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1 **Beyond the ‘teachable moment’ – a conceptual analysis of women’s perinatal behavior**  
2 **change**

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4 Running head: Perinatal behavior change

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39 Beyond the ‘teachable moment’ – a conceptual analysis of women’s perinatal  
40 behaviour change

41

42 Abstract

43 Background

44 Midwives are increasingly expected to promote healthy behaviour to women and  
45 pregnancy is often regarded as a ‘teachable moment’ for health behaviour change.

46 This view focuses on motivational aspects, when a richer analysis of behaviour  
47 change may be achieved by viewing the perinatal period through the lens of the  
48 Capability-Opportunity-Motivation Behaviour framework. This framework proposes  
49 that behaviour has three necessary determinants: capability, opportunity, and  
50 motivation.

51

52 Aim

53 To outline a broader analysis of perinatal behaviour change than is afforded by the  
54 existing conceptualisation of the ‘teachable moment’ by using the Capability-  
55 Opportunity-Motivation Behaviour framework.

56

57 Findings

58 Research suggests that the perinatal period can be viewed as a time in which  
59 capability, opportunity or motivation naturally change such that unhealthy behaviours  
60 are disrupted, and healthy behaviours may be adopted. Moving away from a sole  
61 focus on motivation, an analysis utilising the Capability-Opportunity-Motivation  
62 Behaviour framework suggests that changes in capability and opportunity may also  
63 offer opportune points for intervention, and that lack of capability or opportunity may

64 act as barriers to behaviour change that might be expected based solely on changes in  
65 motivation. Moreover, the period spanning pregnancy and the postpartum could be  
66 seen as a series of *opportune intervention moments*, that is, personally meaningful  
67 episodes initiated by changes in capability, opportunity or motivation.

68

## 69 Discussion

70 This analysis offers new avenues for research and practice, including identifying  
71 discrete events that may trigger shifts in capability, opportunity or motivation, and  
72 whether and how interventions might promote initiation and maintenance of perinatal  
73 health behaviours.

74

75

76 Keywords: behaviour change, health behaviour, psychological theory, postnatal  
77 period, COM-B framework

78

## Summary of Relevance

79 Problem or issue

80 Midwives are expected to promote healthy behaviours to women.

81

82 What is already known

83 Pregnancy is viewed as a 'teachable moment' for behaviour change but this definition

84 relies mainly on motivation. A broader view is offered by the COM-B framework,

85 which proposes that behaviour (B) has three necessary determinants: capability (C),

86 opportunity (O) and motivation (M).

87

88 What this paper adds

89 Imposing the COM-B framework to perinatal behaviour change moves understanding

90 beyond motivation alone. Specifically, it draws attention to possibilities that

91 capability and opportunity changes may offer opportune intervention points, and

92 capability or opportunity barriers may preclude behaviour change that might be

93 expected based on motivational shifts.

94 The expectation on midwives and other maternity care staff to encourage health  
95 behaviours and discourage unhealthy behaviours in pregnant and postpartum women  
96 is increasing.<sup>1,2</sup> This expectation stems from the recognition that midwives are a  
97 trusted source of information for most women,<sup>3</sup> have regular contact with women and  
98 interact with them during a life stage where women may be more receptive to health  
99 messages.<sup>4</sup> Thus, midwives and other healthcare professionals are considered to be in  
100 a unique position to promote health behaviours, including smoking cessation,<sup>5</sup> healthy  
101 eating<sup>6</sup> and pregnancy-specific behaviours (e.g. breastfeeding<sup>7</sup>), as is currently  
102 recommended in numerous maternity care guidelines in Australia<sup>8</sup> and  
103 internationally.<sup>9</sup>

104  
105 Related to health promotion is the idea that pregnancy may offer ‘teachable moments’  
106 for health behaviour change.<sup>10</sup> In this paper, we respond to recent calls to use more  
107 theory in maternal health research<sup>11</sup> and previous research suggesting that teachable  
108 moments have been under-theorised,<sup>12</sup> to present an alternative conceptualisation of  
109 the ‘teachable moment’. We describe the current conceptualisation of the ‘teachable  
110 moment’ and subsequently draw on recent developments in behavioural science to  
111 outline a broader analysis of behaviour change during pregnancy and after birth  
112 utilising the recently developed Capability-Opportunity-Motivation Behaviour  
113 (COM-B) framework.<sup>13</sup> This framework identifies three fundamental determinants of  
114 behaviour (capability, opportunity, and motivation), into which all facilitators of or  
115 barriers to behaviour can be organised. Applying the framework to perinatal  
116 behaviour generates new possibilities for understanding naturally occurring changes  
117 that may affect behaviour and behaviour change, beyond the motivation-focused  
118 ‘teachable moment’ account that dominates the field at present. We provide examples

119 of how the COM-B framework may be applied to perinatal behaviour change and how  
120 it may help practitioners and researchers alike to consider women's behaviour change.  
121 Lastly, we outline some moments during and after pregnancy that may be particularly  
122 opportune for intervention, and suggest new avenues for research and practice.

