A new measurement tool to assess the deliberate overfeeding of others: The Feeder questionnaire

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Summary
Whilst overeating is often influenced by others in an implicit way, people may also explicitly encourage others to overeat. This has been labelled being "a Feeder" but to date, this more deliberate trait remains neglected. This study aimed to conceptualize being "a Feeder" in terms of motivations and behaviour and to operationalize this construct with a new measurement tool through five stages with three discrete samples. Using the definition of a Feeder as "someone who offers others food even when they are not hungry" a preliminary qualitative study (n = 5) clarified the behaviour of a Feeder and revealed six motivations for such feeder behaviour. These six motivational dimensions and the feeder behaviours were operationalized with individual items and the psychometric properties of the scale were assessed using two independent samples (n = 116; n = 113). The final 27-item measure consisted of six motivational factors (affection; waste avoidance; status; hunger avoidance; offloading; manners) and one behaviour factor, all with good internal consistency (α ≥ .7). The two samples were then merged (n = 229) to describe motivations and behaviour and to assess the association between them. The best predictors of feeder behaviour were love, offloading, manners and status. This new Feeder questionnaire has a strong factor structure and good internal consistency and could be used for further research or clinical practice.

KEYWORDS
eating behaviour, feeder, motivations, overeating, overweight, social influence

1 | INTRODUCTION

Overeating is central to overweight and obesity and can be a core symptom of disordered eating.1,2 The social environment is key to how much and what is eaten and can take different forms ranging from more distal factors such as the broader food industry and the increasing availability of high energy food to more proximal factors such as the impact of others on food intake.1-3 This latter, more proximal social environment is the focus of the present study and can impact upon eating behaviour either implicitly in a passive way or explicitly in a more deliberate way. To date, however, whilst much research has explored the implicit impact of others, little research has addressed the more explicit and deliberate influences on food intake. The present study therefore aimed to conceptualize the deliberate overfeeding of others and operationalize this type of proximal social environment through the development of a new measurement tool. These implicit and explicit forms of proximal social environment will now be described.

In terms of the more implicit forms of social environment research has explored the impact of parents, social eating and romantic
partners. For example, parental behaviour has been shown to influence the eating behaviour of their children through mechanisms such as exposure, pressure to eat and reward, parental control, modelling and more global parenting styles. Furthermore, parents may offer food as means to manage their children’s emotions or to prevent them from eating the food themselves. Social eating also impacts upon food intake and several studies indicate that people tend to eat more food in the presence of others or in groups although the social facilitation of eating may be weaker when the other person(s) is a stranger and varies according to gender. Likewise, romantic partners also influence eating behaviour and research indicates that whilst dining with a desirable partner, women tend to eat less to impress whilst men eat more. As intimacy increases, however, meal size also increases and after cohabitation, it is common for couples to gain weight although women tend to gain more weight than men. Food can also consolidate romantic relationships and partners who tend to share food and feed each other have been found to be more attracted to each other.

Eating behaviour is therefore clearly influenced by others in an implicit way. In line with this, possible mechanisms have been identified. At its simplest, it has been argued that other people provide a guide to the social norms of eating behaviour and that this facilitates increased or decreased food intake. Then, when eating alone, in the absence of social norms the individual turns to environmental cues such as plate size, wrappers left on the table or a list of food eaten from the previous person. In contrast, it has been argued that social influence is a type of distraction, as attention is generally diverted away from the meal to concentrate on actions such as talking and interpreting information. It has also been suggested that social influence functions via the expectations of the experience itself. For example, it has been argued that whereas eating with others is regarded as a pleasant event, eating alone is considered a response to overcoming hunger. From a similar perspective, Feunekes et al suggested that people predict that they will overeat in the presence of others which in turn becomes a self-fulfilling prophecy whereas de Castro and colleagues proposed a time-extension hypothesis, theorizing that the more people present during a meal, the longer the duration of the meal and the greater the food intake. Furthermore, social influence may work through impression management and the desire to be seen in a positive light in front of strangers which may also reflect notions of masculinity and femininity proposed by Wansink and Park.

