

General Discussion

The first aim was: to identify and describe the views parents and caregivers on the responsibility for the health of children-to-be in general and the responsibility to prepare for pregnancy in particular

Maternal responsibility

Our study, in which we interviewed socioeconomic underprivileged mothers-to-be, has shown that this group of women does feel responsible for the health of their newborns also before birth and even before conception.(1) Most women we interviewed mentioned the timely intake of folic acid supplementation, alcohol and smoking cessation, dietary improvements and the increase of physical activity as changes they (if relevant) *should* make for the benefit of the health of their children-to-be. Although advice from caregivers such as the GP about adequate pregnancy preparation was typically welcomed, the behavioral changes as such were thought to be, ultimately, a matter of maternal responsibility. According to these women, caregivers can thus play an important supportive role in empowering women to fulfill their responsibility. This supportive role was thought to be more important as the required changes were of an increasing medical character. For example, the role of the caregiver was in the eyes of this group more important when women took medication which was possibly teratogenic or when women had an obstetric history such as a miscarriage. In these cases, cases in which medical expertise contributes significantly to an adequate pregnancy preparation, it was thought that mothers-to-be and caregivers *shared* the responsibility for the health of the children-to-be.

This view on the maternal responsibility is promising as women are in principle open to pregnancy preparation for the benefit of their children-to-be. Leaving aside women who are adequately prepared for pregnancy, there are however, barriers that need to be overcome in order to go from the 'experience of responsibility' to 'actual pregnancy preparation.' For one, mothers-to-be typically feel sufficiently prepared for pregnancy. (1-3) This feeling can be caused by a combination of factors such as previous experiences with pregnancy, the experiences of relatives and friends with pregnancy and the availability of online pregnancy-related information. When we consider these factors together with the general unfamiliarity with pregnancy preparation and preconception care in particular (4, 5) and the tendency of mothers-to-be to underestimate the risk factors they have for poor pregnancy outcomes(1-3, 6), the feeling of 'being prepared' is understandable. Thus, although the feeling of responsibility for the health of the newborn is present, the fulfillment of this responsibility does not necessarily require professional health care interventions, according to the women we interviewed.

It seems to me that this feeling of being prepared warrants response. First, there ought to be a response from the scientific community. We have argued(7) and I argue once more that apart from its academic aims, scientific research on pregnancy preparation has a significant societal function. This function is to raise awareness and to set the societal agenda in order to make the avoidable adverse pregnancy outcomes a prominent topic in the public discourse. Topics are not important until they are made important. Hence, the scientific community (a) carries the burden of proof to show that this feeling of preparedness is in fact a barrier to adequate pregnancy preparation and better pregnancy outcomes(1, 4) (b) has a duty translate scientific insight into actual interventions that aid women in preparing for pregnancy and lead to better pregnancy outcomes (8) and (c) has a burden of proof to show that women who receive preconception care are truly better prepared for pregnancy and have a better chance at avoiding adverse pregnancy outcomes.(9) This last consideration present a serious challenge. In our study, women who received a preconception care consultation mentioned that although they were positive about the consultation they were also already aware of most information and advice given.(1) Consider that even if this group of women was somewhat overestimating their knowledge prior to the consultation, a good topic for future research, the problem of the *perception* of a limited added-value of the preconception care consultation remains. This suggests that for an increased uptake, the delivery of preconception care has to make bigger impact on the perception of preparedness of women.

Second, pregnancy preparation as a topic should be better imbedded within the educational system in order for women (and men) to have a better notion of what it entails. It is peculiar that although many women felt relatively prepared for pregnancy our research, which is in line with other studies, suggests that most women are unfamiliar with preconception care.(1, 2, 4) This might be the result of women associating pregnancy preparation (not preconception care) for the most part with fertility(1, 3) and hence conception represents a successful pregnancy preparation. The 'cross-pollination' of knowledge about the importance of pregnancy preparation for health and the knowledge about fertility is an idea worth exploring. This entails, first, that in addition to lessons on fertility and sexual health, lessons on pregnancy preparation for the health of the mother and should be included newborn in the educational curriculum. With the appropriate knowledge in mind, women will be far better able to estimate their preparedness for pregnancy and decide on better grounds whether to seek preconception care or not. Second, fertility as a topic should be a marked feature within preconception care. This may encourage women to seek preconception care as the important topic in which they are interested –fertility– will also be discussed.

