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Umbilical cord clamping time and maternal satisfaction

2

3 **Abstract**

4 *Objective:* Clamping of the umbilical cord is part of the third stage of delivery. The
5 WHO recommends delayed clamping for its contribution to the adaptation of the
6 newborn and prevention of anaemia. In Spain, there are variable practices of this
7 intervention and no evidence about its effect on maternal satisfaction. The purpose of
8 the present study is to evaluate the effect of the moment of clamping the umbilical cord,
9 as well as different sociodemographic and obstetric factors, on maternal satisfaction.

10 *Design:* Pragmatic non-drug intervention study with simple random assignment of
11 participating mothers to intervention groups (Clinical Trials N^o: NCT03624335).

12 *Setting:* A public, university-level hospital in Villarreal city, eastern Spain.

13 *Participants:* Childbearing woman, gestation week between 35 and 42 weeks, obstetric
14 history of controlled pregnancy, single pregnancy and vaginal delivery (N = 198, 80%
15 of the women recruited).

16 *Interventions:* Early or delayed umbilical cord clamping.

17 *Measurements:* Birth satisfaction was measured using the Mackey Childbirth
18 Satisfaction Rating Scale (MCSRS). Additionally, sociodemographic data, degree of
19 knowledge about the moment of clamping and type of breastfeeding data were
20 recorded. The Mann-Whitney and Kruskal-Wallis tests for comparison of the mean of
21 two, three, or more groups, respectively, and Chi-square and Spearman for
22 comparison of two qualitative and quantitative variables, respectively, were used. To
23 determine the weight of each factor of MCSRS, an exploratory factor analysis was
24 carried out using the maximum likelihood method for factor extraction and the varimax
25 method for factor rotation. The adequacy of the factor analysis was checked by mean
26 of Kaiser-Meyer-Olkin test and Bartlett sphericity test. The level of significance was set
27 at a p-value of < 0.05.

28 *Findings:* The average degree of satisfaction was 4.55/5 (SD: 0.37). No statistically
29 significant difference was observed between mothers' satisfaction according to level of
30 study or place of birth, while it changed significantly with age ($p = 0.0398$). Within the
31 obstetric variables, satisfaction was significantly associated with spontaneous
32 amniorrhexis, the duration of the second stage of delivery, and the Apgar value of the
33 newborn at the first minute of life, and was independent of the number of previous
34 pregnancies and deliveries, use of intrapartum oxytocin, epidural analgesia,
35 episiotomy, the weight of the child at birth and type of breastfeeding. Furthermore,
36 there was no relationship between the time of clamping and satisfaction ($p = 0.5178$).

37 *Key Conclusions:* Maternal satisfaction with the birth experience varies with the age of
38 the childbearing woman, and some intrapartum factors and the result is not influenced
39 by the time of clamping of the umbilical cord. Therefore, this component of the
40 physiological management of childbirth provides additional benefits for the health of the
41 neonate, without negative consequences on the final perception of the maternal health
42 care received.

43 *Implications for practice:* If there are no reasons that justify an early umbilical cord
44 clamping, delaying it brings benefits to the neonate, without negatively affecting the
45 maternal assessment of the experience of childbirth.

46 *Key words:* umbilical cord clamping, maternal satisfaction, birth, Spain.

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50 **Introduction**

51 Clamping the umbilical cord after birth is part of the third stage of care in
52 childbirth, and there are two options¹: early clamping (EC) before the first minute of life
53 and delayed clamping (DC), after the first minute and which can be prolonged until the
54 cord stops beating. The first option involves active management of the birth, and the
55 second, physiological or expectant management. In Spain there is variability in the
56 performance of this practice, with midwives having a higher probability than
57 gynaecologists of performing a DC (OR = 14.05, IC95%: 8.41-23.49) and, in general,
58 professionals over 50 years of age perform the clamping like this less frequently (OR =
59 0.24, IC95%: 0.11-0.52)².

