

THE INFLUENCE OF PARENTING PRACTICES ON FEEDING PROBLEMS IN PRESCHOOLERS

INFLUENCIA DE LAS PRÁCTICAS EDUCATIVAS EN LOS PROBLEMAS ALIMENTARIOS EN PREESCOLARES

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Abstract

The aim of the study is to estimate the prevalence of feeding problems during the preschool period and to explore the associations of feeding related behaviors with parenting practices. Participants were a large community sample of $N = 622$ children longitudinally assessed yearly at ages 3, 4 and 5 years-old through diagnostic interview and questionnaires reported by

parents. The prevalence of children who met DSM-IV criteria for feeding disorder during the follow-up was 1.6%, the amount of children who presented feeding disorder symptoms was 33.3%, those with clinical impairment due to these symptoms were 25.7% and 11.6% reported seek for professional help related to feeding problems. Logistic regressions adjusted to children's sex and other DSM-IV diagnoses different to feeding disorder showed that the dimensions of parenting more strongly related to feeding related behaviors and

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impairment due to feeding problems were poor monitoring, inconsistency practices, corporal punishment, low norms and low autonomy. Although the prevalence of preschool children who met DSM-IV criteria for feeding disorder was relatively low, the presence of feeding related behaviors (symptoms, impairment and consultation) was common during this developmental period. Parenting practices are associated to the presence of these behaviors, and so they must be considered into the prevention and intervention programs.

Keywords: feeding problems; parenting; preschool.

Resumen

El objetivo del estudio es estimar la prevalencia de problemas relacionados con la alimentación durante el período preescolar y explorar las asociaciones de conductas relacionadas con la alimentación con las prácticas. Se estudió una amplia muestra comunitaria de niños ($N = 622$), que fue evaluada anualmente de forma longitudinal a la edad de 3, 4 y 5 años, mediante entrevistas diagnósticas y cuestionarios contestados por sus padres. La prevalencia de niños que cumplió criterios diagnósticos DSM-IV para recibir un diagnóstico de Trastornos de la Alimentación durante el seguimiento fue de 1.6%, la cantidad de niños que presentó síntomas del trastorno llegó al 33.3%, los que presentaron deterioro clínico debido a estos síntomas fueron el 25.7% y hasta un 11.6% de las familias buscó ayuda profesional relacionada con los problemas relacionados con la alimentación. Los datos, analizados mediante regresiones logísticas ajustadas por el sexo de los niños y la presencia de otros diagnósticos DSM-IV, mostraron que las dimensiones de estilo parental más estrechamente relacionadas con los problemas y el deterioro relacionados con la alimentación fueron la pobre supervisión, las prácticas educativas inconsistentes, el castigo corporal, la baja presencia de normas y la escasa autonomía. Aunque la prevalencia de niños preescolares que cumplían criterios diagnósticos para el Trastorno de alimentación fue relativamente baja, la presencia de problemas relacionados con la alimentación (síntomas, deterioro funcional y consulta) resultó

ser común durante esta etapa evolutiva. Las prácticas parentales están asociadas a la presencia de estos problemas, y por tanto deberían ser consideradas en los programas de prevención e intervención.

Palabras clave: pautas educativas; preescolares.

Introduction

Feeding problems are common among young children. Around 25-45% of normally developing children are reported to experience a feeding problem during childhood (Bryant-Waugh, Markham, Kreipe, & Walsh, 2010). Based on the Diagnostic and Statistical Manual of Mental Disorders (DSM IV-TR; APA 2000) criteria, about 1-5% children are diagnosed with a Feeding Disorder of Infancy or Early Childhood, FD (Ostberg & Hagelin, 2011). Parents are concerned that their children are displaying behaviors such as selective eating, food refusal, food neophobia, picky eating, fussy eating, eating slowly, being less interested in food, having a small appetite, infantile anorexia, and sensory food aversion (Carruth, Ziegler, Gordon, & Barr, 2004; Marchi & Cohen, 1990; Mitchell, Farrow, Haycraft, & Meyer, 2013; Reau, Senturia, Lebailly, & Christoffel, 1996; Sanders, Patel, Le Grice, & Sheperd, 1993). Ostberg and Hagelin (2011) conducted a 6-year follow-up study and found that picky eating was the most frequent problem in children, followed by irritation or a bad temper at meal times, food refusal, and child's eating or feeding habits being a problem for the family. Additionally, Equit et al. (2013) found that prevalence rates for 'eating only a narrow range of food' (23.2%) and for 'unwillingness to try new foods' (25.9%) were comparable with rates of picky eating (20-50%) and even higher for 'avoidance of certain foods' (53%). The presence of these feeding problems can be detected from early childhood to mid adolescence. A longitudinal study by Ammaniti, Lucarelli, Cimino, D'Olimpio, and Chatoor (2012) found homotypical continuity in 50-80% of the children with early food refusal. The continuity of these behaviors can lead to several negative consequences including low weight gain (Marchi & Cohen, 1990; Wright & Birks, 2000), nutrient deficiency and poor dietary variety (Galloway, Fiorito,

Lee, & Birch, 2005), growth faltering, cognitive and developmental delays (Chatoor, Egan, Geston, Menveille, & O'Donnell, 1988; Wright & Birks, 2000), problematic and stressful mealtimes (Sanders et al., 1993), a poor diet in adulthood (e.g., Craigie, Lake, Kelly, Adamson, & Mathers, 2011), and the development of eating disorders in the future (Kotler, Cohen, Davies, Pine, & Walsh, 2001; Marchi & Cohen, 1990). In addition, a child's problematic feeding behavior can be problematic for parents. Previous research has shown that mothers of children with feeding problems often have higher levels of depression and anxiety (Blissett, Meyer, & Haycraft, 2007; Chatoor, Ganiban, Colin, Plummer, & Harmon, 1998; Coulthard & Harris, 2003; Duniz et al., 1996; Lindberg, Bohlin, Hagekull, & Palmerus, 1996; Whelan & Cooper, 2000), emotional distress (Budd et al., 1992), parenting stress (Singer, Song, Hill, & Jaffe, 1990; Spender et al., 1996), or poorer problem-solving abilities (Ünlü, Aras, Guvenir, Buyukgebiz, & Bekem, 2006). So, feeding problems at an early age can cause major problems in not only the child's life, but the parent's life as well.

