

Cute, Clean, and Conscientious – Promoting Cloth Diapers

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Abstract

Each infant using on average 5400 disposable diapers translates into a lot of waste, CO₂ emissions, and other substances harmful for the environment. This study investigated how to increase parents' intention to use a more sustainable alternative: Cloth diapers. Study 1 (N = 160) used the value-based choice model as a framework to determine predictors of the intention to use cloth diapers. Results indicate that different value inputs predict the intention for men and women. Both genders have negative images of cloth diapers (women find them unhygienic, men uncommon), which makes them less likely to use the diapers. There were also some positive predictors for both genders. When women see themselves as an environmentally-friendly person and when men see having cloth diapers always in stock as an advantage, they are more likely to use cloth diapers. In a second study (N = 73), the predictors for women (hygiene and self-image) were influenced in an intervention at obstetrician practices with Centering Pregnancy in an attempt to increase the intention. However, there were no significant differences between the experimental and control group. Likely, the small sample size and power made this study unable to detect an effect. Nevertheless, this study indicates that the value-based choice model is a valuable framework in this domain. Further research is needed to delve more into the most effective interventions to promote cloth diapers. This is crucial as cloth diapers have the potential to majorly decrease the impact of disposable diapers on the environment.

Keywords: Cloth diapers, value-based choice model, intervention, centering pregnancy

Disposable diapers are the most frequently purchased baby products by parents, but at the same time they have a major impact on the environment (Velasco Perez et al., 2021). Disposable diapers pertain to 5-8% of the residual waste of Dutch households, which translates to 200 million kilos of diapers per year (Rijkswaterstaat, 2020; VANG Huishoudelijk Afval, 2022). This may not be surprising considering a child uses on average 5400 diapers before it is potty-trained (Ten Grotenhuis, 2021; Intven & De Haes, 2021). Although existing systems to recycle disposable diapers reduce environmental impact by 41% (Broeren & Imholz, 2023), they cannot process the enormous amount of diaper waste effectively (NVRD & Rijkswaterstaat, 2015). Instead, most diapers are incinerated or end up as landfill (Broeren & Imholz, 2023). This releases a lot of CO₂ and harmful chemicals into the atmosphere, ground, and water (Odegard et al., 2018; White & Birnbaum, 2009), polluting the environment for a long time (Patel et al., 2011), eventually causing food chain problems (WHO, 2016).

One way to prevent these negative consequences is by using reusable cloth diapers instead. As a child needs only 24 cloth diapers, which can be used 450 times each, cloth diapers generate less waste and emit 1.5-2.5 times less CO₂ than disposable diapers (Ten Grotenhuis, 2021; Broeren & Imholz, 2023). Additionally, cloth diapers are made of more eco-friendly materials (cotton, bamboo, hemp), which require less chemicals to grow (Claudio, 2007). Resultingly, cloth diapers have a 64%-82% lower environmental impact than disposable diapers (Broeren & Imholz, 2023).

Despite these environmental advantages, currently only 5-10% of parents use cloth diapers (Thaman & Eichenfield, 2014; Industry Research, 2020). As cloth diapers have the potential to drastically reduce environmental consequences, it is relevant to discern how more parents can be encouraged to use these diapers. Previous research has identified potential factors functioning as a barrier or encouragement to use cloth diapers (Amelia & Saragih, 2023; ComRes & NLWA, 2018; Pendry et al., 2012). However, this research mostly consists of qualitative exploratory data with non-Dutch individuals. Studies that did perform confirmatory analyses used the theory of planned behaviour (Ajzen, 1991) as their main framework. Even though this framework has shown to be very effective in predicting intentions (Armitage & Conner, 2001), also in the domain of environmental behaviour (Schwenk & Möser, 2009; Yuriev et al., 2020), it has many flaws (Sniehotta et al., 2014; Steinmetz et al., 2016). Hence, the current study aims to test whether instead the value-based choice model (Berkman et al., 2017) can be used as a framework to predict diaper choice. A second study tests whether the resulting factors can be influenced in an intervention to encourage parents to use cloth diapers.

Predictors of Diaper Choice

Diaper choice can be seen as a decision on an individual level where multiple external and internal inputs give rise to a choice for one type of diaper. This fits in well with the value-based choice model (VBCM), in which behaviours are conceptualised as a choice between two or more alternatives (Berkman et al., 2017; Berkman, 2018). For each alternative a subjective value is calculated by integrating multiple gains and losses (i.e. value inputs). Through a dynamic integration process the option with the highest subjective value will be enacted. This model emphasises the salience of the alternatives, the values of alternatives' attributes, and the choice process itself. So far, the VBCM has been able to predict choices related to food, smoking, prosocial behaviour, and social media use (Berkman, 2018; Field et al., 2020; Mayr & Freund, 2020; Scholz et al., 2020). This study will determine whether it is also applicable in the domain of environmental behaviour.

Choice Set

Thaler and Sunstein (2008) argue that consumers prefer the most common and easiest option, especially when the alternative is harder to get. This likely also applies to cloth diapers. Kok (2022) showed that 32% of Dutch respondents who use disposable diapers did not consider cloth diapers, even though these are available in the Dutch market. This might be because the market for disposable diapers is much larger than the one for cloth diapers (Robles, 2015). They can be bought at many places, such as supermarkets and drugstores. Cloth diapers are less salient as there are few advertisements and they are not available at the common stores, but mostly online (Ten Grotenhuis, 2021; Pendry et al., 2012). Consequently, parents are exposed less to this alternative, and they are not likely to actively look up information about cloth diapers to find the stores or websites that sell these diapers. In other words, the easiest and most prevalent option is using disposable diapers. Thus, a potential barrier to buying cloth diapers is the saliency of the diapers. They are simply not that visible, resulting in parents not taking up the option in their choice set, but instead going for what is most prevalent: disposable diapers.

H1: Parents are not aware of cloth diapers as an alternative to disposable diapers.

Value Inputs

Multiple costs and benefits may determine whether an individual chooses to use cloth diapers. Berkman (2018) distinguishes between three types of value inputs. First, *tangible values* refer to immediate positive or negative consequences of the choice alternative. The extra time and effort it takes to use cloth diapers can be perceived as a cost (ComRes & NLWA,

2018; Pendry et al., 2012). Parents need to remove poo from the diaper, rinse and wash it, and let it dry. In contrast, disposable diapers only need to be thrown in the bin. Other perceived tangible costs could be high purchase costs (Kok, 2022; Pendry et al., 2012), or hygiene. Bodily secretions, such as faeces, are the most widely reported elicitors of disgust across cultures (Curtis & Biran, 2001). Anticipated disgust occurs automatically and serves to organise cognitions and behavioural responses (Stevenson et al., 2019). Hence, the mere idea of needing to wash diapers soiled with poo might elicit disgust reactions in parents, withholding them from using cloth diapers. Contrarily, there can be tangible rewards, such as not needing to take out the trash often or continuously buy new diapers (ComRes & NLWA, 2018), and saving money eventually (Amelia & Saragih, 2023).

H2: Tangible costs negatively predict the intention to use cloth diapers.

H3: Tangible rewards positively predict the intention to use cloth diapers.

Second, *social values* refer to the extent to which the alternative triggers positive or negative reactions from others by being in line with social norms or not. Social norms can be divided into two categories (Cialdini et al., 1990). On the one hand are injunctive norms, which refer to behaviours that people believe others approve of. Others' opinions seem relevant predictors of behaviour in both the environmental and parental domain. Parents are encouraged by others and advertisements to buy products that take into account concerns for both their child and the environment (Atkinson, 2014; Sandilands, 1993). Parents that buy eco-friendly products are perceived as better parents, more caring, and more ethical (Kennedy & Kmec, 2018). Especially mothers find it important to act ecologically (Som Castellano, 2016; Mares, 2017). Due to this "green ideal" parents might assume that making sustainable choices is something they ought to do, resulting in them intending to buy cloth diapers.

H4: Injunctive norm positively predicts the intention to use cloth diapers.

On the other hand are descriptive norms, which specify what most people do, thereby providing evidence for what is likely an effective behaviour. Qualitative studies with expecting and new parents showed that parents are very unsure about what is "normal" (Svensson et al., 2006; ComRes & NLWA, 2018). Therefore, they turn to other parents to address their interests and concerns, and "feel like absorbent sponges" taking in everything their friends are doing. As most others use disposable diapers, parents might assume this is the way to go and therefore buy these diapers as well. Kok (2022) also showed that 56% of parents using disposable diapers do not know any parent using cloth diapers and that for some parents the main decision to use

disposable diapers was that they saw others use disposable diapers. As new parents are doubtful about their own skills, they might be easily influenced by the actions and opinions of others, influencing the type of diapers they will use.

H5: Descriptive norm negatively predicts the intention to use cloth diapers.

Lastly, *self-related values* refer to the degree to which an alternative is consistent with one's personal goals, values or past behaviours. Biospheric environmental values – the belief that people should protect the environment, not destroy it to satisfy their own needs – are important elicitors of environmentally-friendly behaviours, such as buying green products (Baum & Gross, 2017; Li et al., 2021; Chekima et al., 2015). Parents are willing to make environmental choices (Migheli, 2018; Verbeek & Boelhouwer, 2010; Ziegelmeyer & Ziegelmeyer, 2016), because they care for their children's future wellbeing, including environmental preservation (Migheli, 2020). Thus, valuing the environment may be a reason to choose for cloth diapers. However, the effect of values on environmental intentions and behaviours is mediated by one's environmental self-identity, i.e. the extent to which one sees themselves as an environmentally-friendly person (Van der Werff et al., 2013). Other studies corroborate the finding that a stronger self-identity tends to go with acting more environmentally-friendly (Whitmarsh & O'Neill, 2010; Gatersleben et al., 2012). Van der Werff et al. (2013) conclude that although self-identity and values are strongly related, self-identity is much more malleable than values are, suggesting that self-identity is a more plausible manipulator for interventions. As environmental self-identity seems more directly related to environmentally-friendly behaviour and is more modifiable than environmental values, this study included self-identity (but not values) as a predictor of using cloth diapers.

H6: Environmental self-image positively predicts the intention to use cloth diapers.

Choice Process

Currently, the dynamic integration process may result in a preference for disposable diapers as the costs are weighed more heavily than the gains. Illustrating this, when parents consider both types of diapers, they may believe that using cloth diapers costs them time and effort, and has only more distal rewards (e.g. environmental contribution). Delay discounting argues that immediate rewards are valued more than distant rewards (Odum, 2011). Therefore, ease and convenience can take precedence over environmental values (ComRes & NLWA, 2018), resulting in a greater summative subjective value for disposable diapers.

Study 1: Predictors of Using Cloth Diapers

Study 1 investigated whether and to what degree the proposed value inputs predict the intention to use cloth diapers (see Figure 1). Usually, the VBCM is about actual in-the-moment choices. However, as it was not possible to test whether parents would choose cloth versus disposable diapers during the study, it was decided to use the intention to use cloth diapers as a proxy for choosing cloth diapers. The VBCM argues that accumulation of value results in a preference for one option or the other. Once the decision threshold is reached, this preference is enacted. As the threshold cannot be reached within this study, the preference at the current point in the integration process is measured. As such, intention fits within the VBCM.

Methods

Participants

In this study, 160 Dutch pregnant women, their partner or parents with a child of 0-12 months participated. This target group was chosen as these expecting and new parents still have the opportunity to use cloth diapers instead of disposable ones. Parents of older children might not want to make the switch anymore as they have become accustomed to disposable diapers or will only need to use the diapers for a few more months before the child is potty-trained (ComRes & NLWA, 2018).

Participants consisted of 93 females and 67 males, with an average age of 31.25 years ($SD = 5.08$). 109 participants were expecting parents ($M = 19.11$ weeks, $SD = 9.82$), the remainder was not expecting but had a child of 0-12 months. Most participants with a child used disposable diapers only (78%). See Table 1 for an overview of the demographic variables.

Participants were recruited through the panel bureau Panel Inzicht¹ and received 1 euro upon completion of the questionnaire.

Procedure and Materials

After reading the information letter and signing an informed consent form, participants completed an 10 minute online questionnaire. The questionnaire included questions about whether the participant was an expecting parent, whether they had children of 0-12 months, and if so what type of diapers they used for their child(ren). The following items were used to test the process model and VBCM assumptions.

Choice Set. Participants that did not (yet) use cloth diapers were asked whether they were aware of cloth diapers as an alternative to disposable ones (yes/no). This determined whether cloth diapers were in participants' choice set.

Tangible Costs and Rewards. Perceived advantages and disadvantages of cloth diapers were asked on a 5-point Likert scale (with 1 = *not at all (dis)advantageous* and 5 = *very (dis)advantageous*). For financial costs, participants had to indicate the extent to which they saw "high purchase cost" as a disadvantage and "saving money" as an advantage of cloth diapers. Similar items were used for efficiency and effort-related costs ("need to wash a lot") and rewards ("always having diapers in stock", "fewer waste bags"), and affective costs ("unhygienic").²

Norms. Injunctive norm was operationalised as "To what extent do you agree with the following statement: People who are important to me, disapprove of using cloth diapers." (on a 5-point Likert scale, ranging from 1 = *completely agree* to 5 = *completely disagree*). For the descriptive norm two items from Fornara et al. (2011) were used: "How many parents that you know with children use cloth diapers." (DescriptiveHowMany ranged from 1 = *none* to 5 = *most*) and "To what extent do you agree with the following statement: Most parents I know with children use cloth diapers." (DescriptiveMostParents ranged from 1 = *completely agree* to 5 = *completely disagree*). Cronbach's alpha was 0.67 with 95% CI [0.54, 0.76].

Self-Identity. For environmental self-identity three items from Van der Werff (2013) were used: "Acting environmentally-friendly is an important part of who I am.", "I am the type of person who acts environmentally-friendly.", and "I see myself as an environmentally-friendly person." (all ranging from 1 = *completely agree* to 5 = *completely disagree*). Cronbach's alpha was 0.87 with 95% CI [0.84, 0.90].

Intention. One item measured intention to use cloth diapers: "To what extent would you like to use cloth diapers (again)?" (ranging from 1 = *very likely* to 5 = *very unlikely*).

The remaining questionnaire items were used for exploratory purposes only. See Appendix A for a summary of these items and Appendix B for the full questionnaire. The study was preregistered on the Open Science Framework (<https://osf.io/5xzd8>) and adheres to the prerequisites of the Ethics Light Track, as specified by the Ethics Committee of the Radboud University (ECSW-LT-2023-4-25-9609).

Data Analysis

All analyses were performed in R (R Core Team, 2018).

Choice Set. Percentages were calculated for the number of expecting parents that already thought about what diapers they wanted to buy, how many of those considered cloth diapers, and how many parents who did not use cloth diapers were aware that they were an alternative for disposable diapers.

Process Model. Reverse coding was applied for the items (1) Intention, such that a high score indicated a greater intention to use cloth diapers, and (2) DescriptiveMostParents, such that it was in the same direction as DescriptiveHowMany, with a high score indicating a greater perceived descriptive norm. Mean self-image scores were created from the three self-image items. Descriptive norm items were not combined into one score and were analysed separately as Cronbach's alpha was low. To test the process model, a multiple linear regression analysis was performed using the lm function (version 3.6.2). See Table 2 for the predictors and outcome variable.

Exploratory Analyses. It was intended to do the intervention (Study 2) at obstetrician practices, meaning that only pregnant women would be included. Therefore, it was determined whether the model differs for males and females, in order to base the intervention on relevant predictors. As we did not have a theoretical basis for confirmatory analyses, these differences were explored with additional regression analysis. The regression function remained the same, but the model was run with a male and female subset.³

As the VBCM assumes individuals take into account subjective values for both choice options (Berkman et al., 2017), it was also investigated whether the intention to use cloth diapers could be predicted from the perceived costs and benefits of disposable diapers. See Table 3 for the predictors of this model.

Results

Descriptives

Choice Set. Of the expecting participants, 77.98% thought about which diapers they would like to buy for their new child. Almost half (43.93%) also considered cloth diapers. Of the parents-to-be and disposable diaper users, 82.95% was aware of cloth diapers as an alternative. Of those currently using diapers, 22.00% use cloth diapers. This indicates that most parents do have cloth diapers in their choice set, but many decide against them.⁴

Value Inputs and Intention. See Table 4 for an overview of the descriptive statistics of the value inputs and intention. Overall, the means of perceived costs and benefits of cloth

diapers are high. The social norm means indicate that cloth diapers are not frowned upon by the social environment and participants do not know many parents who use them. 57.00% of disposable diaper users do not know anyone using cloth diapers. Participants see themselves as quite environmentally-friendly. In general, the intention to use cloth diapers is low. However, this differs per group of diaper users as indicated by a one-way ANOVA ($F(3,156) = 15.25, p < .001$). Tukey's post hoc analyses showed that parents using disposable diapers differed significantly from parents using both diapers ($p < .001$) and from parents-to-be ($p = .020$). Participants who use disposable diapers only do not seem motivated to switch to cloth diapers. Parents-to-be and parents using only cloth diapers are neutral. Participants using both types of diapers are more highly motivated to keep using cloth diapers.⁵

Multiple Linear Regression

The overall regression was statistically significant, explaining 35.61% of the variance in intention to use cloth diapers ($R^2 = 0.356, R^2_{\text{adjusted}} = 0.313, F(10, 149) = 8.24, p < .001$). Perceived affective costs of hygiene, perceived efficiency-related rewards of always having diapers in stock, both descriptive norm items, and self-image were significantly associated with intention. This means that when individuals perceive cloth diapers as unhygienic and do not see many other parents use cloth diapers, they are less likely to use cloth diapers. Alternatively, when individuals perceive always having diapers in stock as an advantage, and perceive themselves as more environmentally-friendly, they are more likely to use cloth diapers. See Table 5 for each value input's estimates, standard errors, p-values, and confidence intervals. See Figure 2 for an overview of the estimates in the process model.

