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1 **Mistreatment of women during childbirth care is associated with childbirth-related**  
2 **posttraumatic stress disorder (CB-PTSD): International Survey of Childbirth-**  
3 **Related Trauma study, Brazil**

4

5 Abstract:

6 Purpose: This study examines the relationship between mistreatment during childbirth  
7 care and childbirth-related post-traumatic stress disorder (CB-PTSD) and investigates  
8 how perceived trauma and birth satisfaction may mediate this relationship. Method: This  
9 is a cross-sectional study with 651 participants conducted in Brazil. The association  
10 between mistreatment and other variables and CB-PTSD symptoms was analyzed via  
11 Structural Equation Model (SEM). Results: The analysis found a significant association  
12 between mistreatment and CB-PTSD. Additionally, birth satisfaction and perceiving  
13 childbirth as traumatic served as a mediating factor between mistreatment and CB-PTSD.  
14 Conclusion: Mistreatment during childbirth increases the risk of developing CB-PTSD.

15

16 Keywords: posttraumatic stress disorder; mistreatment; childbirth care.

17

18 Introduction:

19 Childbirth-related post-traumatic stress disorder (CB-PTSD) has an estimated  
20 global prevalence around 4.7% (Yildiz et al. 2017; Heyne et al. 2022). In low and middle-  
21 income countries, such as Brazil, the estimated prevalence is higher (Osório and Borges,  
22 2024). Studies in Brazil found a prevalence of CB-PTSD between 9.4% and 5.4%  
23 (Frankham et al. 2023; Osório et al. 2024). The presence of maternal CB-PTSD during  
24 the postpartum period can lead to health problems for the mother (Cook et al. 2018),  
25 making it a significant mental and physical health problem (Horsch et al. 2024).

26           The DSM-5-TR (Diagnostic and Statistical Manual of Mental Disorders, Fifth  
27 Edition, Text Revision) outlines specific criteria for diagnosing Post-Traumatic Stress  
28 Disorder (PTSD). According to Criterion A, a person must be exposed to a traumatic  
29 event to meet the diagnostic requirements for PTSD. This traumatic event can involve  
30 threatened death, serious injury, or sexual violence, and exposure can occur in several  
31 ways: direct exposure, witnessing the trauma, learning that the trauma happened to a close  
32 relative or close friend, indirect exposure to aversive details of the trauma, usually in the  
33 course of professional duties (e.g., first responders, medics) (APA, 2023).

34           PTSD is characterized by symptoms of intrusive memories (e.g., flashbacks,  
35 nightmares); avoidance behaviors (e.g., trying to avoid reminders of the trauma); negative  
36 changes in thinking and mood (e.g., feelings of guilt, hopelessness, or detachment);  
37 hyperarousal (e.g., irritability, difficulty sleeping, or being easily startled) (APA, 2023).  
38 In CB- PTSD, the traumatic event is the experience of childbirth itself. In these cases,  
39 women can develop CB-PTSD symptoms after or as a direct consequence of the  
40 experience of giving birth being a traumatic event (Leinweber et al. 2023; Horsch et al.  
41 2024). This perspective on traumatic events also aligns with the American Psychological  
42 Association's trauma framework, which describes a traumatic event as any disturbing  
43 experience that results in significant feelings of fear, helplessness, dissociation,  
44 confusion, or other intense emotions. These feelings can have a long-lasting negative  
45 impact on a person's attitudes, behavior, and overall functioning (APA, 2018).

46           Mistreatment during childbirth care is highly associated CB-PTSD so likely to be  
47 a key factor in the development of this mental health problem (Martinez-Vázquez et al.  
48 2021; Silva-Fernandez et al. 2023). Mistreatment is a multidimensional construct which  
49 encompasses a series of abuses (physical and verbal), neglect, discrimination, and health  
50 systems constraints (Bohren et al. 2015). A systematic review revealed that the global

51 prevalence of mistreatment during childbirth ranges from 15% to 98% (Sando et al.  
52 2017). In Brazil, this problem has been highlighted for over two decades (d'Oliveira et  
53 al. 2002; Leite et al. 2022) and the prevalence can vary between 8.3% and 44%,  
54 depending on the period and populations analyzed (Dornelas et al. 2022; Leite et al. 2022;  
55 Leite et al. 2023).

56 Mistreatment during childbirth is a global health issue that undermines the quality  
57 of maternal healthcare and violates women's dignity and rights. Many women experience  
58 disrespectful, violent, and abusive treatment during childbirth (Bohren et al. 2015; WHO,  
59 2015). The psychological impact of mistreatment during childbirth is significant. It can  
60 lead to maternal mental health conditions such as anxiety, depression and PTSD (Silveira  
61 et al. 2019; Leavy et al. 2023). Nevertheless, there is relatively little research on the  
62 association between mistreatment and CB-PTSD. Most studies that are available on the  
63 effects of mistreatment on mother's mental health have focused on postpartum depression  
64 or anxiety (Souza et al. 2017; Silveira et al. 2019; Leite et al. 2022; Kc et al. 2023).

65 Therefore, the primary aim of this study was to analyze the relationship between  
66 mistreatment during childbirth and maternal CB-PTSD. A secondary objective was to  
67 examine the mediating effects of perceived childbirth as traumatic and birth satisfaction  
68 on the relationship between mistreatment and CB-PTSD, using structural equation  
69 modeling.

70

71 Method:

72 This study is part of the International Survey of Childbirth-related Trauma  
73 (INTERSECT) which aims to investigate childbirth-related post-traumatic stress disorder  
74 (PTSD) on an international scale. In Brazil, the INTERSECT study was conducted as a  
75 cross-sectional design. The participant were postpartum women aged 18 and above who

76 had given birth to a baby (live birth or stillbirth) in the last 6 to 12 weeks recruited in  
77 three maternity hospitals: one in Rio de Janeiro and two in Ribeirão Preto. The  
78 participants were invited to take part in the study whilst still in the maternity hospital,  
79 then contacted by telephone 6 to 12 weeks after giving birth to complete the survey. All  
80 interviews were conducted by a trained interviewer. The final sample size comprised 651  
81 women.

82

### 83 **Variables and measurement instruments**

84

85 **Mistreatment during childbirth care** - This variable was assessed by the question:  
86 “Have you suffered any form of physical (e.g., been touched inappropriately and/or  
87 without your permission, been pushed, beaten, slapped, pinched, physically restrained or  
88 gagged), verbal (e.g., been shouted at, insulted or spoken to rudely), or emotional (e.g.,  
89 been neglected, ridiculed or forgotten) mistreatment by healthcare providers?”. The  
90 possible answers were: “No, never”; “Sometimes”; “Yes, very often”.