123

124

### 125 *Pregnancy as a 'teachable moment'*

126 Phelan in 2010 suggested that pregnancy offers 'teachable moments' for health  
127 behaviour change such as those related to weight control (physical activity and  
128 healthy eating).<sup>10</sup> Since then, several authors have agreed that women may be highly  
129 receptive to health behaviour change interventions during pregnancy.<sup>4, 14</sup> Phelan's  
130 suggestion of pregnancy offering 'teachable moments' is based upon McBride et al's  
131 theory, which states that three constructs determine whether a life or health event acts  
132 as a teachable moment: an increase in perception of personal risk and outcome  
133 expectancies; prompting of strong affective responses; and a redefinition of self-  
134 concept and social roles.<sup>15</sup> Phelan concluded that 'intervening during pregnancy may  
135 capitalise on this natural period of redefinition that occurs among women'  
136 (p135.e4),<sup>10</sup> making it an ideal time to encourage women to be healthy.

137

138 In this opinion paper we further develop Phelan's (2010) idea that multiple events  
139 occur during pregnancy and the postpartum period, by arguing that these may bring  
140 changes not only to women's motivations, but also to their capabilities and  
141 opportunities for behaviour change. Identifying events during and after pregnancy that  
142 may trigger changes to motivation, capability or opportunity may reveal a greater  
143 range of both possibilities and potential pitfalls in health behaviour change promotion.

144 This analysis encompasses and expands beyond the ‘teachable moment’ as currently  
145 conceived, and is applicable to all health behaviours, not solely those related to  
146 weight control.

147

148

149 *A COM-B analysis of behaviour change*

150 The COM-B framework was introduced in 2011 as a framework for understanding  
151 behaviour and its determinants.<sup>13</sup> It was designed to provide a parsimonious, yet  
152 comprehensive and logically coherent model to inform the design of new behaviour  
153 change interventions, and characterisation of existing interventions. It was developed  
154 through a systematic synthesis of 19 existing frameworks of behaviour change  
155 interventions, none of which in isolation provide a comprehensive or coherent  
156 analysis of behaviour.

157

158 The COM-B framework (see figure 1) proposes that behaviour (B) has three  
159 necessary determinants: capability (C), opportunity (O), and motivation (M).<sup>13</sup> Each  
160 of these may be deconstructed further: physical and psychological capability (the  
161 latter referring to the capacity to engage in necessary thought processes, e.g.  
162 summoning the willpower to act); physical and social opportunity (respectively  
163 referring to affordances within the physical and social environment for action), and,  
164 reflective and non-reflective motivation (respectively referring to conscious and  
165 unconscious [e.g. emotion-based] motivation). (See table 1 for illustrative examples  
166 of these constructs, as applied to physical activity in pregnancy.) By implication, any  
167 change in behaviour must arise from a shift in capability, opportunity, or motivation,  
168 or any combination thereof. For example, women may stop smoking when they

169 become pregnant due to the awareness of the health risks to themselves and their baby  
170 (reduced reflective motivation for smoking) or social disapproval (diminished social  
171 opportunity).<sup>16</sup>

172

173 The utility of the COM-B framework lies in its capacity to inform a comprehensive  
174 ‘behavioural diagnosis’.<sup>17</sup> Just as a physician must examine a patient in order to  
175 understand the cause or causes of their symptoms and subsequently recommend  
176 appropriate treatments, so must behaviour change experts firstly understand why an  
177 individual, group, or population is engaging in an unhealthy action (or not engaging in  
178 a healthy action) before developing appropriate behavioural interventions for use by  
179 healthcare professionals. The COM-B framework is designed to encompass all  
180 potential determinants of behaviour, and classifies these into three overarching  
181 categories (capability, opportunity, and motivation). Using the framework represents  
182 the first step in the broader ‘Behaviour Change Wheel’ approach to developing  
183 interventions; the COM-B behavioural diagnosis informs the identification of  
184 appropriate functions by which interventions may generate behaviour change (e.g. to  
185 educate, to train, to persuade), and selection of behaviour change techniques likely to  
186 deliver those functions.<sup>13, 17</sup> Outside of perinatal health, COM-B has been successfully  
187 applied to explain or change a range of health behaviours including tobacco use,<sup>13</sup>  
188 health practitioners’ adherence to disease prevention guidelines,<sup>18</sup> and improving care  
189 in acute hospital settings.<sup>19</sup>