Although the assumptions of multiple linear regression were met, Cook's distance indicated a few influential cases. Therefore, robust analyses were performed. As the results of the robust analyses were the same, it is assumed that the results of the OLS regression were not affected to a great extent by influential cases.

A sensitivity power analysis using G*Power (Faul et al., 2009) indicated that the current study (with $\alpha = .05$, power = .80, $n = 160$, factors = 10) can reliably predict an Cohen's f^2 of .11. As the observed effect size $f^2 = .55$, this study had adequate power.

Exploratory Analyses

Males vs Females. For males, the overall regression was statistically significant, explaining 48.00% of the variance in intention ($R^2 = 0.480, R^2_{\text{adjusted}} = 0.387, F(10, 56) = 5.17, p < .001$). Always having diapers in stock and both descriptive norm items were significantly

associated with intention (InStock: $b = 0.50$, $SE = 0.15$, $p = .001$, 95% CI [0.20, 0.79]; DescriptiveHowMany: $b = 0.32$, $SE = 0.15$, $p = .044$, 95% CI [0.01, 0.62]; and DescriptiveMostParents: $b = 0.30$, $SE = 0.11$, $p = .008$, 95% CI [0.08, 0.51]).

For females, the overall regression was also statistically significant, explaining 38.29% of the variance in intention ($R^2 = 0.383$, $R^2_{\text{adjusted}} = 0.308$, $F(10, 82) = 5.09$, $p < .001$). Hygiene and self-image were significantly associated with intention (Hygiene: $b = -0.29$, $SE = 0.13$, $p = .029$, 95% CI [-0.56, -0.03]; and Self-image: $b = 0.52$, $SE = 0.16$, $p = .002$, 95% CI [0.19, 0.84]). Thus, the intention to use cloth diapers is predicted by different factors for both genders.

Sensitivity power analyses indicated that the current study can reliably predict a Cohen's f^2 of .19 for females (with $\alpha = .05$, power = .80, $n = 93$, factors = 10) and a Cohen's f^2 of .28 for males (with $\alpha = .05$, power = .80, $n = 67$, factors = 10). As both observed effect sizes ($f^2_{\text{females}} = .62$; $f^2_{\text{males}} = .92$) are greater than the minimal detectable effect size, power was adequate.

Disposable (Dis)Advantages as Predictors of Cloth Diaper Usage. The overall regression was statistically significant, explaining 31% of the variance in intention ($R^2 = 0.310$, $R^2_{\text{adjusted}} = 0.243$, $F(14, 145) = 4.65$, $p < .001$). Besides self-image and the descriptive norm items, only absorption was significantly associated with intention to use cloth diapers ($b = -0.26$, $SE = 0.13$, $p = .046$, 95% CI [-0.52, -0.005]). The more a high absorption level is perceived as an advantage of disposable diapers, the less likely parents are to use cloth diapers.

Discussion

Not having cloth diapers in one's choice set is not likely to be the reason for why most parents choose for disposable diapers, as most participants were aware they are an alternative. Therefore, an intervention should not focus on increasing awareness. Previous attempts of raising awareness also did not lead to more cloth diaper use (ComRes & NLWA, 2018). Instead, it seems that individuals have a negative image of cloth diapers, that they are unhygienic (women) and not very common (men). Moreover, individuals may not choose for cloth diapers because they do not deem the absorption level sufficient enough. Finally, having an environmentally-friendly self-image may also play a role.

These negative preconceptions of cloth diapers likely result from a lack of knowledge. Parents do not seem to have an in-depth understanding of cloth diapers (e.g. that they have removable liners) and do not come across them on a regular basis. This general lack of knowledge was also found by Amelia & Saragih (2023), ComRes & NLWA (2018), and Pendry et al. (2012). In Study 2 an intervention is designed that attempts to encourage parents to use cloth diapers by changing these preconceptions.

Study 2: Intervention

According to Amelia and Saragih (2023), individuals are not motivated to engage in a certain behaviour if their knowledge is too limited to know all benefits and drawbacks of the behaviour they are desired to engage in. As Study 1 indicates, many parents do not seem to have the complete and right information about cloth diapers, resulting in negative images of cloth diapers. By providing parents with the correct information, they might become more motivated to use them. Hence, in Study 2 information sessions about cloth diapers were given.

Reaching parents before they buy diapers for their child, may have the most impact. Parents also seem more open to new information during than after the pregnancy (ComRes & NLWA, 2018). Additionally, most expecting parents from Study 1 were already thinking about the type of diapers they would like to use for their child. Therefore, doing the information session at obstetrician practices would be a nice opportunity to encourage expecting mothers to use cloth diapers for their new child.

The practices included for this intervention are Centering Pregnancy practices, which means that the pregnant women have sessions together to discuss topics and share experiences. As these sessions consist of only women, the intervention mainly focused on the significant predictors for women: Self-image and hygiene. Following the line of Berkman et al. (2017), by influencing these value inputs and emphasising the importance and accuracy of personal environmental goals, individuals might accumulate more value to reach the threshold of buying cloth diapers faster. Thereby, the choice process becomes more in favour of cloth diapers. The hypotheses specific to Study 2 were as follows:

H7: Hygiene is perceived as less of a disadvantage of cloth diapers in the experimental condition than in the control condition.

H8: Individuals in the experimental condition see themselves as a more environmentally-friendly person than those in the control condition.

H9: The intention to use cloth diapers is higher in the experimental condition than in the control condition.

Methods

Participants

An a priori power analysis indicated that 128 participants were needed to reach a power of .80 (with $\alpha = .05$, $f = .25$, numerator df = 1, groups = 2).⁶ Due to constraints such as fewer

women per group than expected, low participation from practices, time constraints and not all women being willing to participate, the current number of participants is lower than calculated.

73 Dutch pregnant women from eight obstetrician practices spread across the Netherlands participated. Each practice contributed one or two centering groups, consisting of four to ten women. Participants were asked for consent during the session. The pregnant women were on average 32.10 years old ($SD = 5.12$), and pregnant for 28.13 weeks ($SD = 7.78$). See Table 6 for an overview of demographic variables. As compensation, a 50 euro gift card was raffled among the participants. The practices received flowers.

Procedure and Materials

Conditions. Each practice was assigned to either the experimental or control condition. Randomisation of conditions was not possible due to many constraints. Nevertheless, attempts were made to make the groups as similar as possible. First, condition assignment would need to take place at the group level, as one group would receive the session. Second, to have an equal number of participants per condition, condition assignment took into account whether practices had one or two participating groups. Third, it was prevented that practices in the same city were in the same condition, such that location would not be a confounder. This resulted in 38 women in the experimental and 35 in the control condition.

Conditions were divided between practices to prevent cross-over effects. Women of different sessions might talk to one another within one practice (as was indicated by the obstetricians) or the obstetrician might mix up the groups by accident. Although not ideal, as one cannot compare groups with highly equal conditions (same practice, obstetrician, city), it keeps the conditions separate, providing more certainty regarding the conclusions.

In the experimental condition, consultants from Wasbare Luiwerwereld gave a 20-30 minute information session about cloth diapers, according to a script to ensure similar sessions for each practice (see Appendix I). The script's content related to the predictors Self-Image, Hygiene, and Absorption. The consultant started with activating an environmentally-friendly self-image. Then, she provided information on cloth diapers. Lastly, participants were asked to complete a questionnaire. In the control condition, participants received one of the regular sessions of the practice. After the session both groups completed a questionnaire and received a flyer with more information on cloth diapers (see Appendix L).

Self-image. Van der Werff et al. (2014) demonstrated that being reminded of past environmental behaviour can increase one's environmental self-image, which in turn promotes environmental behaviour. Other studies corroborate the finding that past behaviour influences

self-identity, in turn influencing behaviour (Lee et al., 1999), also in the environmental domain (Cornelissen et al., 2008). This relates to the environmental spill-over effect: Past environmental behaviours promote future environmental behaviours (Dreijerink, 2023).

Hence, in this study self-image was activated by manipulating the salience of past environmental behaviour (Cornelissen et al., 2008; Van der Werff, 2014). Participants were presented with eight common environmental behaviours (see Appendix J) and were asked to rate how frequently they engage in the behaviours on a 7-point Likert scale (ranging from 1 = *never* to 7 = *always*). As the behaviours are relatively common, it was believed the participants would rate them as frequent. In this way, they would feel like they engage often in environmentally-friendly behaviour, thereby activating the related self-image.

Hygiene and Absorption. To increase knowledge and correct negative preconceptions, the consultant explained the cleaning and washing process of cloth diapers. She also explained that the absorption level of cloth diapers can be regulated with boosters. The advantages and disadvantages were interwoven in the explanations to give a nuanced image of the diapers. Mentioning the disadvantages can be seen as stealing thunder (Williams & Dolnik, 2001), which means you proactively reveal negative information that is relevant from the point of view of the stakeholder (the parent). This can make the one providing the information (the consultant) seem like a reliable and honest person (Claeys, 2017). Moreover, stakeholders are likely to perceive the negative info as less severe as revealing negative information can indicate the information provider is confident in overcoming the problem (Lee, 2016). As such, cloth diapers' advantages may come to weigh more than its disadvantages.

Questionnaire. To a large extent the questionnaire is similar to the questionnaire of Study 1. After reading an information letter and signing an informed consent form, participants completed a 5 minute online questionnaire. The questionnaire included questions about the intention to use cloth diapers, what they learned from the session, whether they have had children before, and whether they already thought about what diapers to buy for their new child. The process model and self-image items were also included again. See Appendix K for the full questionnaire (in Dutch). As it was again not possible to test in-the-moment choices at the sessions, the intention to use cloth diapers was measured instead.⁷

The study was preregistered on the Open Science Framework (<https://osf.io/bfqmr>) and adheres to the prerequisites of the Ethics Light Track (ECSW-LT-2023-4-25-9609).

Data Analysis

All analyses were performed in R (R Core Team, 2018). Manipulation checks with one-way ANOVAs determined whether the experimental group perceived unhygienic less as a disadvantage of cloth diapers and perceived themselves as more environmentally-friendly than the control group. A one-way ANOVA analysed the effect of condition on the intention to use cloth diapers. Additionally, an exploratory two-way ANOVA was performed to determine whether there were main and interaction effects of having had children on intention. Further exploratory analyses were done to determine whether the findings of Study 1 could be replicated. Specifically, the process model was tested again (without the norms as these seemed irrelevant for women) and the percentage calculations for choice set were repeated.

Results

Manipulation Checks

One-way ANOVAs indicated that hygiene did not significantly differ between the two conditions ($F(1, 69) = 0.25, p = .874$), neither did self-image ($F(1, 66) = 1.22, p = .27$). See Table 7 for the means and standard deviations. The session did not seem to be able to reduce the negative image of cloth diapers as unhygienic. Neither did it increase women's self-image.

One-Way ANOVA

A one-way ANOVA indicated that intention did not significantly differ between the two conditions ($F(1, 71) = 1.14, p = .289$). This indicates that the session did not make the women in the experimental condition more enthusiastic about cloth diapers. See Figure 3 for the distribution of intention across conditions. All assumptions were met for this analysis.

A sensitivity power analysis using G*Power (Faul et al., 2009) indicated that the current study (with $\alpha = .05$, power = .80, $n = 72$, $df = 1$, groups = 2) can reliably predict an Cohen's f of .33. Therefore, a true effect with an effect size of interest may exist, but the current study is unable to determine this.

Exploratory Analyses

Children. A two-way ANOVA with having children (yes/no) as an additional factor indicated a significant interaction effect between condition and children ($F(1, 64) = 4.60, p = .036$), a marginally significant difference between women with and without children ($F(1, 64) = 3.74, p = .057$), and no significant difference between conditions ($F(1, 64) = 1.58, p = .214$). Tukey's post hoc analyses showed that only the women in the control condition with children

significantly differ from those in the control condition without children ($p = .026$). For an overview of the means see Table 8. See Figure 4 for the distribution of intention per condition and subset.

Choice Set. Of the expecting participants, 75.00% has thought about which diapers they would like to buy for their new child. More than half (62.75%) also considered cloth diapers. Of parents-to-be and disposable diaper users, 91.18% was aware that cloth diapers are an alternative of disposable diapers. These findings are similar to the ones from Study 1.

Process Model. The overall regression was statistically significant, explaining 68.30% of the variance in intention to use cloth diapers ($R^2 = 0.683$, $R^2_{\text{adjusted}} = 0.646$, $F(7, 60) = 18.47$, $p < .001$). The perceived affective cost of hygiene, the high purchase costs, the perceived effort-related reward of less waste bags, and saving money were significantly associated with intention. This means that when individuals perceive cloth diapers as unhygienic and costly at the beginning, they are less likely to use cloth diapers. Alternatively, when individuals perceive saving money and having less waste bags as an advantage of cloth diapers, they are more likely to use cloth diapers. See Table 9 for the estimates, standard errors, p-values, and confidence intervals for each value input.

Discussion

The manipulations of hygiene and self-image did not seem to have the predicted effects. Neither did the intervention increase the intention of pregnant women to use cloth diapers. Nevertheless, Study 2 did replicate some of the results of Study 1 pertaining to the choice set and the process model. Moreover, intention may differ for women depending on whether they have had children before. However, because of the relatively low sample size, this study did not have enough power, and the conclusions should be interpreted with caution.

Because of the underpowered study, it is also possible there is an effect, but the current study was unable to capture it. If our proposed theory is correct, the session might change individuals' negative image of cloth diapers into a more nuanced neutral image. Even though there was no main effect of condition, data visualisation indicated that the bulk of participants in the experimental condition did have a more neutral intention, while the bulk of the control condition had a negative to neutral condition. However, this is mere speculation. With the current data no definitive conclusions can be drawn.

General Discussion

The first aim of this study was to determine the factors that predict the intention to use cloth diapers and whether the value-based choice model can be used as a framework for this. Relevant factors seem to differ for men and women. For men, the more they see other parents use cloth diapers (descriptive norm), and the more they see having diapers in stock as an advantage, the more likely they are to use cloth diapers. For women, the more they see cloth diapers as unhygienic, the less likely they are to use cloth diapers, and the more they see themselves as an environmentally-friendly person, the more likely they are to use them. Moreover, perceiving absorption as an advantage of disposable diapers, negatively predicted the intention to use cloth diapers. These findings are to a great extent in line with the findings from Amelia and Saragih (2023), ComRes & NLWA (2018), and Pendry et al. (2012).

In Study 2, hygiene again significantly predicted intention. However, self-image did not. Moreover, financial costs and benefits also predicted intention, unlike Study 1. Because of these differences, the model's explanatory power increased to 65% (32% in Study 1). Study 2 might coincidentally have found these effects due to low power. The small sample size may also have resulted in demographic differences. For example, participants in Study 2 were more highly educated and education level can play a role in both sustainability behaviour (De Silva & Pownall, 2013) and money attitudes (Fenton-O'Creevy & Furnham, 2020). Hence, these studies provided insight into potentially relevant factors, but further research needs to discern whether different factors predict the intention for different groups of parents.

Remarkably, effort-related costs did not predict intention in either Study 1 nor 2. Yet, many parents indicated that the extra work (rinsing, washing, drying) was a determinant for them to not buy cloth diapers (see Appendix C). One explanation might be that when asked to explicitly think of why they do not want to use cloth diapers, parents simulate the behaviour. In their simulation they see themselves continually wash the diapers, perceive this as too effortful, and thence argue they do not want to use cloth diapers. Studies show that consumers indeed simulate using a product when making purchase decisions (Pham et al., 1999; Zhao et al., 2007), which can result in negative product evaluations if they see it as effortful (Zhao et al., 2011). However, the current studies show that more implicit (affective, social, self-related) factors instead predict intention. Perhaps parents are unable to take into account these more implicit reasons when evaluating cloth diapers. Future research could delve more into which factors parents take into account when mentally simulating using cloth diapers and how to make the simulations more positive.