91 **Childbirth-related post-traumatic stress disorder (CB-PTSD)** – was assess using the  
92 City Birth Trauma Scale (City BiTS). It is a self-report tool designed to evaluate  
93 symptoms of CB-PTSD in women according to the DSM-5 (Diagnostic and Statistical  
94 Manual of Mental Disorders, Fifth Edition). This scale comprises 29 items rated on a  
95 frequency scale that indicates the intensity of the symptoms, where a higher score  
96 indicates more significant PTSD symptoms. The instrument consists of two factors: birth-  
97 related symptoms and general symptoms (Ayers et al. 2018) and has been validated for  
98 use in Brazil. A cut-off scores greater than 28 indicate that women are more likely to have  
99 diagnosed with CB-PTSD compared to those with scores below 28. This cut-off point has  
100 been validated in Brazil (Osório et al. 2022).

101 **Birth satisfaction-** was measured using the Birth Satisfaction Scale-Revised (BSS-R).  
102 This scale consists of ten items with Likert-type response options that assess the level of  
103 agreement (0 = Strongly disagree to 4 = Strongly agree). The score on this scale can range  
104 from 0 to 40, with higher scores indicating greater satisfaction with childbirth (Martin  
105 and Fleming, 2011). The BSS-R was validated for use in Brazil (Ferrari et al. 2022).

106 **Perceiving childbirth as traumatic** - The perception of childbirth as traumatic was  
107 assessed by the following question “In general, how traumatic you think your labor and  
108 birth were?” using a response scale scored on a 10-point, ranging from not at all traumatic  
109 (0) to extremely traumatic (10).

110 Sociodemographic, obstetric, and mental health characteristics of postpartum women  
111 were assessed for the following information: type of birth, medical problem or  
112 complication during pregnancy/labour, baby medical problem/complication during  
113 pregnancy/childbirth, planned pregnancy, previous traumatic birth, skin color; schooling,  
114 income, marital status, and history of mental disorders. All these variables were assessed  
115 based on the woman's self-report.

## 116 **\*\* Figure 1**

117 Figure 1 presents the proposed model that examines the relationship between  
118 mistreatment and CB-PTSD. In this figure, rectangles represent the observed variables,  
119 while circles represent the latent variables. In this model, it is hypothesized that  
120 mistreatment (principal exposure) has a direct correlation with the two dimensions (birth-  
121 related and general symptoms) of the City BiTS, which measures CB-PTSD (principal  
122 outcome). This assumption was based on previous studies that observed a correlation  
123 between these variables (Martinez-Vázquez et al. 2021; Silva-Fernandez et al. 2023).

124 Furthermore, the model postulates that the variables birth satisfaction and  
125 perception of childbirth as a traumatic event play a mediating role in the association  
126 between mistreatment and CB-PTSD. In this sense, suffering mistreatment can lead  
127 women to perceive childbirth as a traumatic experience, which may increase their risk of  
128 developing CB-PTSD symptoms (Malaju et al. 2022; Horsch et al. 2024). Additionally,  
129 mistreatment is linked to lower birth satisfaction, which can further contribute to the  
130 development of CB-PTSD (Nakić Radoš et al. 2024).

131 Another hypothesis of the model suggests that mistreatment during childbirth care  
132 is associated with women viewing the birth experience as traumatic, which is correlated  
133 with their birth satisfaction, which is associated with CB-PTSD. Thus, in this pathway,  
134 the relationship between mistreatment and CB-PTSD is mediated by perception of  
135 childbirth as a traumatic event and birth satisfaction. The selection of additional variables  
136 and their relationships were postulated in the model were made based on literature (Ayers  
137 et al. 2016; Horsch et al. 2024).

138

### 139 **Declaration of generative AI and AI-assisted technologies in the writing process**

140 The author(s) utilized the software Grammarly, an English language writing  
141 assistant that employs generative AI, to improve the readability and clarity of the  
142 manuscript for the English version while preparing this article. After utilizing this tool,  
143 the author(s) thoroughly reviewed and edited all the content generated as needed.

144

### 145 **Data analysis**

146 The characteristics of the women participating in this study were stratified  
147 according to presence of CB-PTSD symptoms, and the differences in proportions were  
148 tested using the Chi-square test and Fisher's exact test.

149           The association between mistreatment and CB-PTSD symptoms was analyzed via  
150 Structural Equation Model (SEM). For SEM analyses, weighted least squares means and  
151 variance (WLSMV) estimator and theta parameterization were used. To investigate the  
152 direct effect, indirect effect, total effect and the mediation effect between the variables,  
153 the estimated standardized coefficients and their corresponding standard errors and p-  
154 values were used (Kline, 2015). These parameters were obtained performing the bootstrap  
155 strategy with 5.000 samples. A p-value less than 0.05 was adopted to indicate statistical  
156 significance.

157           In addition, modification indices were calculated using the MODINDICES  
158 command to identify potential adjustments to the initial hypotheses. Modifications with  
159 indices over 10 that were theoretically reasonable led to the development of a new model.  
160 The adequacy of the model was assessed by analyzing the following fit indices:  
161 Comparative fit index (CFI), Tucker-Lewis index (TLI) and root mean square error of  
162 approximation (RMSEA). The CFI and TLI values  $> 0.95$  and RMSEA  $< 0.06$  were  
163 considered adequate to indicate a well-fitting model. For the RMSEA, the 90%  
164 confidence interval (CI) was also calculated and a lower limit close to zero and an upper  
165 limit up to 0.08 were considered appropriate (Streiner et al. 2015; Wang and Wang, 2012).

166           The statistical analyses were performed using the R version 3.5.1 ([http://www.r-](http://www.r-project.org)  
167 [project.org](http://www.r-project.org)) and MPlus version 8. The SEM analyses were performed in Mplus version  
168 8.

169

## 170 **Results:**

171           Most participants had vaginal births (57.9%), did not have medical problems  
172 (56.8%), did not have baby medical problems (71.3%), did not have previous traumatic  
173 births (69.7%) and reported that the pregnancy was wanted (39.0%). Concerning

174 sociodemographic characteristics, the largest proportion of women had mixed skin color  
175 (44.8%), 10-13 years of education (64.7%), declared average income (47.0%) and were  
176 married (37.8%). Regarding mistreatment, 11.6% of participants experienced violence  
177 during childbirth care. In addition, 7.7% of the participants had a probable diagnosis of  
178 CB-PTSD (Table1).

179 **\*\* Table 1**

180

181 Table 2 presents the bivariate analyses between mistreatment, traumatic birth  
182 experiences, birth satisfaction, and CB-PTSD symptoms. The analysis indicates a positive  
183 and statistically significant association between mistreatment and CB-PTSD ( $\beta = 8.789$ ,  
184  $p\text{-value} < 0.001$ ). In contrast, birth satisfaction was negatively and significantly  
185 associated with CB-PTSD ( $\beta = -0.549$ ,  $p\text{-value} < 0.001$ ). Additionally, perceiving  
186 childbirth as traumatic showed a significant and positive association with CB-PTSD ( $\beta =$   
187  $0.290$ ,  $p\text{-value} < 0.001$ ) (Table 2).