In order to prevent feeding problems and improve children's eating behavior, a thorough understanding of early life risk factors is necessary. One early life risk factor that can be observed is parent's parenting practices. Parenting practices are the behavioral strategies that parents use to socialize their children (Darling & Steinberg, 1993; Ventura & Birch, 2008). Many studies on general parenting behaviors have found that authoritative parenting (high demandingness and high responsiveness, parent is firm, but not rigid, willing to make an exception when the situation warrants) is associated with the most positive child outcomes (Baumrind, 1996; Darling & Steinberg, 1993; Maccoby & Martin, 1983). Research has shown that children of authoritative parents have greater independence, self-control, self-efficacy, self-discipline, and more emotional maturity, while children from authoritarian and permissive parents are less likely to develop emotional maturity, behavioral inhibition, and self-regulation (Hubbs-Tait, Kennedy, Page, Topham, & Harrist, 2008; Topham et al., 2011). Similarly, in relation to feeding, the authoritative style of providing rules in a positive context is associated with the development of the healthiest eating habits (Ventura

& Birch, 2008). Only a few studies have looked at parenting practices and feeding problems, while a majority of studies have looked specifically at feeding practices (Blissett, Meyer, & Haycraft, 2006; Haycraft & Blissett, 2012; Morrison, Power, Nicklas, & Hughes, 2013; Wehrly, Bonilla, Perez, & Liew, 2014). Overall, there is a lack of research regarding general parenting practices and feeding problems and for that reason, it is crucial to continue conducting studies that look at these variables together in order to reach accurate conclusions and development of preventative treatments or interventions. Because parenting practices can potentially act as an early life risk factor for feeding problems, this study observed both parenting practices and feeding problems in a sample of preschoolers in Barcelona, Spain. This study aims to investigate the prevalence of FD and feeding problems in a sample of preschoolers and its association with parenting practices and its clinical related behaviour.

Method

Participants

The data analyzed in this study correspond to a longitudinal study of behavioral problems along preschool period (Ezpeleta, De la Osa, & Doménech, 2014). A total of 2,283 children from 54 schools (25.9% semi-public and 74.1% public) were randomly selected from the census of preschoolers of 3 years-old in Barcelona (Spain) from the 2009-2010 academic year (N = 13,578). A double phase design was utilized in order to have a final sample with enough prevalence of disruptive psychopathology. In the first phase of the sampling, 1,341 families (58.7%) agreed to participate while 930 (41.0%) refused and 12 (0.5%) were excluded due to the presence of intellectual disability or pervasive developmental disorder in the children. Considering the 1,341 families who agreed to participate, 33.6% were into the high socioeconomic status level, 43.1% into mean levels, and 23.3% into low levels. Children were screened with the Spanish version (Ezpeleta, Granero, de la Osa, Penelo, & Doménech, 2013) of The Strengths and Difficulties Questionnaire-Parent (SDQ; Goodman, 2001) and two

groups were comprised according to the screening criterion score: (a) positive screen, for children who met a raw score above 4 in the SDQ-conduct scale or at least one symptom of the oppositional defiant disorder list, and (b) negative screen, for children who did not meet the previous criterion. A random sample of 30% of children into negative screen group was selected (205 children, 105 boys and 100 girls) and all the children into the positive screen group (417, 206 boys and 211 girls) were included in the final sample who was followed during the next two years. So, the final sample included N = 622 children who were yearly assessed at ages 3 years-old, 4 years-old (N = 604 remained into the follow-up), and 5 years-old (N = 574 remained). Table 1 contains the demographic and clinical characteristics of the sample at baseline (the first assessment and beginning of follow-up, age 3).

Instruments

The Diagnostic Interview of Children and Adolescents for Parents of Preschool Children (DICA-PPC; Ezpeleta, De la Osa, Granero, Domènech, & Reich, 2011) is a semi-structured interview designed for

children between 3 and 7 years of age, based on the Diagnostic Interview for Children and Adolescents-IV, DICA-IV (Reich, 2000). The DICA-PPC is a computerized instrument that assesses children's psychopathology according to the DSM-IV-TR criteria (American Psychiatric Association, 2000). Parents were the informants. The DICA-PPC includes the most frequent DSM-IV-TR disorders in childhood. After the assessment of the symptoms list, parents are asked about child's impairment due to each diagnose (how symptoms or pathology are affecting the child's daily life at school, with family, and peers), consultation (seek of professional help, a professional-clinical psychologist, psychiatrist, school psychologist or pediatrician). DICA-PPC was used to assess the feeding disorder measures of this study (feeding symptoms, impairment and consultation) and the presence of other comorbid disorders different to feeding.