All in all, tangible costs and rewards, social norms, and self-related inputs all seem to predict (in part) the intention to use cloth diapers. Thereby confirming all hypotheses of the process model, except hypothesis 4. Injunctive norm did not predict intention. Amelia and Saragih (2023) also did not find this effect. Therefore, parents are not likely influenced by what other parents think. This might be simply because parents lack the knowledge to inform and share with other parents (Amelia & Saragih, 2023). Notwithstanding, as all value inputs seem to play a role in the intention to use cloth diapers, the VBCM is a valuable framework in the domain of environmental choice behaviour. Furthermore, one of the main assumptions of the VBCM is that behaviour is a choice between alternatives. Using cloth diapers (instead of disposable ones) evidently is a choice and therefore the behaviour inherently fits well within the VBCM. Third, other models do not capture these elements well. For example, the theory of planned behaviour (Ajzen, 1991), which Amelia and Saragih (2023) used as the main framework, does not include behaviour as a choice. Neither does it have very concrete factors, such as the value inputs, only more abstract ones (e.g. attitude).

Yet, in the current research there is also a limitation regarding the VBCM. Intention instead of real-time choices was used as the dependent variable due to time and practical constraints. The major disadvantage of this is that intentions do not always translate into behaviour (Grimmer & Miles, 2016). Therefore, it cannot be concluded that the current factors also predict actual behaviour. The strength of value inputs can change over time (Berkman et al., 2017), meaning that behaviour might be predicted by different value inputs than intention. Consequently, even if one would have the intention to use cloth diapers now, subjective value for disposable diapers may surpass the one for cloth diapers when parents actually purchase the diapers, because other inputs are more strongly valued at that point. This might also explain why parents indicated that effort was the determining factor for them to not purchase the diapers, while effort did not predict intention. Effort (and possibly other factors) might play a larger role at the decision threshold than earlier in the integration process. Future research should discern which value inputs predict actual diaper choice and how these differ from those in this study. Nevertheless, the value inputs in this study seem important to increase the subjective value of cloth diapers. In short, the VBCM seems a fitting framework for predicting diaper usage intentions, but adaptations might be needed to create a stronger model and predict diaper usage behaviour.

The second aim of this study was to increase the intention to use cloth diapers by influencing the VBCM factors in an intervention. Results from Study 1 indicated that such an intervention should not focus on increasing awareness, as most parents do have cloth diapers in

their choice set (disconfirming hypothesis 1). Instead, interventions should focus on correcting negative preconceptions (unhygienic, uncommon, bad absorption) parents have about cloth diapers. Study 2 attempted to activate an environmentally-friendly self-image and decrease negative images by giving an information session on cloth diapers at obstetrician practices. However, the sessions did not significantly increase self-image, decrease hygiene, nor increase the intention to use cloth diapers, compared to the control group. Therefore, hypotheses 7, 8 and 9 were not confirmed. There can be multiple reasons for this.

First of all, due to an unexpectedly low participation rate, not enough women participated to reach sufficient power. Besides this being consequential for the interpretation of the results, this might be a reason for not finding any significant effects of the session. The low sample size might not have captured the expected effects (self-image not a significant predictor anymore), or resulted in incidental findings (extra significant predictors).

Another reason might be that the manipulation checks were not strong enough or well explained enough by the consultants to induce changes in hygiene perception and self-image. For example, for self-image, women were asked to write down how often they perform a certain behaviour on a 7-point scale. Following the reasoning of Van der Werff et al. (2014), high numbers should increase environmental self-image. However, according to the consultants some women misunderstood the items and wrote down 1's instead of 7's, which may have nullified manipulation effects. Moreover, simply telling women about the washing process might not be enough to change hygiene perceptions. Possibly, they first need to experience that it is not unhygienic. A cloth diaper pilot showed that experience through trial packages caused most of the users to continue using cloth diapers (Kok, 2022). Experiential learning can change attitudes, intentions, and behaviour (Gosen & Washbush, 2004; Mpousiou et al., 2021). Future research should look into whether such other avenues of interventions are more successful.

Third, conditions were not randomly divided, as this was not feasible in this study. The sessions were on fixed times and we were dependent on the availability of consultants. Still, attempts were made to keep the groups as similar as possible, such that there were no two practices in the same city, and the size of the groups was about equal. Nevertheless, having no randomisation might have caused unequal groups. It is possible that the control group contained more women enthusiastic about cloth diapers, which resulted in the slightly higher mean of intention for that group. Randomisation and a larger sample would be able to have enthusiasts more evenly spread out across the conditions.

Related to this, another reason could be that the sessions between practices were too diverse to have one clear effect. For example, questions of the participating women may have

caused the consultants to greatly deviate from the script. Yet, this is unlikely as consultants indicated in phone calls after the sessions that they only occasionally divulged extra information or changed the order of the script.

Despite these limitations, there were some significant effects in Study 2. There were differences between participants that have had children before and used disposable diapers and participants without children. Mothers-to-be seem to have a more neutral intention, while women with children have a more negative intention. These significant differences were also observed in Study 1. Parents that used disposable diapers for their other children, may be used to these diapers and their routine and do not want to exchange the known for the unknown (ComRes & NLWA, 2018). In general parents are loss averse and are afraid that cloth diapers do not meet their expectations (Kok, 2022). Future research should delve more into the reasons for why parents who already have children are less willing to use cloth diapers. In this way it can be investigated whether different factors would predict the intention for these parents, and thus whether different intervention elements would be needed.

An intervention to successfully influence males would also need to consider different elements. To illustrate this, people who use green products are perceived by others and even themselves as more feminine (Brough et al., 2016). As men are more concerned about maintaining gender-identity than women, they may be motivated to avoid using green products to maintain their maleness (Bosson & Michniewicz, 2013; White & Dahl, 2006). This might also explain why in Study 1 self-image was a significant predictor for only women, not men. Hence, to promote cloth diapers for men focussing on self-image and the environmental impact would most likely not be effective. Instead, it might be more effective to focus on the descriptive norm or always having diapers in stock.

Other elements might be added to the session to make it more effective, as the currently used factors only explained 32% of the intention. For example, one could focus on the financial costs and benefits, as Study 2 indicated these could also play a role and as many parents are unaware of the amount of money they can save (ComRes & NLWA, 2018). Playing into the loss aversion phenomenon (Kahneman & Tversky, 1979), parents could be explained how much money they would lose if they would use disposable diapers instead of cloth diapers. One could also focus on the environmental impact of cloth diapers. According to Dreijerink (2023), linking negative environmental consequences of one's behaviour to one's environmental self-image motivates them to act accordingly. Moreover, mothers are willing to make more environmental choices (Migheli, 2018; Ziegelmeyer & Ziegelmeyer, 2016), as they care for their children's future wellbeing, including environmental preservation (Migheli, 2020). Dutch parents also

seem motivated to make environmental choices (Verbeek & Boelhouwer, 2010). Therefore, in the session it might be worthwhile to mention the gigantic impact of disposable diapers on the environment and that cloth diapers have four times less of an impact (Broeren & Imholz, 2023). This can strengthen the self-image manipulation and motivate individuals.

Choosing what diapers to use for your child is a dyadic process (see Kenny et al., 2020), both parents have a say in this. The partner might withhold a parent from using cloth diapers. Some parents also indicated that the female partner mostly uses cloth, while the male partners mostly uses disposable diapers. Others mentioned they really had to convince their male partner to use cloth diapers. Hence, the dyadic process of parenting tasks should be kept in mind as a factor influencing diaper decision making processes.

All in all, this study has shown that the value-based choice model can effectively be used to predict the intention to use cloth diapers, but that the specific input values differ for men and women. When designing an intervention to increase the intention, one should keep these gender differences in mind and focus on correcting negative preconceptions of cloth diapers. Future research should delve more into how to design these interventions to have the greatest effects. This is very important as it has the potential to majorly decrease the impact of disposable diapers on the environment. Instead of 5,300 diapers per child, only 24 per three children would be needed. As a result, CO₂ emissions would decrease drastically, and diaper plastics and chemicals would not pollute the environment.

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Footnotes

¹ Additionally, a second group of participants was recruited through social media and the social network of the researcher. This group consisted mainly of individuals who already used cloth diapers and were therefore less representative of the general population. Therefore, this paper focuses on the data of the panel group. However, the data of the social media group was analysed separately and comparisons between the groups are made in Appendix H.

² Multiple other advantages and disadvantages were included in the questionnaire (see Appendix B). For example, softer materials and the child being potty-trained sooner, or difficult to use and not user friendly outside the home. These factors were mentioned by other research, but they seemed to play a role for only some people (Amelia & Saragih, 2023; ComRes and NLWA, 2018; Pendry et al., 2012). Therefore, they were included in the questionnaire, but not in the model.

³ Similar subsets and analyses were run for those with experience with cloth diapers and those without experience, to determine whether these groups have different perceptions about the diapers. Again the differences were explored descriptively, to determine whether the perceptions differed between the subsets. However, as the subset of the experience group was rather small, no reliable conclusions can be drawn about this subset. Therefore, the results of these analyses were not included in the main text. See Appendix G for the analyses and results of these subsets.

⁴ See Appendix C for an overview of the most important reasons for participants to not use cloth diapers.

⁵ Additional analyses can be found in the appendices. See Appendix D for descriptive statistics on experience with cloth diapers (e.g. how participants came into contact with them, how user-friendly they find them, etc.). See Appendix E for the means of each perceived advantage and disadvantage of cloth and disposable diapers. See Appendix F for results on how participants think others could be convinced to use cloth diapers.

⁶ As no previous research has attempted to intervene on certain factors to increase cloth diaper usage, we could not base the effect size on earlier studies. An effect size of 0.25 was chosen because we were interested in at least a medium effect size. The intervention would not be worth the time and effort if it would bring about only a minor increase in intention or would convince only very few participants.

⁷ Participants filled in an ID code in the questionnaire. After the questionnaire was completed, they were asked to write down the ID code together with their email address. A few weeks after the women have conceived, the intention is to send a short post-measure to ask whether they have eventually chosen to buy cloth diapers for their child or not. In this way it can be measured whether intention translates into behaviour. Due to time constraints this measure was not included in the current paper.

Tables

Table 1
Demographics of Participants

Variable	Level	Percentage of Participants
Education	High school	4%
	Lower education (MBO)	35%
	Middle education (HBO)	44%
	Higher education (WO)	16%
	Others	1%
Annual income	< 15,000	1%
	15,000 – 25,000	11%
	25,000 – 50,000	31%
	50,000 – 70,000	28%
	> 70,000	20%
Type of diaper	Prefer not to say	9%
	Disposable only	78%
	Cloth only	4%
	Both	18%
Gender	Male	42%
	Female	58%
Pregnant	Yes, no children	23%
	Yes, with children:	45%, consisting of:
	- 0-12 months	- 9%
	- 1-4 years	- 26%
	- 4-12 years	- 9%
	- 12+ years	- 1%
	No, with child 0-12 months	32%

Table 2
Predictors and Outcome Variable of Multiple Linear Regression

Value Input Category	Predictors	Outcome Variable
Tangible costs	Financial: high purchase cost Effort-related: washing, drying Affective: hygiene	Intention to use cloth diapers (again)
Tangible benefits	Financial: saving money Effort-related: less waste bags Efficiency-related: diapers in stock	
Social inputs	Injunctive norm DescriptiveHowMany DescriptiveMostParents	
Self-related inputs	Environmental self-image	

Table 3*Predictors and Outcome Variable for Disposable Diaper Model*

Value Input Category	Predictors	Outcome Variable
Tangible costs	Expensive Lot of waste Always need to buy new ones Diaper rash Bad for the environment	Intention to use cloth diapers (again)
Tangible benefits	Hygienic Cheap Comfortable for child Easy to use Good absorption	
Social inputs	Injunctive norm DescriptiveHowMany DescriptiveMostParents	
Self-related inputs	Environmental self-image	

Note. The tangible input items were measured the same way as those of cloth diapers. The norm and self-image items from the original model were also included.

Table 4*Descriptive Statistics of the Variables in the Process Model*

Variable	<i>M</i>	<i>SD</i>
High Purchase Costs	3.67	0.90
Not efficient	3.89	1.02
Unhygienic	3.66	1.00
Saving money	3.70	1.00
Less waste bags	3.99	1.02
Always have diapers in stock	3.76	0.98
Injunctive norm	3.24	0.95
Descriptive norm – How many	1.78	0.92
Descriptive Norm – Most parents	2.08	1.22
Self-image	3.48	0.73
Intention (total)	2.74	1.19
- Disposable only	2.39	0.11
- Cloth only	3.00	0.55
- Both	3.88	0.16
- No children yet	3.17	0.20

Note. The means can range from 1-5. The greater the mean, the greater the perceived cost/reward, the more strongly individuals in the social environment disapprove of cloth diapers, the greater the number of people in the social environment of the participant that use cloth diapers, the more strongly participants see themselves as an environmentally-friendly person, and the higher the intention to use cloth diapers.

Table 5*B-values (b), Standard Errors (SE), and P-Values (p) for the Value Inputs*

Variable	<i>b</i>	<i>SE</i>	<i>p</i>	95% <i>CI</i>
High Purchase Costs	-0.06	0.10	.537	[-0.25, 0.13]
Not efficient	-0.10	0.10	.324	[-0.29, 0.10]
Unhygienic	-0.25	0.09	.009**	[-0.43, -0.06]
Saving money	-0.13	0.11	.206	[-0.34, 0.07]
Less waste bags	0.06	0.10	.550	[-0.14, 0.26]
Always have diapers in stock	0.26	0.11	.014*	[0.05, 0.47]
Injunctive norm	-0.03	0.09	.755	[-0.21, 0.15]
Descriptive Norm – How many	0.24	0.11	.023*	[0.03, 0.45]
Descriptive Norm – Most parents	0.19	0.08	.015*	[0.04, 0.35]
Self-image	0.41	0.12	.001***	[0.17, 0.65]

Note. Significance level * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6*Demographics of Participants*

Variable	Level	Percentage of Participants
Education	High school	4%
	Lower education (MBO)	10%
	Middle education (HBO)	42%
	Higher education (WO)	42%
	Others	2%
Annual income	< 15,000	1%
	15,000 – 25,000	6%
	25,000 – 50,000	22%
	50,000 – 70,000	21%
	> 70,000	32%
Children	Prefer not to say	18%
	No	79%
	Yes, type of diaper:	21%, consisting of:
	- Disposable	- 86%
	- Cloth	- 7%
	- Both	- 7%

Table 7*Descriptive Statistics of Intention of Both Conditions*

Variable	Experimental		Control	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Hygiene	3.51	0.21	3.56	0.19
Self-Image	3.63	0.13	3.44	0.11

Table 8*Descriptive Statistics of Intention for the Factors Condition and Children*

Condition	Children	<i>M</i>	<i>SD</i>
Experimental	Yes	2.44	0.34
Experimental	No	2.52	0.20
Control	Yes	1.60	0.46
Control	No	3.04	0.20

Table 9*B-values (b), Standard Errors (SE), and P-Values (p) for the Value Inputs*

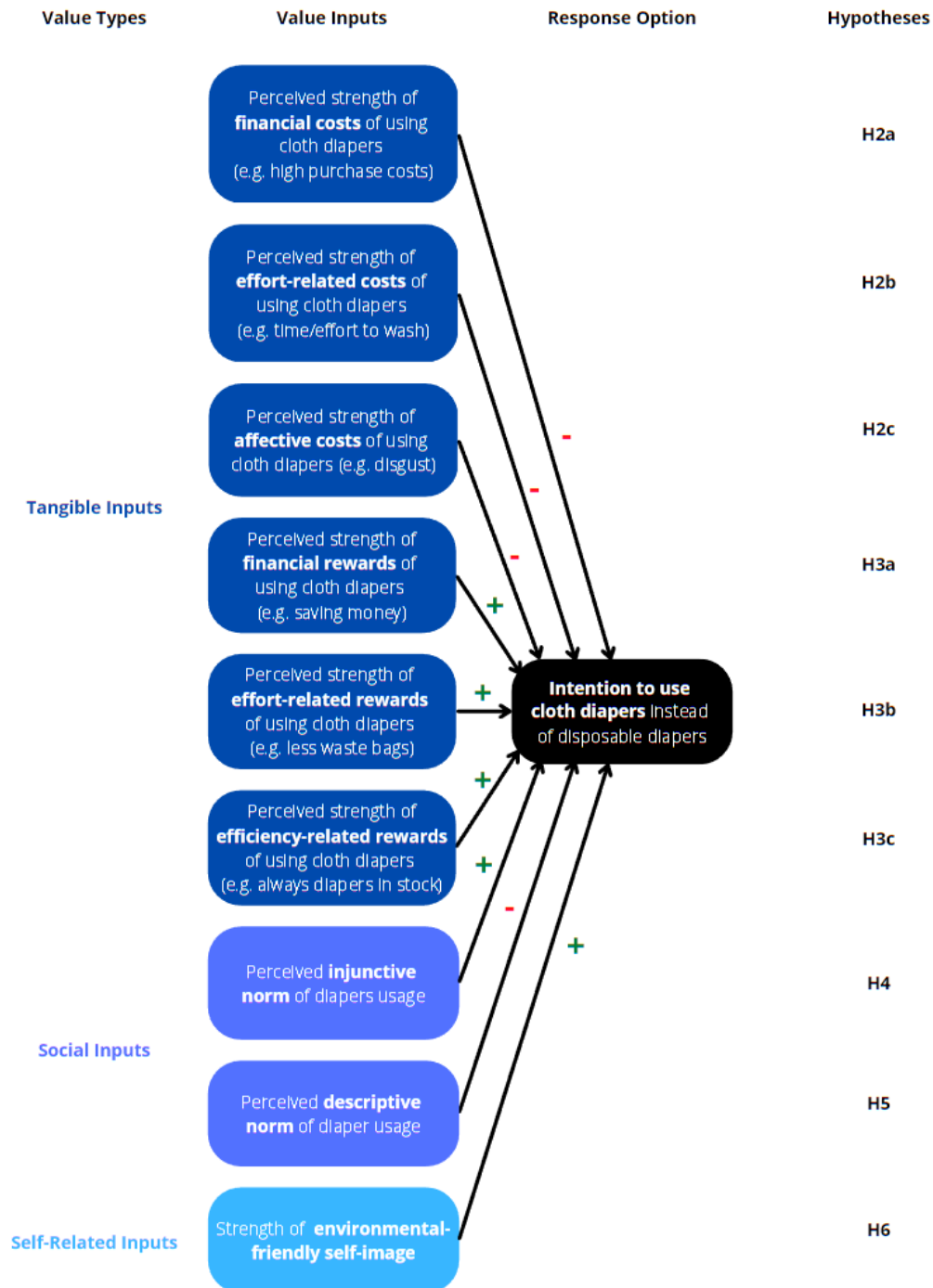
Variable	<i>b</i>	<i>SE</i>	<i>p</i>	95% <i>CI</i>
High Purchase Costs	-0.31	0.07	< .001***	[-0.45, -0.17]
Not efficient	-0.06	0.09	.495	[-0.23, 0.11]
Unhygienic	-0.25	0.09	.007**	[-0.43, -0.07]
Saving money	0.28	0.09	.003**	[0.10, 0.46]
Less waste bags	0.26	0.09	.005**	[0.08, 0.43]
Always have diapers in stock	0.02	0.08	.850	[-0.15, 0.18]
Self-image	0.18	0.13	.157	[-0.07, 0.44]

Note. Significance level * $p < .05$, ** $p < .01$, *** $p < .001$.