60 Studies in low per capita income countries show that the DC produces both
61 nutritional and haematological benefit in the new born^{3,4,5}. In Spain, the research
62 carried out focuses on describing the relationship between clamping time and the
63 presence of indicators of foetal distress in umbilical cord blood^{6,7,8}. It should be noted
64 that with the exception of a study carried out in Turkey⁹, none of the investigations
65 includes patient-reported outcomes (PRO) among the study variables. PROs, such as
66 maternal satisfaction, are as important as any other clinical or physiological outcome in
67 health research¹⁰. By paying attention to patient feedback on their perception of the
68 care received, it is possible to reduce readmission rates and/or improve disease
69 prognosis^{11,12}. In Spain, previous studies on maternal satisfaction with birth suggest
70 that there is a relationship between the level of satisfaction with birth, the fulfilment of
71 previous expectations and the care received in the maternity ward^{13,14}.

72 The aim of this study is to evaluate the effect of different sociodemographic and
73 obstetric factors, including the timing of cord clamping, on maternal satisfaction with the
74 birth experience, in the context of our healthcare scenario.

75 **Method**

76 This research is included in the CORDON Study (Clinical Trials N^o:
77 NCT03624335)¹⁵ which deals with the influence of umbilical cord clamping time on
78 secondary neonatal morbidity, iron deposits in the neonate and infant, and associated
79 maternal repercussions, and took the form of a pragmatic intervention study without
80 drugs, carried out at the Hospital Universitario de La Plana (Castellón, Spain). The
81 participants in the study were recruited consecutively after obtaining informed consent
82 and were assigned in a simple random fashion to one of two intervention groups,
83 according to the time the umbilical cord was clamped: Early clamping group (before the
84 first minute of life) and, Delayed clamping group (when the umbilical cord stopped

85 beating after the first minute of life). Randomisation was carried out by calculating the
86 probability of a Bernoulli event for an estimated proportion of 0.5 with BM Statistics
87 SPSS v.19. The inclusion criteria applied were gestational age between 35 and 42
88 weeks, obstetric history of controlled pregnancy, singleton pregnancy and vaginal
89 delivery (orthostatic/instrumental), and language understanding of the questionnaires
90 administered. The exclusion criteria applied were those that discourage DC: acute
91 foetal distress, neonatal depression, thick meconial fluid, maternal infectious pathology
92 (HIV, hepatitis B, hepatitis C), and maternal antibody-mediated pathology. Data were
93 collected using two instruments: The Mackey Childbirth Satisfaction Rating Scale
94 (MCSRS), which measures women's degree of satisfaction with the birth experience, in
95 its validated Spanish version¹³, contains 36 items grouped into six factors: obstetrician,
96 midwife, dilation, expulsion, newborn and accompanying and comfort. Additionally, an
97 ad hoc form was administered on sociodemographic data, degree of knowledge about
98 the moment of clamping and type of breastfeeding. The data were processed in the
99 statistical package R version 3.5.2. A descriptive analysis of the sample and
100 satisfaction was performed first. As the main variables studied did not meet the
101 condition of normality, non-parametric tests were used to analyse the data using the
102 following tests: i) Mann-Whitney for comparison of the mean of two groups, ii) Kruskal-
103 Wallis for comparison of the mean of three or more groups, iii) Chi-square for
104 comparison of two qualitative variables and, iv) Spearman for comparison of two
105 quantitative variables. Satisfaction on the MCSRS scale was assessed from two
106 perspectives¹³: "global" and "final". To determine the weight of each factor, exploratory
107 factor analysis was carried out following Mas Pons et al¹³, using the maximum
108 likelihood method, for the extraction of factors and the varimax method for the rotation
109 of factors. The Kaiser-Meyer-Olkin test and the Bartlett sphericity test were used to
110 check the suitability of the factor analysis for the available data. The study did not
111 change the delivery care procedures in our maternity hospital and was approved by the
112 Clinical Research Ethics Committee of the Hospital Universitario de La Plana.

113 **Results**

114 Out of a total of 250 mothers recruited, 62 were excluded (Fig. 1). Table 1
115 shows the sociodemographic and obstetric data of the mothers included, according to
116 the clamping group to which they were assigned. The maximum and minimum values,
117 and the median (Mna) of Apgar at the first minute and at 5 minutes of life were 4 and
118 10, Mna = 9, and 8 to 10, Mna = 10, respectively. The minimum and maximum duration
119 of the dilation period was 60 and 660 minutes, respectively, with a median of 180

120 minutes. And the minimum and maximum duration of the expulsion period was 3 and
121 477 minutes, respectively, with a median of 51 minutes.