Research has therefore identified the impact of others on food intake and mechanisms have been identified through which this process occurs. To date, however, most research emphasizes the impact of others in a more unconscious way with people responding to others by eating more (or less) due to either their presence or implicit expectations. Some people, however, may also encourage overeating in a more explicit and deliberate way which has implications for the development of overweight, obesity and disordered eating. For example, research indicates that some people over feed their romantic partners for sexual pleasure and that giving food can be a statement of sexuality. Parallel to the parental pressure to eat directed at children people may over feed others for fear of hunger or to promote weight gain. Similarly, some research indicates that people may feed others to avoid waste which may be a concern specific to those cultures where disposing of food is considered unacceptable for issues of finance, the environment or cultural norms. In addition, overfeeding others may also reflect the many social functions of food. For example, food plays a central role in culture, religion, family dynamics and friendships and has been shown to serve many different social functions such as expressing affection, concern and smoothing social intercourse as a sign of wealth and status as a marker of power and control and as a statement of family unity and love. As Todhunter described “food is prestige, status and wealth... it symbolizes strength, athleticism, health and success. It is a means of pleasure and self-gratification and a relief from stress. It is feasts, ceremonies, rituals, special days and nostalgia for home, family and the ‘good old days’... it is tradition, custom and security.” Some people may therefore overfeed others to reflect these meanings of food.

In summary, research indicates a clear impact of the social environment on overeating with a particular focus on the role of others. Whilst research has explored the implicit impact of others on food intake, some people may encourage others to eat in a more explicit and deliberate way. This has been referred to as being a “Feeder” when the motivation is sexual gratification. To date, however, little is known concerning the broader motivations behind such behaviour. Furthermore, no measure exists to operationalize both the motivations and behaviour of being a Feeder. The present study therefore aimed to clearly conceptualize the deliberate and explicit motivations and behaviour associated with being a Feeder and to operationalize this definition in a new quantitative measurement tool. Such a tool could be used for research to identify the impact of living with a Feeder on food intake and body weight or to evaluate the factors that predict becoming a Feeder such as parenting, culture or childhood. It could also be used in clinical practice to classify the extent of Feeder...
behaviour or as the basis for interventions to support others living with a Feeder.

2 | METHODS AND RESULTS

2.1 | Conceptualization

Much research emphasizes the implicit social influences on eating behaviour. In contrast to this and to capture a more deliberate and conscious process, a “Feeder” was defined as “someone who offers others food even when they are not hungry.” Furthermore, it was conceptualized as consisting of the motivations behind this behaviour and the behaviour itself.

2.2 | Sample

This study involved one small sample to identify the dimensions for being a Feeder (n = 5) and two independent larger samples (n = 116; n = 113) to develop a new measurement tool to assess the motivations and behaviour of being a “Feeder.” Participant demographics for samples 2 and 3 are shown in Table 1. The majority of participants for both survey samples were female, white, in full time work with a mean age of 34 years. Participants were almost equally divided between those who considered themselves a feeder and those who did not.

### Table 1

|                         | Sample 2 (n = 116) X (SD) N (%) | Sample 3 (n = 113) X (SD) N (%) |
|-------------------------|---------------------------------|---------------------------------|
| Age (years)             | 34.0 (11.69)                    | 33.5 (13.97)                    |
| Gender                  |                                 |                                 |
| Male                    | 27 (23.3)                       | 39 (34.5)                       |
| Female                  | 97 (83.6)                       | 73 (64.6)                       |
| Other                   | 1 (0.8)                         | 1 (0.9)                         |
| Prefer not to say       | 1 (0.8)                         | 0 (0)                           |
| Ethnicity               |                                 |                                 |
| White                   | 86 (74.1)                       | 100 (88.5)                      |
| Black                   | 3 (2.5)                         | 1 (0.9)                         |
| Asian                   | 23 (19.8)                       | 2 (1.8)                         |
| Other                   | 4 (3.4)                         | 10 (8.8)                        |
| Employment              |                                 |                                 |
| Work (FT)               | 57 (49.1)                       | 54 (47.8)                       |
| Work (PT)               | 15 (12.9)                       | 14 (12.4)                       |
| Unemployed              | 4 (3.4)                         | 6 (5.3)                         |
| Student                 | 31 (26.7)                       | 33 (29.2)                       |
| Student/work            | 9 (7.8)                         | 5 (2.7)                         |
| Are you a Feeder?       |                                 |                                 |
| Totally disagree        | 34 (29.3)                       | 22 (28.3)                       |
| Disagree/agree          | 26 (22.4)                       | 25 (22.1)                       |
| Totally agree           | 47 (40.5)                       | 56 (49.6)                       |