Figures

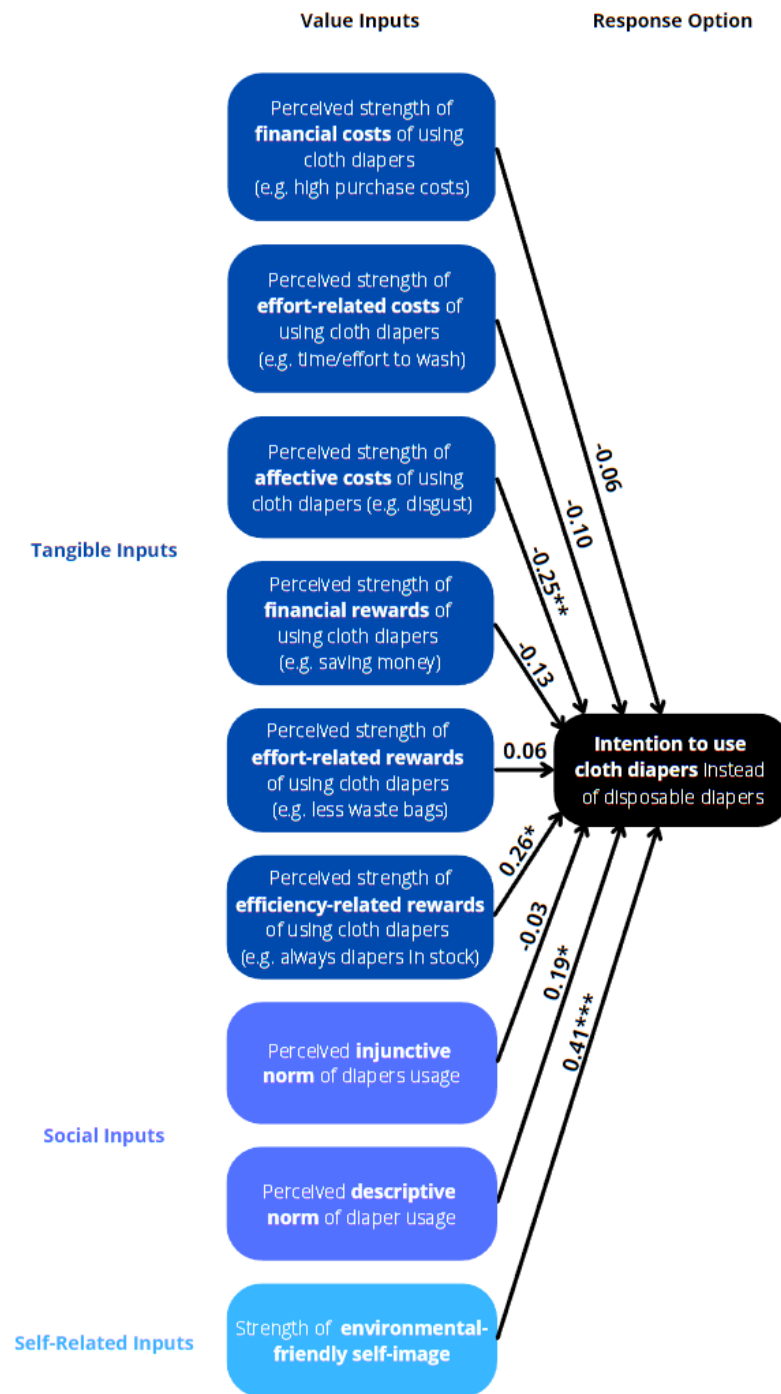
Figure 1

Process Model of Predictors for Using Cloth Diapers



Note. Proposed process model displaying the predictors of the intention to use cloth diapers instead of disposable diapers. The arrows indicate the direction of the relationship between two variables with (+) indicating a positive relationship and (-) a negative relationship. The hypotheses are included as well, except for H1, which did not relate to one of the predictors of the VBCM model.

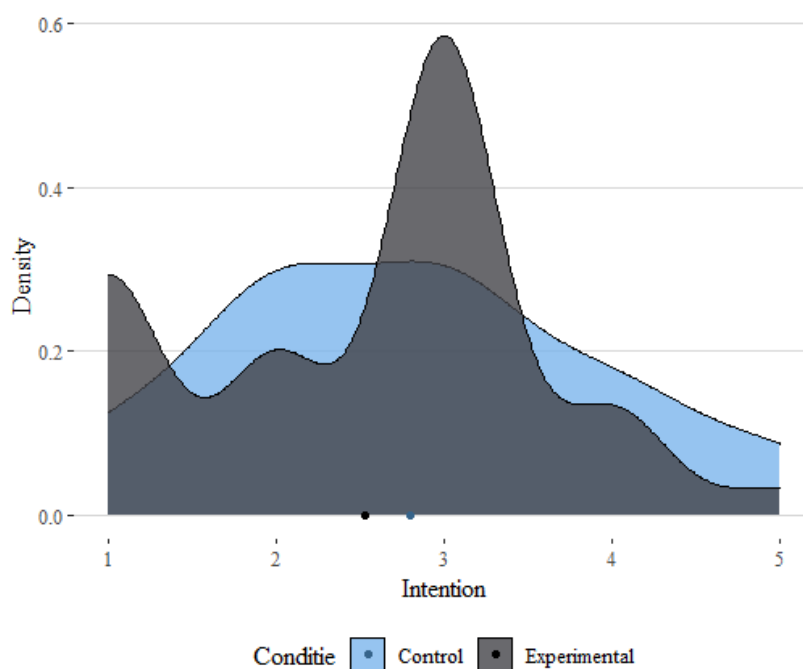
Figure 2
Process Model with B-Values



Note. Significance level $*p < .05$, $**p < .01$, $***p < .001$. Two descriptive norm items were measured and analysed, but only one has been included in the process model. The first item was about frequency (how many parents individuals know that use cloth diapers). However, because this item does not in fact measure whether individuals perceive this to be the norm, only the second item (whether most parents they know use cloth diapers) is included for the descriptive norm in the figure.

Figure 3

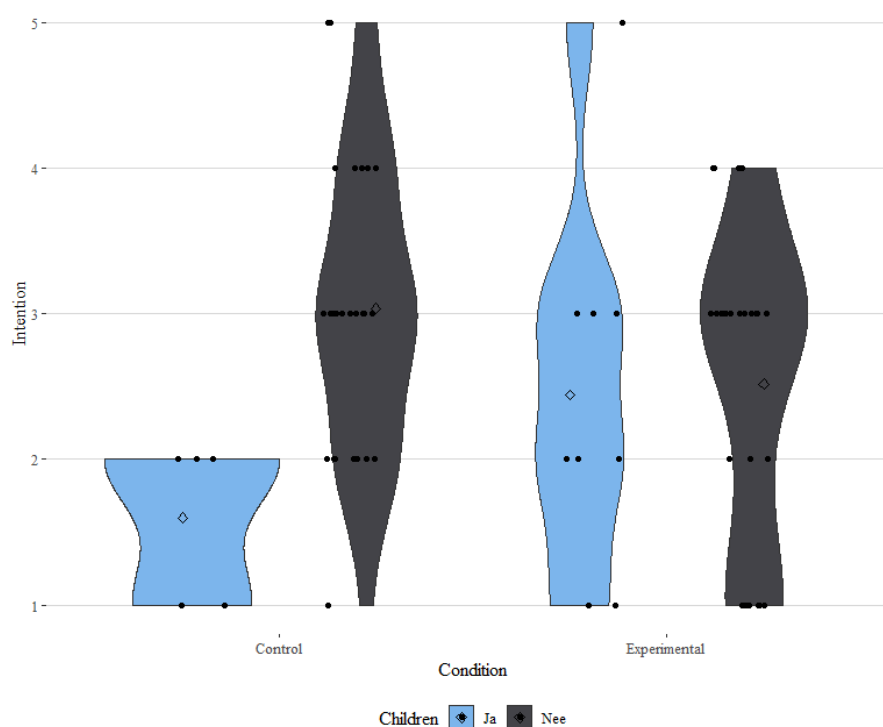
Density Plot of the Intention to Use Cloth Diapers for both Conditions



Note. The dots on the x-axis indicate the means for both groups.

Figure 4

Violin Plots of Intention for the Factors Condition and Children



Note. Parents with children seem to have a lower intention to use cloth diapers, especially in the control condition. The diamonds indicate the means. The dots the individual data points.

Appendix A: Summary of the Questionnaire Items

All participants received questions about the advantages and disadvantages they associated with cloth and disposable diapers, how they first came into contact with cloth diapers, and whether they know others who use them. Moreover, they would be asked whether they would recommend cloth diapers to other parents, and if so, what message they would relay to convince other parents to use cloth diapers. Participants were also asked what they and others would need to decide whether they would use cloth diapers. For example, they were asked to what extent they thought an information flyer, a consultation, or a trial package would help them. All participants were also asked whether they would like to use cloth diapers (again), and the extent to which they saw themselves as an environmentally-friendly person. Lastly, individuals received demographic questions related to their gender, age, annual household income, and education.

After the questions regarding advantages and disadvantages of the different types of diapers, participants were asked whether they could think of any other possibilities besides the ones mentioned in the earlier questions. Furthermore, after the question about whether parents had the intention to use cloth diapers, they were asked to provide three reasons why (not).

Some groups received additional questions. Expecting parents were asked questions about the number of weeks they were pregnant, and whether they already thought about the type of diapers they wanted to buy for their new child. Parents that were expecting and did not have children before and parents that have only used disposable diapers for their children were asked whether they were aware of cloth diapers as an alternative to disposable ones before the questionnaire. Additionally, the latter group received questions about whether they had considered to buy cloth diapers and if not, why not. Parents that use(d) cloth diapers were asked about their experiences with cloth diapers. For example, how user friendly they find them, whether there are any situations in which they do not use cloth diapers, and how long it took them to get used to the process of using cloth diapers (See Appendix B for the full questionnaire).

Appendix B: Questionnaire Study 1

Heeft u kinderen?

☐ Ja (1)

☐ Nee (2)

Bent u/is uw partner momenteel zwanger?

☐ Ja (1)

☐ Nee (2)

Display This Question:

If Heeft u kinderen? = Ja

Hou oud zijn uw kinderen?

☐ 0-12 maanden (1)

☐ 1-4 jaar (2)

☐ 5-12 jaar (3)

☐ 13 jaar of ouder (4)

Beste deelnemer,

Fijn dat u mee wilt doen met deze vragenlijst over luiers. Hieronder zal even kort uitgelegd worden waar deze vragenlijst over gaat en wat er van u verwacht wordt.

Waarom wordt dit onderzoek uitgevoerd

Dit onderzoek wordt uitgevoerd in samenwerking met het Ministerie van Infrastructuur en Waterstaat. Met deze vragenlijst proberen we inzicht te krijgen in het luiergebruik van ouders in Nederland.

Wat moet ik doen als deelnemer

Vul de vragenlijst zo volledig mogelijk in. Vul het eerste in wat er in u opkomt, er zijn geen goede of foute antwoorden. Het invullen van de vragenlijst duurt ongeveer 10 minuten.

Privacy en vertrouwelijkheid

Uw privacy wordt gewaarborgd volgens de European General Data Protection Regulation (zie gdpr.eu). Alle verzamelde data worden vertrouwelijk bewaard met een deelnemerscode. In de bestanden zal alleen deze code gebruikt worden en alle onderzoeksdata worden geanonimiseerd (d.w.z. alle persoonlijke informatie die u zou kunnen identificeren, zal worden verwijderd). Uw persoonlijke informatie zal apart opgeslagen worden en de combinatiecode is alleen bekend bij de eindverantwoordelijke. U heeft het recht om te vragen of uw data verwijderd kunnen worden tot één maand na deelname. Daarna wordt de combinatiecode om uw persoonlijke informatie aan uw deelnemerscode te linken verwijderd. De geanonimiseerde data zullen worden opgeslagen en worden mogelijk gepubliceerd of beschikbaar gesteld aan andere onderzoekers. Dit is uiteraard alleen voor onderzoeksdoeleinden.

Voorwaarden om deel te nemen

U bent zwanger of uw partner is zwanger, of u bent ouder van een kindje tussen de 0 en 12 maanden. Op de volgende pagina wordt u gevraagd om een toestemmingsformulier te accepteren. Met deze acceptatie verklaart u dat u goed bent geïnformeerd over uw deelname, dat uw vragen naar tevredenheid zijn beantwoord en dat u uw toestemming voor deelname op elk moment kunt intrekken zonder opgaaf van redenen.

Toestemmingsformulier voor deelname aan de vragenlijst

Hierbij bevestig ik dat:

- Ik naar tevredenheid ben geïnformeerd over het onderzoek en alle informatie heb gelezen en begrepen;
- Ik erover geïnformeerd ben dat dit onderzoek in samenwerking is met het Ministerie van Infrastructuur en Waterstaat;
- Ik genoeg tijd heb gekregen om te beslissen of ik wil meedoen met het onderzoek;
- Ik vrijwillig deelneem aan dit onderzoek.

Ik ben het ermee eens dat:

- Mijn data worden verzameld en opgeslagen voor onderzoeksdoeleinden, zoals beschreven in de informatiebrief;
- De geanonimiseerde data (zonder mijn persoonlijke informatie om mij te kunnen identificeren) mogelijk gepubliceerd worden of gedeeld worden met onderzoekers voor enkel onderzoeksdoeleinden.

Ik begrijp dat:

- Ik het recht heb om mijn deelname op elk moment in te trekken zonder opgaaf van redenen en dat dit geen consequenties met zich meebrengt;
- Ik niet zal worden geïnformeerd over mijn persoonlijke resultaten;
- Ik het recht heb tot verzoek mijn data te verwijderen tot één maand na deelname;
- Mijn privacy gewaarborgd blijft volgens de European General Data Protection Regulation.

Hierbij geef ik toestemming om deel te nemen.

☐ Ja (1)

☐ Nee (2)

Display This Question:

If Bent u/is uw partner momenteel zwanger? = Ja

Hoeveel weken bent u/is uw partner zwanger?

Display This Question:

If Bent u/is uw partner momenteel zwanger? = Ja

Heeft u al nagedacht over welke luiers u wilt gaan aanschaffen voor uw kindje?

☐ Ja (1)

☐ Nee (2)

Hoeveel kinderen heeft u die nog luiers gebruiken? (Vul 0 in als u nog niet eerder kinderen heeft gehad.)

Er bestaan meerdere soorten luiers.

- Wegwerpluier: na gebruik doe je de wegwerpluier in de luieremmer en gooi je deze weg. Deze kan ook gerecycled worden.
- Wasbare luier: in deze luier zit een inlegvel. Dit vel vangt de poep en plas van het kindje op. Vervolgens kan het vel schoongemaakt en gewassen worden of weggegooid worden. De luier zelf kan dan ook gewassen worden. De luier wordt dus niet weggegooid en kan hergebruikt worden met een nieuw/schoon inlegvel.

Welke luiers gebruikt(e) u voor uw kind(eren)?