In addition to the feeling of preparedness, skepticism was also expressed about the controllability of the course of pregnancy and the health of their child-to-be. Statements such as “[w]ell as far as I know you cannot do anything about it [actual pregnancy going well], but you can help it a bit.”(1) denote the uterus as a ‘black box’ of sorts in which the ‘difficult to influence’ development of the child-to-be unfolds. Well-known claims such as ‘my mother smoked during my pregnancy and I am just fine’ reinforce this idea; in the end there is little we can do to influence let alone improve the course of pregnancy. This skepticism meshes well with the idea of the ‘naturalness of pregnancy’. This idea of pregnancy as being natural, has for our discussion two relevant meanings. First, the ‘naturalness of pregnancy’ can refer to the perceived limited controllability as just described. If pregnancy is perceived to be natural in this sense, then human interference such as preconception care will have little impact on the outcome of pregnancy. Second, the ‘naturalness of pregnancy’ can in addition also describe an ideal. Natural pregnancy in this sense refers to ‘pregnancy with as little (medical) interference as possible’ as something worth achieving. This ideal is not uncommon within the pregnancy domain as the increasing popularity of home deliveries in the Netherlands seems to suggest. Research has been done on the topic of ‘medicalization’ (10) in which the soundness of the ‘naturalness of pregnancy as a reason not to seek care’ argument has been discussed (and refuted). Yet, to my mind, important questions about the *phenomenology¹⁴ of pregnancy* remain unanswered. Why is there a tendency to perceive pregnancy as something which should be shielded from medical intervention in the first place? What are the reasons for setting the ‘naturalness of pregnancy’ against ‘medical interventions’? What is the phenomenological distinction between eating more broccoli and taking folic acid pills to prevent neural tube defects? Unless we understand the reasons and more importantly the sentiments behind the skepticism about ‘the controllability of pregnancy’ and the idea of the ‘naturalness of pregnancy’ –two sides of the same coin– studies on medicalization will most likely only resonate with academic peers. Public deliberation and research is needed to enrich the concept of naturalness in the domain of pregnancy so that the image of natural pregnancy is no longer mainly underpinned (and thus dominated) by unreflective sentiments and perceptions. To my mind, there is in essence nothing good or bad about naturalness as such.

Lastly, it is important to also mention the responsibility of the father-to-be for the health of his child(ren)-to-be. Although this responsibility is typically indirectly beneficial to the health of his child(ren)-to-be, it is nevertheless not unimportant. Lifestyle

¹⁴ Phenomenology is the study of structures of experience or consciousness as experienced from the first-person point of view. For example, what is it like to prepare for pregnancy?

changes associated with pregnancy preparation such as alcohol and smoking cessation and eating healthier are made and sustained easier when the prospective mother and father join forces in achieving these aims. What is good for the goose is good for the gander. The father-to-be can also play a supportive role when it comes to preconception care. Taking interest in pregnancy preparation, encouraging his partner to seek care and joining her during consultations are all admirable manners to fulfill his responsibility as a father-to-be.

The caregiver's responsibility

The awareness of, or better yet, the knowledge about the benefits of pregnancy preparation and preconception care in particular is an important precondition to assume responsibility for the health of children-to-be. Caregivers do typically have knowledge about the benefits of pregnancy preparation such as the importance of folic acid supplementation, yet significant knowledge gaps do exist.(5, 11) Our research confirmed and gave a more detailed account of this 'knowledge gap barrier' to the uptake of preconception care.(5) The lack of a government coordinated preconception care program in the Netherlands and the poor organization of preconception care are both detrimental to making preconception care more familiar and lead to situations in which necessary care is either delivered too late or not at all.(5) Statements such as: *"It is really important that patients are referred in time to the right caregivers which unfortunately doesn't always happen... the communication between the different disciplines of PCC [preconception care] seems to be fragmented which makes the provided care suboptimal and less efficient."* (GP) and *"Midwives, GP's and obstetricians have insufficient expertise about inflammatory bowel disease to provide adequate care for patients who have a desire to become pregnant. However, these patients who should be seen by me or one of my colleagues are too often not referred to us."* (Gastroenterologist) attest to the missed opportunities to deliver much needed preconception care. That is, they attest to opportunities missed by caregivers to assume and fulfill their responsibility to secure and promote the health of children-to-be.

This barrier and its possible solution was also discussed during our expert meeting. According to the expert panel, the appointment of an easily identifiable preconception care provider who acts as a case manager of sorts and thus assumes responsibility for the pregnancy preparation from the caregivers' perspective would be a good strategy worth exploring.(12) The GP or public health nurse were put forwards as possible candidates. What is more, given that preconception care encompasses both the medical and non-medical domain(13) an additional recommendation of the panel was to define and distribute the different roles and responsibilities of caregivers. A shared

care model, a model of care that includes the skills and knowledge of a range of professionals such as pregnancy related healthcare professionals, policy makers, social peer group networks and community social workers, was proposed to secure the involvement of all relevant stakeholders and improve the fair distribution of the responsibility to improve pregnancy outcomes.(12, 14)