The Alabama Parenting Questionnaire-Preschool Revision (APQ-Pr) is the result of the Spanish version of the original Alabama Parenting Questionnaire (APQ; Frick, 1991; Shelton, Frick, & Wootton, 1996) Parents answer a total of 50 items rated on a 5-point-likert-scale (from 1 = never to 5 = always) about parenting style, which are structured in seven scales/dimensions: (a) five

Table 1

Demographic and clinical characteristics of the sample at age 3 years-old (N=622).

| | | |
|---|-------------------|-------------|
| Child's age (<i>mean; standard deviation</i>) | | 3.77 (0.33) |
| Child's sex (male) (<i>n; %</i>) | | 310 (49.8%) |
| Ethnic group (<i>n; %</i>) | Caucasian (white) | 554 (89.1%) |
| | Hispanic | 40 (6.4%) |
| | Other | 28 (4.5%) |
| Socioeconomic status (<i>n; %</i>) | High | 205 (33.0%) |
| | Mean-High | 195 (31.4%) |
| | Mean | 88 (14.2%) |
| | Mean-low | 99 (15.9%) |
| | Low | 35 (5.6%) |
| DSM-IV Disorders (<i>n; weighted prevalence</i>) | | |
| Attention Deficit Hyperactivity Disorder | | 34 (3.7%) |
| Oppositional Defiant Disorder | | 61 (6.9%) |
| Conduct Disorder | | 10 (1.4%) |
| Depressive Disorder | | 4 (0.4%) |
| Separation Disorder | | 18 (2.2%) |
| Specific Phobia | | 27 (3.6%) |
| Feeding Disorder | | 10 (1.2%) |

Table 2

Distribution of diagnosis of feeding measures during the preschool period: count and weighted prevalences

| | Age 3 (N=622) | | Age 4 (N=604) | | Age 5 (N=574) | | Age 3-4-5 (N=574) | |
|--|------------------|--------|------------------|--------|------------------|--------|----------------------|--------|
| DSM-IV FD Diagnosis | 10 | 1.17% | 5 | 0.70% | 6 | 0.85% | 14 | 1.56% |
| Presence of any DSM-IV FD symptom | 141 | 20.25% | 103 | 15.59% | 83 | 12.87% | 220 | 33.30% |
| Failure to gain weight | 13 | 7.21% | 6 | 6.20% | 6 | 6.04% | 18 | 6.43% |
| Limited repertoire of foods | 64 | 8.92% | 44 | 6.20% | 29 | 4.93% | 103 | 14.64% |
| Eats favorite foods without difficulty | 43 | 6.11% | 30 | 4.45% | 21 | 3.77% | 75 | 10.95% |
| Problematic eating during meal times | 106 | 14.36% | 86 | 13.35% | 67 | 10.55% | 183 | 26.83% |
| Growth problems due to eating problems | 13 | 1.46% | 6 | 0.97% | 6 | 0.78% | 18 | 2.14% |
| Problems when introducing food | 38 | 5.43% | 11 | 1.46% | 8 | 0.78% | 50 | 6.60% |
| Impairment due to FD | 105 | 14.83% | 76 | 11.81% | 57 | 8.81% | 171 | 25.66% |
| Consultation (seek of professional help due to FD) | 62 | 8.34% | 36 | 5.04% | 21 | 2.62% | 86 | 11.64% |

Note. FD: feeding disorder. Age 3-4-5 measures the presence of the feeding measure at child's age 3 or 4 or 5 years-old.

scales derived from the original APQ (involvement, positive parenting, poor monitoring/supervision, inconsistent discipline and corporal punishment), and (b) two additional scales (autonomy and norms). from Evaluation des Pratiques Educatives Parentales (EPEP; (Roskam & Meunier 2009). Psychometric properties were adequate (De la Osa, Granero, Penelo, Domènech, & Ezpeleta, 2013).

Statistical Analysis

It was carried out with SPSS 20 for Windows. All the analyses were weighted due to the multi-sample design, assigning to each child a weight equal to the inverse of the probability of selection in the screening phase of the longitudinal research. Logistic regressions, adjusted by the covariates children's sex and other comorbidities different to FD, valued the association between parenting practices (APQ-Pr scales) and FD related variables (the presence of the DSM FD disorder, the presence of any FD symptom, impairment due to FD and consultation due to FD). The ENTER-procedure was used to simultaneously include all the APQ-Pr scales (and the covariates). Hosmer-Lemeshow test valued goodness-of-fit (adequate fitting was considered for $p > .05$), discriminative capacity was assessed with the area under the ROC curve (AUC, considering poor discrimination $AUC < .60$, moderate $.60 < AUC < .70$ and good $AUC > .70$) and the global predictive capacity with the Nagelkerke's pseudo- R^2 coefficient.