188

189 **\*\*Table 2**

190

191 Figure 2 shows the model of the association between mistreatment and CB-PTSD.  
192 The SEM model achieved adequate fit indices (CFI= 0.979; TLI = 0.976; RMSEA= 0.027  
193 CI= 0.22-0.032). It was observed that mistreatment presented a direct pathway with  
194 significant association with birth-related symptoms (factor 1) ( $\beta =0.110$ ;  $p\text{-value}=0.013$ )  
195 and general symptoms (factor 2) ( $\beta =0.141$ ;  $p\text{-value}=0.002$ ) of the City BiTS scale.  
196 Perceiving childbirth as traumatic mediates the association between mistreatment and  
197 CB-PTSD in factor 1 ( $\beta =0.291$ ;  $p\text{-value}<0.001$ ;  $\beta = 0.455$ ;  $p\text{-value}<0.001$ ) and factor 2  
198 ( $\beta =0.291$ ;  $p\text{-value}<0.001$ ;  $\beta = 0.455$ ;  $p\text{-value}<0.001$ ) of the City BiTS scale. In addition,

199 birth satisfaction mediates the association between mistreatment and CB-PTSD in factor  
200 1 of the City BiTS scale ( $\beta = -0.509$ ; p-value<0.001;  $\beta = -0.144$ ; p-value=0.001) (Figure  
201 1).

202

### 203 **\*\* Figure 2**

204       Regarding the latent variable of the model (City BiTS factors 1 and 2), all the  
205 items that comprised it showed standard coefficients (factor loadings) above 0.7. The  
206 variables associated with factor 1 of the City BiTS were mistreatment ( $\beta = 0.110$ ; p-  
207 value=0.013), perceiving childbirth as traumatic ( $\beta= 0.455$ ; p-value<0.001), baby medical  
208 complications ( $\beta=0.165$ ; p-value<0.001), previous traumatic birth ( $\beta= -0.147$ ; p-value=  
209 0.001), income ( $\beta= -0.095$ ; p-value=0.052) and birth satisfaction ( $\beta = -0.144$ ; p-value=  
210 0.001). The variables associated with factor 2 of the City BiTS were mistreatment ( $\beta =$   
211 0.141; p-value= 0.013), maternal complications ( $\beta = 0.100$ ; p-value= 0.023), previous  
212 traumatic birth ( $\beta= -0.202$ ; p-value <0.001), history of mental disorder ( $\beta= 0.179$ ; p-  
213 value<0.001) and pregnancy intention ( $\beta=0.081$ ; p-value= 0.048) (Table 3).

214

### 215 **\*\* Table 3**

216

### 217 **Discussion:**

218       The results observed in this research confirmed the main hypothesis that  
219 experiencing mistreatment during childbirth care was associated of women presenting  
220 CB-PTSD symptoms between six to twelve weeks after giving birth. The role of  
221 perceiving childbirth as traumatic as a mediator in the relationship between mistreatment  
222 and CB-PTSD was also confirmed since this variable showed association with the two  
223 factors of the City BiTS scale. Nevertheless, the mediator function of birth satisfaction

224 was partially confirmed, as this variable only demonstrated an association with birth-  
225 related symptoms (factor 1) of the City BiTS scale.

226 This study observed that 7.7% of the postpartum women had a probable diagnosis  
227 of CB-PTSD. This percentage is higher than the estimated global prevalence of around  
228 4.7% (Yildiz et al. 2017; Heyne et al. 2022) and aligns with the proportions observed in  
229 low and middle-income countries, such as Brazil, which range from 5.4% to 9.4%  
230 (Frankham et al. 2023; Osório et al. 2024).

231 Childbirth is a significant and unique moment for women. Experiencing  
232 mistreatment during this moment of women's life can have a profound impact on her  
233 well-being and mental health. Such negative impact can lead to psychological problems  
234 in the postpartum period, such as CB-PTSD. The evidence of this impact has been  
235 highlighted in the literature (Silveira et al. 2019; Leavy et al. 2023; Silva-Fernandez et al.  
236 2023) and is confirmed in this study whereby the SEM model showed a direct association  
237 between mistreatment and the two factors of the City BiTS scale which measure CB-  
238 PTSD. Additionally, it is important to note that mistreatment showed the higher  
239 standardized beta coefficients ( $\beta$ ) associated to CB-PTSD in the SEM model ( $\beta= 0.535$   
240 and  $\beta=0.327$ ). This indicates that in this model, this variable has the greatest impact on  
241 the presence of CB-PTSD compared to the other factors.

242 Regarding the mediating role of maternal perception of childbirth as a traumatic  
243 event, the SEM model indicates an indirect relationship between mistreatment and CB-  
244 PTSD mediated by the perception of childbirth as traumatic. Therefore, experiencing  
245 mistreatment can be associated with women perception of their childbirth as a traumatic  
246 experience, ultimately it can be associated with the development of CB-PTSD symptoms  
247 after giving birth. This association is documented in the literature, where studies indicate  
248 that experiencing mistreatment during childbirth care can lead women to view and endure

249 the birth process as a traumatic event (Xu et al. 2024). This traumatic perception can, in  
250 turn, heighten the risk of developing symptoms of CB-PTSD (Horsch et al. 2024;  
251 Leinweber et al. 2023).

252 The hypothesis of the mediating role of birth satisfaction in the relationship  
253 between mistreatment and CB-PTSD was also confirmed. The SEM model showed an  
254 association between mistreatment and birth satisfaction, suggesting that women who  
255 experiencing mistreatment are likely to report lower levels of birth satisfaction.  
256 Additionally, birth satisfaction was associated with CB-PTSD. This establishes an  
257 indirect pathway between mistreatment and CB-PTSD, highlighting a relationship among  
258 these three variables: a woman who suffers mistreatment during childbirth tends to feel  
259 less satisfied with the experience and, as a result, is more likely to experience CB-PTSD.  
260 These findings are consistent with those of other researchers, indicating that birth  
261 satisfaction is associated with CB-PTSD (Nakić Radoš et al. 2024; Swift et al. 2024).

262 Although the World Health Organization (WHO) endorses the term *mistreatment*  
263 to describe acts of disrespect, abuse, and ill-treatment during labor and childbirth care  
264 (Bohren et al. 2015), there remains no consensus in the literature regarding the most  
265 appropriate terminology. In Latin American countries, the term *obstetric violence* is also  
266 used (Leite et al. 2020). This concept encompasses a political dimension, framing such  
267 practices as a form of gender-based violence and serving as a vehicle for social and  
268 institutional responsibility. Others, however, consider *obstetric violence* as one  
269 dimension within the broader framework of *mistreatment* (Bohren et al. 2015).  
270 Regardless of the terminology employed, it is essential to recognize this issue as a serious  
271 public health concern and a violation of women's reproductive rights, requiring urgent  
272 efforts to promote change and ensure respectful, equitable maternity care.

