Bi-directional associations between child fussy eating and parents' pressure to eat: Who influences whom?

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HIGHLIGHTS

• Children's food fussiness and parents' pressure to eat often co-occur.
• The direction of effect in this association remains unknown.
• Longitudinal analyses indicate a bi-directional fussy – pressure relation.
• Fussy eating elicits parents' use of pressure to eat, which precedes more fussiness.
• Parents should be advised to use other feeding strategies than pressure to eat.

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ABSTRACT

Background: Fussy eating is common in young children, often raising concerns among parents. The use of pressuring feeding practices may provoke or worsen child fussiness, but these practices could equally be a parent's response to child fussy eating.

Objective: In longitudinal analyses, we assessed directionality in the relation between fussy eating and parent's pressure to eat across childhood.

Methods: Study participants were 4845 mother-child dyads from the population-based Generation R cohort in the Netherlands. The Child Behavior Checklist was used to assess fussy eating (2 items) at child ages 1½, 3 and 6 years. Parents' pressure to eat was assessed with the Child Feeding Questionnaire (4 items) when children were 4 years old. All scale scores were standardized.

Results: Linear regression analyses indicated that preschoolers' fussy eating prospectively predicted higher levels of parents' pressure to eat at child age 4 years, independently of confounders (adjusted B = 0.24, 95% CI: 0.21, 0.27). Pressure to eat at 4 years also predicted more fussiness in children at age 6 years, independently of confounders and of fussy eating at baseline (adjusted B = 0.14, 95% CI: 0.11, 0.17). Path analyses indicated that the relation from fussy eating at 3 years to parenting one year later was stronger than from pressure at 4 years to fussy eating two years later (p < 0.001).

Conclusions: Our findings suggest bi-directional associations with parental pressuring feeding strategies being developed in response to children's food avoidant behaviors, but also seemingly having a counterproductive effect on fussiness. Thus, the use of pressure to eat should be reconsidered, while providing parents alternative techniques to deal with their child's fussy eating.

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1. Introduction

Fussy eating is a common phenomenon in young children, peaking around the age of 3 years when the prevalence may rise to 50% [1–3]. Fussy eating – also known as 'picky', 'selective' or 'choosy' eating – is

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characterized by the unwillingness to eat familiar or new foods, accompanied by a restricted dietary variety [1,3]. Particularly if the fussiness is severe or enduring, it may lead to nutrient deficiencies [2,4], functional constipation [5] and underweight [6,7]. As such, fussy eating often vexes parents and causes concerns about healthy development [8].

Parents can influence their children's food consumption by the foods they offer and through role modelling [9–11]. Parents may also shape children's eating behaviors and attitudes by the food-related parenting practices they employ [9,10]. In the context of fussy eating, researchers have focused on the parenting behavior "pressure to eat" [9]. In general, parents employ pressuring feeding strategies in an attempt to promote quantity or quality of children's food intake, beyond what a child wants to eat [12]. Multiple specific strategies can be used in this context, including gentle encouragements or prompts, use of reward and punishment, and having rules about having to try or finishing meals [13–15]. The current study is focused on the broad concept of pressure to eat referring to parents' general attempts to convince their child to eat (more) even if s/he does not want to, as measured with the Child Feeding Questionnaire [12].

Although pressuring feeding strategies are often meant to improve children's food intake [12] pressure to eat might be counterproductive through eliciting more rather than less food refusals, as shown in a laboratory-based study [16]. In a review, Loth [9] describes that several – though not all – cross-sectional studies in this field found that mothers' use of pressure to eat was related to a lower fruit and vegetable consumption and a higher overall fat intake, and that these associations were independent of sociodemographic characteristics of the families.

Importantly, these cross-sectional evaluations do not shed light on whether children who do not eat their vegetables or meat provoke pressure from their parents, or if parents' pressure promotes children's fussy eating, or both. In one of the few longitudinal studies, a high level of pressure to eat was associated with more sugar-sweetened beverage intake two years later, but the relation with children's fussiness and a possible reverse direction of effect was not examined [17]. The only evidence for a reverse association, i.e. that parents vary their feeding practices according to children's appetitive traits, comes from two recent cross-sectional studies employing a within-family design showing that fussier children were more pressured to eat than their less fussy siblings [18,19].