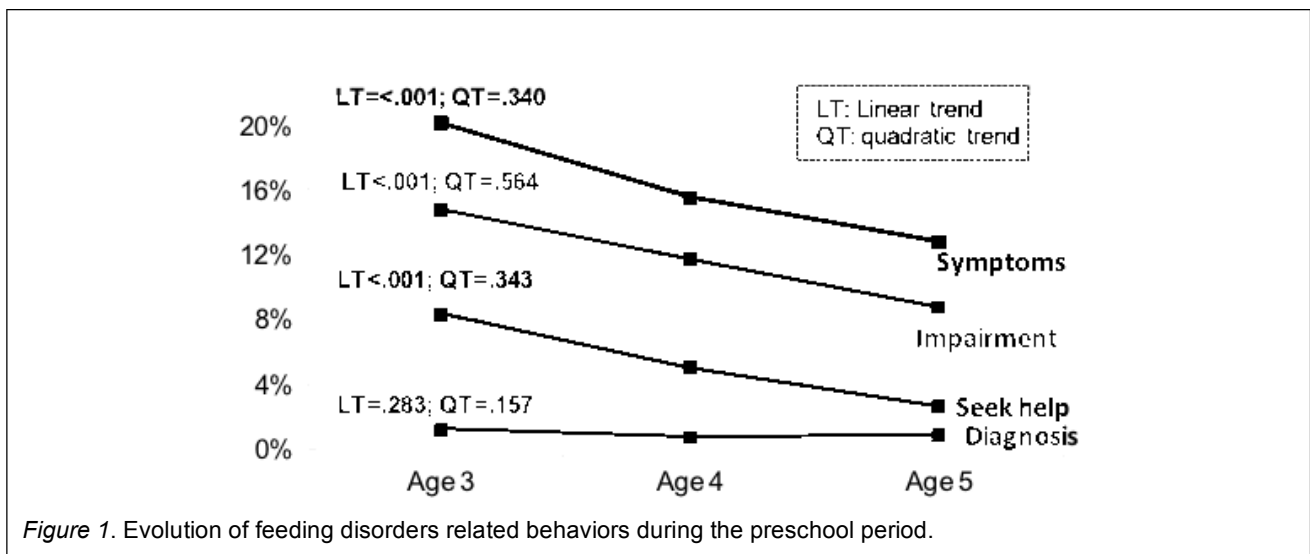
Procedure

The Ethics Review Committee of the authors' institution approved the project. All parents with children who attended to P3-grade at the schools included in the longitudinal research were invited to answer the SDQ. Families who agreed to participate were required to submit parental written consent. All interviewers were thoroughly trained in the use of the instruments of the study and interviews were blinded to the screening groups. All interviews were audio-recorded and supervised during all the follow-up. Data analyzed in this work correspond to the APQ-Pr measured at age 3 years-old and the DICA-PPY at ages 3-4-5 years-old.

Results

Presence of feeding problems during preschool period

Table 2 includes the prevalences for the DSM FD, the FD symptoms, the impairment due to FD and the consultation for FD. The prevalence during the preschool period (defined as the presence of these feeding related behaviors at ages 3 or 4 or 5 years old) was 1.6% for the DSM FD diagnosis, 33.3% for the presence of FD



symptoms, 25.7% for the impairment due to FD, and 11.6% for the consultation due to FD.

Considering the evolution during ages 3 to 5 (Table 2 and Figure 1), feeding problems are more prevalent at 3 years old and tended to decrease at ages 4 and 5 years-old. The assessment of linear trends achieved statistically significant for the presence of symptoms, impairment, and consultation (prevalence tended to decrease as age increases). Quadratic trends were not statistically significant, showing that decreases in prevalences between 3 and 4 years-old are statistically equal to decreases between ages 4 and 5 years-old. The diagnosis of DSM-IV

FD did not achieve linear or quadratic trends, indicating that prevalence for this disorder was statistically constant during the follow-up.

Table 3 contains the results of the logistic regressions exploring the cross-sectional association between parenting practices scores and FD measures at 3 years of age, adjusted to children’s sex and other comorbid disorder. Results indicated that at this age, high scores in the APQ-inconsistence scale were statistically predictive of the presence of FD symptoms and impairment.

Table 3

Cross-sectional association between parenting practice scores (APQ-Pr scales) and feeding measures at age 3 (N=622).

| Parenting style score | DSM diagnosis of FD | | | | Presence of DSM FD symptoms | | | | Impairment due to FD | | | | Consultation due to FD | | | |
|-----------------------------------|---------------------|-------|--------|-------|-----------------------------|--------------|--------------|--------------|----------------------|--------------|--------------|--------------|------------------------|-------|--------|-------|
| | p | OR | 95% CI | | p | OR | 95% CI | | p | OR | 95% CI | | p | OR | 95% CI | |
| Positive | .211 | 1.295 | 0.864 | 1.940 | .241 | 1.063 | 0.960 | 1.177 | .231 | 1.074 | 0.955 | 1.208 | .731 | 1.025 | 0.889 | 1.183 |
| Involvement | .069 | 0.812 | 0.648 | 1.016 | .965 | 1.001 | 0.951 | 1.054 | .925 | 1.003 | 0.945 | 1.064 | .364 | 0.966 | 0.897 | 1.041 |
| Poor monitoring | .846 | 0.965 | 0.671 | 1.386 | .467 | 1.039 | 0.937 | 1.152 | .861 | 0.990 | 0.880 | 1.112 | .177 | 1.103 | 0.957 | 1.272 |
| Corporal punishment | .605 | 0.835 | 0.421 | 1.656 | .322 | 1.092 | 0.917 | 1.302 | .156 | 1.149 | 0.948 | 1.391 | .307 | 1.129 | 0.895 | 1.423 |
| Inconsistent discipline | .971 | 1.006 | 0.733 | 1.381 | .010 | 1.134 | 1.031 | 1.247 | .010 | 1.150 | 1.034 | 1.279 | .466 | 1.050 | 0.920 | 1.199 |
| Norms | .129 | 0.841 | 0.673 | 1.051 | .168 | 0.941 | 0.864 | 1.026 | .169 | 0.935 | 0.850 | 1.029 | .381 | 0.948 | 0.842 | 1.068 |
| Autonomy | .466 | 0.870 | 0.599 | 1.264 | .182 | 1.076 | 0.966 | 1.198 | .270 | 1.071 | 0.948 | 1.211 | .489 | 1.056 | 0.904 | 1.234 |
| Adjust. R ² ; AUC; H-L | .096 | .780 | .365 | | .035 | .579 | .516 | | .036 | .608 | .171 | | .030 | .597 | .996 | |

Note. Results obtained in logistic Regression adjusted by child’s sex and other comorbidity different to feeding disorder. FD: feeding disorder. In bold: significant association (.05 level). AUC: Area Under Roc. H-L: Hosmer-Lemeshow test.