122 The average overall and final satisfaction of the pregnant women in relation to
123 the birth experience was 4.5 (SD = 0.37) and 4.8 (SD = 0.48), respectively. Most
124 mothers expressed values of satisfaction above 4/5 $Mna_{\text{satisfacción global}} = 5,0$, $Mna_{\text{satisfacción}}$
125 $_{\text{final}} = 4,6$ It is observed that although similar values were obtained from both
126 perspectives, they are more dispersed in the "global satisfaction" perspective
127 ($Rango_{\text{satisfacción global}} = 3,0$, $Rango_{\text{satisfacción final}} = 2,11$).

128 With regard to the sociodemographic variables, no significant differences were
129 obtained between the degree of satisfaction of the mothers according to the level of
130 study or place of origin (Table 2) in any of the perspectives analysed, while it varied
131 significantly with the age of the pregnant woman ($p=0.0398$, $R = -0.1529$) in the "final
132 satisfaction" perspective (Fig. 2). Both the global and final satisfaction were
133 independent of all the obstetric variables evaluated with the exception of spontaneous
134 amniorrhexis ($p = 0.0206$) in the final perspective), and in the global perspective,
135 duration of expulsion ($p = 0.0065$), type of termination of labour ($p = 0.0413$), and
136 Apgar score at the first minute ($p = 0.0011$) (Table 2).

137 With regard to the time of cord clamping, no significant differences were
138 observed between the EC or DC and the overall or final satisfaction, although in
139 general, the values of satisfaction of the mothers with the DC were moderately higher,
140 with a lower degree of dispersion (Fig. 3a). In the regression carried out between the
141 satisfaction and the clamping time, a value of $R^2 = 0.0156$ ($p = 0.093$) was obtained
142 (Fig. 3b). No significant differences were observed in the satisfaction in relation to the
143 mother's previous knowledge about clamping strategies (Table 2).

144 The factorial analysis identified the six factors of the MCSRS¹² scale,
145 differentiating the weights of each factor moderately among themselves, depending on
146 whether the set of participating mothers is analysed, or by arm of the study (Table 3).
147 For the group of pregnant women with EC and DC, the Kaiser-Meyer-Olkin test showed
148 a value of 0.74 and 0.68, respectively, with Bartlett's sphericity test being significant in
149 both cases ($p<0.0001$).

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151 Discussion

152 The results of this study provide new data from the Spanish health system on the
153 satisfaction of mothers with the experience of labour and birth, incorporating the
154 moment of umbilical cord clamping as a condition not studied until now.

155 According to previous studies, maternal satisfaction in vaginal births is related
156 to various factors such as support and quality of the relationship with health
157 professionals, accompaniment during birth by a chosen person, detailed and
158 understandable information during the process, fulfilment of previous expectations,
159 pain relief, healthy new born, and sociodemographic characteristics of the mother^{13,14-}
160 ^{16,17,18,19}. In our study, none of these factors was related to maternal satisfaction, except
161 for the age of the pregnant woman among those of a sociodemographic nature, and
162 spontaneous amniorrhexis, the duration of expulsion, the type of termination of labour
163 and the Apgar score at the first minute, among the obstetric ones.

164 With respect to the age of the mothers, the Spearman coefficient obtained in the
165 regression analysis with maternal satisfaction, has a low and negative value,
166 suggesting that age, although it influences the satisfaction of the pregnant woman,
167 does so to a minimum degree and inversely, with the younger mothers being more
168 satisfied. Recently, Mazúchová et al (2020) ²⁰, showed that the aspect of age is
169 significantly related to the control factor of women in labour and their participation in
170 decision making. Therefore, it is advisable to strengthen interventions in the field of
171 women's participation in decision-making.

172 Hodnett (2002) ²¹ argues that pain and its relief do not play a major role in the
173 birth experience unless expectations regarding either are not met. Our results support
174 this hypothesis, finding no significant differences in reported satisfaction between
175 mothers who received epidural analgesia and mothers who did not. It is of interest to
176 deepen the research on satisfaction with water dilation, given the scant scientific
177 evidence on this option of pain relief, together with its growing popularity among
178 pregnant women in Spain²².

179 Johansson and Finnbogadóttir²³ (2019) show that the risk factors for a negative
180 birth experience in first-time Swiss mothers are obstetric anal sphincter injuries and the
181 onset of oxytocin augmentation in the first stage of labour. In our study, no significant
182 difference in satisfaction between primiparous and multiparous mothers was detected,
183 although the two conditions mentioned were not present in the studied cohort. No anal
184 sphincter lesions were produced and, in our usual clinical practice, the onset of
185 oxytocin augmentation takes place during the third stage of labour care.