To develop effective interventions aimed at improving children's dietary intake, it is important to fully understand the parent – child feeding relationship and to ascertain whether parents indeed negatively affect children's fussy eating. Therefore, the aim of this study is to examine whether parents' use of pressure to eat is prospectively associated with child fussy eating, and reversely, whether fussiness might lead to pressure, by conducting a longitudinal examination from the preschool years until late childhood in a large population-based study in the Netherlands. We hypothesized to find bi-directional associations. In line with the experimental study of Galloway et al. [16], we expected that pressuring feeding strategies of parents predict more fussy eating behavior in children. We also expected that child fussiness precedes pressuring feeding strategies, following a child-responsive model which suggests that parents adapt their child rearing strategies in response to their child's characteristics and behaviors [20].

2. Materials and methods

2.1. Design and study population

This study was embedded in Generation R, a population-based cohort focusing on health and development from fetal life onwards [21, 22]. Participating children were born in Rotterdam, the Netherlands, between April 2002 and January 2006 (participation rate: 61%). Written informed consent was obtained from parents of all children. Full consent for the preschool phase of the Generation R Study was obtained

from 7295 children and their parents. Children with missing data on *all* three assessments on fussy eating (at ages 1½, 3 and 6 years, $n = 1026$, 14.1%) and those without information on parents' use of pressure to eat at age 4 years ($n = 1424$, 19.5%) were excluded, yielding a sample of 4845 mother-child dyads for the current study (66.4%). As data on fussy eating were not complete at all assessment waves, the study population varied per analysis (n between 4250 and 4364).

Comparison of the included ($n = 4845$) and excluded ($n = 2450$) children indicated that data were more often missing among children of lower educated mothers who had a non-Dutch background (both $p < 0.001$). Body mass index (BMI) at 2 years did not differ between children with and without missing data ($p = 0.37$).

2.2. Measures

2.2.1. Pressure to eat

Parents completed a postal questionnaire around the fourth birthday of their child which included three subscales of the Child Feeding Questionnaire (CFQ) [12]. One of these subscales assessed parents' use of pressuring feeding strategies (four items). Examples of items are 'My child should always eat all of the food on his/her plate' and 'If my child says *I am not hungry*, I'll try to get him/her to eat anyway'. Parents – in most cases the mothers (88.4%) – answered these items on a five-point Likert scale from 1 = never to 5 = always. Scale scores were calculated by summing the items (range sum score: 4–20). Research has provided good evidence for concurrent validity of the CFQ with actual observations of mothers' feeding behaviors [23]. Internal consistency of the administered pressure to eat scale in our sample was moderate ($\alpha = 0.66$) [24].

2.2.2. Fussy eating

Fussy eating was assessed with the Child Behavior Checklist/1½–5 (CBCL) at age 1½, 3 and 6 years [25]. This questionnaire assesses a wide range of emotional and behavioral problems, including two items on children's eating behavior [2]. In each assessment wave, parents indicated whether in the past two weeks their child 'did not eat well' and 'refused to eat' on a 3-point Likert scale from 0 (not at all) to 2 (often). Sum scores of these two items were calculated for each assessment wave (range sum score: 2–6). As it was not feasible in the large, broad-focused Generation R Study to repeatedly assess fussy eating with an elaborate multi-item scale, we choose to use the two items of the CBCL which previously showed good concurrent validity with food intake and other eating behavior assessments [2,3]. The internal consistency of fussy eating in our sample was moderate to good at the different ages (1½ years $\alpha = 0.75$; 3 years $\alpha = 0.77$; 5 years $\alpha = 0.67$).