Table 4 presents the logistic regressions, adjusted by child's sex and other comorbidities different to feeding disorder, measuring the association between parenting (measured at 3 years old) and feeding behaviors (measured at 4 and 5 years-old). Low scores in autonomy were statistically predictive of the presence of FD symptoms, impairment and consultation at age 4. Low scores in the

norms scale were statistically predictive of the presence of FD symptoms and impairment at age 5. Considering the incidence of feeding related behaviors during the complete follow-up (age 3-4-5 years-old), high scores in APQ-poor monitoring, high scores in APQ-inconsistence, and low scores in norms scale were statistically predictive of the presence of FD symptoms. Additionally, high

Table 4
Longitudinal association between parenting practice scores (APQ-Pr at age 3) and FD variables (at ages 3-4-5)

| Parenting style score | DSM diagnosis of FD | | | | Presence of DSM FD symptoms | | | | Impairment due to FD | | | | Professional Help for FD | | | |
|---------------------------------------|---------------------|-------|--------|-------|-----------------------------|--------------|--------------|--------------|----------------------|--------------|--------------|--------------|--------------------------|--------------|--------------|--------------|
| | p | OR | 95% CI | | p | OR | 95% CI | | p | OR | 95% CI | | p | OR | 95% CI | |
| FD at age 4 (N=604) | | | | | | | | | | | | | | | | |
| Positive | .793 | 1.068 | 0.651 | 1.753 | .140 | 1.088 | 0.973 | 1.217 | .125 | 1.105 | 0.973 | 1.256 | .071 | 1.201 | 0.985 | 1.464 |
| Involvement | .319 | 0.858 | 0.635 | 1.160 | .783 | 1.008 | 0.952 | 1.067 | .989 | 1.000 | 0.938 | 1.067 | .320 | 0.953 | 0.866 | 1.048 |
| Poor monitoring | .882 | 0.966 | 0.612 | 1.525 | .124 | 1.095 | 0.975 | 1.230 | .491 | 1.047 | 0.919 | 1.192 | .201 | 0.882 | 0.728 | 1.069 |
| Corporal punishment | .269 | 0.474 | 0.126 | 1.780 | .146 | 1.155 | 0.951 | 1.403 | .078 | 1.207 | 0.979 | 1.488 | .169 | 1.225 | 0.918 | 1.635 |
| Inconsistent discipline | .493 | 1.159 | 0.760 | 1.769 | .192 | 1.072 | 0.966 | 1.189 | .327 | 1.059 | 0.944 | 1.188 | .511 | 1.056 | 0.898 | 1.242 |
| Norms | .202 | 0.851 | 0.664 | 1.090 | .449 | 0.965 | 0.879 | 1.059 | .879 | 1.009 | 0.904 | 1.126 | .837 | 0.984 | 0.848 | 1.143 |
| Autonomy | .576 | 0.868 | 0.528 | 1.425 | .004 | 0.850 | 0.762 | 0.949 | .004 | 0.836 | 0.742 | 0.943 | .011 | 0.800 | 0.675 | 0.949 |
| Adjust. R ² ; AUC; H-L (p) | .137 | .819 | .998 | | .061 | .641 | .294 | | .056 | .626 | .224 | | .068 | .646 | .553 | |
| FD at age 5 (N=574) | | | | | | | | | | | | | | | | |
| Positive | .922 | 0.980 | 0.646 | 1.484 | .096 | 1.108 | 0.982 | 1.250 | .904 | 0.992 | 0.865 | 1.137 | .453 | 0.919 | 0.738 | 1.145 |
| Involvement | .345 | 0.887 | 0.691 | 1.138 | .210 | 0.961 | 0.903 | 1.023 | .710 | 1.014 | 0.943 | 1.090 | .492 | 0.957 | 0.844 | 1.085 |
| Poor monitoring | .721 | 0.929 | 0.619 | 1.394 | .166 | 1.092 | 0.964 | 1.236 | .984 | 1.002 | 0.865 | 1.160 | .612 | 1.061 | 0.844 | 1.333 |
| Corporal punishment | .776 | 1.097 | 0.580 | 2.075 | .830 | 1.024 | 0.828 | 1.265 | .749 | 1.042 | 0.810 | 1.341 | .795 | 1.053 | 0.713 | 1.555 |
| Inconsistent discipline | .442 | 0.849 | 0.559 | 1.289 | .804 | 1.015 | 0.905 | 1.137 | .408 | 1.057 | 0.927 | 1.206 | .557 | 0.935 | 0.746 | 1.171 |
| Norms | .238 | 0.846 | 0.642 | 1.117 | .012 | 0.887 | 0.808 | 0.974 | .010 | 0.872 | 0.786 | 0.968 | .240 | 0.902 | 0.759 | 1.071 |
| Autonomy | .617 | 0.890 | 0.563 | 1.406 | .835 | 1.014 | 0.893 | 1.151 | .826 | 1.017 | 0.874 | 1.184 | .972 | 0.995 | 0.766 | 1.293 |
| Adjust. R ² ; AUC; H-L | .100 | .784 | .944 | | .034 | .607 | .292 | | .031 | .593 | .674 | | .043 | .655 | .385 | |
| FD at age 3-4-5 (N=574) | | | | | | | | | | | | | | | | |
| Positive | .687 | 1.065 | 0.783 | 1.449 | .108 | 1.074 | 0.985 | 1.171 | .235 | 1.058 | 0.964 | 1.161 | .736 | 1.021 | 0.904 | 1.153 |
| Involvement | .150 | 0.877 | 0.734 | 1.049 | .521 | 1.014 | 0.971 | 1.060 | .509 | 1.016 | 0.969 | 1.065 | .748 | 0.990 | 0.929 | 1.054 |
| Poor monitoring | .868 | 0.975 | 0.720 | 1.319 | .034 | 1.103 | 1.007 | 1.209 | .380 | 1.044 | 0.949 | 1.149 | .297 | 1.069 | 0.943 | 1.212 |
| Corporal punishment | .808 | 1.064 | 0.645 | 1.755 | .105 | 1.137 | 0.973 | 1.328 | .038 | 1.187 | 1.010 | 1.396 | .059 | 1.214 | 0.993 | 1.484 |
| Inconsistent discipline | .545 | 0.917 | 0.691 | 1.215 | .027 | 1.099 | 1.011 | 1.195 | .032 | 1.102 | 1.008 | 1.204 | .807 | 1.014 | 0.904 | 1.138 |
| Norms | .107 | 0.849 | 0.695 | 1.036 | .030 | 0.920 | 0.853 | 0.992 | .223 | 0.952 | 0.879 | 1.031 | .401 | 0.957 | 0.865 | 1.060 |
| Autonomy | .383 | 0.868 | 0.632 | 1.192 | .694 | 0.982 | 0.899 | 1.074 | .563 | 0.972 | 0.885 | 1.069 | .186 | 0.920 | 0.814 | 1.041 |
| Adjust. R ² ; AUC; H-L | .087 | .715 | .752 | | .055 | .600 | .127 | | .039 | .599 | .498 | | .031 | .611 | .076 | |