190

191 In this paper, we propose that the COM-B framework offers a richer analysis of the  
192 potential determinants of changes in health behaviour in pregnancy, and avenues for  
193 intervention, than does the dominant perspective, based on the ‘teachable moment’.<sup>10</sup>

194 The ‘teachable moment’ perspective suggests that women are more receptive to health  
195 information (i.e. more ‘teachable’) during pregnancy, due to naturally occurring  
196 changes in their motivation.<sup>10</sup> From a COM-B perspective, Phelan’s ‘teachable  
197 moment’ relates mostly to shifts in reflective and non-reflective motivation that arise  
198 during pregnancy, as women start to adjust to a newfound social and emotional role  
199 and new health risks (reflective motivation), and experience strong emotional  
200 responses to such risks (non-reflective motivation).<sup>10</sup> A COM-B analysis of behaviour  
201 in pregnancy, however, extends beyond the notion of naturally occurring motivational  
202 change, by emphasising that behaviour may also change due to natural shifts in  
203 capability or opportunity during pregnancy. For example, in the second trimester,  
204 some women report an increase in energy (increased physical capability)<sup>20</sup>, which, so  
205 long as there is also sufficient opportunity for activity (e.g. access to facilities), may  
206 promote acting on the motivation to be physically active. Conversely, women who are  
207 physically active pre-pregnancy often report decreasing their activity levels due to  
208 physical ailments associated with pregnancy such as pelvic girdle pain or  
209 breathlessness (decreased physical capability), and a lack of appropriate exercise  
210 classes (decreased physical and social opportunities), despite feeling motivated to  
211 keep active in pregnancy.<sup>20</sup> Focusing only on pregnancy-related events involving  
212 changes in motivation may neglect potentially fruitful behaviour change possibilities,  
213 and potentially powerful barriers to behaviour change, that arise from changes in  
214 opportunities and capabilities.

215

216 Recognising natural shifts in capability, opportunity and motivation is of theoretical  
217 and practical importance. A COM-B lens generates explanations for why health  
218 campaigns that seek to capitalise on naturally occurring motivation shifts may fail.

219 Even if pregnancy is a ‘teachable moment’ because of motivation shifts, health  
220 promoters attempting to seize this ‘moment’ may face difficulties in facilitating  
221 behaviour change if women do not have sufficient capability, or fail to recognise or  
222 respond to opportunities to act. For example, despite wanting to quit,<sup>21</sup> many pregnant  
223 smokers fail to stop smoking during pregnancy, due to addiction, life circumstances  
224 or stress.<sup>16</sup> This is perhaps unsurprising; a recent COM-B-based mapping exercise  
225 identified a variety of barriers to smoking cessation in pregnancy, including lack of  
226 knowledge and low self-efficacy (psychological capability), nicotine dependence and  
227 lack of intervention (physical capability), smoking triggers and lack of role models  
228 (automatic motivation), contrasting health messages and feeling coerced (reflective  
229 motivation), lack of social support (social opportunity) and lack of health services  
230 (physical opportunity).<sup>22</sup> Stop smoking services, and public health services more  
231 broadly, must therefore consider not only pregnant women’s motivation to take health  
232 action, but their capabilities and opportunities.

233

234 Our perspective is novel, in that pregnancy, and the events that occur within  
235 pregnancy, have not previously been conceptualized using the COM-B framework.  
236 To date, the studies of specific pregnancy-related behaviours undertaken from a  
237 COM-B perspective have considered pregnancy and the postpartum as one event,  
238 compared to examining specific events such as first visit to midwife or feeling foetal  
239 movements for the first time (see table 2 for more examples of potential opportune  
240 events). That said, the research examining specific pregnancy-related behaviours  
241 using a COM-B perspective testify to its comprehensiveness, and utility for informing  
242 healthcare practice. One study reported interviews with women with a diagnosis of  
243 borderline gestational diabetes mellitus.<sup>23</sup> Capability, opportunity and motivation

244 were found to incorporate the reported barriers and facilitators to achieving  
245 interviewees' healthy lifestyle goals. The authors recommended that care for women  
246 with mild pregnancy hyperglycemia should be tailored according to identified  
247 capability, opportunity, and/or motivation barriers.<sup>23</sup> Elsewhere, a review of  
248 qualitative research of women's experiences with pelvic floor muscle training found  
249 that previous findings in this area could be mapped on to the COM-B constructs, and  
250 that this COM-B analysis identified novel and potentially fruitful targets for  
251 improving training adherence.<sup>24</sup> In sum, the available research demonstrates the value  
252 of using the COM-B framework to identify factors that influence behavior and  
253 behaviour change, in a manner likely to assist midwives and other healthcare  
254 professionals working with pregnant and postpartum women.

