

# Influence of Maternal Anxiety on the Frequency of Paediatric Primary Care Visits

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**Aim.** To know the influence of mother's anxiety in the number of office visits made by the children at primary care paediatric setting.

**Design.** Case control study.

**Setting.** Primary care. 17th Health Area. Valencian Community, Spain.

**Patients.** 134 mothers. Overuse was defined as number of visits higher than the average of visits in all children plus one standard deviation in a certain period. 14.89% were over users. 46 mothers (35.12%) from over user children and 85 (64.88%) from non over users.

**Measures.** Anxiety scale STAI (Spielberger State-Trait Anxiety Inventory) short form. Mother's job and number of mother's children.

**Results.** Mother's of over user's children score higher in STAI scale. Number of children or mother's job is not associated with STAI scores. In multivariate analysis anxiety is an important factor associated to over user's children.

**Conclusions.** Mother's anxiety is associated with over user's children in primary care paediatric setting. This is a modifiable factor to influence in the number of inappropriate office visits.

**Key words:** Mother's anxiety. Over use. Paediatrics. Primary care.

INFLUENCIA DE LA ANSIEDAD MATERNA EN LA FRECUENTACIÓN DE LAS CONSULTAS DE PEDIATRÍA DE ATENCIÓN PRIMARIA

**Objetivo.** Conocer la influencia de la ansiedad materna en la frecuentación de las consultas de pediatría de atención primaria.

**Diseño.** Estudio de casos y controles.

**Emplazamiento.** Consultas de pediatría del Área 17 de la Comunidad Valenciana.

**Participantes.** Se incluyó en el estudio a 131 mujeres, 46 de ellas (35,12%) madres de niños hiperfrecuentadores definidos por haber superado la media de consultas más 1 desviación estándar en un período determinado, y 85 madres de niños normofrecuentadores (64,88%).

**Mediciones principales.** Puntuación en escala de ansiedad STAI (ansiedad estado y ansiedad rasgo), presencia de ansiedad (definida cuando superan el percentil 50), relación entre la puntuación en las escalas y la situación laboral materna, y número de hijos.

**Resultados.** Las puntuaciones de las madres de los hiperfrecuentadores son significativamente más elevadas. No obtenemos diferencias en los resultados según el número de hijos y la situación laboral materna. En el análisis multivariable, la variabilidad explicada aumenta al considerar la ansiedad (el 22,7 frente al 14,9%).

**Conclusiones.** La ansiedad materna influye en la hiperfrecuentación de los niños. Las madres de los hiperfrecuentadores presentan puntuaciones más elevadas en las escalas de ansiedad. Éste puede ser uno de los pocos factores modificables, susceptible de intervención, para intentar reducir la hiperfrecuentación en pediatría.

**Palabras clave:** Ansiedad materna. Hiperfrecuentación. Pediatría. Atención primaria.

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A commentary follow  
 this article  
 (pág. 69)

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## Introduction

In primary care, if paediatric age is considered along with the elderly population, a small percentage of patients generate a large part of the visits.

Morbidity is the variable which most influences the use of the health services, but at the same time only explains part of this variability.<sup>1-4</sup> Some other factors which influence overuse have been identified, but it is not exactly understood how and to what degree they affect the use,<sup>3,5</sup> and neither has it been possible to identify them all.<sup>2,4,6-8</sup> Some characteristics of these individual have been associated with the level of demand.<sup>5,7,9-11</sup> Family changes and psychic discomfort cause a greater use of health services in adults and psychological differences have been implicated as one of the reasons which could explain the different use of services.<sup>12,13</sup> Despite these patterns of use for adults, they cannot be valid for infants. On investigating the frequency in paediatrics, the psychological variables of the parents are increasingly being taken into consideration, since children are not capable of deciding when to visit clinics.

Family factors have been associated with the level of demand and a correlation has been established between the use by each member and the family as a whole.<sup>2,14-17</sup> Personality disorders have been associated with a higher frequency in adults and it has been reported that people at risk of having any disorder normally use many health resources and they are also shown to be less satisfied with the attention received in primary care.<sup>18</sup>

The mothers have been the focus of many investigations, which have looked at the determining factors in this use. The perception that they have a degree of vulnerability when faced with illness has been a predictor of the use of paediatric services.<sup>19</sup> Maternal abuse of health services has been associated with overuse in paediatrics. The maternal beliefs and perceptions on health can be determining factors in influencing the subsequent use of services on the part of the children when they reach adult age.<sup>12,20</sup>

Given that, of the known variables, the attitude of the mothers can be one of the few factors susceptible to intervention and change to reduce the overuse of paediatric services,<sup>2,10</sup> the present study was designed with the objective of determining the influence of maternal anxiety on the frequency of visits of the children in primary care paediatric clinics in our health area.