186 Spontaneous amniorrhexis and a shorter expulsion period were significantly
187 associated with higher maternal satisfaction. In the first case it could be due to the fact
188 that labour starts naturally, and in the second case it could be due to the fact that
189 labour lasts less time. In addition, the Apgar value at the first minute of life was
190 significantly related to greater or lesser satisfaction, with the higher Apgar value of the
191 newborn being observed to be more satisfactory for the mother.

192 In relation to timing and satisfaction, Calik et al. (2018)⁹ report a significantly
193 lower degree of satisfaction ($p=0.039$) in mothers who received a DC, which is striking
194 since the DC is recommended for its neonatal benefits²⁴. Our study finds that DC
195 compared to EC does not lead to lower satisfaction in mothers, and it is even slightly
196 higher. The regression line obtained suggests that the longer the clamping time, the
197 greater the maternal satisfaction. Therefore, if there are no situations that justify an EC
198 with active management of labour, a DC will produce a clinical benefit and will not
199 negatively affect maternal satisfaction with the experience of labour and birth.

200 The factor analysis carried out identified the same six factors as the validated
201 MCSRS scale adapted to Spanish¹². These factors as a whole explain, depending on
202 whether they are mothers with EC or DC, 60.9% and 50.3% respectively of the total
203 variance in satisfaction in our study population. Given that for the mothers as a whole
204 this variance is 1.2 times lower than that reported in the validation study of the MCSRS
205 scale¹³, it is possible that in our environment there are other factors conditioning
206 satisfaction in addition to those covered in the instrument used here. In our case, the
207 factors that obtained the greatest weight in the variance explained were "obstetrician"
208 and "midwife". Regardless of whether the relative weight of both is inverted according
209 to mothers in the EC or DC group, the importance of the performance of these two
210 groups of health professionals as determinants of satisfaction continues to be evident.

211 Sandall et al (2013)²⁵, point out that the continuum of care during childbirth by
212 the same professional increases the satisfaction of women and their partners, therefore
213 one would expect that the satisfaction associated with midwives would be greater than
214 that associated with obstetricians, as they have a more limited role in the care of
215 childbirth. In our study, 53% of births were attended exclusively by midwives, so it is
216 striking that in some cases mothers responded to the questions on the "obstetrician"
217 subscale with values other than "3" (recommended neutral value¹²). There could
218 therefore be some bias arising either from the wording of the question in the
219 questionnaire, or from the answer given (false or premeditated response bias), or
220 social acceptability bias relating to a historical and social over-evaluation of the medical

221 profession compared to other health professions ^{26,27}. Consequently, this emerges as a
222 limitation of the study and, at the same time, as an opportunity to review the use of the
223 MCSRS instrument, as well as to further investigate the roles of the different physicians
224 involved in this procedure.

225 The satisfaction of the mothers related to the care of the birth and
226 accompaniment during it increases in those who started breastfeeding early²⁸, and the
227 type of birth conditions the maternal satisfaction with the breastfeeding²⁹. Skin-to-skin
228 contact is a simple way of increasing maternal satisfaction, although it is not directly
229 related to the origins of dissatisfaction with birth. Furthermore, this simple technique is
230 known to have benefits for both the woman and the baby, as it improves the
231 effectiveness and increases the frequency and duration of breastfeeding, improves the
232 health and development of the baby and has positive effects on psychological factors
233 such as parental and new born stress ^{30,31,32,33,34}. In women who have had a caesarean
234 section (planned or emergency) or instrumental delivery (e.g. vacuum extraction),
235 encouraging rapid skin-to-skin contact promotes a more positive birth experience ³⁵.
236 Our results show a lack of relationship between type of breastfeeding, skin-to-skin
237 contact and post-delivery or discharge breastfeeding with maternal satisfaction. The
238 importance of breastfeeding in the maternal-infant environment and the lack of
239 conclusive results in the literature suggest the necessity of carrying out studies on
240 maternal satisfaction with birth and delivery together with the satisfaction, quality and
241 duration of breastfeeding.