Yet, arguably the most important barrier for caregivers to fulfill their professional responsibility towards women contemplating pregnancy and children-to-be is that mothers-to-be who would benefit the most from preconception care are the hardest to reach.(4, 5, 12) The unreachability of those who need care the most remains the bane of the preconception care professional. Especially women who have accumulated medical, obstetric, social and economic misfortunes can greatly benefit from the whole array of possible preconception care interventions; but unfortunately too few are reached to deliver this care. One way to better reach these vulnerable women who contemplate pregnancy, I assume, is by emphasizing the non-medical interventions which are available (and should to a greater extent be made available) through preconception care. A, in my view remarkable initiative that does exactly this, is the Mothers of Rotterdam project where vulnerable mothers living in deprived neighborhoods are 'taken by the hand' to address their medical problems (e.g. by making appointments for these women with the appropriate healthcare professionals and go with to the appointment if necessary) as well as their non-medical problems (e.g. by guiding these women towards debt management plans, housing services, educational plans and employment agencies)(15) To my mind, preconception care can play a more distinctive role when it goes beyond the *identification* of non-medical (and medical) risk factors and problems. To play this role, preconception care should be able to set in motion the appropriate social and economic interventions that are necessary to help women who, because of their accumulation of problems, are at risk of losing self-governance. Introducing so called 'care pathways' that facilitate necessary referrals to non-medical caregivers would be conducive to achieve this, in my view, 'fleshed-out' version of preconception care.(12) I would be more optimistic about the ability to reach vulnerable women with well-functioning care paths in place. In other words, widening the scope so that social and economic problems are included would be, in my view, an improvement of preconception care. Yet, if preconception care ventures out in the world of non-medical risks and problems it has the responsibility to respond to the risks and problems it encounters, for example by guiding women towards the help and care they needed. Pointing out problems without providing some, for vulnerable women, attainable solution would indeed be quite unhelpful.

Lastly I would like to shortly discuss the disposition of caregivers who *deliver* or *should deliver* preconception care in relation to their professional responsibility. Our research as well as other research has reported on the relatively reticent (as opposed to proactive) disposition of caregivers when it comes to pregnancy preparation and preconception care. (5, 11, 16) This ties in with the earlier mentioned views on the lack of sufficient awareness of and sufficient knowledge about preconception care as well as the unclear definition and distribution of responsibilities as expressed by caregivers. Moreover, caregivers who could deliver preconception care reported that preconception care consultations are time consuming –especially if one is unable to deliver them on a regular base– and the delivery of preconception care has to compete with the delivery of other forms of (preventive) care.(5, 11) Statements such as “*The preconception consultation is very time consuming...*”(Midwife)(5) and “*I often have to use all the time available to address the patient's medical questions, so the time to ask about the desire to have children or to discuss PCC [preconception care] is lacking... Because of time and resource constraints, PCC has to compete with other preventive care. That may also be a barrier.*” (GP) (5) demonstrate these barriers as perceived by caregivers. The lack of a proactive disposition by caregivers regarding the offering of preconception care is thus understandable. I recommend the provision of education to equip professionals with the necessary awareness and knowledge for a proper deliver of preconception care, the organization of preconception care (preferably coordinated by the government) for it to have a less ‘impromptu’ character and thus to be of better quality and less time consuming and a clear distribution of the caregivers’ roles and responsibilities for the offering and delivering of preconception care as ways to address these barriers.

I would moreover like to draw attention to phenomenology once more. I do think that the fact that we are dealing here with those who are not-born (yet), makes an important difference in the experience –in the phenomenology– of responsibility, harm and delivery of care. It is in our human nature to feel more committed towards the concrete and tangible rather than to the hypothetical and things of abstract nature.¹⁵ As was also mentioned during the expert meeting, the benefits of adequate pregnancy preparation, preconception care and prevention in general are intangible, abstract and only noticeable as a statistic. The abstract nature of the benefits of prevention and preconception care in particular may be reflected in the experience of urgency caregivers (but also parents-to-be) have regarding pregnancy preparation. That is, the fact that the aim is to prevent hypothetical harm, benefiting a hypothetical child, may influence the experience of urgency and hence the commitment to offer and deliver preconception care.

¹⁵ The speculative nature of our economic system, which seems to serve abstract market-related goals rather than actual people however, seems to suggest otherwise.

Of course, this is a hypothesis from my side, but one which calls for further research. Moreover, this observation on the hypothetical nature of prevention and its effects on the experience of urgency is not meant as a reason to discard the barriers to the offering and delivery of preconception care perceived by caregivers. These are quite real and need to be addressed. It is meant to show that if we want to address the barriers caregivers experience, as we should, we should take into consideration how caregivers balance the hypothetical harms to hypothetical children against other medical and preventive interventions in which the harms and benefits are more obvious. It seems to me that the crucial difference between 'those who are more' and 'those who are less' committed to preconception care boils down the perception one has on the harms that can be prevented and the benefits that can be gained by preparing for pregnancy, that is, a difference in phenomenology.