## Patients and Methods

### Scope

Teaching health centres of Area 17 of the Community of Valencia (Acacias, Novelda, and Petrer 1). In each of them a paediatrician has participated with quotas of 908, 1117, and 981 children, respectively (3006 in total).

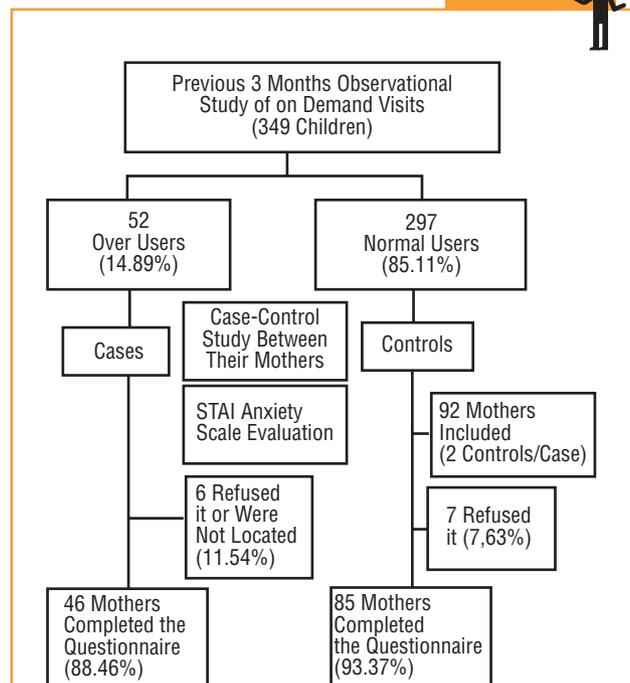
### Design

After having carried out a multicentre longitudinal prospective observational study for 3 months, in which over user children between 0 and 14 years were selected, a case control study was carried out between the mothers to evaluate the possible influence of maternal anxiety on the high frequency of visits by the children.

To define high frequency different valid approaches are available. In the few studies carried out in paediatrics, the most common choice was the mean number of on demand clinic visits in a period, plus one standard deviation (SD),<sup>14,21</sup> which was adopted by our study. Other possibilities are the use of percentiles of the number of visits per year, the mean of visits plus 2 SD<sup>22</sup> or arbitrary parameters of the number of visits.<sup>23</sup>

To evaluate anxiety, the Spanish (IDARE)<sup>24</sup> version of the STAI (State-Trait Anxiety Inventory) questionnaire was used,

### Material and methods



### General Scheme of the Study

Case-control study to understand the influence of maternal anxiety on the use by children of primary care paediatric clinics.

which contains separate self-evaluation scales to measure independent concepts of anxiety. Each scale has 20 items and each one of these has a range of 0 to 3 points. The anxiety state (AS) is defined as a transitory emotional state or condition which is susceptible to variation with time and fluctuates in intensity. Anxiety trait (AT) points to an anxiety tendency, relative stable, in which the subjects differ in their tendency to perceive situations such as threatening ones, and as a result increase their (AS). Both are considered positive when they exceed the 50 percentile.

**Patient Selection**

After identifying the children with a higher level of visits in a prospective observational study, a case control study was carried out on the mothers, defining as cases the mothers of over users and a group of mothers who voluntarily accepted, pertaining to the study and with similar characteristics, except the fact that their children had a normal level of visits.

To increase the power of the sample, to have 2 homogeneous groups in the comparison and to minimise the selection bias, it was decided to study 2 controls for each case.

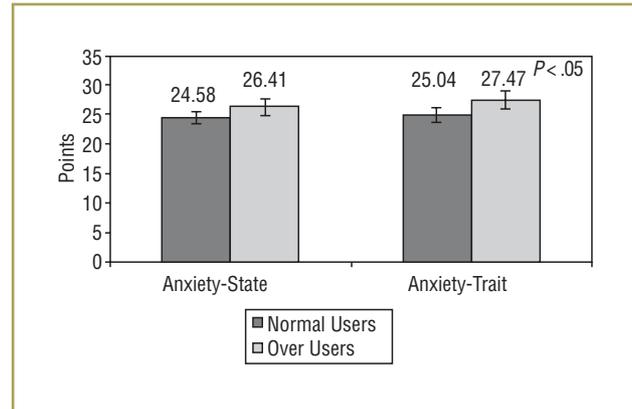
**Results**

Of the total of over users (52 of 349 studied, 14.89% of the sample), 46 mothers (88.46%) completed the questionnaire, since 6 were not located, or rejected for various reasons. Of the 92 mothers of normal users, 85 (92.37%) of those proposed, completed it.