Note. Results obtained in logistic Regression adjusted by child's sex and other comorbidity different to feeding disorder. FD: feeding disorder. In bold: significant association (.05 level). AUC: Area Under Roc. H-L: Hosmer-Lemeshow test.

scores in APQ-corporal punishment and APQ-inconsistence were statistically predictive of impairment due to FD. No statistical longitudinal associations were found neither for parenting practices scores and the presence of DSM-IV FD nor for consultation.

Discussion

The aims of this study were firstly to examine the prevalence of FD diagnosis, symptoms, impairment, and seek of professional help in Spanish preschoolers at ages 3 to 5 and, secondly, to explore the relationship between parenting practices and feeding problems and its clinical related behavior. Data showed that the prevalence of FD diagnosis during the preschool period was 1.56%. This is aligned to findings from Al-Jawadi and Abdul-Rhman (2007) who found the prevalence of FD to be 2% in a sample of 3,079 Irakian children using the DSM-IV criteria. In this study, the prevalence of FD diagnosis remained constant throughout the preschool period demonstrating the stability of the diagnosis over time. The presence of FD symptoms during the preschool period was 33.30%, which is consistent with findings from Linscheid, Budd, and Rasnake (2003) and Ramsey, Gisel, McCusker, Bellavance, and Platt (2002) whom found presence of feeding problems among 25-45% of children. The percentage of preschoolers presenting FD symptoms in our study decreased from 20.3% at age 3 to 12.9% at age 5, showing a gradual decreased, may be due to the fact that in this developmental period children learn a lot of social rules and decrease their easy distractibility during mealtimes. The percentage of impairment and seek of professional help also decreased over time. The most prevalent FD symptoms presented in this study were problematic behavior during mealtimes (26.83%) and limited food repertoire (14.34%). Overall, the prevalence of FD symptoms, impairment and seek of professional help during the preschool period are strikingly high and demonstrate that these problematic behaviors are very common among young children. Data also suggests that specific parenting practices predict children's feeding behavior, while other parenting prac-

tices do not. A consistent discipline and giving children norms and autonomy at meals time in early stages of development are beneficial and a good predictor of less feeding-related problems. This finding supports Rhee, Lumeng, Appugliese, Kaciroti, and Bradley (2006) who demonstrated that children of strict authoritarian parents had almost a fivefold increase in odds of having overweight children in first grade than authoritative parents. Also, Taylor, Wilson, Slater, and Mohr (2011) found that style dimensions of demandingness and responsiveness were associated with healthy weight-related attitudes in children. High levels of positive parenting were associated with better child functioning as also found (Healey, Flory, Miller, & Halperin, 2011), while the use of corporal punishment as a disciplinary mean increases the impairment caused by feeding problems. Research has also suggested that parental practices such as warmth/connection in combination with parental structure/rules are associated with fewer disordered eating behaviors in adolescents (Enten & Golan, 2009).

Some aspects of this study could be improved: parenting practices were self-reported which is subject to potential biases of wanting to appear as "good parents". Second, families from high SES were overrepresented in the sample. Nevertheless, the study had many strengths. The longitudinal design enabled the study of developmental feeding trends of preschoolers over time in a large community sample of preschoolers, which allowed for an accurate representation of the general population and gave the study more validity. Overall, this study provided a great insight to the prevalence of feeding problems in the general population as well as the importance of parenting practices and their effects on children's feeding behaviors. Based on the findings from this study, the dietary and eating behaviors of young children should be a primary concern to all parents and healthcare professionals since almost half of the children population experiences a feeding problem during childhood and FD appear to be a quite stable diagnosis. Acknowledging the impacts of different parenting practices allows parents to be aware of their behavior and make any necessary modifications in order to benefit the development of their child; also general practitioners should notice this and implement the assessment of these parental practices in their routines.

