Maternal breastfeeding in Portugal: factors associated with the duration and premature cessation

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Introduction

Purpose
This work was carried out in order to study the role of breastfeeding (BF) counselling by healthcare professionals on the achievement of the intended BF duration. In particular, the variables of interest refer to BF counselling about benefits, techniques and difficulties.

Data
This data was collected as part of a project carried out at the Institute of Preventive Medicine (IMP-FMUL) that aimed to characterize BF in the Portuguese context. The study was observational with sampling on a national level. Data was collected in 3 telephone interviews at approximately 3, 6 and 18 months of babies’ age.

Variables of interest

Planned duration
A quantitative goal for BF duration was specified for 452 (95.5%) mothers. A high proportion of mothers specify six (23.2%) and 12 (45.4%) months as planned duration, with a median of 12 months.

Actual duration
The median survival time for the duration of any BF was estimated by the Kaplan-Meier method as being 5 months (IC95% 4.2-6.0).

Goal achievement
The response variable is a binary variable in which the success is the achievement of the intended BF duration. The outcome is determined by the comparison of actual BF duration with planned duration, reported at the three months interview.

Due to censored observations, the outcome could only be determined for 411 mothers, among which 142 (34.5%) achieved their goal and 269 (65.5%) failed to.

It is important to note that because women who BF longer are more likely to be censored, it seems reasonable to assume that the proportion of successes found might be underestimated.

BF counselling
Mothers were asked if they were ever told about BF benefits and techniques or difficulties. Both variables were categorized in three groups: according to the moment when it first happened: never counselled (Never), was first counselled before delivery (Antenatal) and was only counselled after delivery (Postnatal).

The majority of mothers recall having been counselled at least once - 77% for benefits and 71% for techniques/difficulties. There are significant differences among both groups in terms of age, education level and previous BF experience.

Model building strategy

The variables maternal age, education, previous BF experience and country of origin were considered as a priori confounders and were included independently of statistical significance. These variables were also investigated as effect modifiers.

Other biological variables were maintained in the model depending on the level of association with the response variable and the presence of confounding, measured as a change in effect measure. No other social or biological variables were considered for entry besides the two variables related to counselling.

Model diagnostics

Model diagnostics
Maternal age showed evidence of a non linear relation with the response in the plots of deviance residuals and component-plus-residual.

This relationship was modelled through the inclusion of a natural cubic spline with 2 internal knots.

As can be seen on the effect display in Figure X, there is a linear increase in the fitted values (logit scale) up to 30 years of age, beyond which it stabilizes.

Model adjustment
The model has a good fit to the data, according to the Hosmer-Lemershow test (p=0.63). Using a cut-off value of 0.5, there are 69.0% of correct predictions.

Conclusion

Among the variables of interest, only counselling about BF benefits exhibited an association with BF success with borderline significance. Prenatal counselling about benefits was associated with a 70% increase in the odds of success, compared to not having been counselled (p=0.117).

<table>
<thead>
<tr>
<th>Beta</th>
<th>exp(Beta)</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Never Antenatal</td>
<td>0.54</td>
<td>1.72</td>
<td>0.88 - 3.41</td>
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<tr>
<td>Postnatal</td>
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<td>0.90</td>
<td>0.46 - 1.78</td>
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<tr>
<td>Techniques/difficulties</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never Antenatal</td>
<td>-0.46</td>
<td>0.63</td>
<td>0.31 - 1.26</td>
</tr>
<tr>
<td>Postnatal</td>
<td>0.10</td>
<td>1.10</td>
<td>0.61 - 2.00</td>
</tr>
</tbody>
</table>

Table 1: Final model includes covariates maternal age, level of education, previous BF experience, country of origin and major complications (n=410).

Although this study did not find a conclusive association, other interventional studies have found significant effects of BF education, at both prenatal and postnatal periods, on success.

Bibliography

Data analysis was carried out using R (version 2.15.1).

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