The second aim was to: To provide an ethical analysis of the justifiability of unreflective behavioral interventions (nudges) aimed at benefiting the health of children-to-be

Drawing lessons from nudging

Research into the way we make choices has drawn much attention from scientists and ethicists, not least since the publication of Daniel Kahneman's 'Thinking Fast and Slow'(17) and Richard Thaler and Cass Sunstein's 'Nudge: Improving Decisions About Health, Wealth, and Happiness'(18) The central theme in behavioral research in general and these two books in particular is the question of how people make everyday choices. People typically face choices everywhere and all the time. And for life not to become overwhelmingly burdensome many choices in daily life are made quickly and without (significant) deliberation. Decisions about everyday choices such as what to eat and what to drink, how to work-out, what time to set the alarm, which road to take to the office and many more seem to effortlessly 'pop up' into our mind. Cognitive 'rules of thumb' or 'heuristics' as they are called underpin these unreflective decisions we tend to make. The tendency to stick with the default (default bias) or the overestimation of available information (availability bias) are examples of these heuristics that influence or sometimes even determine our choice behavior.

The way these heuristics play out depends on the way a choice is designed and presented. If for example, the 'choice architecture'(18) is designed in such a way that a magazine subscription is automatically renewed, the chances that one remains a paying subscriber for years are significantly increased. Thus the basic equation is, combine a heuristic with a certain choice architecture and the result is a predictable outcome.

Given that heuristics are close to impossible to change¹⁶ and choice architectures are ubiquitous¹⁷, the best way to arrive at this predictable outcome is by the deliberate design of the choice architecture. Choice architectures that have been designed deliberately so to steer people to a predictable outcome are what are known as ‘nudges’. Or as Thaler and Sunstein define it: “A nudge, is any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives.” The potential of these nudges generated great interest also from policy makers tasked with encouraging individuals to lead healthier lives.(19)

Before I move to the discussion of the possibilities of nudging for health and pregnancy preparation I want to emphasize an underappreciated insight. As mentioned already, behavioral insights shed light on people’s propensity to make heuristic-based choices in everyday life. Life would be quite unbearable if we would have to reflect on every choice we make, so heuristics are in this sense ‘necessary cognitive illusions’ The entrenched-ness of our mental rules of thumb provides the ‘cognitive room’ for the deliberation about the choices that require careful thought. With the easy choices out of the way, we can focus on the important matters at hand.

However, when our heuristics steer us towards unfavorable outcomes and we want to change the corresponding choice behavior, the entrenched-ness of these heuristics becomes painfully clear. It can be truly hard to change choice behavior that is underpinned not by deliberation, but by mental rules of thumb. Consider for example the lifestyle changes recommended for a healthy pregnancy such as dietary changes. Research has shown that there is an association between having a diet containing vegetables, fruit, whole grains and fish and having a lower risk of preterm delivery. (20) Now consider women who have a fast-food based diet. The ‘choice’ to eat fast-food several times a week is not very likely to be a well-thought out decision but rather a simple and convenient way to solve the problem that one has to eat.¹⁸ Fast food is readily available and in line with the ‘availability bias’ therefore likely to be chosen. It is an easy heuristic-based fix to the problem of having to eat every day.

Now if we ask these women to adopt a healthier diet when they are contemplating pregnancy, we are asking them to replace an easy heuristic-based approach which requires a minimal cognitive effort with reflective approach that requires (a) a cognitive investment, e.g. making an effort to decide what to cook and how to cook it,

16 which is not to say that they cannot be resisted e.g. through deliberation about a choice

17 choices have to always be presented in one way or another

18 This is in no way meant as a moral judgment of women who regularly eat fast-food

(b) an investment in terms of time, e.g. when to go to the supermarket to buy all these healthy products and (c) a commitment to this dietary change, i.e. resisting the appeal of fast-food and sustain her change in diet. Upholding this dietary change is not impossible. But it surely is not an easy aim to achieve. More generally speaking, changing heuristic-based behavioral patterns is quite a challenge. Everyday behavior becomes entrenched in our mind and changing these patterns of behavior is though not impossible particularly hard as fast, unconscious and convenient solutions have to be replaced by solutions that require reflection and are typically more difficult to achieve. This is exactly why help in the form of nudges and mHealth tools such as 'Smarter Pregnancy', which aims to lower the threshold to preconception care and make it easier to have a healthier diet and lifestyle is being explored.(21)

We have to keep this in mind when judging mothers-to-be with regards to their pregnancy preparation.

Nudge me, help my baby

I turn now to the possibility of using nudges to make the choices conducive to a healthy pregnancy preparation easier. The possibility of using nudges to improve people's health has been discussed in the scientific and ethical literature.(19) Nudges such as: serving alcoholic and sugar sweetened drinks in smaller glasses, keeping cigarettes, lighters and ashtrays out of sight and making salad rather than fries the default side dish in a meal are all meant to make healthier choices easier.(22) So why not use nudges to make choices pertaining to a healthy preparation for pregnancy easier? My short answer would be: indeed, why not. There are to my mind no fundamental moral objections to not consider nudges for pregnancy preparation and preconception care in particular. This entails that I do not think that nudges are freedom limiting or autonomy thwarting to the extent that they are morally unjustifiable as some of the ethical literature on this topic seems to suggest.(23-25) Given the inescapable influence of any choice architecture and the fact that proper nudges never eliminate choice, that is, the 'Libertarian Paternalist' justification for nudging(26), choice, freedom and autonomy are, in my view, sufficiently safeguarded. Moreover, the goals pursued through nudging, in our case the improvement of health of children-to-be (and the mother-to-be), are innocuous and more than likely to be in line with the aims of the 'nudgee'. We may safely assume that nudging women towards healthier pregnancies is 'for their own good in their own eyes'.(27)