☐ Alleen wegwerpluiers (1)

☐ Alleen wasbare luiers (2)

☐ Beide (3)

☐ Niet van toepassing (4)

Hoeveel luiers gebruikt(e) u gemiddeld per dag per kind? (Vul 0 in als u nog niet eerder kinderen heeft gehad.)

Display This Question:

If Welke luiers gebruikt(e) u voor uw kind(eren)? = Alleen wegwerpluiers

Or Welke luiers gebruikt(e) u voor uw kind(eren)? = Niet van toepassing

Was u zich vóór deze vragenlijst ervan bewust dat wasbare luiers een alternatief voor wegwerpluiers kunnen zijn?

☐ Ja (1)

☐ Nee (2)

Hoe bent u in aanraking gekomen met wasbare luiers? Via...

- ☐ Deze vragenlijst (8)
- ☐ Vrienden/familie (1)
- ☐ Reclames (2)
- ☐ Verloskundigen (3)
- ☐ Consultatiebureau (4)
- ☐ Huisarts (7)
- ☐ Kinderdagverblijf (5)
- ☐ Anders, namelijk: (6) _____

Display This Question:

If Was u zich vóór deze vragenlijst ervan bewust dat wasbare luiers een alternatief voor wegwerpluie... = Ja

Heeft u ooit overwogen om wasbare luiers te gebruiken?

- ☐ Ja (1)
- ☐ Nee (2)

Display This Question:

If Heeft u ooit overwogen om wasbare luiers te gebruiken? = Ja

And Welke luiers gebruikt(e) u voor uw kind(eren)? = Alleen wegwerpluiers

In welke mate waren de volgende zaken voor u een reden om wasbare luiers niet te gebruiken?

	Helemaal niet (1)	Niet echt (2)	Neutraal (3)	Een beetje (4)	Heel erg (5)
Moeilijk verkoopadressen te vinden (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ingewikkeld in gebruik (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Niet efficiënt (veel wassen, drogen, etc.) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hoge aanschafkosten (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Niet geaccepteerd bij veel kinderdagverblijven (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onhygiënisch (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Niet gebruiksvriendelijk buiten het huis (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sneller/vaker moeten verschonen (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In mijn wijk worden wegwerpluiers gerecycled (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Welke luiers gebruikt(e) u voor uw kind(eren)? = Alleen wegwerpluiers

And Heeft u ooit overwogen om wasbare luiers te gebruiken? = Ja

Waren er nog andere redenen om wasbare luiers niet te gebruiken?

In welke mate zijn de volgende zaken een **voordeel van wegwerpluiers** in uw ogen?

	Helemaal niet (1)	Niet echt (2)	Neutraal (3)	Een beetje (4)	Heel erg (5)
Hygiëne (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prijs (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comfort voor het kindje (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gemak (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Goed absorberend (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Denkt u dat er nog andere voordelen zijn naast de hierboven genoemde?

In welke mate zijn de volgende zaken een **nadeel van wegwerpluiers** in uw ogen?

	Helemaal niet (1)	Niet echt (2)	Neutraal (3)	Een beetje (4)	Heel erg (5)
Prijs (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regelmatig volle afvalzakken in huis (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Op voorraad moeten hebben (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Luieruitslag (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Slecht voor het milieu (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Denkt u dat er nog andere nadelen zijn naast de hierboven genoemde?

In welke mate zijn de volgende zaken een **voordeel van wasbare luiers** in uw ogen?

	Helemaal niet (1)	Niet echt (2)	Neutraal (3)	Een beetje (4)	Heel erg (5)
Geld besparen (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kindje is eerder zindelijk (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Materiaal is zacht, fijn voor het kindje (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De leuke printjes (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Minder afval (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De wasbare luiers zijn altijd in huis (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Denkt u dat er nog andere voordelen zijn naast de hierboven genoemde?

In welke mate zijn de volgende zaken een **nadeel van wasbare luiers** in uw ogen?

	Helemaal niet (1)	Niet echt (2)	Neutraal (3)	Een beetje (4)	Heel erg (5)
Moeilijk verkoopadressen te vinden (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ingewikkeld in gebruik (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Niet efficiënt (veel wassen, drogen, etc.) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hoge aanschafkosten (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Niet geaccepteerd bij veel kinderdagverblijven (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onhygiënisch (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Niet gebruiksvriendelijk buiten het huis (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Sneller/vaker
moeten verschonen
(8)

☐ ☐ ☐ ☐ ☐

Denkt u dat er nog andere nadelen zijn naast de hierboven genoemde?

In hoeverre zou u wasbare luiers willen (blijven) gebruiken voor uw kind(eren)?

- ☐ Heel graag (1)
- ☐ Graag (2)
- ☐ Neutraal (3)
- ☐ Niet graag (4)
- ☐ Helemaal niet graag (5)

Geef 3 redenen waarom wel/niet.

- ☐ Reden 1 (1) _____
- ☐ Reden 2 (2) _____
- ☐ Reden 3 (3) _____

Geef aan in welke mate de volgende factoren uzelf en anderen zouden helpen om wasbare luiers te (gaan) gebruiken.

	Helemaal niet (1)	Weinig (2)	Neutraal (3)	Veel (4)	Heel veel (5)
Probeerpakket met wasbare luiers (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kortingsbon voor de aanschaf van wasbare luiers (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flyer met informatie over wasbare luiers (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uitleg over het gebruik van wasbare luiers door de verloskundige/kraamverzorger (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Zijn er nog andere zaken die u zouden (hebben) kunnen helpen om wasbare luiers te gaan gebruiken?

In hoeverre bent u het eens met deze stelling: Mensen die voor mij belangrijk zijn, keuren het gebruik van wasbare luiers af.

- ☐ Helemaal eens (1)
- ☐ Eens (2)
- ☐ Neutraal (3)
- ☐ Oneens (4)
- ☐ Helemaal oneens (5)

Hoeveel van de ouders die u kent met kinderen gebruiken wasbare luiers?

- ☐ Geen (1)
- ☐ Enkele (2)
- ☐ De helft (3)
- ☐ Veel (4)
- ☐ Heel veel (5)

In hoeverre bent u het eens met deze stelling: De meeste ouders die ik ken met kinderen gebruiken wasbare luiers.

- ☐ Helemaal eens (1)
- ☐ Eens (2)
- ☐ Neutraal (3)
- ☐ Oneens (4)
- ☐ Helemaal oneens (5)

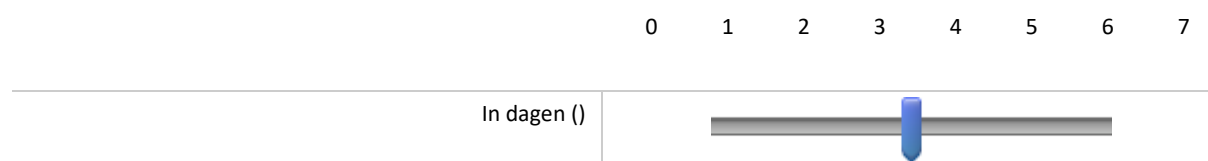
Hoe lang duurde het voordat u volledig vertrouwd was met het gebruik van wasbare luiers? (Denk hierbij aan het hele proces van de luier omdoen bij uw kindje, tot het schoonmaken en wassen.)

- ☐ Binnen 1 dag (1)
- ☐ Enkele dagen (2)
- ☐ Binnen 1 week (3)
- ☐ Binnen 2 weken (4)
- ☐ > 2 weken (5)

Geef een cijfer voor hoe gebruiksvriendelijk u wasbare luiers vindt bij gebruik...



Hoeveel dagen in de week gebruikt(e) u de wasmachine om de luiers te wassen?



Hoe reageert/reageerde uw omgeving op het feit dat u wasbare luiers gebruikt(e)?

- ☐ Zeer positief (1)
- ☐ Positief (2)
- ☐ Neutraal (3)
- ☐ Negatief (4)
- ☐ Zeer negatief (5)

Gebruikt(e) u beide type luiers tegelijkertijd?

- ☐ Ja, ik gebruik(te) ze tegelijkertijd (1)
- ☐ Nee, ik gebruikte eerst wasbare luiers, daarna alleen nog wegwerpluiers (2)
- ☐ Nee, ik gebruikte eerst wegwerpluiers, daarna alleen nog wasbare luiers (3)

Display This Question:

If Gebruikt(e) u beide type luiers tegelijkertijd? = Ja, ik gebruik(te) ze tegelijkertijd

Waarom gebruikt(e) u beide type luiers tegelijkertijd?

Display This Question:

If Gebruikt(e) u beide type luiers tegelijkertijd? = Ja, ik gebruik(te) ze tegelijkertijd

In welke situaties gebruikt(e) u wel de wegwerpluiers maar niet de wasbare luiers?

- ☐ Bij het kinderdagverblijf (1)
- ☐ Bij de oppas (2)
- ☐ Onderweg (3)
- ☐ Bij een dagje weg (4)
- ☐ Tijdens de nacht (5)
- ☐ Anders, namelijk: (6) _____

Display This Question:

If Gebruikt(e) u beide type luiers tegelijkertijd? = Nee, ik gebruikte eerst wasbare luiers, daarna alleen nog wegwerpluiers

Waarom bent u van wasbare naar wegwerpluiers overgestapt?

Display This Question:

If Gebruikt(e) u beide type luiers tegelijkertijd? = Nee, ik gebruikte eerst wegwerpluiers, daarna alleen nog wasbare luiers

Waarom bent u van wegwerpluiers naar wasbare luiers overgestapt?

Display This Question:

If Gebruikt(e) u beide type luiers tegelijkertijd? = Nee, ik gebruikte eerst wegwerpluiers, daarna alleen nog wasbare luiers

Hoe moeilijk vond u het om van wegwerp naar wasbare luiers over te stappen?

- ☐ Zeer moeilijk (1)
- ☐ Moeilijk (2)
- ☐ Niet moeilijk, niet makkelijk (3)
- ☐ Makkelijk (4)
- ☐ Zeer makkelijk (5)

Display This Question:

If Gebruikt(e) u beide type luiers tegelijkertijd? = Nee, ik gebruikte eerst wegwerpluiers, daarna alleen nog wasbare luiers

Waarom vond u het moeilijk/makkelijk?

In hoeverre zou u wasbare luiers aanraden aan andere ouders?

- ☐ Zeer waarschijnlijk (1)
- ☐ Waarschijnlijk (2)
- ☐ Neutraal (3)
- ☐ Onwaarschijnlijk (4)
- ☐ Zeer onwaarschijnlijk (5)

Display This Question:

If In hoeverre zou u wasbare luiers aanraden aan andere ouders? = Waarschijnlijk

Or In hoeverre zou u wasbare luiers aanraden aan andere ouders? = Zeer waarschijnlijk

Or In hoeverre zou u wasbare luiers aanraden aan andere ouders? = Neutraal

Boodschap Welke boodschap zou u doorgeven aan andere ouders om hen te overtuigen wasbare luiers te gebruiken? Maak een top 3 door 1, 2, of 3 in te vullen voor drie van de antwoorδοpties.

- _____ Het bespaart geld (1)
- _____ Het is beter voor het milieu (2)
- _____ Het is beter voor je kindje (3)
- _____ Het zorgt voor minder afval (4)
- _____ Je kindje wordt sneller zindelijk (5)
- _____ Het is niet veel meer werk dan wegwerpluiers (6)
- _____ Het is niet onhygiënisch (7)
- _____ Er zijn allerlei leuke kleuren en printjes (8)
- _____ Je zult altijd genoeg luiers in huis hebben (9)
- _____ Anders, namelijk: (10)

Tot slot nog een paar korte vragen.

In hoeverre bent u het eens met de volgende stellingen.

Milieuvriendelijk handelen is een belangrijk deel van wie ik ben.

- ☐ Helemaal oneens (1)
- ☐ Oneens (2)
- ☐ Neutraal (3)
- ☐ Eens (4)
- ☐ Helemaal eens (5)

Ik ben het type persoon dat zich milieuvriendelijk gedraagt.

- ☐ Helemaal oneens (1)
- ☐ Oneens (2)
- ☐ Neutraal (3)
- ☐ Eens (4)
- ☐ Helemaal eens (5)

Ik zie mezelf als een milieuvriendelijk persoon.

- ☐ Helemaal oneens (1)
- ☐ Oneens (2)
- ☐ Neutraal (3)
- ☐ Eens (4)
- ☐ Helemaal eens (5)

Wat is uw hoogst afgeronde opleiding?

- ☐ Basisschool (1)
- ☐ Middelbare school (2)
- ☐ MBO (3)
- ☐ HBO (4)
- ☐ WO (5)
- ☐ Anders, namelijk: (6) _____

Wat is uw leeftijd?

Geslacht Wat is uw geslacht?

- ☐ Man (1)
- ☐ Vrouw (2)
- ☐ Anders (3)

Wat is uw bruto inkomen per jaar voor het hele gezin?

- ☐ < 15.000 (1)
- ☐ 15.000-25.000 (2)
- ☐ 25.000-50.000 (3)
- ☐ 50.000-70.000 (4)
- ☐ > 70.000 (5)
- ☐ Zeg ik liever niet (6)

Is er nog iets dat u kwijt wilt over luiers, uw ervaringen, de vragenlijst, of iets anders?

Bedankt voor het invullen van deze vragenlijst.

Wij zijn aan het onderzoeken welke factoren een rol spelen in het wel of niet aanschaffen van wasbare luiers. Uiteindelijk is het doel van dit onderzoek om aan (nieuwe) ouders te laten zien hoe zij wasbare luiers op een prettige manier kunnen gebruiken voor hun kindje. Wasbare luiers hebben namelijk veel voordelen ten opzichte van wegwerpluiers. Voor een korte samenvatting zie [Poster en flyer wasbare luiers](#).

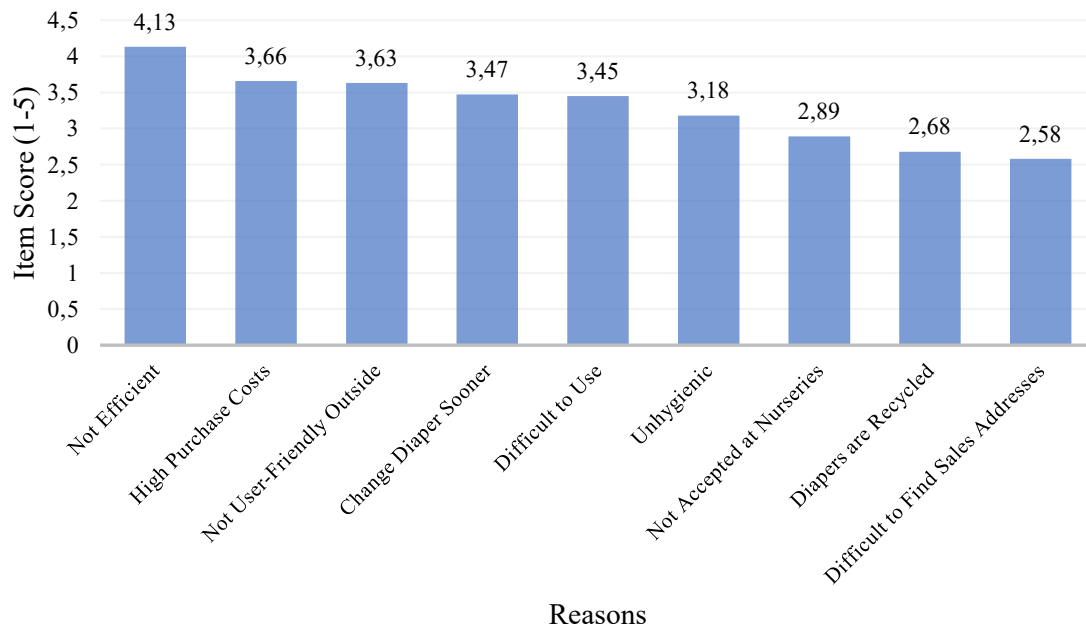
Mocht u nog vragen hebben over het onderzoek of deze vragenlijst, stuur gerust een mailtje naar lobke.de.bruin@minienw.nl.

Na deze pagina wordt u doorverwezen naar de pagina van het panelbureau.

Appendix C: Reasons for not Using Cloth Diapers

Figure 5

Means of Reasons for not Using Cloth Diapers



Note. These reasons were prespecified in the questionnaire. Participants could rate on a 5-point scale how important that reason was for them to decide against cloth diapers. As the figure shows, the most important reasons were that cloth diapers are not efficient, have a high purchase cost, and are not user-friendly outside the home. Other reasons mentioned more than once in the open question were: “I found it difficult to compare all the different kinds of cloth diapers” and “My partner did not want it”.

NB: This question in the questionnaire differed from the one asking about the perceived advantages and disadvantages of cloth diapers and was asked only to those who considered cloth diapers but decided to not buy them.

Appendix D: Descriptives on Cloth Diaper Usage

Additional Data Analysis Procedures

For two multiple choice questions, participants could check multiple boxes. These are the questions about how they came into contact with cloth diapers and in what situations they would not use cloth diapers. These questions resulted in lists for each participant. To count the instances per item, the lists were split and unlisted such that all occurrences were represented in one vector. For each item a sum score of its occurrences was created. Additionally, a percentage was calculated to determine how many participants reported each item.