The models with parental pressure to eat at age 4 years predicting fussy eating at age 6 years were adjusted for baseline fussy eating, which we assessed when children were 4 years old. At this age, the validated Children's Eating Behaviour Questionnaire (CEBQ) [26] was assessed simultaneously with the CFQ – pressure to eat scale. The CEBQ is a parent report of various eating behaviors of children, including the six-item food fussiness scale. Examples of items are 'My child refuses new foods at first' and 'My child is difficult to please with meals'.

Each item is rated on a five-point Likert scale from 1 = never to 5 = always. Scale scores were calculated by summing the items (range sum score: 6–30). Internal consistency of this scale was good with a Cronbach's α of 0.89 [4,24].

2.2.3. Covariates

Several possible confounding factors were accounted for in the analyses, including maternal ethnicity, education, psychopathological symptoms and BMI, child gender and breast feeding duration. Maternal ethnicity (categorized as Dutch, Western and Non-western) and educational level (academic, higher vocational, secondary school, <3 years of secondary school) were assessed by questionnaire during pregnancy. Maternal psychopathology symptoms were also assessed in a prenatal

questionnaire, using the Brief Symptom Inventory, a 53-item validated self-report on a diverse range of psychiatric symptoms [27]. Mothers' height and weight were measured at the Generation R research center, from which maternal BMI (kg/m^2) was calculated. Information on child gender was obtained from hospital/midwife registries. Breastfeeding duration was based on repeated assessments by postal questionnaires in the first year of children's lives. Children's height and weight were measured at the municipal Child Health Centers as part of a routine health care program when children were 2–3 years old, from which age and gender-specific BMI (kg/m^2) standard deviation scores were calculated [28].

2.3. Statistical analyses

Continuous scale scores of pressure to eat and fussy eating were transformed into standard deviation (SD) scores to facilitate effect size comparisons. In a first set of linear regression analyses, we examined the relation between fussy eating at child age 1½ years and pressure to eat at age 4 years. The presented models were unadjusted and adjusted for covariates. These models were repeated with fussy eating at 3 years as the determinant. In a second set of linear regression analyses, we examined whether pressure to eat at 4 years predicted fussy eating at age 6 years. The presented models were unadjusted, adjusted for covariates, and additionally adjusted for baseline food fussiness (CEBQ at 4 years).

Following preceding research [29,30], we then conducted path analyses to estimate which direction of the fussiness – pressure association was strongest. The path model included multiple linear regressions jointly estimating associations between fussiness and pressure to eat in both directions while accounting for continuity in fussiness over time. By including both directions of the association in one model, the pathways were accounted for each other and could directly be compared in strength. The path models were adjusted for covariates. Models were estimated using maximum likelihood estimation with robust standard errors (MLR) to account for non-normality of the data [31]. Wald tests were used to compare whether any direction of effect was statistically stronger than the opposite direction.

Multiple imputation techniques (Full Conditional Specification) were used to account for missing values in covariates [31]. Missing values in fussy eating were also imputed, but only for the path models. Imputations were based on available information on all variables included in this study. The reported effect estimates are the pooled results of twenty imputed datasets. Analyses were performed in SPSS 23, except for the path analyses, which were conducted in Mplus version 7.2.

3. Results

General characteristics of the mother-child dyads are shown in Table 1. The majority of mothers (65.5%) were of Dutch origin. Mothers were relatively highly educated with 33.3% having a university degree. Children were on average breast fed for nearly 5 months.

Table 2 shows that pressure to eat correlated positively with all fussy eating assessments. Maternal education and psychopathology also correlated positively with fussy eating and with pressure to eat. Most of the significant correlations represented small effect sizes ($r < 0.30$), although medium effect sizes were found between the different fussy eating assessments that were measured relatively closely in time, e.g. CBCL fussy eating at 1½ and 3 years ($r = 0.30$, $p < 0.001$), and CBCL fussy eating at 3 years and CEBQ fussiness at 4 years ($r = 0.32$, $p < 0.001$).