273           This study contributes to the knowledge regarding the impact of mistreatment on  
274 maternal mental health, nevertheless it is important to address some methodological  
275 limitations. The study employed a convenience sample, which compromises the external  
276 validity of its results. Additionally, the mistreatment variable was assessed using maternal  
277 self-report, potentially leading to an underestimation of its prevalence, as many women  
278 may struggle to recognize mistreatment or may not be aware of it. In addition, some  
279 important aspects of mistreatment such as disrespect, abuse, prejudice, and negligence  
280 were not assessed. The single question used reflects an overall perception of mistreatment  
281 rather than a detailed typology. CB-PTSD was assessed through an instrument based on  
282 maternal self-reporting of symptom frequency, without a clinical diagnosis, thus, its  
283 prevalence may be overestimated. Finally, both the mistreatment and CB-PTSD variables  
284 were measured cross-sectionally. While there is a temporal relationship between them,  
285 the presence of CB-PTSD symptoms in women may influence how they evaluate or  
286 perceive the care they receive during childbirth care. Additionally, there is a possibility  
287 of recall bias. In this context, women experiencing CB-PTSD symptoms may have altered  
288 memories of their birth experience, potentially leading them to evaluate it more  
289 negatively than it truly was. Lastly, some confounder variables may not be addressed in  
290 the model, such as previous traumatic experiences (e.g., sexual violence), social support,  
291 and fear of childbirth during pregnancy.

292           This study indicates that mistreatment during childbirth is associated with  
293 maternal mental health, in this sense, women who suffered mistreatment tend to present  
294 higher levels of CB-PTSD symptoms. This evidence reinforces the argument that women  
295 should have the right to a birth experience free from violence and mistreatment, as this is  
296 essential for promoting good psychological health during the postpartum period. It is

297 crucial for countries, along with their governments, public policies, and healthcare  
298 professionals, to work towards eliminating the mistreatment of women during childbirth.

299

300 References:

301

302 APA (2018). APA Dictionary of Psychology. Retrieved from <https://www.apa.org/topics/trauma/index>

304 APA. (2023). Manual Diagnóstico e Estatístico de Transtornos Mentais - DSM-5-TR:  
305 Texto Revisado (5a edição). Artmed.

306 APA (2024). Guidelines for Working with Adults with Complex Trauma Histories.  
307 Retrieved from [https://www.apa.org/practice/guidelines/adults-complex-trauma-](https://www.apa.org/practice/guidelines/adults-complex-trauma-histories.pdf)  
308 [histories.pdf](https://www.apa.org/practice/guidelines/adults-complex-trauma-histories.pdf)

309 Ayers, S., Bond, R., Bertullies, S., & Wijma, K. (2016). The aetiology of post-traumatic  
310 stress following childbirth: A meta-analysis and theoretical framework. *Psychological*  
311 *Medicine*, 46(6), 1121–1134. <https://doi.org/10.1017/S0033291715002706>

312 Ayers, S., Horsch, A., Garthus-Niegel, S., Nieuwenhuijze, M., Bogaerts, A., Hartmann,  
313 K., Karlsdottir, S. I., Oosterman, M., Tecirli, G., Turner, J. D., Lalor, J., & COST Action  
314 CA18211. (2023). Traumatic birth and childbirth-related post-traumatic stress disorder:  
315 International expert consensus recommendations for practice, policy, and research.  
316 *Women and Birth: Journal of the Australian College of Midwives*, S1871-  
317 5192(23)00309-8. <https://doi.org/10.1016/j.wombi.2023.11.006>

318 Ayers, S., Wright, D. B., & Thornton, A. (2018). Development of a Measure of  
319 Postpartum PTSD: The City Birth Trauma Scale. *Frontiers in Psychiatry*, 9, 409.  
320 <https://doi.org/10.3389/fpsyt.2018.00409>

321 Bohren, M. A., Vogel, J. P., Hunter, E. C., Lutsiv, O., Makh, S. K., Souza, J. P., Aguiar,  
322 C., Saraiva Coneglian, F., Diniz, A. L. A., Tunçalp, Ö., Javadi, D., Oladapo, O. T.,  
323 Khosla, R., Hindin, M. J., & Gülmezoglu, A. M. (2015). The Mistreatment of Women  
324 during Childbirth in Health Facilities Globally: A Mixed-Methods Systematic Review.  
325 PLoS Medicine, 12(6), e1001847; discussion e1001847.  
326 <https://doi.org/10.1371/journal.pmed.1001847>

327 Cook, N., Ayers, S., & Horsch, A. (2018). Maternal posttraumatic stress disorder during  
328 the perinatal period and child outcomes: A systematic review. *Journal of Affective*  
329 *Disorders*, 225, 18–31. <https://doi.org/10.1016/j.jad.2017.07.045>

330 d'Oliveira, A. F. P. L., Diniz, S. G., & Schraiber, L. B. (2002). Violence against women  
331 in health-care institutions: An emerging problem. *Lancet* (London, England),  
332 359(9318), 1681–1685. [https://doi.org/10.1016/S0140-6736\(02\)08592-6](https://doi.org/10.1016/S0140-6736(02)08592-6)

333 Dornelas, A. C. V. de R., Rodrigues, L. dos S., Penteadó, M. P., Batista, R. F. L., Bettiol,  
334 H., Cavalli, R. de C., Grandi, C., & Cardoso, V. C. (2022). Abuse, disrespect and  
335 mistreatment during childbirth care: Contribution of the Ribeirão Preto cohorts, Brazil.  
336 *Ciência & Saúde Coletiva*, 27, 535–544. [https://doi.org/10.1590/1413-](https://doi.org/10.1590/1413-81232022272.01672021)  
337 [81232022272.01672021](https://doi.org/10.1590/1413-81232022272.01672021)

338 Ertan, D., Hingray, C., Burlacu, E., Sterlé, A., & El-Hage, W. (2021). Post-traumatic  
339 stress disorder following childbirth. *BMC Psychiatry*, 21(1), 155.  
340 <https://doi.org/10.1186/s12888-021-03158-6>

341 Ferrari, R. B., Martin, C., Hollins Martin, C., de Souza, F. G., Clini, J. V., Onofre, L. B.  
342 O., & Diniz Zanetti, M. R. (2022). Translation of the UK-Birth-Satisfaction-Scale-  
343 Revised (BSS-R) into Brazilian (Portuguese) and description of initial measurement  
344 properties. *The Journal of Maternal-Fetal & Neonatal Medicine*, 35(25), 6373–6379.  
345 <https://doi.org/10.1080/14767058.2021.1913579>