However, an interesting challenge presents itself when we consider the use of nudges for the benefit of the health of children-to-be. The justification of nudging as offered by Libertarian Paternalism, only applies to cases in which the benefit of the nudge is to be gained by the individual being nudged. When *I* am nudged, *my* biases are utilized so to benefit *me* according to *my* standards of what counts as a benefit. In the case of a pregnancy preparation nudge however a woman is nudged for the benefit of her child-to-be. This is not an account of paternalism but an account of beneficence; doing good for the benefit of the other. One possible response to this challenge is to point to the benefits of pregnancy preparation for the mother. Although it is true that many (though not all) ways to prepare for pregnancy are also good for the health of the mother, the justification as such is not compelling. In the end, a pregnancy preparation nudge is primarily aimed at benefitting the health of the child-to-be even if it does also benefit the mother-to-be and the primacy of this aim should be accounted for in the justification offered for that nudge.

This is why we introduced the concept of the ‘other-regarding nudge’, a nudge that is meant to benefit the other (even if it also benefits the individual being nudged).⁽²⁷⁾ We have argued that although Libertarian Paternalism fails as the justificatory principle, the Harm Principle and the principle of beneficence provide sufficient justification for these other-regarding nudges.⁽²⁷⁾ More specifically, other-regarding nudges that are aimed to prevent harm are justified using the Harm Principle and other-regarding nudges that are aimed to bestow some benefit or good are justified using the principle of beneficence.

An interesting discussion that, in my view, follows from the distinction between preventing harm and bestowing a good is how to morally label certain actions or omissions pertaining to pregnancy preparation. Does an informed mother-to-be who does not take preconceptional folic acid supplementation harm her child-to-be or is she only failing to bestow a good? And the same question goes for smoking, alcohol, visiting a preconception consultation and so on. This is a relevant question as harm is typically met with stronger moral disapproval than not bestowing a good. For example, there are stronger reasons to nudge women who contemplate pregnancy to quit smoking than to nudge them to visit a preconception consultation; although there are good reasons for the latter as well. It seems to me that smoking while trying to conceive is an example of a possible harm whereas not visiting a preconception care consultation is not; it is a matter of failing to bestow a good.

To my mind this is more than a philosophical puzzle. It raises the more fundamental question of what we can reasonably expect from women contemplating pregnancy.

(27) Consider the danger of construing every deviation from an optimal pregnancy preparation (whatever that may be) as a form of harm. We are then at risk of reducing mothers-to-be to 'fetal containers', instrumental vessels that are valued largely in terms of their pregnancy-related efforts and investments. (28) Consequently, the need for justification for a whole array of pregnancy-related interventions becomes minimal as the prevention of harm to others typically warrants intrusive interventions let alone nudging. Therefore, a fuller account of the responsibilities of women trying to conceive towards their children-to-be is required in which the expected benefits to the child are reasonably balanced against the burdens for the woman. To be clear, my claim here is that the justification for other-regarding nudges involves 'moral labels', i.e. the prevention of harm or the promotion of the good, that we have to apply with great care in order not to consider every deviation from a perfect pregnancy preparation as a form of harm.

I will end this section with two caveats pertaining to the use of nudges for the benefit of children-to-be. First, we have to be aware that although choices can be mediated through heuristics, poor choice behavior should not be automatically attributed to (only) some flaw of the human mind. Not every poor choice is a matter of corruptive heuristics. Adverse pregnancy outcomes are largely the result of the structure of society, living in deprived neighborhood, rather than the structure of the mind. This brings me to the second caveat. I do believe that nudges can be conducive to pregnancy preparation. However, poor pregnancy outcomes are ultimately not the result of a 'lack of rationality' but rather a lack of knowledge, education as well as a lack of medical and social support. No nudge will overcome these deficiencies. Thus in the end, nudging is, I argue, an interesting strategy to consider when it comes to supporting women to prepare for pregnancy. Nudging however, should not replace the comprehensive care and policy necessary to counteract avoidable pregnancy outcomes.

The third aim was to: provide an ethical analysis of the justifiability of the use of force in pregnancy related care by considering the case of the justifiability of forced cesareans

Why consider force?