Cloth Diaper Usage

Most individuals came into contact with cloth diapers via their friends and/or family (46.88%). Advertisements (33.13%) and obstetricians (17.50%) were also mentioned. Almost a fifth of the participants indicated that they were mainly made familiar with cloth diapers via this questionnaire (18.13%). There were also a few participants that heard about cloth diapers from their day-care (8.75%), consultation office (9.38%), or their general practitioner (5.63%). Quite a large portion indicated that social media, especially Instagram, was their main source (15.00%) of information.

On average it took individuals no more than a week to get used to the entire process of using cloth diapers. At home participants find the cloth diapers quite user-friendly. It scored a 7.42 (out of 10) ($SD = 0.96$). However, outside the home cloth diapers scored much lower, namely a 5.39 ($SD = 2.53$). Participants wash about 3.74 days a week ($SD = 1.73$) when using cloth diapers. Relating to the injunctive norm, the social environment reacts neutrally to positively to individuals using cloth diapers ($M = 2.65$, $SD = 0.61$).

Most parents that use cloth diapers, simultaneously use disposable diapers (76.92%). There were many reasons for why parents use both types of diapers. See Table 10 for an overview of the reasons. 19.23% of participants switched from cloth to disposable diapers. Only 3.85% switched from disposable to cloth diapers.

Table 10

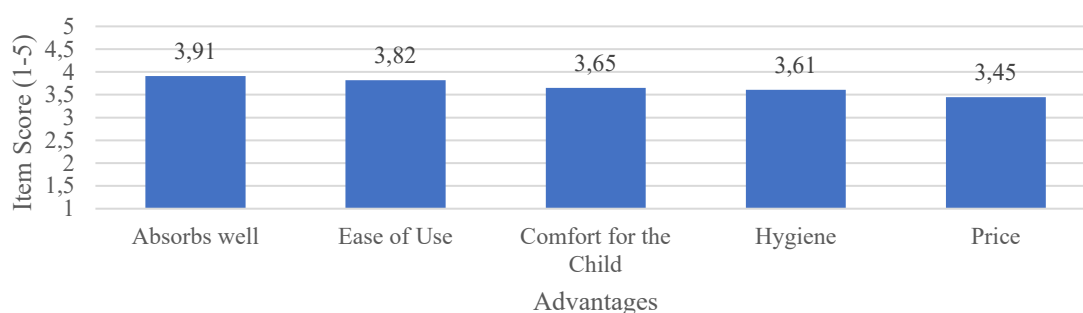
Overview of Reasons to Use Disposable Diapers Besides Cloth Diapers

Reason	Percentage of Participants
On a day out / vacation	60%
The babysitter does not want to use them	55%
When travelling	50%
Day-cares do not accept them	45%
During the night	40%
Other reasons	10%

Appendix E: Advantages and Disadvantages of Disposable vs Cloth Diapers

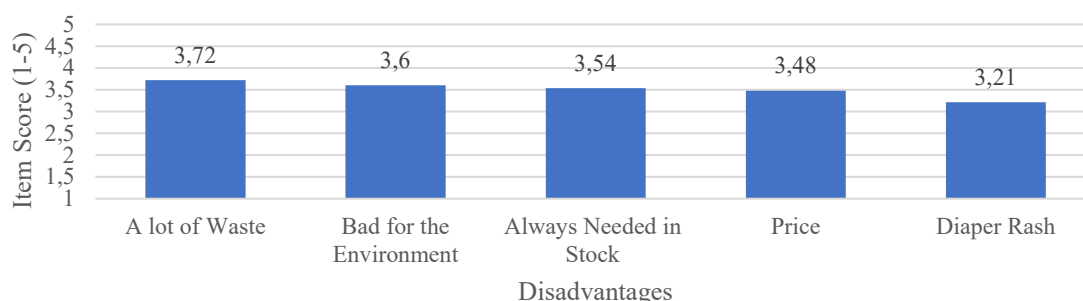
Besides the value inputs for the process model, a few other advantages and disadvantages were considered for both disposable and cloth diapers. These are rank ordered in Figure 6-9. The high absorption level and the ease of use were perceived as the greatest advantages of disposable diapers. The negative consequences for the environment and having many waste bags were considered the greatest disadvantages of disposable diapers. For cloth diapers less waste, always having the diapers at home, and saving money were seen as the most important advantages. Not being efficient, not user-friendly outside the home, and needing to change the diaper more often were perceived as the greatest disadvantages of cloth diapers. See Table 11 for a brief overview of other advantages and disadvantages mentioned in the open questions.

Figure 6
Advantages of Disposable Diapers



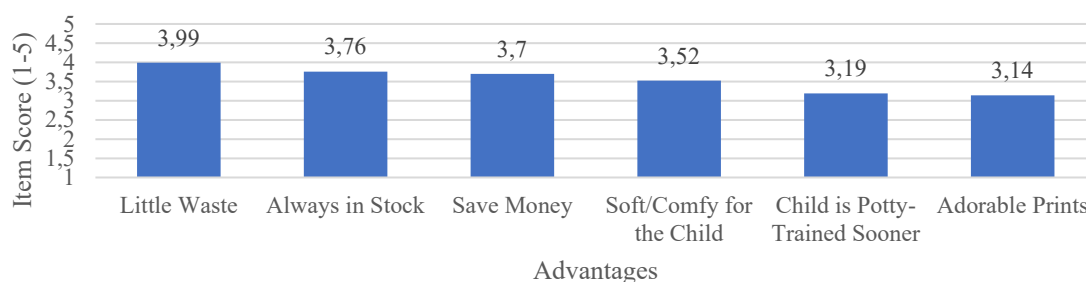
Note. All advantages of disposable diapers are perceived to be neutral to high. Absorption was also a significant predictor for the intention to use cloth diapers.

Figure 7
Disadvantages of Disposable Diapers



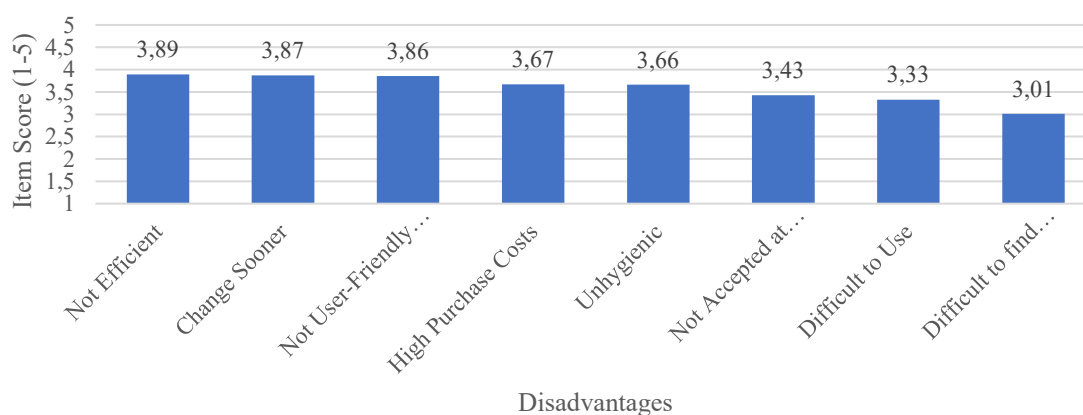
Note. All disadvantages of disposable diapers are perceived to be neutral to high.

Figure 8
Advantages of Cloth Diapers



Note. All advantages of cloth diapers are perceived to be neutral to high. Always in stock was also a significant predictor for the intention to use cloth diapers.

Figure 9
Disadvantages of Cloth Diapers



Note. All disadvantages of cloth diapers are perceived to be neutral to high. Unhygienic was also a significant predictor for the intention to use cloth diapers.

Table 11
Other Advantages and Disadvantages Mentioned in the Open Questions

Diaper Type	(Dis)Advantage	Statement
Disposable diapers	Advantage	You can immediately throw away the diaper. Available everywhere. Not as dirty.
	Disadvantage	Takes longer before child is potty-trained. Contains a lot of plastic. A lot of waste of materials.
Cloth diapers	Advantage	Fits child better.
	Disadvantage	Need to pay more for detergents. Remains smelly. Diaper is thick, difficult to find the right fit. Dirty washing machine. Possibly the cloth diapers are also wasted eventually as people rather do not want to use them second-hand.

Appendix F: Convincing Others to Use Cloth Diapers

Participants were asked what they thought was needed for parents to more often choose for cloth diapers. Most individuals indicated that a trial package of cloth diapers would help the most (3.37 from 5). Then came a discount (3.13) and an explanation by a maternity nurse or obstetrician (3.12). A flyer with explanation was deemed the least helpful (2.98). Other things that were mentioned in the open questions were: “More information”, “Useful tips”, and “I would take information by an obstetricians or maternity nurse very seriously”, indicating that the information provided during an intervention might be able to convince parents, or at least make them think more about cloth diapers.

Participants were not very likely to recommend cloth diapers to other parents ($M = 2.81$, $SD = 1.16$). Only 30% indicated they would (highly) recommend it. Of those that did recommend cloth diapers, most indicated that the most important message to convince other parents to use cloth diapers would be that it is better for the environment, as 36.73% of the participants placed that message first in their top 3. Second came saving money (29.59%). For each message a sum score was calculated to determine which message was named most often in the top 3. For this, the items were reverse scored such that the number 1 in the top 3 became a score of 3 points and number 3 became a score of 1 point. This resulted in Table 12. These results are almost identical to the results by ComRes and NLWA (2018) who asked participants to rank order factors they found persuasive.

Table 12

Sum Scores for each Message to Convince Others to Use Cloth Diapers

Message	Sum Score
Better for the environment	158
Saves money	126
Less waste	119
Better for the child	55
Child is potty-trained sooner	47
Always enough diapers at home	24
It is not more work than disposable diapers	24
It is not unhygienic	21
There are all kinds of prints and colours	14

Note. Only 98 participants received this questions. These are the individuals that answered the question “To what extend would you recommend cloth diapers to other parents?” with neutral, likely or very likely. Sum scores could range between 0 and 294 points. The scores in the table suggest that there is quite some variance in the message individuals find most important.

Appendix G: Results Experience with Cloth Diapers Subsets

Subsets were made to compare models for participants with experience with cloth diapers and participants without experience. It is possible that once individuals start to use cloth diapers, their perceptions about the diapers change. As a result different factors might predict their intention to use cloth diapers again than when one does not yet have experience. These differences were explored descriptively, as we did not have a theoretical basis for confirmatory analyses. For the models only the dataset was different, the regression function remained the same as the original model. However, note that the experienced group is rather small ($n = 35$). Therefore, no reliable conclusions can be drawn about this subset.

The model for no experience was significant and largely similar to the original model, explaining 37.84% of the variance in intention to use cloth diapers ($R^2 = 0.378$, $R^2_{\text{adjusted}} = 0.326$, $F(10, 118) = 7.18$, $p < .001$). Hygiene, DescriptiveHowMany, and Self-image were still significant predictors (Hygiene: $b = -0.40$, $SE = 0.11$, $p < .001$, 95% CI [-0.61, -0.18]; DescriptiveHowMany: $b = 0.25$, $SE = 0.12$, $p = .032$, 95% CI [0.02, 0.49]; and Self-image: $b = 0.35$, $SE = 0.12$, $p = .006$, 95% CI [0.10, 0.59]).

The model for having experience was not significant ($R^2 = 0.196$, $R^2_{\text{adjusted}} = -0.206$, $F(10, 20) = 0.488$, $p = .878$). However, trends in descriptive statistics did indicate that individuals with experience perceive the costs of cloth diapers to be lower, and the rewards to be higher than individuals without experience. Moreover, they know more other parents using cloth diapers and have a higher intention to use the diapers again. This might indicate that perceptions do indeed change once one starts using cloth diapers. However, further research is needed for reliable conclusions. See Table 13 for an overview of the descriptive statistics.

Table 13
Descriptive Statistics of Predictors and Intention of Experience vs No Experience Subsets

Variables	Experience		No experience	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Financial costs	3.55	0.72	3.70	0.94
Efficiency-related costs	3.45	1.12	4.00	0.97
Affective costs	3.48	1.18	3.71	0.95
Financial rewards	3.84	0.97	3.67	1.00
Effort-related rewards	4.16	0.86	3.95	1.06
Efficiency-related rewards	3.97	0.95	3.71	0.99
Injunctive norm	3.19	0.98	3.25	0.94
Descriptive norm – How many	2.42	0.89	1.62	0.86
Descriptive norm – Most parents	2.81	1.30	1.90	1.14
Self-image	3.73	0.66	3.42	0.74
Intention	3.74	0.93	2.50	1.13

Appendix H: Results of Social Media Group and Comparisons with Panel Group

Participants

In this study, 314 Dutch pregnant women, their partner or parents with a child between the 0 and 12 months participated. The participants consisted of 309 females and 5 males, who were on average 31.18 years old ($SD = 3.82$).

74 participants were an expecting parent, the remaining participants were not expecting but had a child between the 0 and 12 months. The expecting parents were pregnant for 25.26 weeks on average ($SD = 10.32$). Most participants use both disposable and cloth diapers (48%). See Table 14 for an overview of multiple demographic variables.

Participants were recruited via the social network of the researcher and through social media, such as Instagram. Participants received no compensation.

Table 14
Demographics of Participants

Variable	Level	Percentage of Participants
Education	High school	2%
	Lower education (MBO)	11%
	Middle education (HBO)	50%
	Higher education (WO)	36%
	Others	1%
Annual income	< 15,000	2%
	15,000 – 25,000	4%
	25,000 – 50,000	35%
	50,000 – 70,000	27%
	> 70,000	26%
Type of diaper	Prefer not to say	6%
	Disposable only	24%
	Cloth only	28%
	Both	48%
Gender	Male	1%
	Female	99%
Pregnant	Yes, no children	6%
	Yes, with children	17%
	No, with child 0-12 months	77%

Descriptive Results

Of the expecting participants, 97.30% has thought about which diapers they would like to buy for their new child. More than half (51.76%) of these individuals also considered cloth diapers. Of the parents that have only used disposable diapers, or have not had children yet, 98.84% is aware that cloth diapers are an alternative of disposable diapers. In this sample parents again do have cloth diapers in their choice set, but only few decide against them (24.67%). The most important reasons for participants to not use cloth diapers were that using

them is not efficient (efficiency-related costs), and that the cloth diapers are difficult to use (efficiency-related costs). See Figure 10 for an overview of the mentioned reasons. One participant mentioned that ease of use was a very important factor for them when deciding what diaper to use: “There are so many new things coming your way when having a first child. That is why we have opted for the convenience option in terms of diapers, namely disposable diapers.”. Another mentioned: “Nowadays disposable diapers are collected separately to recycle the used plastics. This gives me a good feeling as a bulk user. However, I do not know whether this actually is of much benefit. In any case, it does not help me to switch to cloth diapers. It is very easy and you feel like you are doing okay by recycling the diapers.” Even though some individuals are aware of cloth diapers, many do not consider them. One participant mentioned at the end of the questionnaire: “For the first time in my life I have read the word ‘cloth diapers’ very often. Just that makes me think. I will not switch to cloth diapers, but it does say something.”.

See Table 15 for an overview of the descriptive statistics of the value inputs and intention to use cloth diapers. Overall, the means of the perceived benefits of cloth diapers are rather high and the means of the perceived costs are rather low. The means of the social norms indicate that cloth diapers are not frowned upon by the social environment and participants do not know many other parents who use them. Participants see themselves as quite environmentally-friendly. In general, the intention to use cloth diapers is very high. However, this differs per group of diaper users. Participants who use disposable diapers only are not very motivated to switch to cloth diapers. Those who have not yet had children are motivated to use cloth diapers. Participants who already use cloth diapers are very highly motivated to keep using them.

Figure 10

Reasons for not Using Cloth Diapers

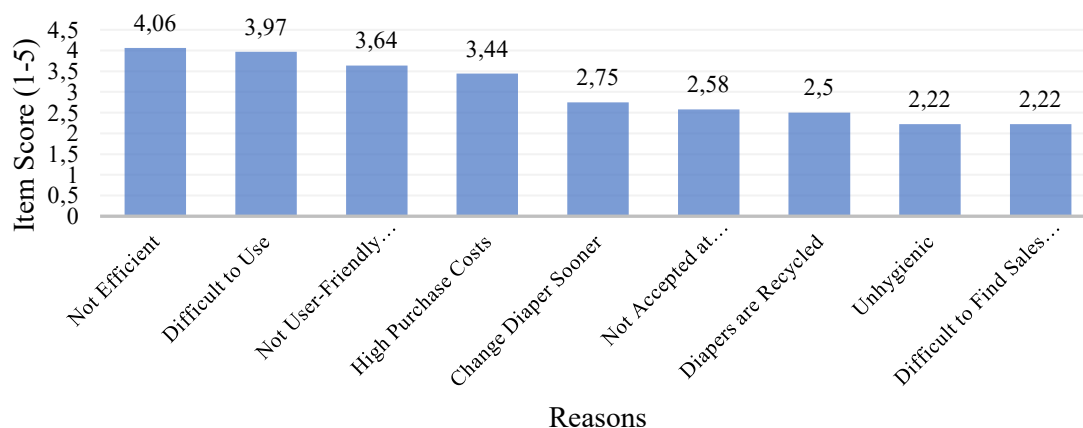


Table 15
Descriptive Statistics of the Variables in the Process Model

Variable	<i>M</i>	<i>SD</i>
High Purchase Costs	3.33	1.21
Not efficient	2.86	1.43
Unhygienic	1.85	1.26
Saving money	4.13	0.87
Less waste bags	4.72	0.66
Always have diapers in stock	4.31	1.03
Injunctive norm	4.01	1.02
Descriptive Norm – How many	1.88	0.64
Descriptive Norm – Most parents	1.69	0.87
Self-image	3.77	0.78
Intention (total)	4.20	1.29
- Disposable only	2.27	0.12
- Cloth only	5.00	0.00
- Both	4.74	0.05
- No children yet	4.00	0.43

Note. The means can range from 1-5, as the item scores ranged from 1-5. The greater the mean, the greater the perceived cost/reward, the more strongly individuals in the social environment disapprove of cloth diapers, the more people participants know that use cloth diapers, the more strongly participants see themselves as an environmentally-friendly person, and the higher the intention to use cloth diapers.