346 Frankham, L. J., Thorsteinsson, E. B., & Bartik, W. (2023). Birth related PTSD and its  
347 association with the mother-infant relationship: A meta-analysis. *Sexual &*  
348 *Reproductive Healthcare: Official Journal of the Swedish Association of Midwives*, 38,  
349 100920. <https://doi.org/10.1016/j.srhc.2023.100920>

350 Heyne, C.-S., Kazmierczak, M., Souday, R., Horesh, D., Lambregtse-van den Berg, M.,  
351 Weigl, T., Horsch, A., Oosterman, M., Dikmen-Yildiz, P., & Garthus-Niegel, S. (2022).  
352 Prevalence and risk factors of birth-related posttraumatic stress among parents: A  
353 comparative systematic review and meta-analysis. *Clinical Psychology Review*, 94,  
354 102157. <https://doi.org/10.1016/j.cpr.2022.102157>

355 Horsch, A., Garthus-Niegel, S., Ayers, S., Chandra, P., Hartmann, K., Vaisbuch, E., &  
356 Lalor, J. (2024). Childbirth-related posttraumatic stress disorder: Definition, risk  
357 factors, pathophysiology, diagnosis, prevention, and treatment. *American Journal of*  
358 *Obstetrics and Gynecology*, 230(3S), S1116–S1127.  
359 <https://doi.org/10.1016/j.ajog.2023.09.089>

360 Kc, A., Acharya, A., Bhattarai, P., Basnet, O., Shrestha, A., Rijal, G., & Skalkidou, A.  
361 (2023). Association of disrespectful care after childbirth and COVID-19 exposure with  
362 postpartum depression symptoms- a longitudinal cohort study in Nepal. *BMC*  
363 *Pregnancy and Childbirth*, 23(1), 145. <https://doi.org/10.1186/s12884-023-05457-0>

364 Kline, R. B. (2015). *Principles and Practice of Structural Equation Modeling* (Fourth  
365 edition). The Guilford Press.

366 Leavy, E., Cortet, M., Huissoud, C., Desplanches, T., Sormani, J., Viaux-Savelon, S.,  
367 Dupont, C., Pichon, S., & Gaucher, L. (2023). Disrespect during childbirth and  
368 postpartum mental health: A French cohort study. *BMC Pregnancy and Childbirth*,  
369 23(1), 241. <https://doi.org/10.1186/s12884-023-05551-3>

370 Leinweber, J., Fontein-Kuipers, Y., Karlsdottir, S. I., Ekström-Bergström, A., Nilsson,  
371 C., Stramrood, C., & Thomson, G. (2023). Developing a woman-centered, inclusive  
372 definition of positive childbirth experiences: A discussion paper. *Birth* (Berkeley,  
373 Calif.), 50(2), 362–383. <https://doi.org/10.1111/birt.12666>

374 Leite, TH, MARQUES, E.S., Esteves-Pereira, A.P, Nucci, M. F., Santos, Y.R.P, Leal,  
375 M.C. Disrespect and abuse, mistreatment and obstetric violence: a challenge for  
376 epidemiology and public health in Brazil. *Cien Saude Colet* [online journal] (2020/Dec).

377 Leite, T. H., Carvalho, T. D. G., Marques, E. S., Pereira, A. P. E., da Silva, A. A. M.,  
378 Nakamura-Pereira, M., & Leal, M. do C. (2022). The association between mistreatment  
379 of women during childbirth and postnatal maternal and child health care: Findings from  
380 “Birth in Brazil.” *Women and Birth*, 35(1), e28–e40.  
381 <https://doi.org/10.1016/j.wombi.2021.02.006>

382 Leite, T. H., Marques, E. S., Mesenburg, M. A., Silveira, M. F. da, & Leal, M. do C.  
383 (2023). The effect of obstetric violence during childbirth on breastfeeding: Findings  
384 from a perinatal cohort “Birth in Brazil.” *The Lancet Regional Health – Americas*, 19.  
385 <https://doi.org/10.1016/j.lana.2023.100438>

386 Malaju, M. T., Alene, G. D., & Bisetegn, T. A. (2022). Longitudinal path analysis for  
387 the directional association of depression, anxiety and posttraumatic stress disorder with  
388 their comorbidities and associated factors among postpartum women in Northwest  
389 Ethiopia: A cross-lagged autoregressive modelling study. *PloS One*, 17(8), e0273176.  
390 <https://doi.org/10.1371/journal.pone.0273176>

391 Martin, C. H., & Fleming, V. (2011). The birth satisfaction scale. *International Journal*  
392 *of Health Care Quality Assurance*, 24(2), 124–135.  
393 <https://doi.org/10.1108/09526861111105086>

394 Martínez-Vázquez, S., Rodríguez-Almagro, J., Hernández-Martínez, A., Delgado-  
395 Rodríguez, M., & Martínez-Galiano, J. M. (2021). Obstetric factors associated with  
396 postpartum post-traumatic stress disorder after spontaneous vaginal birth. *Birth*  
397 (Berkeley, Calif.), 48(3), 406–415. <https://doi.org/10.1111/birt.12550>

398 Nakić Radoš, S., Brekalo, M., Žutić, M., Matijaš, M., Habek, D., Marton, I., Tikvica  
399 Luetić, A., Prka, M., Ujević, B., Štefulj, J., Pačić-Turk, L., Čivljak, M., Bošnjaković, J.,  
400 Čartolovni, A., & Ayers, S. (2024). Prospective study of individual characteristics and  
401 posttraumatic stress disorder (PTSD) symptoms following childbirth: Birth satisfaction  
402 as a moderator. *Psychological Trauma: Theory, Research, Practice and Policy*.  
403 <https://doi.org/10.1037/tra0001823>

404 Osório, F. D. L., Baldisserotto, M. L., Filha, M. M. T., & Ayers, S. (2024). Traumatic  
405 Childbirth and Post Traumatic Stress Disorder: Prevalence in a Brazilian cohort.  
406 *European Psychiatry*, 67(S1), S374–S374. <https://doi.org/10.1192/j.eurpsy.2024.768>

407 Osório, F. de L., Rossini Darwin, A. C., Bombonetti, E. A., & Ayers, S. (2022).  
408 Posttraumatic stress following childbirth: Psychometric properties of the Brazilian  
409 version of the City Birth Trauma Scale. *Journal of Psychosomatic Obstetrics and*  
410 *Gynaecology*, 43(3), 374–383. <https://doi.org/10.1080/0167482X.2021.1977278>

411 Osório, F. L., & Borges, M. M. (2024). Posttraumatic stress disorder prevalence and  
412 childbirth: Update meta-analysis after the introduction of the DSM-5 and COVID-19  
413 pandemic. *Archives of Women's Mental Health*, 27(3), 337–357.  
414 <https://doi.org/10.1007/s00737-024-01423-7>