Abbreviations: FT, full time; PT, part time.

2.3 | Design

The questionnaire was developed using five stages which follow the process for scale development from item generation, to testing the psychometric properties of the scale using exploratory factor analysis with two independent samples to assess the factor structure and Cronbach’s alphas to test for internal consistency. Criteria for factor analysis were set as factor loading >.3 and Cronbach’s alphas were set at >.6. Favourable Ethical Approval was obtained from the University Ethics Committee.

2.4 | Data analysis

The five stages involved data analyses as follows:

**Stage 1: Qualitative pilot work: identifying preliminary dimensions of being a “Feeder” (sample 1)**

The interviews (n = 5) were coded using content analysis to identify six motivations of being a “Feeder” and to clarify feeder behaviour.

**Stage 2: Generating the initial questionnaire items**

Questionnaire items (n = 29) reflecting the six motivations and feeder behaviour were derived from the interviews and existing literature.

**Stage 3: Psychometric properties of the original Feeder questionnaire (sample 2)**

Data were analysed to assess the factor structure of the Feeder questionnaire (FQ) using factor analysis (rotated Direct Oblimin) and to assess the internal consistency of each new factor using Cronbach’s alpha. The scale was revised in light of this analysis.

**Stage 4: Psychometric properties of the revised Feeder questionnaire (sample 3)**

A new sample then completed the revised measure. Data from this new sample were re-analysed to assess the factor structure using rotated Direct Oblimin factor analysis and to assess internal consistency using Cronbach’s alphas.

**Stage 5: Describing motivations and behaviour (combined samples 2 and 3)**
Samples 2 and 3 were then combined and analysed to describe motivations and behaviour using descriptive statistics, to assess the relationship between the different motivations, each other and behaviour using univariate correlations and then to explore the role of motivations in predicting feeder behaviour using Multiple Regression analysis.

These five stages are now described in detail.

Stage 1: Qualitative pilot work: identifying preliminary dimensions of being a “Feeder” (sample 1)

Using contacts of the researchers who were asked “Do you know someone who offers you food even when you are not hungry” five participants (three female; two male; aged 20-25 years) were interviewed. They were asked to outline their motivations for giving food to others and to describe the motivations and actual behaviour of someone they knew who they considered a “Feeder” defined as "someone who offers you food even when you are not hungry.” Participants generally spoke about their immediate family members or romantic partners. Interviews were coded for common motivations.

2.5 | Results

From these interviews six preliminary dimensions of the motivations for being a “Feeder” were identified: to avoid waste; to show love; to avoid hunger; to offload food and prevent them from eating it; to show good manners; as a sign of affluence. Furthermore, the behaviour of a feeder was clarified as involving feeding people when they are not hungry.

Stage 2: Generating the initial questionnaire items

Derived from these interviews and in conjunction with the existing literature, four items were generated to reflect each of these six preliminary motivations and five items were generated to reflect types of Feeder behaviour.

