# USE, APPRECIATION AND EFFECT OF THE WEB-BASED INTERVENTION *POSTIVE PREGNANCY*

Bachelor thesis Health Psychology

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## Abstract

Background: Teenage pregnancy is a problem around the world. It can have many negative consequences for mother and child. Teenagers in this situation experience a decreased sense of wellbeing. That in turn leads to birth complications for the mother, which can have a negative effect on the wellbeing of the child. Therefore the web-based intervention *Positive Pregnancy*, based on the science of positive psychology, is developed to help pregnant women to enhance their wellbeing. The intervention was available in English, Spanish and Portuguese. For this study the intervention was translated into Dutch and German by the researcher.

Methods: Semi-structured interviews were conducted with five participants. The interviews were about how the participants used and appreciated the web-based intervention *Positive Pregnancy* and what effect they had from the intervention. Questions were about, for example, where and how often they used the intervention, what participants liked and disliked about the intervention and how they are feeling after following the intervention. The interviews were coded by inductive and deductive coding.

Results: Its participants evaluated the web-based intervention positively. They liked the design of the website, the modules and the exercises. Some exercises were more appreciated than others. The *Three Good Things In Life exercise* was one of the most liked exercises. Furthermore, participants showed an interest in peer support with the additional possibility of face-to-face counsel.

Conclusion: The found results can be used to improve the intervention. Minor details such as spelling errors, the recommended number of exercises as well as the possibility of peer support still needs to be reviewed. In this way the intervention can be made more attractive for other teenage mothers. Their wellbeing can be enhanced and through this other side effects like continuation of the education and subsequently higher chances to get a well-paid job, can be achieved.

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# 1. Introduction

#### Use, appreciation and effect of the positive pregnancy intervention

Teenage pregnancy is a problem worldwide. A pregnant teenage girl is defined as a girl between the age of 13 and 19, who is pregnant (Unicef, 2008). According to the World Health Organization (2016) 11% of the births worldwide were from women between the ages of 15 and 19. The highest incidences of teenage pregnancies can be observed in sub-Saharan Africa with a rate of 50%. In Latin America and the Caribbean the current rate is 18%. Half of all births from a teenage mother occur in just seven countries: Bangladesh, Brazil, and the Democratic Republic of Congo, Ethiopia, India, Nigeria and the United States. Of all the industrialized nations with Europe, the United Kingdom has the highest rate of teenage pregnancy (2,6%). In the Netherlands 0,5% of the births are from teenage mothers and in Germany 0,9% births are from teenage mothers (Hamilton BE et al., 2009). That shows how big the problem is and that there has to happen something to prevent teenage pregnancy and its consequences.

Factors associated with occurrence of teenage pregnancy in industrialized countries are sexual behavior influenced by alcohol and drugs, lack of education and information about sex health, peer pressure, incorrect use of contraception, rape, poverty and low self esteem (Unicef, 2008). Abuse of drugs and alcohol and depression can also increase the likelihood for teenage pregnancy.

Teenage pregnancy can have negative consequences for mother and child. It can cause the teenager to discontinue her education or be less likely to achieve a higher academic qualification what leads to unemployment and poor housing (Unicef, 2008). The National Longitudinal Survey of Youth found that only 35% of teenage mothers graduate from High school (Hotz, McElmy & Sanders, 1997). Also 'separation from the child's father, divorce' (Klein, 2005) and a second pregnancy are factors linked to teenage pregnancy (Corno, Molinari, Espinoza et al, 2015). Higher rates of divorce and separations are associated with teenage pregnancy. These factors can have negative long-term effects on the future and success of the children. Moreover, studies have shown that the children are more likely to drop out of school of which increase their chances of having a low paid job or living within low income demographics (Key, Gebregizabher, Marsh et al, 2007). Children of teenage parents have a higher risk of developing behavioral problems or becoming teenage parent themselves (Key, Gebregizabher, Marsh et al, 2007).