As regards the total population surveyed (n=131), the scores obtained by the mothers on the anxiety scales, for both AS and AT, are shown in Table 1.

When the scale scores are examined, AS as well as AR, in relation to the frequency level, significant differences are obtained, which are higher in the mothers of over users ( $P=.036$  and  $P=.023$ , respectively) (Figure).

According to the definition in the scales manual,<sup>24</sup> it is considered that a person has anxiety when the values exceed the 50 percentile. According to our results, this means more than 25 points for AS and more than 26 for AT. Using this criteria, 44.27 and 46.27%, respectively, of the total number of mothers surveyed are considered to have a high anxiety level. If, instead of evaluating the variable in



**FIGURE 1**

Maternal score on the anxiety scales for the different groups of user.

**TABLE 1** Results Obtained on the Anxiety Scales. Measures of Tendency and Range. Percentiles\*

Scale	Points	SD	95% IC	Minimum	Maximum	Median	Mode	p25	p50	p75
State	25.22	4.76	24.4-26.0	14	35	25.0	25	22.0	25.0	29.0
Trait	25.90	5.87	24.9-26.9	12	42	26.0	27	22.0	26.0	30.0

\*SD indicates standard deviation; CI, confidence interval; p, percentile.

**TABLE 2** Presence or Not of Anxiety (Using the 50 Percentile) for the Different Scales in all the Mothers and Broken Down by Frequency\*

Anxiety	No	%	95% IC	Yes	%	95% IC	Total	%
State								
Total	73	55.7	47.2-64.2	58	44.2	35.7-52.7	131	100
Normal users	52	61.1	50.8-71.5	33	38.8	28.4-49.2	85	100
Overusers	21	45.6	31.2-60.0	25	54.4	40.0-68.8	46	100
Trait								
Total	70	53.4	44.9-61.9	61	46.5	38.0-55.1	131	100
Normal users	50	58.8	48.3-69.2	35	41.1	30.7-51.6	85	100
Over users	20	43.4	29.1-57.8	26	56.5	42.2-70.8	46	100

\*CI indicates confidence interval.

Anxiety-state: odds ratio =1.88; 95% CI, 0.91-3.88;  $P>.05$ .

Anxiety-trait: odds ratio =1.86; 95% CI, 0.90-3.84;  $P>.05$ .

**TABLE 3** Relationship Between Maternal Score on the Anxiety Scales and the Number of Children and Employment Situation

Variable	Anxiety-State	SD	95% IC	Anxiety-Trait	SD	95% IC
Number of children						
1	25.45	4.44	24.1-26.8	26.70	6.25	24.7-28.6
2	25.00	5.28	23.8-26.2	26.05	5.65	24.8-27.3
>3	25.75	3.07	24.0-27.5	23.58	6.24	20.1-23.6
Maternal employment situation						
Does not work	24.64	4.06	24.6-25.6	24.82	5.97	23.3-26.3
At home	25.66	6.01	23.1-25.6	27.33	5.57	24.9-29.7
Outside	25.72	5.03	24.3-27.1	26.65	5.78	25.0-28.3

**TABLE 4** Multivariate Analysis Considering Anxiety\*

	Non-Standardised Coefficients		Standardised Coefficients		P
	Beta	SE	Beta	T	
Constant	13.333	3.318		4.018	.000
Age of child	-0.289	0.085	-0.347	-3.389	.001
Nursery attendance	-0.660	0.642	-0.090	-1.027	.306
Anxiety-state	2.450E-02	0.067	0.034	0.368	.713
Anxiety-trait	1.799E-02	0.055	0.031	0.325	.746
Maternal age	-0.146	0.080	-0.179	-1.819	.071
Maternal work	-0.817	0.322	-0.212	-2.542	.012
Order number	-0.433	0.533	-0.073	-0.812	.419

\*EE indicates standard error.

quantitative form (global scores of the scales), establishing 2 categories for mothers (with or without anxiety), and relate them to the frequency, the data in Table 2 is obtained. In both cases differences between groups are obtained, but without statistical significance ( $P=.088$  and  $P=.093$ ).