In the first set of linear regression analyses, we examined whether child fussiness in toddlerhood preceded parents' pressure to eat at child age 4 years (Table 3). Higher levels of fussiness at age 1½ years were associated with more pressure to eat at age 4 years. These associations were not explained by possible confounding factors ($B_{adjusted} = 0.18$, 95% CI: 0.15, 0.21). Similar though slightly stronger associations were found for fussiness at 3 years predicting higher levels of pressuring

Table 1
General characteristics of study population ($n = 4845$).[a]

	% or mean (standard deviation) [2]
Maternal characteristics	
Ethnicity (%)	
Dutch	65.5
Western	8.8
Non-western	25.8
Educational level (%)	
Academic	33.3
Higher vocational	25.0
Secondary school	27.6
<3 years of secondary school	14.1
BMI (kg/m^2)	24.4 (4.1)
Psychopathology (score)	0.23 (0.29)
Pressure to eat (score)	12.4 (3.9)
Child characteristics	
Gender (% boys)	50.0
Breast feeding duration (in months)	4.7 (3.9)
BMI SD score at 2 years	0.22 (1.00)
Fussy eating at 1½ years (score)	2.78 (0.98)
Fussy eating at 3 years (score)	2.84 (1.03)
Fussy eating at 6 years (score)	2.50 (0.84)
CEBQ[b] – Fussiness at 4 years (score)	17.7 (4.9)

[a] Variables with missing values: ethnicity ($n = 25$), educational level ($n = 193$), maternal BMI ($n = 537$) and psychopathology ($n = 1106$), breastfeeding ($n = 997$), BMI at 2 years ($n = 881$), fussy eating at 1½ years ($n = 595$), fussy eating at 3 years ($n = 481$), fussy eating at 6 years ($n = 499$), and CEBQ fussiness ($n = 13$) [2]. The distribution of the imputed covariates was very similar to the reported prevalence of non-imputed covariates.

[b] Child Eating Behaviour Questionnaire.

feeding one year later ($B_{adjusted} = 0.24$, 95% CI: 0.21, 0.27). In additional analyses, we also adjusted the fussy – pressure to eat associations for child BMI at baseline, as BMI potentially mediates this association. The effect estimates attenuated slightly after this adjustment (e.g. for fussy eating at 1½ years, $B = 0.16$, 95% CI: 0.13, 0.19), but remained statistically significant.

Table 4 presents the second set of regression analyses in which the reverse association is examined. Analyses indicated that higher levels of pressuring feeding at age 4 years were associated with more fussiness at age 6 years, independent of confounding factors ($B = 0.20$, 95% CI: 0.17, 0.23). In a final step, the analyses were also adjusted for baseline food fussiness. The effect estimate attenuated, though remained statistically significant ($B = 0.14$, 95% CI: 0.11, 0.17), indicating that the prospective relation between pressuring feeding strategies and fussy eating was partly, but not fully explained by the co-occurrence of feeding practices and fussy eating behavior at baseline.

Results of the path models are graphically depicted in Fig. 1. Fussiness assessments obtained with the CBCL and CEBQ were both included in the path model, given that the correlation between these different assessment methods was very similar to the correlations between CBCL assessments (Table 2). There was considerable consistency between these repeated assessments of fussy eating. While accounting for this continuity over time, for confounders, and for both directions of the fussy – pressure relation, the model indicated significant bi-directional associations. Child fussy eating at age 1½ years predicted more pressure to eat 2½ years later ($B = 0.18$, 95% CI: 0.15, 0.21), which in turn, preceded more fussiness at child age 6 years ($B = 0.17$, 95% CI: 0.14, 0.20). The effects were equally strong, as indicated by a non-significant Wald test (Wald's statistic for comparison = 2.5, $p = 0.61$). Similar significant bi-directional associations were found for fussy eating at 3 years, though now the lagged association was stronger from fussy eating to pressure to eat ($B = 0.24$, 95% CI: 0.21, 0.26), than reversed ($B = 0.17$, 95% CI: 0.14, 0.20; Wald test = 13.7, $p < 0.001$), possibly reflecting the shorter time interval from fussy eating to pressure to eat.

Table 2
Correlations between pressure to eat, fussy eating and covariates.