Multiple Linear Regression

A linear multiple regression analysis was performed to examine whether intention to use cloth diapers (again) was predicted by (1) the perceived financial costs of cloth diapers, (2) the perceived effort-related costs of cloth diapers, (3) the perceived affective costs of cloth diapers, (4) the perceived financial rewards of using cloth diapers, (5) the perceived effort-related rewards of using cloth diapers, (6) the perceived efficiency-related rewards of using cloth diapers, (7) the injunctive norm, (8+9) the descriptive norm, and (10) environmental self-image. The overall regression was statistically significant, explaining 77.72% of the variance in intention to use cloth diapers ($R^2 = 0.777$, $R^2_{\text{adjusted}} = 0.770$, $F(10, 304) = 106.00$, $p < .001$).

The perceived affective cost of hygiene, the perceived effort-related costs, the perceived efficiency-related reward of always having diapers in stock, the perceived effort-related reward of having less waste bags, the injunctive norm, and self-image were significantly associated with intention to use cloth diapers. This means that when individuals perceive cloth diapers as unhygienic, effortful, or when the social environment accepts the usage of cloth diapers, they are less likely to use cloth diapers. Alternatively, when individuals perceive always having diapers in stock and having less waste bags when using cloth diapers as an advantage, and when

they perceive themselves as more environmentally-friendly, they are more likely to use cloth diapers. See Table 16 for the estimates, standard errors, p-values, and confidence intervals for each value input. See Figure 11 for an overview of the estimates in the process model.

Although the assumptions of multiple linear regression were met, Cook's distance indicated a few influential cases. Therefore, robust analyses were performed. As the results of the robust analyses were the same, it is assumed the results of the OLS regression were not affected to a great extent by the influential cases.

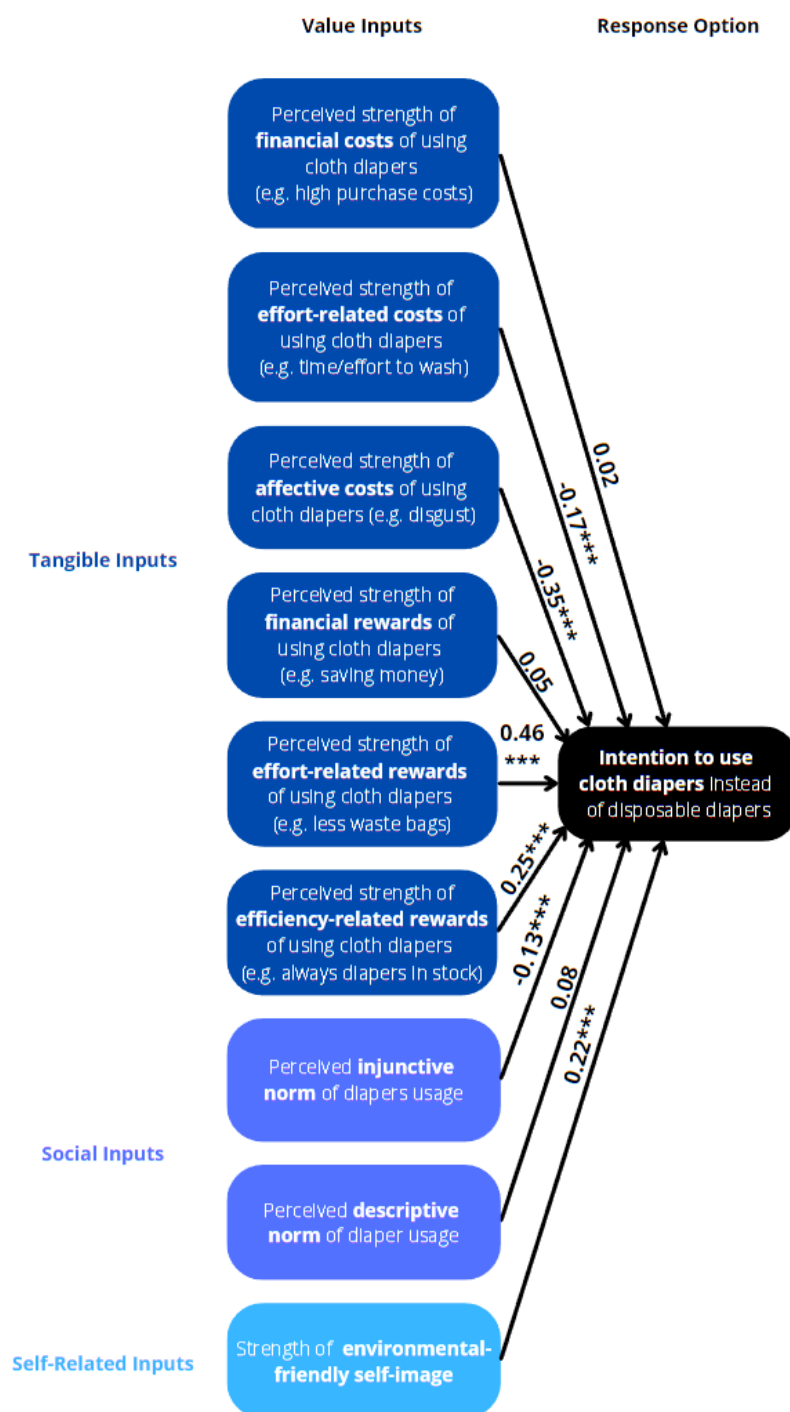
Table 16

B-values (b), Standard Errors (SE), and P-Values (p) for the Value Inputs

Variable	<i>b</i>	<i>SE</i>	<i>p</i>	95% <i>CI</i>
High Purchase Costs	0.02	0.03	0.433	[-0.04, 0.09]
Not efficient	-0.17	0.04	< .001***	[-0.24, -0.10]
Unhygienic	-0.35	0.04	< .001***	[-0.44, -0.27]
Saving money	0.05	0.05	0.276	[-0.04, 0.14]
Less waste bags	0.46	0.07	< .001***	[0.32, 0.61]
Always have diapers in stock	0.25	0.05	< .001***	[0.15, 0.34]
Injunctive norm	-0.13	0.04	< .001***	[-0.20, -0.06]
Descriptive Norm 1	0.05	0.07	0.481	[-0.08, 0.18]
Descriptive Norm 2	0.08	0.05	0.094	[-0.01, 0.17]
Self-image	0.22	0.05	< .001***	[0.12, 0.33]

Note. Significance level * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 11
Process Model with B-Values



Note. Significance level $*p < .05$, $**p < .01$, $***p < .001$.

Additional Exploratory Analyses

Subset Comparisons. Again comparisons between subsets were made. Males were not compared to females as the male subset was too small. Experience with cloth diapers was compared to no experience. Both models were significant. However, the predictors that were significant differed between cloth users and non-users. For users, the overall regression was statistically significant, explaining 40.04% of the variance in intention to use cloth diapers ($R^2 = 0.400$, $R^2_{\text{adjusted}} = 0.223$, $F(10, 218) = 7.54$, $p < .001$). Having less waste bags, effort costs, and hygiene were significantly associated with intention to use cloth diapers (Waste: $b = 0.52$, $SE = 0.12$, $p < .001$, 95% CI [0.28, 0.76]; Effort: $b = -0.06$, $SE = 0.03$, $p = .019$, 95% CI [-0.12, -0.01]; and Hygiene: $b = -0.10$, $SE = 0.04$, $p = .011$, 95% CI [-0.18, -0.02]).

For non-users, the overall regression was statistically significant, explaining 74.08% of the variance in intention to use cloth diapers ($R^2 = 0.741$, $R^2_{\text{adjusted}} = 0.706$, $F(10, 75) = 21.43$, $p < .001$). InStock, Hygiene, InjunctiveNorm, DescriptiveMostParents. And Self-image were significantly associated with intention to use cloth diapers (InStock: $b = 0.25$, $SE = 0.08$, $p = .003$, 95% CI [0.09, 0.41]; Hygiene: $b = -0.31$, $SE = 0.08$, $p < .001$, 95% CI [-0.47, -0.16]; InjunctiveNorm: $b = -0.22$, $SE = 0.08$, $p = .006$, 95% CI [-0.37, -0.06]; DescriptiveMostParents: $b = 0.20$, $SE = 0.08$, $p = .014$, 95% CI [0.04, 0.36]; and Self-image: $b = 0.47$, $SE = 0.11$, $p < .001$, 95% CI [0.25, 0.69]). This might mean that different factors are important for users than for non-users. Only hygiene is significant for both subsets.

Disposable (Dis)Advantages as Predictors. Again it was investigated whether the intention to use cloth diapers could be predicted from the perceived advantages and disadvantages of disposable diapers. The overall regression was statistically significant, explaining 68.44% of the variance in intention to use cloth diapers ($R^2 = 0.684$, $R^2_{\text{adjusted}} = 0.670$, $F(14, 300) = 46.47$, $p < .001$). Besides self-image, the perceived advantage of hygiene, and the perceived disadvantages of a lot of waste, always needed in stock, diaper rash, and bad for the environment were significantly associated with intention to use cloth diapers (Hygiene: $b = -0.19$, $SE = 0.04$, $p < .001$, 95% CI [-0.27, -0.11]; Waste: $b = 0.16$, $SE = 0.06$, $p < .004$, 95% CI [0.05, 0.27]; InStock: $b = 0.10$, $SE = 0.04$, $p < .023$, 95% CI [0.01, 0.19]; Rash: $b = 0.19$, $SE = 0.04$, $p < .001$, 95% CI [0.10, 0.27]; Environment: $b = 0.52$, $SE = 0.07$, $p < .001$, 95% CI [0.39, 0.66]; and Self-image: $b = 0.22$, $SE = 0.06$, $p < .001$, 95% CI [0.09, 0.34]). This means that the more individuals perceive hygiene to be an advantage of disposable diapers, the less likely they are to use cloth diapers. The more individuals see a lot of waste, always needed in stock, diaper rash, and bad for the environment as disadvantages of disposable diapers, the more likely they are to use cloth diapers.

Reasons For Why Using Both Types Simultaneously. There can be many reasons for why parents use both types of diapers at the same time. The most named reasons are mentioned in Table 17.

What Needed to Use Cloth Diapers. Many individuals placed an explanation from the obstetrician or maternity nurse the highest. The open questions also indicated that they really feel that consults by experts are the most useful when deciding whether you want to use cloth diapers. One participant mentioned: “I found it quite a task. If there would be more help available, then the quest will be smaller and the threshold would be lower for people.” See Table 18 for other things individuals mentioned that would help people to choose for cloth diapers.

Other (Dis)Advantages. Most advantages and disadvantages were rated similarly as in the panel group. However, most advantages of cloth diapers and disadvantage of disposable diapers were rated much higher by the social media group. Additionally, this group gave more input for possible other advantages and disadvantages (see Table 19).

Table 17

Reasons for Using Both Types of Diapers

Statement
- During a vacation or day out, because then it is easier, you don't have a washing machine or you don't have the space to drag all the diapers with you.
- Cloth diapers take some getting used to, so we started off with both disposable and cloth diapers.
- My partner does not want to use cloth diapers, so he used disposable diapers.
- Ease of use. E.g. I sometimes have trouble with my washing routine, cloth diapers take more effort, so I switch to disposable diapers when I have less time for the extra laundry.
- The babysitter or grandparent does not want to use cloth diapers.
- The day-care does not want to use cloth diapers.
- During the night I use disposable diapers, as it stays dry longer, and there is less leakage.

Table 18

Other Things Needed to Use Cloth Diapers

Statement
- Instead of putting normal diapers in babyboxes, they should put in a set of cloth diapers.
- Cloth diapers should be normalised. This also means less advertisement for disposable diapers, removing them from the stores, and from flyers/folders/photos. Cloth diapers should be more in view. Advertisements on TV or the radio should be from diaper experts with the right info.
- Subside the use of cloth diapers.
- Promote cloth diapers at day cares.
- Cloth diapers should be more available at physical stores (not only online).

Table 19*Other Advantages and Disadvantages of Disposable and Cloth Diapers*

Diaper Type	(Dis)Advantage	Statement
Disposable diapers	Advantage	Less space needed. Everyone can put them on. Much easier when on a vacation. Available everywhere.
	Disadvantage	Contain many chemicals. They are very smelly. The child has more leakage / squirting diapers. Child takes longer to become potty-trained.
Cloth diapers	Advantage	Never leakage. Smells less. Less diaper rash. Can be used for more than one child. No chemicals. Absorption level is adaptable.
	Disadvantage	Many people hold prejudices, so I always have to explain myself. Takes up a lot of space. It takes a while before you have found the right model for you child and you got the hang of it.

Note. These additional advantages and disadvantages are very similar to the push and pull factors identified by Pendry et al. (2012) in their focus group study. For example, pull factors for cloth diapers were related to a great dislike of disposables due to chemicals, stink, excrement explosions, and nappy rash. Push factors were things such as convenience, time and effort, unwillingness of day care staff to change them, challenge when away from home, nappy rash, and availability of information.

Comparisons with Panel Group

Demographics. Both groups have largely the same distribution of education and income level. However, the groups differ with regard to many other demographic variables. In the panel group 58% is female, in the social media group this is 99%. In the panel group most participants are an expecting parent (68%), in the social media group this is only 23%. The panel group consists of mostly disposable diaper users (78%), in the other group most individuals use a combination of cloth and disposable diapers (47%).

Regression. Both models are highly significant, with multiple significant predictors. The only predictors both models share is hygiene and self-image. For the panel group, both descriptive norm items and the efficiency-related reward of always having diapers in stock, were also significant. Comparingly, for the social media group additionally the perceived effort-related costs, the perceived efficiency-related reward of always having diapers in stock, the

perceived effort-related reward of having less waste bags, and the injunctive norm significantly predicted the intention to use cloth diapers.

Exploratory analyses. The social media group rated the advantages of cloth diapers and the disadvantages of disposable diapers much higher than the panel group. They seem more enthusiastic about cloth diapers. For example, when giving a grade for the user-friendliness of cloth diapers at home and outside the home, the average was a 9.2 and 7.5, while the panel group gave on average a 7.4 and 5.4. There are also some minor differences in which (dis)advantages receive the highest scores. For example, the panel group rated effortful and needing to change diapers sooner as the greatest disadvantages of cloth diapers, while the social media group rated high purchase costs and not accepted at day-cares as the greatest disadvantages. The intention to use cloth diapers is also lower for the panel group in general. In both groups those who only use disposable diapers have a low intention to use cloth diapers, and those who use both types of diapers have a relatively high intention. Those who have not yet had children have a neutral to high intention to use cloth diapers in both groups. This may be because new parents want to hold on to their ideals.

When comparing subsets of cloth users vs non-users, the models between the panel and social media group are not the same. However, the subsets are rather small and might therefore not be able to capture any effects.

Conclusions

There are quite some differences in the models between both groups. There might be multiple reasons for this. One could be that the differences are due to the composition of the groups. The social media group consist for a large part out of very enthusiastic cloth diaper users. This group may therefore consist of early adapters, which are individuals that acquire a novel service or product sooner than the rest of the population, and are often convincing others of the benefits of the product (Rogers, 2003; Dedehayir et al., 2017). This might also explain why the descriptive norm was not significant in this group. They might be so driven to use cloth diapers that they do this regardless of social proof (ComRes & NLWA, 2018) They place all advantages of cloth diapers highly, while simultaneously placing all disadvantages of disposable diapers very low. Instead, the panel group consists for only a small part out of cloth diaper users and these users seem more moderate in their perception of cloth diapers.

Another reason for the differences might be that the perception of cloth diapers changes when individuals use them. For example, a focus group by Pendry et al. (2012) indicated that users of cloth diapers are often pleasantly surprised by the performance of cloth diapers, as they

exceed their initial expectations. Moreover, Hassenzahl (2015) indicates that positive experiences with a product can indeed transform into positive perceptions of the product. Therefore, simply by using cloth diapers, individuals might perceive different aspects of the product as more positive.