255

256

257 *Opportune intervention moments during and after pregnancy*

258 'Teachable moments' are currently defined by changes in motivation that lead to  
259 spontaneous adoption of risk-reducing health behaviours, and so may represent  
260 opportune moments for intervention.<sup>10</sup> From a COM-B perspective, a perceived lack  
261 of capability or opportunity may reduce receptiveness to health advice as behaviour is  
262 not seen as changeable. Alternatively, the reverse may be true; abundance in  
263 capability and opportunity may increase motivation. Consequently, changes in  
264 capability and opportunity can also influence openness to health promotion messages,  
265 or willingness to act on them.

266

267 Therefore, there may be multiple opportune intervention moments in pregnancy; and  
268 conversely, moments which are less suited to intervention. Throughout pregnancy and

269 postpartum, a series of personally significant events and transitions take place for  
270 women that impact on capability, opportunity and motivation. Some such events may  
271 be clearly demarcated, such as the moment the pregnancy is discovered, which can  
272 trigger smoking cessation attempts and a reduction in alcohol intake due to changes in  
273 motivation.<sup>16, 25</sup> Other events can be separated by pregnancy trimesters. For example,  
274 as noted above, boosts in energy in the second trimester may facilitate physical  
275 activity via increased capability<sup>20</sup>, whereas in the third trimester restricted mobility  
276 due to changes to weight and body shape may diminish physical capability for  
277 physical activity.<sup>26</sup>

278

279 It may also be important to distinguish between pregnancy and postpartum periods as  
280 prioritisation of caring for the baby in the postpartum period may make women feel  
281 psychologically and physically incapable of engaging with, or limit social  
282 opportunities for healthy behaviours (e.g., physical activity<sup>26</sup>). Postpartum may also  
283 provide several opportune intervention moments in itself, with the realization of  
284 parenthood bringing a different ‘context’, accompanied by new capabilities,  
285 opportunities and motivation. Following birth, the loss of the physical connection  
286 between the child’s and mother’s bodies may affect the perceived health  
287 consequences of the woman’s behaviours, often reversing in-pregnancy motivation to  
288 decrease smoking<sup>16</sup> or alcohol consumption.<sup>27</sup> The demands of feeding and basic care,  
289 accompanied by significant changes to sleep patterns can reduce both physical and  
290 psychological capability for a number of behaviours such as physical activity and  
291 healthy eating. However, opportunity may also increase, due to support from family  
292 members and access to health-relevant programs or services for mothers of young  
293 babies, such as stroller/buggy fitness classes.<sup>28</sup>

294

295

296 *New avenues for research and practice*

297 Utilising the COM-B framework allows researchers to systematically map triggers to  
298 capability, opportunity and/or motivation shifts during pregnancy and postpartum.<sup>22</sup>

299 We suggest that practitioners and intervention developers may benefit from using  
300 COM-B to help understand behaviour(s) of interest, while also being cognisant of the  
301 significance of the individual's psychological adaptation (primarily in terms of  
302 motivation) and their *perceived* capability, opportunity and motivation. Using these  
303 approaches will highlight more fully the many possibilities for behaviour change  
304 provided by pregnancy and the postpartum period than were suggested by the  
305 previous conceptualisation of the 'teachable moment'. Applying the COM-B  
306 framework also allows midwives to provide woman-centred care, by considering the  
307 woman's individual capabilities, opportunities and motivation. Thus, the model could  
308 be used favourably in training those midwives, who report a lack of confidence in  
309 supporting women regarding behaviour change.<sup>29</sup>

310

311 Longitudinal research is needed to identify how capability, opportunity and  
312 motivation change throughout pregnancy and postpartum and to what extent, so as to  
313 pinpoint the most opportune moments for purposive health behaviour change  
314 promotion. An important strength of the COM-B framework is that it provides  
315 suggestions for appropriate types of health behaviour change interventions.<sup>17</sup>

316 Identifying opportune moments and utilising tailored interventions will aid midwives  
317 and other healthcare professionals when they support women to change their  
318 behaviour. Further work might also examine whether it is possible to develop healthy

319 habits early in pregnancy or even pre-conception so as to shield healthy behaviours  
320 against disruptions owing to changes in capability, opportunity, or motivation.<sup>30</sup>  
321 Finally, a sole focus on women and not their partners and/or family may ignore the  
322 influence that these significant others may have on the COM-B determinants of  
323 behaviour.

324

325

326 *Conclusion*

327 The commonly held view that pregnancy is a ‘teachable moment’ may be broadened  
328 beyond motivation. The COM-B framework can be used to identify naturally  
329 occurring changes in capability, opportunity and motivation that may be conducive to  
330 changing any health-related behaviour during or after pregnancy. Further research is  
331 needed on how to best capitalise on these changes for positive behaviour change that  
332 may be facilitated by midwives and other maternity care staff.

333

334

335 *Conflict of interest*

336 The authors report no conflict of interest.

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