	Pearson correlation coefficient r									
	1	2	3	4	5	6	7	8	9	10
1. Pressure to eat at 4 years	1									
2. Fussy eating at 1½ years	0.18[**]	1								
3. Fussy eating at 3 years	0.22[**]	0.30[**]	1							
4. Fussy eating at 6 years	0.18[**]	0.15[**]	0.29[**]	1						
5. CEBQ[a] - Fussiness at 4 years	0.23[**]	0.22[**]	0.32[**]	0.23[**]	1					
6. Maternal educational level	0.14[**]	0.02	0.06[**]	0.10[**]	− 0.07[**]	1				
7. Maternal BMI	0.01	0.01	0.02	0.05[*]	− 0.02	0.23[**]	1			
8. Maternal psychopathology	0.12[**]	0.10[**]	0.11[**]	0.15[**]	0.10	0.23[**]	0.07[**]	1		
9. Gender (girls = 0)	− 0.01	− 0.01	− 0.03	− 0.01	− 0.07[**]	− 0.00	− 0.00	− 0.03	1	
10. Breast feeding duration	− 0.10[*]	− 0.02	− 0.03	− 0.03	− 0.03[*]	− 0.20[**]	− 0.11	− 0.05[*]	0.03	1

[*] p < 0.05
[**] < 0.001.
[a] Child Eating Behaviour Questionnaire.

4. Discussion

This longitudinal population-based study provides evidence for a bi-directional association between children's fussy eating and parents' pressure to eat, meaning that parents and children mutually influence each other's behavior in the context of eating. Comparison of direction of effects indicated that parents adapted their pressuring feeding behaviors in response to their fussy child, while the reverse pathway was also observed, though less strongly. These findings nuance the available literature and provide an alternative explanation for the strong fussiness – pressure association that was previously mainly interpreted as reflecting an adverse effect of the use of pressure to eat [9].

4.1. Child fussy eating influencing parents' pressure to eat

Our analyses across the early childhood years suggest that difficult eating behavior of children elicits the use of pressuring feeding strategies among parents, which provides a novel explanation for previous cross-sectional findings [9]. To our knowledge, no longitudinal or experimental studies examined the possibility of parents adapting their feeding behaviors in response to child fussiness. The results are, however, in line with related research from Webber et al. [20] and our group [30] showing that a low (birth) weight of children also prospectively predicted more use of pressure to eat by parents. Furthermore, using within-family designs, Farrow et al. [18] and Harris et al. [19] showed that fussier children were more pressured to eat than their less fussy siblings. This also suggests that parents vary their feeding practices according to children's behaviors, nevertheless the within-family data was cross-sectional thus precluding any conclusions on directionality. Finally, our results are also in line with a recent observational study in child care homes showing that child care providers responded to children's food refusals at mealtimes with coercive controlling practices, such as insistence, threats and spoon-feeding [32].

The finding that parents adapt their feeding behaviors in response to their child is intuitive and in support of a child-responsive model [20]. This suggests that parents notice children's fussy eating habits – in contrast to what some authors have posited [33–35]. In response to observations of a child refusing certain foods or eating very little, parents try to get their child to eat more (diverse), probably driven by concerns about nutrient deficiencies and underweight [36]. Our finding that child BMI explained part of the fussy to pressure associations supports this notion. Our study also corroborates the current discussion that contradictory research findings regarding controlling feeding strategies may be the result of an oversimplification of the concept of food-related parenting practices [9]. Indeed, the parent – child relationship in food-related contexts seems not unidirectional, but rather reflects complex interactions of parents and children mutually influencing each other.