The current study cannot disentangle the two. The cloth diaper users in the panel group were compared to the social media group to determine whether the model would be similar for cloth diaper users in general. The results indicated that this is not the case. The model for panel cloth diaper users was not significant anymore, nor were any of the predictors significant. It is possible the group of panel cloth diaper users was too small to detect a change, as it consisted of only 35 individuals. Future research might be able to determine whether a larger sample of representative cloth diaper users would indeed lead to the same model as the social media group. If so, it is more likely that the perception of individuals indeed become more positive when using cloth diapers and less likely that the differences were due to substantially different samples. The trends in the descriptive data of the panel group also hinted in this direction. Moreover, it might be interesting for future studies to delve more into these perceptions to determine whether and how they change when individuals start to use cloth diapers.

Appendix I: Set-Up Centering Pregnancy Session on Cloth Diapers

Groen = voordeel verwerkt in tekst

Rood = nadeel verwerkt in tekst

5min (Zelfbeeld): Terug laten denken aan een situatie waarin ze milieuvriendelijk gedrag vertoonden.

Instructies:

1. Zeg: Graag begin ik de sessie even met wat stellingen. Misschien denkt u, wat een gek begin van de sessie, maar ik vraag u om even terug te denken aan bepaalde situaties.
2. Geef elk persoon een blaadje waar ze 7x een nummer op kunnen zetten en een pen.
3. U hoeft geen naam of iets dergelijks op het blaadje te zetten. Geef voor elke stelling een cijfer tussen de 1 en 7, waarbij 1 nooit betekent en 7 altijd. Alleen het cijfer hoeft te worden opgeschreven. Niet de stelling. Vraag: Hoe vaak vertoont u het volgende gedrag.
 - Ik scheid papier van het restafval.
 - Ik breng mijn glazen flessen naar de glasbak.
 - Ik gooi geen afval op straat.
 - Ik zet elektrische apparaten uit (om energie te besparen).
 - Ik ga vaak met de fiets naar werk ipv met de auto.
 - Ik zet de verwarming uit als ik mijn huis verlaat.
 - Ik gebruik energiezuinige lampenperen.
 - Ik doe de lichten uit als niemand in de kamer is.
4. Alle blaadjes worden ingeleverd.

5min (Introductie): Voorstellen en wasbare luiers introduceren.

Instructies:

1. Stel jezelf even voor. (Dat je consulente wasbare luiers bent en regelmatig dit soort sessies geeft.)
2. Vertel dat er naast wegwerpluiers ook andere opties zijn zoals de wasbare luier.
3. Laat enkele exemplaren in **leuke printjes** zien.

15min (Hygiëne): Proces uitleggen van hoe je de luiers omdoet, gebruikt, wast, etc.

Instructies:

1. Uitleggen dat er verschillende systemen zijn van wasbare luiers. Enkele exemplaren laten zien (bv tweedelig, inlegvel wasbaar of niet, etc.).
 - a. Bij het **uitzoeken van het juiste systeem**, kan het fijn zijn advies te vragen van een consulent. Deze gaat dan samen met jou kijken naar wat het beste is voor jou en je kindje. Maar ook fijn veel keuze, **want voor ieder wat wils**. Vraag gerust hulp erbij.
2. Uitleggen hoe je de luiers omdoet bij een kindje. Ook even de zwangeren de luiers in de handen geven en laten omdoen bij een pop in groepjes.
 - a. De luiers lijken wat groter tussen de beentjes van het kindje. Dit is helemaal niet erg en **ondersteunt juist de ontwikkeling van de heupen** van het kindje. Het enige waar je mee rekening moet houden is dat je de **kleertjes voor het kindje dan ook iets groter moet kopen**.

3. Uitleggen hoe het verschonen en wassen werkt. Proces uitleggen. Heel duidelijk maken dat je geen poep in de wasmachine krijgt, dat het niet onhygiënisch is (dat bleek namelijk een belangrijke factor in het vooronderzoek).
 - a. Ondanks dat het wat **extra tijd kost om de luiers te spoelen, wassen en drogen**, zul je ook tijd besparen. Je hoeft **niet elke keer naar de winkel** om nieuwe luiers te kopen. Daarnaast heb je veel **minder vaak een volle afvalzak**, omdat je alle luiers hergebruikt en alleen het inlegvel weggooit. **Uiteindelijk bespaar je hierdoor veel geld**, zelfs als je de waskosten meerekent. Al helemaal als je de luiers **voor meerdere kinderen** zou gebruiken. Het is dus een **stuk duurzamer dan wegwerpluiers**.
4. Vertellen dat er ook boosters zijn. Dat een van de voordelen van wasbare luiers is dat het goed sluit om de beentjes en rug. Hierdoor is de **kans kleiner op lekkage en spuitluiers**.
 - a. De wasbare luiers zijn iets **minder absorberend** dan wegwerpluiers. Maar dat kan dus opgelost worden met de boosters. Bovendien zorgt het iets minder absorberende ervoor dat kindjes **eerder zindelijk** zijn, omdat ze sneller voelen dat hun luier nat is na plassen.

5min (Vragenlijst): Iedereen een vragenlijst geven aan het eind van de sessie en een flyer.

NB: Dit wordt gedaan door de verloskundige.

Instructies:

1. Iedereen de vragenlijst meteen na de sessie laten invullen via de QR code.
 - a. In de vragenlijst zit een informatiebrief en toestemmingsformulier. Vraag de zwangeren die goed door te lezen.
2. Een lijst wordt rondgegeven waarop deelnemers hun ID code (die ze zelf hebben gemaakt in de vragenlijst), naam en emailadres moeten invullen.
 - a. Deze ID code is zodat we ze later nog een tweede vragenlijst kunnen sturen met de vraag welk type luiers ze hebben gekocht voor hun kindje. De ID code is nodig om de data te koppelen.
3. Deelnemers ontvangen de flyer, die ze mee naar huis kunnen nemen. Hier staan links voor websites voor vragen/consulten en een korte samenvatting van de voordelen op.
 - a. Geef deze flyer pas als ze allemaal klaar zijn met het invullen van de vragenlijst.

Na de sessie:

1. Even bellen over hoe het ging
 - Wat was de vibe
 - Welke vragen werden gesteld
 - Welke extra informatie heb je hierdoor verteld
 - Hoeveel partners van de zwangeren waren aanwezig
2. Foto maken/inscannen van blaadjes met scores van zelfbeeld opdracht + ID code blad. Dan sturen naar ons. **NB:** doet de verloskundige.

Appendix J: Eight Common Environmental Behaviours

Van der Werff et al., (2014) pre-tested 20 environmental behaviours among Dutch participants. The eight most common ones, were selected for their study. The current study integrated the same eight behaviours to activate an environmentally-friendly self-image, with slight adaptations to fit the sample better. Van der Werff's sample consisted of students and therefore some of the items were related to student activities. For example the item "I often go to work or studies by bike instead of by car" was changed to "I often go to work by bike instead of by car".

1. I separate paper from my waste.
2. I bring glass bottles to the recycle bin.
3. I do not throw litter on the street.
4. I turn off electrical appliances (to save energy).
5. I often go to work by bike instead of by car.
6. I turn off the heater when I leave my house.
7. I use energy-efficient light bulbs.
8. I turn off the lights when no one is in the room.

Appendix K: Questionnaire Study 2

Beste deelnemer,

Fijn dat u mee wilt doen met deze vragenlijst over luiers. Hieronder zal even kort uitgelegd worden waar deze vragenlijst over gaat en wat er van u verwacht wordt.

Waarom wordt dit onderzoek uitgevoerd

Dit onderzoek is onderdeel van een scriptie van de master Gedragsverandering (Radboud Universiteit). Het onderzoek wordt uitgevoerd in samenwerking met het Ministerie van Infrastructuur en Waterstaat. Met deze vragenlijst proberen we inzicht te krijgen in hoe zwangeren denken over wasbare luiers. In totaal nemen zeven verloskundigenpraktijken verspreid over Nederland deel aan het onderzoek.

Wat moet ik doen als deelnemer

Vul de vragenlijst zo volledig mogelijk in. Vul het eerste in wat er in u opkomt, er zijn geen goede of foute antwoorden. Het invullen van de vragenlijst duurt ongeveer 5 minuten.

Compensatie

Als dank voor uw deelname wordt er een cadeaubon van 50 euro verloot onder de deelnemers. De winnaar zal aan het eind van de studie een email krijgen met een online voucher voor Babydump.nl.

Privacy en vertrouwelijkheid

Uw privacy wordt gewaarborgd volgens de European General Data Protection Regulation (zie gdpr.eu). Alle verzamelde data worden vertrouwelijk bewaard met een deelnemerscode. In de bestanden zal alleen deze code gebruikt worden en alle onderzoeksdata worden geanonimiseerd (d.w.z. alle persoonlijke informatie die u zou kunnen identificeren, zal worden verwijderd). Uw persoonlijke informatie zal apart opgeslagen worden en de combinatiecode is alleen bekend bij de eindverantwoordelijke. U heeft het recht om te vragen of uw data verwijderd kunnen worden tot één maand na deelname. Daarna wordt de combinatiecode om uw persoonlijke informatie aan uw deelnemerscode te linken verwijderd. De geanonimiseerde data zullen worden opgeslagen en worden mogelijk gepubliceerd of beschikbaar gesteld aan andere onderzoekers. Dit is uiteraard alleen voor onderzoeksdoeleinden.

Op de volgende pagina wordt u gevraagd om een toestemmingsformulier te accepteren. Met deze acceptatie verklaart u dat u goed bent geïnformeerd over uw deelname, dat uw vragen naar tevredenheid zijn beantwoord en dat u uw toestemming voor deelname op elk moment kunt intrekken zonder opgaaf van redenen.

Hierbij bevestig ik dat:

- Ik naar tevredenheid ben geïnformeerd over het onderzoek en alle informatie heb gelezen en begrepen;
- Ik erover geïnformeerd ben dat dit onderzoek in samenwerking is met het Ministerie van Infrastructuur en Waterstaat;
- Ik genoeg tijd heb gekregen om te beslissen of ik wil meedoen met het onderzoek;
- Ik vrijwillig deelneem aan dit onderzoek.

Ik ben het ermee eens dat:

- Mijn data worden verzameld en opgeslagen voor onderzoeksdoeleinden, zoals beschreven in de informatiebrief;
- De geanonimiseerde data (zonder mijn persoonlijke informatie om mij te kunnen identificeren) mogelijk gepubliceerd worden of gedeeld worden met onderzoekers voor enkel onderzoeksdoeleinden.

Ik begrijp dat:

- Ik het recht heb om mijn deelname op elk moment in te trekken zonder opgaaf van redenen en dat dit geen consequenties met zich meebrengt;
- Ik niet zal worden geïnformeerd over mijn persoonlijke resultaten;
- Ik het recht heb tot verzoek mijn data te verwijderen tot één maand na deelname;
- Mijn privacy gewaarborgd blijft volgens de European General Data Protection Regulation.

Hierbij geef ik toestemming om deel te nemen.

☐ Ja (1)

☐ Nee (2)

Vul uw ID code in.

(Dit is uw geboortedag + geboortemaand + de letters van uw postcode, bijvoorbeeld: 0410AZ.)

Bij welke praktijk volgt u de centering pregnancy sessies?

▼ Ella Verloskundigen (Den Haag) (1) ... Verloskundigenpraktijk Verwacht (Vriezenveen) (7)

Waar ging uw centering pregnancy sessies zojuist over?

☐ Wasbare luiers (1)

☐ Iets anders, namelijk: (2) _____

Wat heeft u geleerd in de sessie?

- ☐ 1 (1) _____
- ☐ (2) _____
- ☐ (3) _____

In hoeverre zou u wasbare luiers willen gaan gebruiken voor uw nieuwe kindje(s)?

- ☐ Helemaal niet graag (1)
- ☐ Niet graag (2)
- ☐ Neutraal (3)
- ☐ Graag (4)
- ☐ Heel graag (5)

Geef drie redenen waarom wel/niet.

- ☐ Reden 1 (1) _____
- ☐ Reden 2 (2) _____
- ☐ Reden 3 (3) _____

In welke mate zijn de volgende zaken een **voordeel** van wasbare luiers in uw ogen?

	Helemaal niet (1)	Niet echt (2)	Neutraal (3)	Een beetje (4)	Heel erg (5)
Minder afval (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De wasbare luiers zijn altijd in huis (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geld besparen (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In welke mate zijn de volgende zaken een **nadeel** van wasbare luiers in uw ogen?

	Helemaal niet (1)	Niet echt (2)	Neutraal (3)	Een beetje (4)	Heel erg (5)
Hoge aanschafkosten (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onhygiënisch (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Niet efficiënt (veel wassen, drogen, etc.) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In hoeverre bent u het eens met de volgende stellingen.

	Helemaal oneens (1)	Oneens (2)	Neutraal (3)	Eens (4)	Helemaal eens (5)
Milieuvriendelijk handelen is een belangrijk deel van wie ik ben. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik ben het type persoon dat zich milieuvriendelijk gedraagt. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik zie mezelf als een milieuvriendelijk persoon. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Heeft u eerder kinderen gehad?

- ☐ Ja (1)
- ☐ Nee (2)

Display This Question:

If Heeft u eerder kinderen gehad? = Ja

Welke luiers gebruikt(e) voor uw kind(eren)?

- ☐ Alleen wegwerpluiers (1)
- ☐ Alleen wasbare luiers (2)
- ☐ Beide (3)

Hoeveel weken bent u zwanger?

Heeft u al nagedacht over welke luiers u wilt gaan gebruiken voor uw nieuw kindje(s)?

☐ Ja (1)

☐ Nee (2)

Display This Question:

If Heeft u al nagedacht over welke luiers u wilt gaan gebruiken voor uw nieuw kindje(s)? = Ja

Heeft u overwogen om wasbare luiers te gaan gebruiken?

☐ Ja (1)

☐ Nee (2)

Was u zich vóór vandaag ervan bewust dat wasbare luiers een alternatief zijn voor wegwerpluiers?

☐ Ja (1)

☐ Nee (2)

Tot slot nog een paar laatste vragen.

Wat is uw hoogst afgeronde opleiding?

☐ Basisschool (1)

☐ Middelbare school (2)

☐ MBO (3)

☐ HBO (4)

☐ WO (5)

☐ Anders (6)

Wat is uw leeftijd?

Wat is uw bruto inkomen per jaar voor het hele gezin?

- ☐ < 15.000 (1)
- ☐ 15.000-25.000 (2)
- ☐ 25.000-50.000 (3)
- ☐ 50.000-70.000 (4)
- ☐ > 70.000 (5)
- ☐ Zeg ik liever niet (6)

Is er nog iets dat u kwijt wilt over luiers, de sessie, uw ervaringen, deze vragenlijst, of iets anders?

Appendix L: Flyer Provided at End of Session

Wasbare luiers: Ook voor jouw kind?

Ontdek de voordelen

Schone wasmachine

In de wasbare luiers zit een inlegvel. Deze gooi je na gebruik bij het restafval. De luier zelf gaat in de was.

Eerder zindelijk

Het kindje kan eerder zindelijk worden doordat hij/zij sneller de connectie legt tussen plassen en een natte luier.

Zacht voor de billetjes

Wasbare luiers zijn zacht en comfortabel. En ze hebben vrolijke, kleurrijke prints.

Wel zo makkelijk

Moderne wasbare luiers zijn gemakkelijk in gebruik. Ze werken gewoon met drukknopjes of klittenband.

Bespaar 500 euro

Over de gehele luiertijd van 1 kind. Dit is meer als de luiers voor meerdere kinderen worden gebruikt.

Minder luiers, minder afval

24 wasbare luiers zijn nodig in plaats van 5.500 wegwerpluiers over de gehele luiertijd.

Wasbare luiers kunnen voordelig zijn voor mij, omdat ...

Rijkswaterstaat
Ministerie van Infrastructuur en Waterstaat

milieu
centraal

WasbarelulierWereld
Het openbaarheidsplatform voor wasbare luiers

WILDE
KID
WILDE
KID

Meer weten?

www.wasbarelulierwereld.nl

voor meer informatie, advies, een overzicht van alle wasbare-luier-verkooppunten, tips voor waar je tweedehands wasbare luiers kunt kopen en nog veel meer.

Waar kun je wasbare luiers kopen?

www.kaatjekatoen.nl

www.nappys.nl

www.billenboetiek.nl

En meer. Ook tweedehands!

Volg het luiერhuis op Instagram

voor advies, ideeën en ervaringsverhalen.

1 op de 5 ouders

gebruikt wel eens wasbare luiers. En dit worden er steeds meer.

Er is een hele wasbare community op Insta, je kunt daar terecht met vragen en successen. Dat maakt het ook heel leuk.

Zeker niet veel meer werk dan een wegwerpluier. Het werkt gewoon met klittenband als je wilt.

Herbruikbaar voor een volgend kindje. In het gezin of weer te verkopen.

Vooraf leed voor het milie, maar ook nog leuk!

Goed voor de huid, goede absorptie, ruikt lekkerder, makkelijk en snel.

Ze zijn zeer degelijk en gaan lang mee.

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