415 Roddy Mitchell, A., Gordon, H., Lindquist, A., Walker, S. P., Homer, C. S. E.,  
416 Middleton, A., Cluver, C. A., Tong, S., & Hastie, R. (2023). Prevalence of Perinatal  
417 Depression in Low- and Middle-Income Countries: A Systematic Review and Meta-

418 analysis. JAMA Psychiatry, 80(5), 425–431.  
419 <https://doi.org/10.1001/jamapsychiatry.2023.0069>

420 Sando, D., Abuya, T., Asefa, A., Banks, K. P., Freedman, L. P., Kujawski, S.,  
421 Markovitz, A., Ndwiga, C., Ramsey, K., Ratcliffe, H., Ugwu, E. O., Warren, C. E., &  
422 Jolivet, R. R. (2017). Methods used in prevalence studies of disrespect and abuse during  
423 facility-based childbirth: Lessons learned. *Reproductive Health*, 14(1), 127.  
424 <https://doi.org/10.1186/s12978-017-0389-z>

425 Silva-Fernandez, C. S., de la Calle, M., Arribas, S. M., Garrosa, E., & Ramiro-Cortijo,  
426 D. (2023). Factors Associated with Obstetric Violence Implicated in the Development  
427 of Postpartum Depression and Post-Traumatic Stress Disorder: A Systematic Review.  
428 *Nursing Reports (Pavia, Italy)*, 13(4), 1553–1576.  
429 <https://doi.org/10.3390/nursrep13040130>

430 Silveira, M. F., Mesenburg, M. A., Bertoldi, A. D., De Mola, C. L., Bassani, D. G.,  
431 Domingues, M. R., Stein, A., & Coll, C. V. N. (2019). The association between  
432 disrespect and abuse of women during childbirth and postpartum depression: Findings  
433 from the 2015 Pelotas birth cohort study. *Journal of Affective Disorders*, 256, 441–447.  
434 <https://doi.org/10.1016/j.jad.2019.06.016>

435 Souza, K. J. de, Rattner, D., & Gubert, M. B. (2017). Institutional violence and quality  
436 of service in obstetrics are associated with postpartum depression. *Revista de Saúde*  
437 *Pública*, 51, 69. <https://doi.org/10.1590/S1518-8787.2017051006549>

438 Streiner, D. L., Noman, R., & Cairney, J. (2015). *Health Measurement Scales: A*  
439 *Practical Guide to Their Development and Use (5th Revised ed. edição)*. Oxford  
440 University Press, USA.

441 Swift, E. M., Guðmundsdóttir, F., Einarsdóttir, K., & Sigurðardóttir, V. L. (2024). Birth  
442 satisfaction and symptoms of childbirth related PTSD among women in Iceland: A

443 population-based study. *Sexual & Reproductive Healthcare*, 42, 101037.  
444 <https://doi.org/10.1016/j.srhc.2024.101037>

445 Wang, J., & Wang, X. (2012). *Structural Equation Modeling: Applications Using Mplus*  
446 (Edição: 1). Wiley.

447 WHO. (2015). *The prevention and elimination of disrespect and abuse during facility-*  
448 *based childbirth.* Organization W Health, WHO Press.  
449 <https://www.who.int/publications/i/item/WHO-RHR-14.23>

450 Xu, Y., Wang, W., Zhou, L., Xu, W., Wang, H., Zhang, F., Wang, X., & Zhang, H.  
451 (2024). Systematic Review and Meta-Analysis of Prevalence and Risk Factors for  
452 Psychological Birth Trauma. *Nursing Research*.  
453 <https://doi.org/10.1097/NNR.0000000000000792>

454 Yildiz, P. D., Ayers, S., & Phillips, L. (2017). The prevalence of posttraumatic stress  
455 disorder in pregnancy and after birth: A systematic review and meta-analysis. *Journal*  
456 *of Affective Disorders*, 208, 634–645. <https://doi.org/10.1016/j.jad.2016.10.009>

457 Zambaldi, C. F., Cantilino, A., & Sougey, E. B. (2011). Bio-socio-demographic factors  
458 associated with post-traumatic stress disorder in a sample of postpartum Brazilian  
459 women. *Archives of Women's Mental Health*, 14(5), 435–439.  
460 <https://doi.org/10.1007/s00737-011-0224-4>

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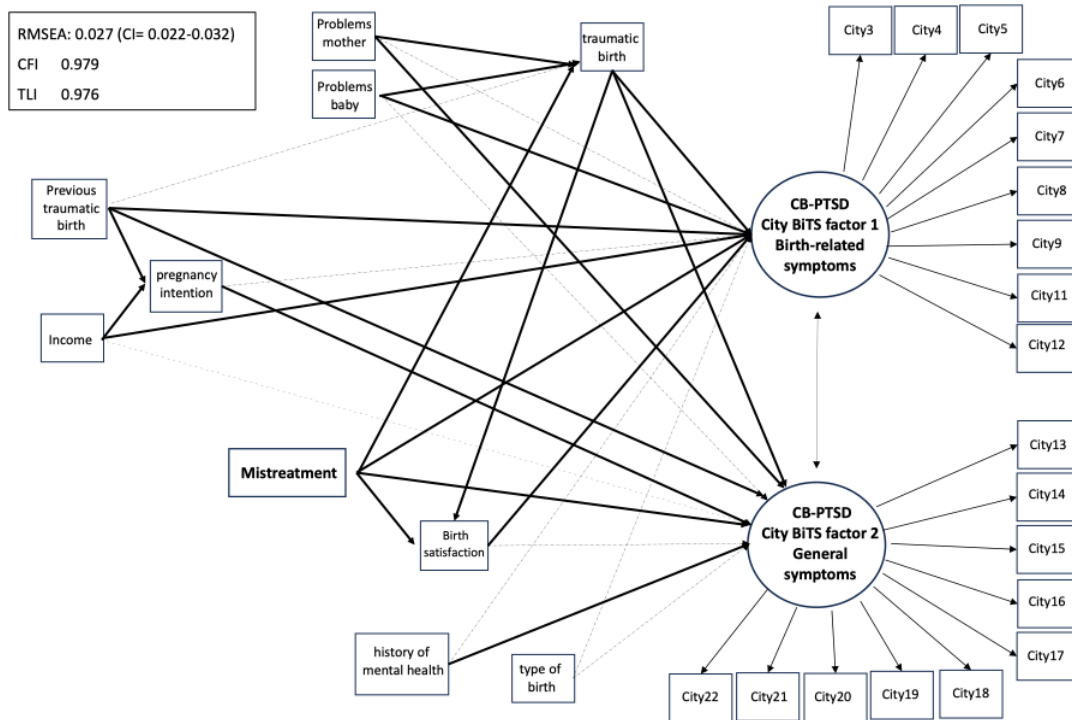
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468 Tables and Figures

469

470 **Figure 1**



471  
472 Figure 1. Path diagram of the proposed model for the association between mistreatment of women during  
473 childbirth care and childbirth-related post-traumatic stress disorder (CB-PTSD). INTERSECT study,  
474 Brazil, 2022.