4.2. Parents' pressure to eat influencing child fussy eating

Previous research on parents' pressure to eat mostly focused on specific food intake of children [9], rather than on fussiness. Several of these studies suggested that pressure to eat is associated with fairly unhealthy dietary habits of children [9,17], and with a reduced intake of the specific pressured foods [16]. Only few studies examined the broader behavioral concepts of fussy eating, food neophobia and avoidant/restrictive food intake disorder (ARFID), which are not limited to restricted intake of *specific* food groups, but rather reflect difficulties with multiple foods and eating in general [3,24,36–38]. Our longitudinal findings corroborate the cross-sectional associations reported in these studies that were largely interpreted as evidence for pressure to eat adversely influencing children's fussiness and food neophobia.
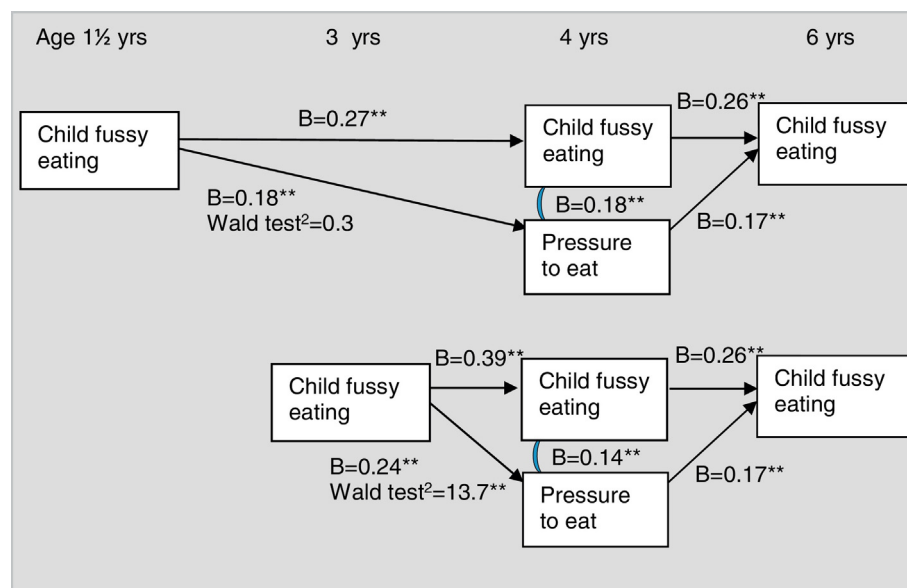
Apparently, parents' pressure to eat does not have the intended effect of increased food intake among children, and may be counterproductive. Possibly, pressure to eat results in more consumption of the pressured food in the short term, but this might come at the expense of future consumptions [39]. Pressure or even mild encouragement to

Table 3
Child fussy eating in the preschool years and later parental pressure to eat.

Child fussy eating score (per SD)	Pressure to eat at age 4 years (expressed in SD scores)	
	B (95% CI)	p
At 1½ years (N = 4250)		
Unadjusted	0.20 (0.17, 0.23)	<0.001
Confounder adjusted[a]	0.18 (0.15, 0.21)	<0.001
At 3 years (n = 4364)		
Unadjusted	0.26 (0.23, 0.29)	<0.001
Confounder adjusted[a]	0.24 (0.21, 0.27)	<0.001

Values are derived from linear regression analyses.
[a] Confounders included maternal ethnicity, education, BMI and psychopathology score, child gender, and breast feeding duration.

Table 4
Parental pressure to eat and later child fussy eating (n = 4346).

Pressure to eat scale at 4 years (per SD)	Child fussy eating at age 6 years (expressed in SD scores)	
	B (95% CI)	p
Unadjusted	0.23 (0.20, 0.26)	<0.001
Confounder adjusted[a]	0.20 (0.17, 0.23)	<0.001
Additionally adjusted for baseline fussy eating[b]	0.14 (0.11, 0.17)	<0.001

Values are derived from linear regression analyses.
[a] Confounders included maternal ethnicity, education, BMI and psychopathology score, child gender, and breast feeding duration.
[b] Assessed with the CEBQ food fussiness scale at 4 years.

Footnotes: *p<0.05, **<0.001.

[1]Values represent beta's derived from linear regression analyses (all scale scores expressed in standard deviation scores), adjusted for maternal ethnicity, education, BMI and psychopathology score, child gender, and breast feeding duration.

[2]Wald tests compare fussy to pressure pathway (from 1½ to 4 years, and 3 to 4 years) with pressure to fussy pathway (4 to 6 years).