In general terms, pregnancy-related research shows that the health of children-to-be is becoming less a matter of chance and more a matter of choice. Adequate preconception, prenatal and maternity care can all contribute to the reduction or prevention of avoidable adverse pregnancy outcomes thereby promoting and securing the health of children-to-be. The corollary of this increased 'controllability' of the course of preg-

nancy is that more can be done to achieve healthier pregnancies that result in the birth of healthier babies. 'More *can* be done', but does this without question imply that 'more *ought* to be done?' To some extent I would say –yes–. An increase in knowledge leads to an increase of responsibility. Now we know that many neural tube defects can be prevented by preconceptual folic acid supplementation, this knowledge gives rise to the responsibility to use supplementation before (and during the first weeks of) pregnancy. Knowledge alone however, is not enough to determine responsibility. The burdens associated with pregnancy preparation and the expected benefits to the child-to-be should also be accounted for when determining the responsibility of mothers-to-be for her child-to-be. I have discussed the question of determining responsibility of the mother-to-be in the previous section. The question I want to address here is: 'what response is justified when a mother-to-be does not fulfill her responsibility?"

Surely we should not force women into taking folic acid supplementation. This would amount to a moral outrage. Yet mothers-to-be who knowingly or even because of 'weakness-of-will' forgo the regular use of supplementation are doing wrong and perhaps even harm to their child-to-be. So what is the adequate response to this wrongdoing and doing harm? A provisional answer would be that the more harm to the child-to-be can be prevented, the more intrusive the intervention can be that prevents this harm. So for example, the soft steering character of a pregnancy preparation nudge is justified by the hypothetical harms it aim to prevent.(27)¹⁹ But is the use of force then justified if acute and life-threatening harm for the child-to-be can be prevented? For the case of pregnancy preparation, this question comes too early; no acute and life threatening harm can be prevented. The risks of harm can be reduced, that much is clear. But the risk of harm is different from actual harm and it is the latter I wish to discuss. Does the prevention of inevitable acute and life-threatening harm justify the use of force against women? To my mind the best way to answer this question is by looking to cases in which this question actually arises. One such case is the that of the forced cesarean. Is it morally justifiable to force a pregnant woman to submit to cesarean surgery, if she does not consent to a medically indicated cesarean, necessary to save her fetus in distress? The line of argumentation used to answer this question provides, so I believe, valuable insights in the moral permissibility of force in pregnancy-related care in general.

19 or hypothetical goods they aim to bestow

Forced cesarean

In the discussion on the ‘cesarean dilemma’²⁰ proponents and opponents typically do agree on the interests at stake, the respect for autonomy of pregnant women on the one hand and the duty to save the life of the unborn on the other, yet they disagree on the moral weight that should be attached to these interests. We have argued that given this disagreement on the ‘weight’ the weighing of benefits and burdens is unlikely to succeed as a strategy to overcome this dilemma.⁽²⁹⁾ As an alternative we proposed to test the considered judgments of the professionals in the medical domain against the norms and values these professionals –by virtue of being professionals– are committed for their coherence. This method is widely known as the (narrow) reflective equilibrium.⁽³⁰⁾ Basing our analysis on the four cardinal principles of medical ethics⁽³¹⁾ as the moral depictions of the norms and values professionals working in the medical domain ought to be committed to, we concluded that the justification for forced cesareans leads to too much incoherency between the considered judgments that underpin it²² and the principles of medical ethics that should justify it²³. Therefore, the use of force is, we argued, morally impermissible.⁽²⁹⁾

I believe that the analysis that lead to this conclusion (as well as the conclusion itself) is (are) relevant for our discussion on the responsibility caregivers and mothers-to-be have towards children-to-be. For one, it demonstrates that narrowing the scope so to include only the health and the interests of the child-to-be or the freedom and autonomy of mothers-to-be is insufficient to do a sound ethical analysis on which pregnancy preparation interventions are justifiable and which ones are not. I often do think that there is a pitfall to being in the ‘preconception care business’ as we tend to, for perfectly understandable reasons, narrow our focus to the health and interests of the child-to-be. The improvement of the health and wellbeing of children-to-be is such a praiseworthy goal that we run the risk of discounting what we ask mothers-to-be to do in order to achieve this goal. The use of the reflective equilibrium in our analysis of the justifiability of forced cesareans offers a way to widen this scope by ‘forcing’ us to reconcile the duties and demands we attribute to mothers-to-be with the duties and demands we attribute to others who are also in the position to prevent harm to and do significant good for the health of children-to-be. Just think of the significant harms to children-to-be that are caused by tobacco companies, fast-food companies, unnecessary poverty and poor parenting to name just a few. Demanding an adequate pregnancy

20 Is the use of force against pregnant women justified when it can save the life of their unborns?

21 These are the principles of: respect for autonomy, beneficence, non-maleficence and justice

22 the justification of forced cesareans.

23 Idem

preparation from mothers-to-be in a society filled with possible harms for children-to-be is like fixing the window to subsequently burn the house. To be sure, I am not claiming that until all social and economic sources of harm are abolished, mothers-to-be carry no responsibility for their children-to-be. I am claiming that we should be ‘test’ our intuitions and considered judgments regarding the pregnancy-related interventions (which may or may not allow force) for their fairness and reasonableness by assessing how coherent they are with other intuitions, considered judgments, norms and values we are committed to.