Referencias

- Al-Jawadi, A. A. & Abdul-Rhman, S. (2007). Prevalence of childhood and early adolescence mental disorders among children attending primary health care centers in Mousl, Iraq: A crosssectional study. *BMC Public Health*, 7, 274-281.
- American Psychiatric Association. (2000). *DSM-IV-TR diagnostic and statistical manual of mental disorders text revised* (4th Ed.). Washington, DC: APA.
- Ammaniti, M., Lucarelli, L., Cimino, S., D'Olimpio, F., & Chatoor, I. (2012). Feeding disorders of infancy: a longitudinal study to middle childhood. *The International Journal of Eating Disorders*, 45(2), 272-280. doi: <http://dx.doi.org/10.1002/eat.20925>.
- Baumrind, D. (1966). Effects of Authoritative Parental Control on Child Behavior. *Child Development*, 37(4), 887-907.
- Blissett, J., Meyer, C., & Haycraft, E. (2006). Maternal and paternal controlling feeding practices with male and female children. *Appetite*, 47, 212-219.
- Blissett, J., Meyer, C., & Haycraft, E. (2007). Maternal mental health and child feeding problems in a non-clinical group. *Eating Behaviors*, 8, 311-318.
- Blissett, J., Meyer, C., & Haycraft, E. (2011). The role of parenting in the relationship between childhood eating problems and broader behaviour problems. *Child: Care, Health and Development*, 37(5), 642-648. doi: <http://dx.doi.org/10.1111/j.1365-2214.2011.01229.x>
- Bryant-Waugh, R., Markham, L., Kreipe, R. E., & Walsh, B. T. (2010). Feeding and eating disorders in childhood. *The International Journal of Eating Disorders*, 43(2), 98-111. doi: <http://dx.doi.org/10.1002/eat.20795>
- Budd, K. S., McGraw, T. E., Farbisz, R., Murphy, T. B., Hawkins, D., Heilman, N.,... Hochstadt, N. J. (1992). Psychosocial concomitants of children's feeding disorders. *Journal of Pediatric Psychology*, 17(1), 81-94.
- Carruth, B. R., Ziegler, P. J., Gordon, A., & Barr, S. I. (2004). Prevalence of 'picky/fussy' eaters among infants and toddlers and their caregivers' decision about offering new food. *Journal of the American Dietetic Association*, 104, S57-S64.
- Chatoor, I., Egan, J., Geston, P., Menville, E., & O'Donnell, R. (1988). Mother-infant interactions in infantile anorexia nervosa. *Journal of the American Academy of Child and Adolescent Psychiatry*, 27, 535-540.
- Chatoor, I., Ganiban, J., Colin, V., Plummer, N. & Harmon, R. J. (1998). Attachment and feeding problems: a reexamination of nonorganic failure to thrive and attachment insecurity. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37, 1217-1224.
- Coulthard, H. & Harris, G. (2003). Early food refusal. The role of maternal mood. *Journal of Reproductive Infant Psychology*, 21, 335-345.
- Craigie, A. M., Lake, A. A., Kelly, S. A., Adamson, A. J., & Mathers, J. C. (2011). Tracking of obesity-related behaviours from childhood to adulthood. A systematic review. *Maturitas*, 70(3), 266-284.
- Darling, N. & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin*, 113, 487-496.
- De la Osa, N., Granero, R., Penelo, E., Domènech, J. M., & Ezpeleta, L. (2013). Psychometric Properties of the Alabama Parenting Questionnaire-Preschool Revision (APQ-Pr) in 3 Year-Old Spanish Preschoolers. *Journal of Child and Family Studies*, 23(5), 776-784. doi: <http://dx.doi.org/10.1007/s10826-013-9730-5>
- Duniz, M., Scheer, P. J., Trojovský, A., Kaschnitz, W., Kvas, E., & Macari, S. (1996). Changes in psychopathology of parents of NOFT (non-organic

- failure to thrive) infants during treatment. *European Child & Adolescent Psychiatry*, 5, 93-100.
- Enten, R. S., & Golan, M. (2009). Parenting styles and eating disorder pathology. *Appetite*, 52, 784- 787.
- Equit, M., Pålme, M., Becker, N., Moritz, A.-M., Becker, S., & von Gontard, A. (2013). Eating problems in young children -- a population-based study. *Acta Paediatrica*, 102(2), 149-155. doi: <http://dx.doi.org/10.1111/apa.12078>
- Ezpeleta, L., De la Osa, N., & Doménech, J. M. (2014). Prevalence of DSM-IV disorders, comorbidity and impairment in 3-year-old Spanish preschoolers. *Social Psychiatry and Psychiatric Epidemiology*, 49(1), 145-155. doi: <http://dx.doi.org/10.1007/s00127-013-0683-1>
- Ezpeleta, L., De la Osa, N., Granero, R., Doménech, J. M., & Reich, W. (2011). The Diagnostic Interview of Children and Adolescents for Parents of Preschool and Young Children: psychometric properties in the general population. *Psychiatry Research*, 190(1), 137-144. doi: <http://dx.doi.org/10.1016/j.psychres.2011.04.034>
- Ezpeleta, L., Granero, R., De la Osa, N., Penelo, E., & Doménech, J. M. (2013). Psychometric properties of the Strengths and Difficulties Questionnaire(3-4) in 3-year-old preschoolers. *Comprehensive Psychiatry*, 54(3), 282-291. doi: <http://dx.doi.org/10.1016/j.comppsy.2012.07.009>
- Frick, P. J. (1991). *The Alabama parenting questionnaire*. Unpublished rating scale, University of Alabama.
- Galloway, A. T., Fiorito, L. M., Lee, Y., & Birch, L. L. (2005). Parental pressure, dietary patterns and weight status among girls who are picky/fussy eaters. *Journal of the American Dietetic Association*, 105, 541-548.
- Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40(11), 1337-1345.
- Haycraft, E. & Blissett, J. (2012). Predictors of parental and maternal controlling feeding practices with 2- to 5-year-old children. *Journal of Nutrition Education and Behavior*, 44, 390-397.
- Healey, D. M., Flory, J. D., Miller, C. J., & Halperin, J. M. (2011). Maternal positive parenting style is associated with better functioning in hyperactive/inattentive preschool children. *Infant and Child Development*, 20, 148-161. doi: <http://dx.doi.org/10.1002/icd.682>
- Hubbs-Tait, L., Kennedy, T. S., Page, M. C., Topham, G. L., & Harrist, A. W. (2008). Parental feeding practices predict authoritative, authoritarian, and permissive parenting styles. *Journal of the American Dietetic Association*, 108(7), 1154-1161; discussion 1161-2. doi: <http://dx.doi.org/10.1016/j.jada.2008.04.008>
- Kotler, L. A., Cohen, P., Davies, M., Pine, D. S., & Walsh, B. T. (2001). Longitudinal relationships between childhood, adolescent, and adult eating disorders. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40(12), 1434-1440.
- Lindberg, L., Bohlin, G., Hagekull, B., & Palmerus, K. (1996). Interactions between mothers and infants showing food refusal. *Infant Mental Health Journal*, 17, 334-347.
- Linscheid, T. R., Budd, K. S., & Rasnake, L. K. (2003). Pediatric Feeding Disorders. In M. C. Roberts (Ed.), *Handbook of Pediatric Psychology* (pp. 481-498). New York: The Guilford Press.
- Maccoby, E. E. & Martin, J. A. (1983). Socialization in the context of the family. Parent-child interaction. In P. H. Mussen (Series Ed.) & E. M. Hetherington (Ed.), *Handbook of child psychology: Vol. 4. Socialization, personality, and social development* (4th Ed., pp. 1-101). New York: Wiley.