2.6 | Results

This resulted in the initial 29 item Feeder questionnaire (FQ).
TABLE 3  Factor structure for revised Feeder questionnaire (sample 3; n = 113)

| Because ... | Affection | Waste avoidance | Status | Hunger avoidance | Offloading | Manners |
|------------|-----------|-----------------|--------|-----------------|------------|---------|
| feeling hungry is unpleasant | −.13 | −.04 | −.07 | −.86 | .05 | .01 |
| people should not go hungry | .10 | .13 | −.09 | −.77 | .04 | .01 |
| feeling hungry can be uncomfortable | −.05 | .10 | −.03 | −.72 | −.06 | −.11 |
| I do not want them to be hungry | .29 | −.01 | .05 | −.63 | −.01 | .08 |
| I want to look after them | .57 | −.23 | −.14 | −.39 | .02 | −.02 |
| I do not like to waste food | −.08 | .86 | .01 | −.07 | .11 | .03 |
| it avoids food from going in the bin | .05 | .85 | −.04 | −.06 | .02 | −.01 |
| I do not like throwing food away | −.06 | .92 | .01 | −.04 | .09 | −.09 |
| they can see that I am well off | −.06 | −.02 | .83 | −.03 | −.03 | −.07 |
| it’s a sign of respect | .23 | .07 | .14 | −.30 | −.01 | −.40 |
| it shows that I have achieved a good level of affluence | −.02 | −.02 | .85 | .09 | .04 | .07 |
| it stops me from eating it | .06 | −.03 | .12 | −.05 | −.77 | .01 |
| I want to show them how much I have to offer | .14 | .01 | .59 | .04 | −.05 | −.09 |
| I’m able to afford food | −.09 | −.01 | .23 | −.31 | −.07 | −.01 |
| it is a sign of affection | .67 | .06 | .03 | .02 | −.10 | −.14 |
| I love them | .79 | .01 | .06 | −.01 | −.03 | .03 |
| it’s important they feel welcome | .27 | .01 | .14 | −.06 | .24 | −.40 |
| I care about them | .63 | .01 | −.01 | −.04 | .08 | −.19 |
| I’m trying to lose weight | −.07 | −.12 | .01 | −.02 | −.88 | −.12 |
| I cannot finish my food | .15 | .41 | .07 | .07 | −.41 | .13 |
| There’s too much food on my plate | .06 | .46 | −.03 | .15 | −.39 | .14 |
| It’s good manners | .20 | −.04 | −.07 | −.03 | −.02 | −.71 |
| It is polite | .10 | .01 | .01 | .07 | −.06 | −.80 |

Note: Bold denotes factor loading >0.4.

2.6.1  Motivations

These 24 items described the motivations behind feeder behaviour and were prefaced by the phrase: “I give food to others for the following reasons...” They were rated on a 5-point Likert scale from “totally disagree” to “totally agree.” To avoid waste: I do not like to waste food; it avoids food from going in the bin; I do not like throwing food away; food is expensive; To show love: It is polite; it’s a sign of respect; it’s important they feel welcome; it’s a sign of affection; it shows that I have achieved a good level of affluence; I am able to afford food. To offload food: I cannot finish my food; there’s too much food on my plate; it stops me from eating it; I’m trying to lose weight; To show good manners: It is polite; it’s a sign of respect; it’s important they feel welcome; it’s a sign of affection; As a sign of affluence: I want to show them how much I have to offer; I love them; I care about them; I’m trying to lose weight; I cannot finish my food; There’s too much food on my plate; It’s good manners; It is polite.

Feeder behaviour: These five items described the extent to which participants engage in feeder behaviour and were prefaced by the phrase: “How often do you do the following?” and rated on a 5-point Likert scale ranging from “Never” to “Very often”: Offer people food even when they are not hungry; give people food even when they have not come to eat; offer people more food even though they have food already; give people food even when they have said they do not want to eat anymore; give people more food than they could eat so they do not run out.

Participants were also asked for demographics in terms of age, gender, ethnicity, current employment status and whether they would describe themselves as “a bit of a feeder” (totally disagree; disagree/agree; totally agree).

Stage 3: Psychometric properties of the original Feeder questionnaire (sample 2)

Participants (n = 116) were recruited through social media (Facebook), survey distribution websites (Survey Circle) and word of mouth and completed the original Feeder questionnaire which consisted of 29 items of motivations and behaviour developed using Qualtrics together with their demographics.