The results of the relationship of the number of children in families and the maternal employment situation with the scores obtained on the anxiety scales (no statistical differences) are shown in Table 3.

In the observational study on overuse, a multivariate analysis was carried out, with the visits on demand as dependent variable and, as independent variables those which had been shown as predictors of increased use (age of child, nursery attendance, maternal age, mother's employment and order number as regards his/her brothers and sisters). The explained variability for the model was 0.149.

On repeating the multivariate analysis, adding the AS and AT to the previous variables gave the results shown in Table 4. The differences continued to be significant only for age of child and maternal employment. The significant analysis was still .000. The explained variability is higher than before and rises to 0.227.

## Discussion

In studies carried out on mothers, an increased presence of psychic discomfort has been reported between those who turn up at on demand clinics, more than in those who visit by appointment.<sup>25</sup> The lower tolerance of anxious women and the negative perceptions about their children, together with dysfunctional behaviour or somatization which sometimes arises in children and the perception of emotional problems in their mothers, can increase attendance at clinics.<sup>26</sup>

Some authors have analysed the personalities of the mothers of over users<sup>27</sup> and have suggested that the incapacity which particular personal profiles have in making daily decisions without an exaggerated amount of advice or recommendations could be associated with higher use. Our results, with higher score in the mothers of over users, taking into consideration the AS as well as the AR, are similar to those from other studies.<sup>14,19,25,28,29</sup>

The fact that almost half the total of the mothers surveyed could be said to have anxiety, on their scores exceeding the 50 percentile, in principle is striking, but it also coincides with that described by

other authors, who found similar figures.<sup>25,27</sup>

The presence of differences in the scores on the scales of the mothers of normal users and over users, along with the lack of significance on establishing 2 groups of mothers

### Discussion Key points



#### What Is Known About the Subject

- Morbidity is the most influential variable in the use of health services, but by itself, it only explains part of the variability.
- There is a greater presence of psychic unease between mothers who visit on demand clinics with their children and those who visit clinics by appointment.
- The use on the part of anxious women and their children decreases after maternal psychotherapy treatment.

#### What This Study Contributes

- Maternal anxiety influences the overuse by children.
- The mothers of overusers have higher scores on anxiety scales.
- Maternal anxiety can be one of the few modifiable factors and, therefore, susceptible to intervention to try to reduce overuse in paediatrics

(with and without anxiety), we consider that it could be due to the power of the study since, possibly, an increase in this might have resulted in a greater significance and a better explanation of the model.

Results similar to ours have been reported in respect to the number of children per family and the maternal employment situation,<sup>12,25</sup> but it is known that an unstable work situation can be a risk factor in presenting with anxiety disorders<sup>5</sup> and on occasions, has been found to be significant.<sup>14,30</sup>

In conclusion, we highlight that anxiety is a modifiable factor, and therefore potentially reducible, which should be taken into account on analysing overuse in paediatrics. As regards to this, there are studies in which the use by anxious mothers and their children for 3 years before and after psychotherapy of the former has been measured, and the decrease in use by both has been demonstrated after intervention.<sup>31</sup>

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## COMMENTARY

# Giving Fish and Teaching How to Fish. So Much Work, Oh Mother!

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The public health is stressed, first and foremost due to underfunding. It is provided with a percentage of GDP lower than surrounding countries and it is expected to cover all demands, without limits. Including those of all the Europeans whose demands were rejected in their country of origin, with a higher GDP and a higher percentage of the GDP destined for health. And they are settled here.

And here comes the terrible classical binomial, underfunding versus over demand: queues for everything...from the telephone queue to ask for a visit, the queues in the waiting rooms, the delays in gaining access to the primary care team, the chronic abuses with long queues in casualties, unsustainable delays in seeing some specialists or some diagnostic techniques, which generate more ineffective visits which overload the doctor or the paediatrician, etc.

In view of this, studies emerge to try to reduce the queues. And they look for the factors which cause them, which are, obviously, numerous and varied. Some factors, minor ones, are somewhat vulnerable to change by the actions of the professionals, but others, the major ones, are not so, being due to structural or external factors “off scene.”

In the profile of the use of health services, particularly in the case of paediatrics, many determining factors are found to be involved.<sup>1-3</sup>

If we look at *both sides of the table*, one has to distinguish between the determining factors pertaining to the user and those of the health professional.