- Marchi, M. & Cohen, P. (1990). Early childhood eating behaviours and adolescent eating disorders. *Journal of American Academy of Child and Adolescent Psychiatry*, 29, 112-117.
- Mitchell, G. L., Farrow, C., Haycraft, E., & Meyer, C. (2013). Parental influences on children's eating behaviour and characteristics of successful parent-focused interventions. *Appetite*, 60(1), 85-94. doi: <http://dx.doi.org/10.1016/j.appet.2012.09.014>
- Morrison, H., Power, T. G., Nicklas, T., & Hughes, S. O. (2013). Exploring the effects of maternal eating patterns on maternal feeding and child eating. *Appetite*, 63, 77-83.
- Ostberg, M. & Hagelin, E. (2011). Feeding and sleeping problems in infancy--a follow-up at early school age. *Child: Care, Health and Development*, 37(1), 11-25. doi: <http://dx.doi.org/10.1111/j.1365-2214.2010.01141.x>
- Ramsey, M., Gisel, E. G., McCusker, J., Bellavance, F., & Platt, R. (2002). Infant sucking ability, nonorganic failure to thrive, maternal characteristics, and feeding practices: A prospective cohort study. *Developmental Medicine & Child Neurology*, 44, 405-414.
- Reich, W. (2000). Diagnostic interview for children and adolescents (DICA). *Journal of the American Academy of Child & Adolescent Psychiatry*, 39(1), 59-66.
- Reau, N. R., Senturia, Y. D., Lebailly, S. A., & Christoffel, K. K. (1996). Infant and toddler feeding patterns and problems. Normative data and a new direction. *Pediatric Practice Research Group, Journal of Developmental and Behavioral Pediatrics*, 17, 149-153.
- Rhee, K. E., Lumeng, J. C., Appugliese, D. P., Kaciroti, N., & Bradley, R. H. (2006). Parenting styles and overweight status in first grade. *Pediatrics*, 117, 2047-2054.
- Roskam, I., Meunier, J. C. (2009). How do parenting concepts vary within and between the families? *European Journal of Psychology of Education*, 24(1), 33-47.
- Sanders, M. R., Patel, R. K., Le Grice, B., & Sheperd, R. W. (1993) Children with persistent feeding difficulties: An observational analysis of feeding interactions of problem and non-problem eaters. *Health Psychology*, 12, 64-73.
- Shelton, K. K., Frick, P. J., & Wootton, J. (1996). The assessment of parenting practices in families of elementary school-aged children. *Journal of Clinical Child Psychology*, 25, 317-327.
- Singer, L. T., Song, L. Y., Hill, B. P., & Jaffe, A. C. (1990). Stress and depression in mothers of failure to thrive children. *Journal of Pediatric Psychology*, 15, 711-720.
- Spender, Q., Stein, A., Dennis, J., Reilly, S., Percy, E., & Cave, D. (1996). An exploration of feeding difficulties in children with Down's syndrome. *Developmental Medicine & Child Neurology*, 38, 681-694.
- Taylor, A., Wilson, C., Slater, A., & Mohr, P. (2011). Parenting and child body mass index. Longitudinal investigation of maternal and paternal influence. *Australian Journal of Psychology*, 63(4), 198-206. doi: <http://dx.doi.org/10.1111/j.1742-9536.2011.00024.x>.
- Topham, G. L., Hubbs-Tait, L., Rutledge, J. M., Page, M. C., Kennedy, T. S., Shriver, L. H., & Harrist, A. W. (2011). Parenting styles, parental response to child emotion, and family emotional responsiveness are related to child emotional eating. *Appetite*, 56(2), 261-264. doi: <http://dx.doi.org/10.1016/j.appet.2011.01.007>
- Ünlü, G., Aras, S., Guvenir, T., Buyukgebiz, B., & Bekem, O. (2006). Family functioning, personality disorders and depressive and anxiety symptoms among mothers of children with food refusal. *Turkish Journal of Psychiatry*, 17, 1-8.

- Ventura, A. K. & Birch, L. L. (2008). Does parenting affect children's eating and weight status? *International Journal of Behavioral Nutrition and Physical Activity*, 5, 15-27.
- Wehrly, S. E., Bonilla, C., Perez, M., & Liew, J. (2014). Controlling parental feeding practices and child body composition in ethnically and economically diverse preschool children. *Appetite*, 73, 163-171.
- Whelan, E. & Cooper, P. J. (2000). The association between childhood feeding problems and maternal eating disorder: A community study. *Psychological Medicine*, 30, 69-77.
- Wright, C. & Birks, E. (2000). Risk factors for failure to thrive. A population based study. *Child: Care, Health and Development*, 26(1), 5-16.