242 Delayed umbilical cord clamping in vaginal deliveries is associated with
243 numerous benefits in the neonate, without increasing the risk of neonatal jaundice or
244 maternal haemorrhage^{3,36}. In term new-borns, these benefits include a reduced risk of
245 anaemia until at least six months of age, increased cerebral myelin content at four and
246 12 months, and improvement in fine motor and social skills until four years of age^{37,38}.
247 Preterm infants show a 50% reduction in the risk of intraventricular haemorrhage, a
248 more than 50% reduction in the need for early red blood cell transfusions, a lower risk
249 of late-onset sepsis, and a 30% reduction in hospital mortality when a DC is performed
250 ^{39,40,41}. There are even indications that this technique is feasible and safe in Caesarean
251 deliveries and is associated with increased maternal satisfaction and comfort of the
252 medical team in a modern delivery environment⁴². If we add to the documented
253 benefits that, according to the evidence of this study, there is no effect on maternal
254 satisfaction with the experience of labour and birth in full-term pregnancies, the general
255 proposal of adopting DC as a standard of care for the care of labour and birth in
256 mothers with a gestational age between 35 and 42 weeks is reinforced.

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Conclusion

Maternal satisfaction with the birth experience varies according to the age of the pregnant woman, the occurrence of spontaneous amniorrhexis, the length of the expulsive period, and the value of Apgar at the first minute of life, while it is not affected by the timing of cord clamping. Therefore, this component of the physiological management of childbirth provides additional advantages for the health of the newborn and infant, without having a negative impact on the final maternal perception of the health care received.

285 **Table 1.** Sociodemographic and obstetric characteristics of the 198 mothers who
 286 participated in the study.

Characteristics	N (%)
Age	
≤25	24 (12)
26-35 years	128 (66)
>35 years	46 (23)
Education level	
Primary school	38 (19)
Some secondary school	60 (30)
Secondary school complete	45 (23)
University (UG)	42 (21)
University (PG)	10 (5)
No reply	3 (1,5)
Origen	
<i>Spain</i>	150 (76)
<i>Elsewhere</i>	48 (24)
Latin America	11 (23)
Eastern Europe	18 (37)
Western Europe	2 (4,2)
Africa	16 (33)
Oceanía	1 (2,1)
Mothers' BMI	
<18.5	9 (4,6)
18.5 - 24.9	122 (62)
25 - 29.9	43 (22)
≥30	24 (12)
Number of previous pregnancies	
None	78 (39)
None	71 (36)

	Two	23 (15)
	Three or more	26 (13)
Previous labour(s)		
	First	107 (54)
	Second	70 (35)
	Various	21 (11)
Spontaneous amniorhexis		
	No	58 (32)
	Yes	123 (68)
Spontaneous start of labour		
	No	52 (26)
	Yes	146 (74)
Dilation in water		
	No	182 (92)
	Yes	16 (8)
Assistance from a gynaecologist during labour		
	No	105 (53)
	Yes	93 (47)
Type of termination of labour		
	Eutrophic	157 (79)
	Instruments	41 (21)
Tear		
	No	64 (35)
	Yes	117 (65)
Use of intrapartum oxytocin		
	No	89 (45)
	Yes	109 (55)
Epidural analgesia		
	No	78 (39)

	Yes	120 (61)
Episiotomy		
	No	161 (81)
	Yes	37 (19)
Skin on skin without interruption first 60 min		
	No	40 (20)
	Yes	158 (80)
First holding within 60 minutes		
	No	97 (54)
	Yes	83 (46)
Breastfeeding after birth		
	No	34 (17)
	Yes	164 (83)
Breastfeeding at discharge		
	No	37 (19)
	Yes	161 (81)
Child's birth weight		
	[2000 - 2500] g	4 (2)
	(2501 - 3000] g	44 (22)
	[3001 - 3500] g	87 (44)
	[3501 - 4000] g	48 (24)
	[4001 - 4500] g	15 (7,6)
Apgar		
	Apgar 1 ^{er} min=10	84 (42)
	Apgar 1 ^{er} min=9	91 (46)
	Apgar 1 ^{er} min≤8	23 (12)
	Apgar 5 min=10	180 (91)
	Apgar 5 min=9	14 (7,1)
	Apgar 5 min≤8	4 (2)

Cord clamping

≤60 sec	93 (47)
>60 sec	105 (53)

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288 **Table 2.** P-value of the relationship between the global and final satisfaction of the
 289 participating mothers with the birth experience and the different socio-demographic and
 290 obstetric variables.