2.7  Results

2.7.1  Factor structure of the original Feeder questionnaire (sample 2)

The 24 motivation items were analysed using Factor Analysis (SPSS; Direct Oblimin). This analysis produced a pattern matrix of eight...
factors, with Eigen values >1.0. Items were loaded onto a factor when the factor loading was >0.3. If an item loaded onto more than one factor a decision was made based upon either the highest loading or the greatest face validity. Following this process 1 item was dropped (“because food is expensive”). These eight factors with their explained variance were: (a) hunger avoidance (four items; 20.73%): for example, because I do not want them to be hungry; (b) waste avoidance (three items; 12.86%): for example, because I do not like to waste food; (c) status (three items; 9.99%): for example, because they can see that I am well off; (d) affluence (two items; 7.7%): for example, because I want to show them how much I have to offer; (e) Affection (5 items; 6.2%): for example, because it is a sign of affection; (f) weight loss (2 items; 5.4%): for example, because it stops me from eating it; (g) offloading (two items; 4.9%): for example, because I cannot finish my food; manners (two items; 4.1%): for example, because it is polite (see Table 2). The KMO value was .67 and the Bartlett’s test of sphericity was 1165.36 (P = .0001).

2.7.2 Internal consistency of the original Feeder questionnaire (sample 2)

The internal consistency of the eight motivational factors and five behaviour statements was assessed using Cronbach’s alpha (or Pearson’s r for factors with two items). Due to high correlations between weight loss (two items) and offloading (two items) these were merged to one factor (offloading; four items). Similarly, status (three items) and affluence (two items) were merged into one factor (status; five items). Manners remained with two items. The internal consistency scores are as follows: hunger avoidance (four items; \( \alpha = .75 \)); waste avoidance (three items; \( \alpha = .8 \)); affection (five items;
Stage 4: Psychometric properties of the revised Feeder questionnaire (sample 3)

To assess the psychometric properties of the revised 28 item Feeder questionnaire a second data set was collected from a new sample and the factor structure and internal consistency were reanalysed. A new online sample of 113 participants completed this revised Feeder questionnaire via social media and Survey Circle.

2.8 | Results

2.8.1 | Factor structure of the revised Feeder questionnaire (sample 3)

Data were reanalysed using a Direct Oblimin analysis. The results produced a six factor solution with factor loadings >0.4. From this analysis one item was dropped as it did not load sufficiently onto any of the factors (“I’m able to afford food”). The results from this reanalysis are shown in Table 3.

This reanalysis resulted in a 22-item motivational scale with six factors with factor loadings >0.4 and % variance explained as follows: affection (four items; 17.4%); waste avoidance (three items; 14.4%); status (three items; 9.2%); hunger avoidance (four items; 6.7%); offloading (four items; 5.1%); manners (four items; 3.8%). The KMO value was .71 and the Bartlett’s test of sphericity was 1302.04 (P = .0001).

2.8.2 | Internal consistency of the revised Feeder questionnaire (sample 3)

Internal consistency was assessed for each factor using Cronbach’s alphas: affection (α = .8); waste avoidance (α = .9); status (α = .8); hunger avoidance (α = .8); offloading (α = .75); manners (α = .74). For the five behaviour items internal consistency was α = .75. The internal consistency scores for each factor are now acceptable (α > .7).

Stage 5: Describing motivations and behaviour (combined samples 2 and 3)

For the final stage of analysis, the two online samples were combined (n = 229) to describe motivations and behaviour and to explore the role of motivations in predicting behaviour.

2.8.3 | Describing motivations and behaviour

For descriptive purposes all responses from the 22 motivation and five behaviour items were recoded onto a three-point scale (1/2 (no); 3 (somewhat); 4/5 (yes) (see Table 4). The majority of participants reported agreeing with all items relating to motivations to give people food for waste avoidance, affection and hunger avoidance and with most items relating to manners. The majority disagreed with motivations relating to status and offloading. The results showed an even distribution for most behaviour items with participants split in the frequency to which they were carried out. The exception was “Give people food even when they have said they don’t want to eat anymore” and “Give people more food than...
they could eat, so they don’t run out” which were rated as “never” by the majority of participants.