Among the factors of the user we will distinguish several individual ones, such as clinical vulnerability (atopics, intolerants, hyperkinetics, hypoinnunes, chronics), age (hyperinfectivity, common at nursery age), or level of health education; as, for example, assistance is normally demanded for symptoms of discomfort, but almost never for prevention or education (healthy users as well as chronic patients). Almost always the demand due to problems is predominant in the health visit.

Other factors will depend on the family group<sup>4,5</sup> such as, for example, the order in the number of children. The insecurities are greater with the first child, which is significant in a society with a predominance of anxious parents with only one child. The stability or anxiety of the mothers also is important, due to the frustration of their childhood *feminine* expectations (the *little housewife*) compared to the

## Key Points

- In the profile of the user of pediatric care services, it is necessary to distinguish between the determining factors of the user and that of the therapy.
- Among the user factors, some arise from the individual, such as clinical vulnerability, age, or level of health education.
- Factors which depend on the family group, such as age order in the family, insecurity, or anxiety of the mothers, also influence the over use by children.

reality of worker + mother + child minder + household manager,<sup>6</sup> often not complemented by the level of paternal dedication. And to this very generalised data, might be added the specific maternal illnesses.

It also depends on the degree of availability of particular support, babysitters or grandparents, which can be aggravated in single parent situations: here the appearance of febrile episodes will cause distress and social urgencies especially at nursery age.

The degree of stability and social support (especially during the first period, in the case of migration) is another element which determines possible maternal insecurity: cultural migration will added insecurities specific to family separation and the lack of social benefits.

In the case of an asymmetric relationship, as happens in a medical or paediatric clinic, the level of recognising and accepting the cognitive messages transmitted in the clinic (diets, prescriptions, advice) will vary depending on the emotional manner of its transmission (distant tone, objective, imperative, authoritarian, excluded or snubbed by the doctors or nurses).

Some very widespread phobias (fever-phobia, mucous-phobia, nutrition-phobia, etc) are of cultural environment origin, obviously multifactorial, but not always associated with maternal problems.<sup>7</sup> In fact, there are several factors involved which might bring them on.

If we focus on the other side of the table, we will see some factors which depend on the health professional. Some will be individual and common to the paediatrician paediatric nurse, such as the erroneous and excessive application of some preventive programmes which generate over use by the patients.

Some insecure, stressed attitudes, with compulsive prescribing, often associated with a lack of dedication to education in self-help, can also generate over use (they consist of clear examples of the over prescribing of mucolytics, anti-diarrhoea drugs, or orexogenics which, without improving the clinical situation, facilitate over use).

On occasions, the over use by the patient simulates confidence and complicity with the health professional...until this manages to contain the banality and insecurity of the visits. The personal experience of fatherhood/motherhood can provide a better understanding, a capacity to manage and empathise with the father/mother users.

Other determinants arise from the welfare environment, such as lack of time for decent care (here, we believe that the 10 minute campaign puts salt on the wound), the lack of objective regulators of the visit (price, ticket, etc), and the absence of clear clinic times, which can alleviate the urgency<sup>8</sup> of many visits. The irregular distribution of workload in a team can be conducive to the contrived generation of compensatory over use.

Another distorting element is the transference of the distress and insecurity, either actively, due to the personality of the health professional, or passively (robot-like and emotionally disconnected) due to the overload of the service becoming chronic.

To this, is added the overload due to administrative visits (documents, certificates, prescriptions, etc) with no care justification.

Another element lies in the health culture of the health professionals: paediatric training, still not sufficiently widespread in the primary care scene, can give, especially in the younger professionals, an inadequate vision of care, which consists of the need for objectivity and high precision diagnosis in view of the demands, often confused, inexact and loaded with clear anxious projection. The scientific interest for the diagnosis does not improve the picture and the demands are repeated until the underlying insecurity is rectified.

Besides the multifactorial framework outlined up until now, it is true that some patients have abnormally repetitive or over user behaviour. In the interesting article which is included in this issue, this problem is seriously and methodologically reviewed, and it puts forward an interpretation and a proposed solution which well deserves to be discussed widely within primary care teams.

As in the joke about boats, in which everything was organised and only one person was rowing, we could conclude...that the rower has to row better and stronger. But over use is a sufficiently serious and chronic problem and at least countrywide, thus we should think about it from multiple approaches.

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