In general, a pregnancy is linked to psychological disorders for the mother, such as a depression, anxiety disorders or eating disorders (Corno, Molinari, Espinoza et al, 2015). This risk is even higher in younger teenage mothers because they have to focus on developing their own emotional and physical identity and preparing to become a mother at the same time (O'Leary, O'Neill & Dockray, 2015). Also loneliness and confusion are common feelings in teenage mothers. A pregnancy is linked to increased worry and distress in many women. This distress can lead to low wellbeing that in turn can lead to 'pregnancy complications, preterm delivery and low birth weight, and pre and post natal depression.' (O'Leary, O'Neill & Dockray, 2015). In order to prevent complications in pregnancy for these mothers, it is important to enhance their wellbeing through the reduction of stress, loneliness, confusion, worry and distress (Unicef, 2008). Thus, teenage pregnancy has a great influence on wellbeing.

#### Wellbeing

Wellbeing is defined as the state of feeling many pleasant emotions and only a few unpleasant emotions and the state of being satisfied with one's life (Diener, 2000). Factors that are related to wellbeing are 'Life-satisfaction, satisfaction with important domains, positive affect and low levels of negative affect' (Diener, 2000). People who take part in activities that are interesting to them, who experience little pain and great pleasure, report a high state of wellbeing. A study by Diener (2000) showed that 69% of people commented that wellbeing was the most important thing in life. While 62% reported life satisfaction was the most important factor for them. Wellbeing and pregnancy are strongly linked. Wellbeing is very important for women who are caring for two lives. That is because prenatal wellbeing can have a great positive impact for the health and wellbeing for the mother and the child (O'Leary, 2015). Psychological wellbeing and positive emotions are linked to effective coping with stressors and to a lower risk for depression in the future. According to Ryan and Deci (2000) wellbeing exists when the three 'basic needs' are fulfilled. These needs are the need for competence, relatedness and autonomy. The need for competence can be fulfilled through experiencing that one can reach a desired goal or outcome. Feeling close and connected to others fulfills the need for relatedness. Through doing activities that are congruent with the self the need for autonomy can be fulfilled (Reis, Sheldon, Gable et al., 2000). So experiencing wellbeing during a pregnancy is really important.

When teenagers become pregnant, they often experience a lack of wellbeing. Teenage parenthood is not only linked to 'poor educational attainment, low socio economic capacity and a higher prevalence of mental disorder' (Otterblad Olausson, Haglund et al., 2001), but also to the feeling of 'low social support, high stress, less autonomy, coping difficulties, more difficulties with trust and lower self-esteem' (Letourneau, Stewart and Barnfather, 2004). These are not only consequences of teenage pregnancy, but also reasons for it. Adolescent women are actually developing their own emotional and physical identity. Continuation of this becomes difficult, when they also have to focus on becoming a mother (Corno, Molinari, Espinoza et al., 2015). In order to make teenage mothers feel better and avoid complications linked to their pregnancy it is crucial to fulfill their need for competence, relatedness and autonomy. Only then their wellbeing can be enhanced. Therefore it is necessary to develop an intervention that aims to enhance wellbeing.

Until now, most of the interventions designed for teenage mothers focused on preventing a second pregnancy and as avoiding drug abuse (Key et al., 2008), so that a better level of education and socio economic status in this group can be reached, thusly preventing mental disorders as a side effect. These interventions are relatively effective in reaching their goal (Key et al., 2008) but not in increasing wellbeing. As a result there is the need for an intervention that focuses more on enhancing the wellbeing of a woman, because wellbeing is so important to most of the people.