2.8.4 | The relationship between feeder motivations and behaviour

A correlation analysis was used to look at the relationship between each Feeder motivation and between these motivations and behaviour (see Table 5).

The results showed significant univariate correlations between hunger avoidance and motivations relating to waste avoidance, love and manners; between offloading and waste avoidance and between status and manners. The results also showed significant univariate correlations between Feeder behaviour and all six motivational factors: affection; hunger avoidance; offloading; manners; status; waste avoidance. The data were then analysed to explore the role of motivations in predicting feeder behaviour using Multiple Regression analysis. The results indicated that the best predictors of feeder behaviour were offloading ($B = .13; P = .05$); manners ($B = .17; P = .02$), love
hunger avoidance: the variance ($F = 9.07; P = .0001$). The remaining three motivations were not significant in this model (waste avoidance: $B = .08, P = .25$; hunger avoidance: $B = .1, P = .14$; affection: $B = .12, P = .07$).

3 | DISCUSSION

The present study aimed to conceptualize and operationalize the notion of being a Feeder in terms of the deliberate feeding of someone else when they are not hungry. This involved five stages with three separate samples and resulted in a 27 item Feeder questionnaire describing five motivations and feeder behaviour. The resulting motivations were affection, waste avoidance, status, hunger avoidance, offloading and manners. These dimensions reflect the many social functions of food identified in the existing literature and illustrate the clear role that food plays in social interactions.44,45,47,48 They also reflect some of the ways that parents feed their children and indicate that these motivations to overfeed are also apparent between adults.5,11 Similarly, they indicate that whilst the deliberate feeding of others beyond hunger may occur within sexual relationships40 it is also apparent across a number of different interactions. Furthermore, the results also showed the relationship between feeder motivations and behaviour and in the current sample showed a role for love, offloading, manners and status as the best predictors although all motivations were univariately associated with behaviour.

There are some problems with the study, however, that need to be considered which have implications for future research. First, the data was collected via online platforms which limits the generalizability of the data and makes estimates of response rates problematic. Furthermore, recent debates have questioned the integrity of such data due to the use of bots and professional survey takers. In addition, the present study represents the first stages of questionnaire development involving item selection, factor structure and internal consistency. Validation of any new measure is a continuous process and therefore, further research is required using the measure in different and broader clinical and nonclinical samples to assess its relevance to these samples and whether its factor structure is robust using confirmatory factor analysis. In addition, research could also evaluate the association between the current Feeder questionnaire and other measures of related constructs to address psychometric issues such as construct, convergent or discriminant validity. The new Feeder questionnaire could also be used as a predictor variable in research to explore the role of feeder motivations and behaviour in predicting overeating, overweight and obesity and could explore this within the context of different settings such as families, romantic relationships and friendship groups. In line with this, weight gain may be more apparent in those interacting with others who are Feeders. Furthermore, the measure could be used to explore cross cultural differences in Feeder motivations and behaviour as it is likely that cultures have different social norms promoting different motivations which in turn have a differential impact upon behaviour. Finally, this new measure could be used in a clinical setting to identify patterns of Feeder behaviour that have become problematic or as the basis for interventions to identify and reduce feeder behaviour as a means to promote weight management and a healthier relationship with food.

To conclude, being a Feeder was conceptualized as “someone who offers others food even when they are not hungry.” The present study resulted in the development of a 27-item questionnaire consisting of six factors relating Feeder motivations (affection, waste avoidance, status, hunger avoidance, offloading and manners) and one factor relating to Feeder behaviour. This new measure is shown in Table 6 and could be used for research, in clinical practice and as the basis for interventions.

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JO conceived of the study, SBC carried out the pilot work and collected data from the original sample. SFS collected data for the new sample. JO analysed the data from both samples. JO wrote the paper with input from SBC.

CONFLICT OF INTEREST

No conflict of interest was declared.

AVAILABILITY OF FEEDER QUESTIONNAIRE

The final Feeder questionnaire is shown in Appendix A and is freely available for researchers and clinicians to use. Please cite this paper when using the measure. We recommend that when administering the questionnaire, the items reflecting motivations are mixed up out of factor order.

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