Characteristic	p-value	
	Global satisfaction*	Final satisfaction**
Education level^	0.6363 ¹	0.4455 ⁴
Age^^	0.5431 ⁴	0.0398 ²
Origen^^	0.4412 ¹	0.5214 ³
Number of previous pregnancies^^	0.9926 ¹	0.3895 ⁴
Number of previous labours^^	0.1213 ¹	0.4586 ³
Spontaneous amniorhexis ^^	0.3871 ³	0.0206 ³
Dilation in water^	0.7482 ¹	0.2358 ³
Use of intrapartum oxytocin ^^	0.3144 ¹	0.3772 ³
Epidural analgesia ^^	0.1203 ¹	0.9201 ³
Episiotomy ^^	0.0659 ¹	0.8915 ³
Duration of dilation^^	0.1005 ²	0.728 ²
Duration of expulsive phase^^	0.0065 ²	0.2399 ²
Type of termination of labour ^^	0.0413 ³	0.7326 ³
Tear^^	0.8602 ³	0.5908 ³
Apgar 1 min^^	0.0011 ⁴	0.223 ⁴
Apgar 5 min^^	0.1322 ⁴	0.3673 ⁴

First holding within 60 minutes ^{^^}	0.0993 ³	0.4187 ³
Time between clamping and delivery of placenta ^{^^}	0.3324 ²	0.9835 ²
Breastfeeding at birth ^{^^}	0.1348 ¹	0.5912 ³
Breastfeeding at discharge ^{^^}	0.1872 ¹	0.5632 ³
Birth weight ^{^^}	0.3265 ⁴	0.9517 ²
Clamping (early/late) ^{^^^}	0.4609 ¹	0.1151 ³
Previous knowledge about clamping ^{^^^}	0.6919 ¹	0.3267 ³

291 [^]N = 179, ^{^^}N = 181, ^{^^^}N = 191, ^{^^^^}N = 198

292 ¹Chi square

293 ²Spearman

294 ³Mann-Whitney

295 ⁴Kruskal-Wallis

296 *Score obtained from item 36 on the *Mackey Childbirth Satisfaction Rating Scale*.

297 ** Score resulting from the sum of the values assigned to each item - 1 to 36 - on the *Mackey
298 Childbirth Satisfaction Rating Scale*.

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300 **Table 3.** Variance explained by each factor of the *Mackey Childbirth Satisfaction*
 301 *Rating Scale* (MCSRS) for measuring satisfaction with the birth experience, obtained
 302 for the mothers participating in the study by the moment of umbilical cord clamping,
 303 and values of the study validating the scale.

MCSRS Scale factors	Variance explained (%)			
	Total	Early clamping	Early clamping	Validation study MCSRS ¹²
<i>Obstetrician</i>	18.9	16.4	21	19.5
<i>Midwife</i>	11.7	17.4 + 4.8 [^]	15.1	19.2
<i>Dilatation</i>	10.5	11.3	-*	9.8
<i>Newborn</i>	7	6.6	14.1 ^{**}	6.4
<i>Expulsive</i>	6	- ^{***}	0.06	8.4
<i>Accompanying person and comfort</i>	5.7	4.4	0.03	6.1
Total	59.8 (61.2)	60.9	50.3	69.4

variance explained

304 * The model regroups this subscale with Midwife.
 305 ** The model regroups this subscale with Midwife.
 306 *** The model regroups this subscale with Dilatation.
 307 [^] Additional points for a new factor including question 27 for the Midwife.
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314 **Legend of figures**

315 **Fig. 1.** Flow (CONSORT) of the progress through the phases of the CORDON study of
316 the two groups of participating mothers.

317 **Fig. 2.** Age of mothers and satisfaction with the birth experience by the final score of
318 the Mackey Childbirth Satisfaction Rating Scale, (N = 181)

319 Below the figure; Scale: 1 = very unsatisfied; 5 = very satisfied.

320 **Fig. 3.** Umbilical cord clamping time and overall satisfaction with the birth experience of
321 191 mothers participating in the study, by the final score of the Mackey Childbirth
322 Satisfaction Rating Scale (1= very dissatisfied; 5= very satisfied). a) comparison
323 between early and delayed clamping, b) regression using a logarithmic scale on the
324 time axis for better visualization.

325 Below the figure: Scale; 1 = very unsatisfied; 5 = very satisfied.

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