Fig. 1. Path model including associations between pressure to eat and fussy eating in both directions (n = 4845).[1] *p < 0.05, **<0.001. [1]Values represent beta's derived from linear regression analyses (all scale scores expressed in standard deviation scores), adjusted for maternal ethnicity, education, BMI and psychopathology score, child gender, and breast feeding duration. [2]Wald tests compare fussy to pressure pathway (from 1½ to 4 years, and 3 to 4 years) with pressure to fussy pathway (4 to 6 years).

consume a particular food lowers children's preference for the food item [16], perhaps because the parenting behavior triggers negative feelings that revive with future presentations of the food. A retrospective study among adults suggested that these effects can be enduring, with food dislikes tracing back to childhood experiences of being pressured to eat those specific foods [40]. Considering that exposure to and acceptance of novel food items generalizes to other food items [41], negative experiences of being pressured to eat a specific food may also generalize to other mealtimes and food exposures. In this way, fussy eating behavior continues or may exacerbate.

4.3. Strengths and limitations

The current study is strengthened by its large sample size of mother-child dyads. Besides, we used a prospective design with data collected in multiple assessment waves, allowing us to infer on the longer-term effects of children's eating habits and parents' feeding practices.

However, our study also has some limitations. The non-response analysis indicated that our study population was relatively affluent, while it is known that children from lower socio-economic backgrounds are at risk of diverse developmental problems, including picky eating [2, 4]. Thus, some caution is needed when generalizing our results. The current study is also limited by the complete reliance on maternal reports. Mothers may have provided socially desirable or biased reports on their own feeding practices and on their child's fussy behavior. However, the validity of maternal reports of feeding [23] has been shown. Moreover, in previous reports, we showed that our two-item CBCL assessment to determine fussy eating correlates well with other relevant measures, including the food fussiness, slowness in eating and (lack of) food enjoyment scales of the Child Eating Behaviour Questionnaire [2], and objectively measured BMI [6].

A further limitation of our study was that the assessments of pressure to eat and fussy eating were not symmetrical. Thus, the reported differences in lagged effects may reflect true differences but may also partly be due to dissimilar time periods between assessments (e.g. comparing a one year fussy-to-pressure interval [3 to 4 years] with a two year pressure-to-fussy interval [4 to 6 years]). A symmetrical model with repeated assessments of both constructs at exactly the same time points would also have helped us identifying any possible age effects in the fussy – pressure association. Finally, future studies are needed to verify whether the reported findings reflect specific aspects or a broad concept of pressure to eat. Pressuring feeding strategies include gentle, verbal prompts and praise, but also more coercive and punishing practices. Differentiating the effects of these strategies, allows researchers and public health professionals to make more specific recommendations for parents regarding meals and snacks.

5. Conclusion and implications

Our longitudinal analyses indicated that parents use of pressuring feeding strategies in response to children's fussiness. Although possibly reflecting good intentions of parents, this feeding strategy seems not helpful in lowering the fussiness, and if anything, it is counterproductive. Therefore, we recommend health care practitioners to ask parents about their reactions to children's food avoidant behaviors, and if needed, to address these feeding behaviors. Independent of the severity and persistence of the child's fussiness, it seems best to educate parents that pressuring feeding strategies – although perhaps effective in the short term – are not helpful in the long run. Parents should also be encouraged to use alternative techniques to help them deal with their child's inadequate food intake. Studies suggest that parents should cook and eat healthy foods together with their children, so that children can imitate their parents' eating behaviors [10,11,42,43]. Repeated exposure to a diversity of food items without being coercive about eating also seems important for food acceptance [42]. However, integrated guidelines on how children's fussy eating behaviors can be tackled are needed [44],

particularly considering the frequent and counterproductive use of pressuring feeding practices.

Potential conflict of interest

Prof. Dr. Frank C. Verhulst is the contributing editor of the Achenbach System of Empirically Based Assessment, from which he receives remuneration. For the other authors, no competing interests exist.

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