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476 City BiTS: The City Birth Trauma Scale.  
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479 **Table 1**

480  
481 Table 1. Description of the prevalence of mistreatment during childbirth care and the sociodemographic,  
482 obstetric, and mental health characteristics of postpartum women. INTERSECT study, Brazil, 2022.

Childbirth related posttraumatic stress disorder (CB-PTSD)				
		probable negative diagnosis (City BiTS < 28) n=598 (92.3%)	probable positive diagnosis (City BiTS ≥ 28) n=50 (7.7%)	
	<i>total= 651</i>			
	n (%)	n (%)	n (%)	<i>p-value</i>
<b>Mistreatment</b>				
No, never	57 (88.4)	546 (95.3)	27 (4.7)	<b>&lt; 0.001</b>
Sometimes	28 (4.3)	15 (83.3)	13 (16.7)	
Yes, very often	47 (7.3)	37 (78.7)	10 (21.3)	
<b>Obstetric variables</b>				
Type of birth				
Vaginal	377 (57.9)	352 (93.4)	25 (6.6)	0.368
Forceps	32 (5.1)	31 (96.9)	1 (3.1)	
Emergency Cesarean	185 (28.4)	165 (89.2)	20 (10.8)	
Elective Cesarean	56 (8.6)	51 (91.1)	5 (8.9)	
Medical complication during pregnancy / childbirth				
No	370 (56.8)	346 (93.8)	23 (6.2)	0.237
Yes, minor complications	176 (27.0)	160 (90.1)	16 (8.9)	
Yes, major complications	105 (16.2)	92 (87.6)	11 (12.4)	
Baby medical complication during pregnancy/childbirth				
No	464 (71.3)	436 (94.2)	27 (5.8)	<b>0.017</b>
Yes, minor complications	102 (15.7)	89 (87.2)	13 (12.7)	
Yes, major complications	83 (12.8)	73 (88.0)	10 (12.0)	
Pregnancy intention				
wanted	206 (31.6)	191 (92.7)	15 (7.3)	0.935
wanted later	254 (39.0)	233 (91.7)	21 (8.3)	
never wanted	167 (25.6)	154 (92.2)	13 (7.8)	
Previous traumatic birth (n=356)				
No	248 (69.7)	234 (94.3)	14 (5.7)	0.257
Yes	108 (33.3)	97 (89.8)	11 (10.2)	

**Sociodemographic variables**

Race/ Skin color				
White	218 (33.5)	204 (93.6)	14 (6.4)	0.913
Black	116 (17.8)	105 (90.5)	11 (9.5)	
Mixed	292 (44.8)	268 (91.2)	24 (8.8)	
Other (Yellow (Asiatic)/ Indigenous)	2 (0.4)	2 (100.0)	0 (0.0)	
Schooling				
0 -9 years	112 (17.2)	96 (85.7)	15 (14.3)	0.127
10-13 years	421 (64.7)	391 (92.9)	30 (7.1)	
≥14 years	95 (14.6)	91 (95.8)	4 (4.2)	
Income				
Below average	164 (25.2)	149 (90.8)	15 (9.2)	0.835
Average	306 (47.0)	283 (92.5)	23 (7.5)	
Above average	157 (24.1)	146 (93.0)	11 (7.0)	
Relationship status				
Marriage	246 (37.8)	224 (91.0)	22 (9.0)	0.709
Live with partner	233 (35.8)	214 (91.8)	19 (8.2)	
Has a partner, but do not live together	17 (26.1)	17 (100.0)	0 (0.0)	
Single	115 (17.7)	109 (94.8)	6 (5.2)	
Other (Widow; divorced)	16 (2.6)	14 (87.5)	2 (2.5)	
<b>Mental health variable</b>				
History of mental disorders				
No	468 (71.9)	440 (94.0)	28 (6.0)	<b>0.004</b>
Yes	15 (2.3)	11 (73.3)	4 (26.7)	
Do not know	145 (22.3)	128 (88.3)	17 (11.7)	

483 City BiTS: The City Birth Trauma Scale.

484 In bold p-value <0.05.

485

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488 **Table 2**

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490 Table. 2. Bivariate analyses between mistreatment, traumatic birth, birth satisfaction and  
491 childbirth-related posttraumatic stress disorder (CB-PTSD) symptoms. INTERSECT  
492 study, Brazil, 2022.

493

	Childbirth-related posttraumatic stress disorder - CB-PTSD (City BiTS)	
	$\beta$	<i>p</i> -value
Mistreatment	8.789	< <b>0.001</b>
Birth satisfaction (BSS-R)	-0.549	< <b>0.001</b>

