surely I will eat better... won't feel lonely."* (Patient 17, Female, third class, In-House).

## Discussion

In comparison with other hospital-based studies, the findings in this study identified similar emotions, but ranked them differently. For example, 'irritable', 'sad' and 'tense' were the least mentioned emotions by hospitalised adult and elderly patients in Canada.<sup>11</sup> Johns et al<sup>15</sup> reported emotions such as 'fear', 'boredom' and 'relief' in relation to food consumption among adult patients in the UK, but it was unclear which one emotionally affected patients the most or the least.<sup>15</sup> However emotions mentioned by patients in this study are similar to the emotions mentioned in everyday food consumption, both eating at home and eating out.<sup>22-24</sup>

Patients from small rural hospitals which practices 'in-house' catering system experienced higher positive emotions. It is known that patients regarded food provision as compromised when a particular system was practised, and associated with size and location of the hospitals influenced the outcome of service provision.<sup>10</sup> More positive emotions were reported among patients who stayed 1-8 days, indicating that patients who stay the shortest period would be more positive about their experience. Patients who were familiar with hospital food before, reported more positive emotions, which can be explained by previous acquaintances with hospital food. Patients from third class wards experienced the most negative incidents, indicating distinct variation in services provision according to classes, as observed by Vijayakumaran et al.<sup>10</sup> Our results indicated an apparent link between emotions and demographics, experiences of hospitalisation, and food provision factors, similar to other studies.<sup>15</sup>

Various factors have been associated with food consumption during hospitalisation, which includes food attributes,<sup>15</sup> food choice,<sup>25</sup> familiarity of food,<sup>8,26</sup> role of staff,<sup>27,28</sup> and eating environment.<sup>29</sup> Although these factors have been associated directly with patients' food consumption, emotion has not been highlighted as a key factor. Our study shows that emotion could be considered as an inter-mediating factor between factors affecting patients' food consumption and patients' food consumption. In another word, our results study provided evidence that hospitalised patients are affected by emotions that may have had detrimental effects on patients' food consumption.

Both positive and negative emotions have been recognised as vital in any food consumption situation,<sup>5,6,30</sup> and this was also found among patients in this study. Previous studies have classified factors (such as sensory attributes, experienced consequences, anticipated consequences, personal/cultural meanings and actions of associated agents) that elicited positive or negative emotions,<sup>1,3,4</sup> in healthy individuals. While similar factors were identified in this study among patients, their importance differed in various eating situation. On the other hands, patients' motivation to eat was not directly associated with the nutritive value of the food. Their main motive was, rather, to experience 'comfort' and 'pleasurable' eating experience. Further studies could take a quantitative approach and a nationwide scale to study the issues related to emotions and patients' food consumption. Since this study indicated the role of emotion among patients admitted in the general ward (admitted for general health conditions), future research could also investigate the role of emotions in specific groups of patients (e.g. patients admitted for different medical conditions - cancer, heart failure).

## Conclusions

Our findings identified emotion as an important aspect of patients' food consumption. According to our results, patients are affected by the emotions that are evoked by various factors related to the food provision. Emotions that were elicited most often included 'frustration', 'interest', 'enjoyment', 'hostility', 'shame', 'boredom', 'sadness', 'anger', 'surprise' and 'satisfaction'. Eating behaviour is complex and can be understood from various perspectives. It is even more complex when it involves patients who are affected by additional factors such as the treatment that they are undergoing, unfamiliar environment and structured eating conditions. Our study thus shows the relevance of research into the emotional aspects of food consumption among patients as a potentially important factor in patient and hospital management.

Use for the first time in the context of food consumption in the hospital in our study, CIT proved to be effective in highlighting hidden factors underlying patients' behaviours, particularly emotions, and thus gains further credit to be applied in future relevant researches.

## Abbreviations

(CIT): Critical Incident Technique.

## Authors' Contributions

The study was jointly designed by AE and ML and contributed to interpretation of results. RKV was the principal researcher and made the major contribution to conduction of

the study and drafting the manuscript. All authors read and approved the final manuscript.

## Competing Interests

The authors declare no competing interests.

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