The fourth aim was: *to identify and present the demands of justice pertaining to the improvement and securing of the health of children-to-be*

Why justice?

I turn now to the societal responsibilities for the health of children-to-be, that is, the demands of justice. Let me start by pointing to an important debate in the field of political philosophy which revolves around the question of whether the moral rules applied for interpersonal conduct should be the same as the moral rules applied for realizing social values such as fairness, equality and justice. Let me explain. It is clear that by any reasonable standard of evaluation, people within a society, even a prosperous society like the Netherlands, live lives of (significantly) varying quality. Individuals belonging to different socioeconomic positions differ in their quality of health, nutrition and lifestyle, life expectancy, access to medical care and education and their vulnerability to stress, violence and abuse. This is nothing new.

Those who have the good fortune to belong to the more privileged strata of society can surely be moved by the ill-faith of those less fortunate, yet, in general, they look not primarily to themselves to alleviate their burdens. For example, for a privileged²⁴ individual it is a matter of personal responsibility to rescue a drowning infant from death in a pool but *not* or at best *significantly less* a matter of personal responsibility to counteract inequalities in infant deaths observed in the city of Rotterdam. In other words, there seems²⁵ to be a difference in the way we ought to treat one another and respond to each other’s needs on a small-scale and the way we ought to respond to large-scale societal problems such as perinatal inequality. In the literature this is referred to as the ‘division of moral labor’.(32) This dissertation also contains a division of moral labor. On the

24 in fact, any individual who can swim or call for help

25 caution is in order as some political and ethical theories such as libertarianism and utilitarianism do not make this distinction

one hand I discussed the responsibilities of mothers-to-be, parents-to-be and caregivers for the health of children-to-be. These responsibilities are comprehensive but they do not include the large-scale problems pertaining to the health of children-to-be which have to do with the number of avoidable adverse pregnancy outcomes in general and perinatal health inequalities in particular. In the next section I will turn to the responsibility of society to address these large-scale problems, that is, the demands of justice.²⁶ Before doing so I want to stress the importance of this moral division of labor. There is a tendency to pit small-scale responsibilities against large-scale responsibilities in societies that (over)emphasize the individual responsibility for health.(7) In light of the insights provided by the DOHaD paradigm and epigenetics there exists a serious risk that mothers-to-be become the target of blame and shame in the discussion on avoidable infant disease and death; from the mother's dinner to a newborn's disease. (7) This is both unwarranted and it draws attention away from the demands of justice pertaining to health of children-to-be. If it's the mother then it can't be society, or so the fallacy goes. Having mentioned this fallacy, I turn now to the demands of justice to counteract avoidable pregnancy outcomes in general and perinatal health inequalities in particular.

Adverse pregnancy outcomes and the demands of justice

Adverse pregnancy outcomes occur everywhere in the world. The ones I discussed however, are particularly disquieting because of one special feature; they are observed in prosperous societies. The Netherlands for example, has free and high-quality (pregnancy-related) care in place yet it has a persistent high number of adverse pregnancy outcomes compared to other European countries.(33) Moreover, staggering inequalities in pregnancy outcomes between neighborhoods have also been observed.(34) Insights from the DOHaD paradigm and epigenetics show that a suboptimal embryonic growth which leads to many adverse pregnancy outcomes also increases the risk of attracting non-communicable diseases later in life. An impaired development in utero hits twice. (35) These insights emphasize the importance of a good embryonic and fetal development and thereby the importance of adequate pregnancy preparation as well as the availability of accessible pregnancy-related care.

26 Responsibilities of society to address large-scale problems can also be based on solidarity rather than on determining the demands of justice. This is however typically considered to be a less principled and therefore less compelling way. Still, the healthcare system in the Netherlands for example, is based on solidarity and not on the principles of justice.

So what to do to counteract these high number of adverse pregnancy outcomes and perinatal health inequalities in a prosperous society such as the Netherlands? Or more precisely, what does justice demand in this situation? We have argued that although much more can be done to improve the availability and accessibility of care in deprived neighborhoods this will most probably not be enough as the problem of adverse pregnancy outcomes cannot only be traced back to a 'deficit of goods' (such as availability of care) but also a 'deficit of capacity'; the capacity individuals living in deprived neighborhoods have to set health-related goals worth pursuing.⁽³⁵⁾ It has been widely observed that people living in deprived circumstances tend to *adapt* their (health-related) preferences, goals and aspirations so they match their unfortunate living conditions so that these conditions cease to be a source of frustrations. This 'mechanism of acquiescence' is widely known as 'adaptive preferences'.^(36, 37) Research on adaptive preferences has typically focused on people living in countries that face severe poverty and destitution. Our own research⁽¹⁾ however, suggests that these adaptive presences can also occur in deprived neighborhoods in prosperous societies; even if the level of poverty is incomparable between those worst-off living in the Netherlands and those worst-off living in –say– India. Our observation can be seen as an invitation to further research into the ways life in deprived circumstances within a prosperous society curb the health-related preferences, goals and aspirations of mothers-to-be.