Perceiving childbirth as traumatic

0.290

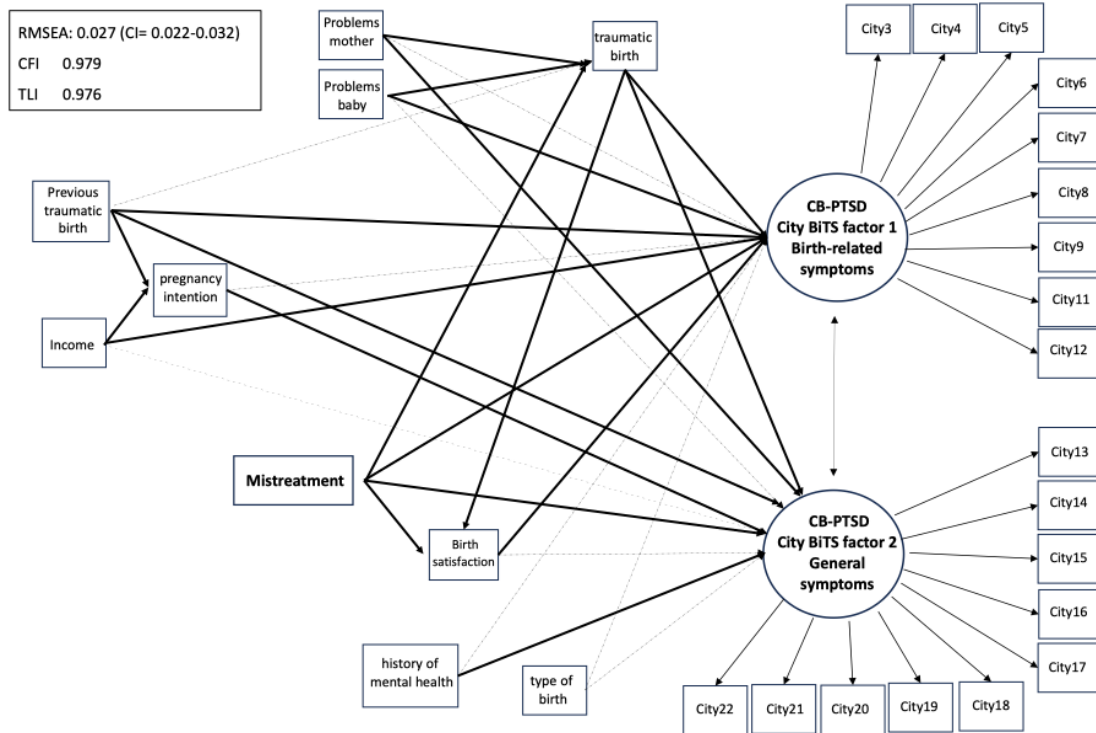
< 0.001

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BSS-R: Birth Satisfaction Scale-Revised; City BiTS: The City Birth Trauma Scale.  
 $\beta$ - regression coefficient.  
In bold p-value <0.05.

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**Figure 2**



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**Figure 2.** Path diagram of the model of the association between mistreatment and childbirth-related posttraumatic stress disorder (CB-PTSD) symptoms: INTERSECT study, Brazil, 2022.

CFI: Comparative fit index; TLI: Tucker-Lewis index; RMSEA: root mean square error of approximation; CI: confidence interval; City BiTS: The City Birth Trauma Scale.

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**Table 3**

513 Table 3: Standardized coefficients, standard error, and p-value of the model of the association between  
514 Mistreatment and childbirth-related posttraumatic stress disorder (CB-PTSD): INTERSECT study, Brazil,  
515 2022.

516

<b>Model Adjustment</b>	RMSEA	0.027 (CI= 0.022-0.032)	
	CFI	0.979	
	TLI	0.976	
<b>Latent Variable</b>			
	<b>Standardized Coefficient (<math>\beta</math>)</b>	<b>Standard Error</b>	<b>p-value</b>

<b>City BiTS Birth-related (Factor 1)</b>			
Q3- Recurrent unwanted memories of the birth (or parts of the birth) that you can't control	0.822	0.031	< 0.001
Q4- Bad dreams or nightmares about the birth (or related to the birth)	0.686	0.051	< 0.001
Q5- Flashbacks to the birth and/or reliving the experience	0.786	0.033	< 0.001
Q6- Getting upset when reminded of the birth	0.809	0.030	< 0.001
Q7- Feeling tense or anxious when reminded of the birth	0.845	0.023	< 0.001
Q8- Trying to avoid thinking about the birth	0.883	0.021	< 0.001
Q9 - Trying to avoid things that remind me of the birth (e.g. people, places, TV programs)	0.876	0.028	< 0.001
Q11- Blaming myself or others for what happened during the birth	0.804	0.034	< 0.001
Q12- Feeling strong negative emotions about the birth (e.g. fear, anger, shame)	0.911	0.019	< 0.001
<b>City BiTS General (Factor 2)</b>			
Q13- Feeling negative about myself or thinking something awful will happen	0.730	0.034	< 0.001
Q14- Lost interest in activities that were important to me	0.780	0.029	< 0.001
Q15- Feeling detached from other people	0.845	0.023	< 0.001
Q16- Not able to feel positive emotions (e.g. happy, excited)	0.775	0.033	< 0.001
Q17- Feeling irritable or aggressive	0.766	0.026	< 0.001
Q18- Feeling self-destructive or acting recklessly	0.687	0.048	< 0.001
Q19- Feeling tense and on edge	0.856	0.022	< 0.001
Q20- Feeling jumpy or easily startled	0.793	0.027	< 0.001
Q21- Problems concentrating	0.750	0.032	< 0.001
Q22- Not sleeping well because of things that are not due to the baby's sleep pattern	0.747	0.031	< 0.001
<b>City BiTS Factor 1 with Factor 2</b>	0.579	0.053	< 0.001
<b>Direct effect</b>			
	<b>Standardized Coefficient</b>	<b>Standard Error</b>	<b>p-value</b>
<b>City BiTS -Birth-related (Factor 1)</b>			

Mistreatment	0.110	0.044	<b>0.013</b>
Type of birth	0.009	0.051	0.862
Perceiving childbirth as traumatic	0.455	0.042	<b>&lt; 0.001</b>
Medical problem or complication during pregnancy / labour	-0.027	0.044	0.542
Baby medical problem/complication during pregnancy/childbirth	0.165	0.042	<b>&lt; 0.001</b>
Previous traumatic birth	-0.147	0.044	<b>&lt; 0.001</b>
History of mental disorders	0.005	0.049	0.911
Income	-0.095	0.049	<b>0.052</b>
Planned pregnancy	-0.082	0.046	0.078
Birth satisfaction	-0.002	0.044	<b>0.001</b>
<b>City BiTS - General (Factor 2)</b>			
Mistreatment	0.141	0.046	<b>0.002</b>
Type of birth	0.014	0.043	0.750
Perceiving childbirth as traumatic	0.188	0.044	<b>&lt; 0.001</b>
Medical problem or complication during pregnancy / labour	0.100	0.046	<b>0.023</b>
Baby medical problem/complication during pregnancy/childbirth	0.029	0.044	0.488
Previous traumatic birth	-0.202	0.042	<b>&lt; 0.001</b>
History of mental disorders	0.179	0.043	<b>&lt; 0.001</b>
Income	-0.064	0.042	0.143
Planned pregnancy	0.081	0.041	0.048
Birth satisfaction	-0.002	0.044	0.966
<b>Perceiving childbirth as traumatic</b>			
Mistreatment	0.291	0.035	<b>&lt; 0.001</b>
Previous traumatic birth	-0.016	0.039	0.680
Medical problem or complication during pregnancy / labour	0.135	0.038	<b>&lt; 0.001</b>
Baby medical problem/complication during pregnancy/childbirth	0.112	0.037	<b>0.002</b>
<b>Birth satisfaction</b>			
Mistreatment	-0.509	0.022	<b>&lt; 0.001</b>
Perceiving childbirth as traumatic	-0.252	0.036	<b>&lt; 0.001</b>
Medical problem or complication during pregnancy / labour	0.013	0.031	0.675
Baby medical problem/complication during pregnancy/childbirth	-0.068	0.027	<b>0.013</b>

<b>Planned pregnancy</b>			
Income	-0.112	0.039	<b>0.004</b>
Previous traumatic birth	-0.085	0.042	<b>0.045</b>

517 CFI: Comparative fit index; TLI: Tucker-Lewis index; RMSEA: root mean square error of approximation; CI:  
518 confidence interval; City BiTS: The City Birth Trauma Scale.

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