We have argued that to meet the demands of justice we should focus on counteracting these adaptive preferences that are caused by living in a deprived neighborhood by investing in interventions that improve what we called the 'health-agency' of mothers-to-be.⁽³⁵⁾ We described health agency as "1. the *capacity* to form health-goals one has reason to value, 2. the perceived *control* over achieving those health-goals and 3. the *freedom(s)* one has to achieve those health-goals.⁽³⁵⁾" One can think of interventions that aim to improve health-agency as 'anti-nudges'²⁷ as they are aimed at empowering women in order for them to set health-related goals *they have reason to value*. Unlike nudging these interventions require serious societal investments in education and tailor-made care so that mothers-to-be are encouraged to raise their health-related expectations for themselves and their children-to-be beyond their adaptations. To be sure, this will most likely be a slow and arduous process. Helping mother-to-be to set 'giving birth to a healthy baby' as a *valuable* and *achievable* goal rather than merely 'praying for the best'⁽³⁵⁾ is ambitious and requires social dedication. But as we have argued, justice demands nothing less.

27 This is not to say that the potential of nudging as a way to encourage women to better prepare for pregnancy should not be explored but only that more is needed than nudging namely anti-nudging as well.

Strengths and limitations

The subtitle of this dissertation is: 'a moral *exploration* of the responsibilities of parental and societal responsibilities for children-to-be' and an exploration it is. The aim was to explore topics that matter greatly in the discussion on adverse pregnancy outcomes, pregnancy preparation and preconception care; topics such as the responsibility of the mother-to-be and society for the health of children-to-be; topics have always there in the background but should also take center stage. I am optimistic that the identification, exploration and argumentation offered here on novel topics such as 'nudging and pregnancy preparation' and 'the demands of justice pertaining to the health of children-to-be' are conducive to finding comprehensive answers to the problem of avoidable infant illness and death. It seems to me that ethical and philosophical reflection is indispensable in order to improve pregnancy outcomes in a manner that is respectful towards mothers-to-be and based on moral arguments we all have reason to be convinced by. It is my hope that this dissertation has made a contribution to this reflection.

As is with most explorations however, it leads not to fine-grained discoveries. As opposed to the recommendations for caregivers and policymakers, this dissertation was, *not* tailor-made. Although we have identified 'health-agency' as an important trait that enables mothers-to-be to set the good health of their children-to-be as a goal worth pursuing we have not specified which interventions are most likely to achieve the empowerment of health agency. We have justified the use of nudges for the benefit of the health of children-to-be but not yet given a specified account of the content of a pregnancy preparation nudge. The interview studies we did yielded interesting insights on the self-reported responsibility of caregivers and mothers-to-be for the health of children-to-be. More studies on the views of mothers-to-be and caregivers are however required to reaffirm and expand on our findings.

Recommendations

Recommendations for research

- The views, ideas and sentiments of mothers-to-be underpinning the feeling of preparedness for pregnancy should be researched
- The views, ideas and sentiments of mothers-to-be underpinning the purported 'naturalness of pregnancy' should be researched
- The views and ideas of caregivers on the added-value and effectiveness of preconception care should be researched.

- Research is needed to arrive at a fair and reasonable idea on what counts as harm and what counts as failing to provide a benefit in the case of pregnancy preparation. It is important to include within this deliberation the responsibilities we attribute to others (e.g. fathers, caregivers, fast-food companies) for the health of children so to ‘calibrate’ the responsibility to avoid harm and to provide benefits to children-to-be by the mother-to-be. I recommend our distinct use of the reflective equilibrium as the appropriate method for this research.
- Research is needed on the way life in depraved neighborhoods curbs the preferences, aims and aspirations of mothers-to-be regarding the health of their children-to-be.

Recommendations for caregivers, researchers and policymakers

- Invest in the translation of scientific insight into actual pregnancy preparation interventions
- Embed pregnancy preparation and preconception care within the educational system
- Include fertility care in preconception care
- Appoint a ‘case manager’, who can function as the primary responsible caregiver for preconception care. The GP or public health nurse are good candidates
- define and distribute the different roles and responsibilities of caregiver
- Include pathways to non-medical care in preconception care and make these pathways better known to mothers-to-be.
- Offer more education to caregivers on the topic of pregnancy preparation and preconception care
- Make preconception care a governmental coordinated form of preventive care
- Explore the possibilities of nudges for pregnancy preparation, in particular in the domains of E-Health and mHealth
- Invest in interventions that empower women to (re)gain their health agency

Recommendation for fathers-to-be

- Help your partner to prepare for pregnancy

Recommendation for mothers-to-be

- Prepare for pregnancy

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