Therefore researchers from the University of Valencia have designed an online training to help pregnant girls enhance their wellbeing, improve their satisfaction with life, their social support, their autonomy and self-esteem. These factors are the same components Diener (2000) suggests in regard to the need for competence, relatedness and autonomy. This intervention is not aimed at preventing mothers from drug abuse or a second pregnancy, but rather on the science of positive psychology. Positive psychology is defined as 'the study of ordinary human strengths and virtues' (Sheldon and King, 2001). Positive psychology and wellbeing are closely related. The main component of positive psychology is to focus on positivity. In order to enhance the wellbeing it is necessary to focus on positive things. Positive psychology is therefore a crucial factor in order to enhance wellbeing. According to Frederickson et al (2001) enhancing positive emotions 'hold numerous social, intellectual and physical benefits for the individual'. There are different possibilities that suggest how wellbeing can be enhanced on the basis of positive psychology.

One possibility is using the sustainable happiness model by Lyubomirsky, Sheldon and Schkade (2005). It suggests that there are three factors that are important during the

process of increasing positive emotions and in turn increasing wellbeing. The first factor is that 'appropriate strategies and practices must be performed with effort and habitual commitment' (Seligman et al., 2005). That means that in order to enhance wellbeing exercises that aim to do so, must be practiced on a regular basis and with enough effort and commitment. The second factor from the sustainable happiness model is grateful thinking. That means not taking things for granted but see them as a blessing. Through appreciative thinking people experience more satisfaction and enjoyment from positive experiences (Froh, Sefick, Emmons, 2008). Furthermore grateful thinking can be used as a coping strategy in order to see negative experiences more positively (Fredrickson, Tugade, Waugh, & Larkin, 2003). Therefore this factor is also an important one in enhancing ones wellbeing. A study by Fordyce (1977) showed that students who wrote down three good things each day, thus who practiced grateful thinking, 'reported higher levels of positive affect, increased levels of exercise, better sleep quality and fewer physical symptoms' in comparison to the students in the control group. The third factor of the model is to think positively about the future. According to the model writing about possible selves can help to find new insight about oneself, about ones priorities, motives and emotions. This results in a reduction of goal conflicts and an enhancement in self-regulation. In turn, these factors can have a positive influence on wellbeing.

Another possibility to enhance wellbeing is according to Seligman (2005) the use of five existential factors that lead to wellbeing. These factors are positive emotions, engagement, achievement, relationships and meaning. When these five factors are fulfilled wellbeing can be enhanced. Moreover these factors in turn lead to concrete functional benefits. Increasing positive emotions lead to health, social and occupational benefits. Meaning and engagement are linked to 'occupational success and higher incomes' (Schueller & Parks, 2012). Strong relationships are linked to lower mortality rate and better coping skills when dealing with stress. According to Bryant (2003) there are many positive results when people engage in savoring activities. Meaning, the focus of an individual on the positive aspects of an experience. Positive outcomes coincide with savoring, higher levels of optimism and a feeling of fulfillment in ones life. Savoring has also been known to have an affect on minimizing symptoms of depression.

#### Intervention

The intervention *positive pregnancy* is an online training for pregnant women (see Appendix B for examples of the website). A team of researchers from the University of Valencia

designed it. *Positive Pregnancy* is also available the languages English, Spanish and Portuguese. In the current project, we translated the intervention to Dutch and German. The intervention is based on the science of positive psychology with focus on enhancing its participant's wellbeing.

	Psycho education	Exercises	Advice
Module 1	Mindfulness and Self- acceptance	<i>Body scan exercise</i> getting making contact with every part of the body through listening to a body scan audio file	Two articles and one recommended book about Mindfulness
Module 2	Savoring	Three good things in life exercise Write down three good things that happened to you each day Savor the moment exercise Take a picture of a special moment you want to savor each day	One article and a video about savoring and explanations of the exercises
Module 3	Connectedness	<i>Connectedness exercise</i> Make a diagram, which shows how close you are to your important relatives and friends. So you can see on which relations you want to work	Video about connectedness
Module 4	Optimism	Best possible self exercise Write a text about your future goals, about your personality, about your job, your relationships, your health and motherhood. Baby steps exercise Write down how you plan to reach your goals pertaining to the first exercise	Two recommended books and none video about Optimism

Table 1: Description of the Intervention

The intervention *Positive Pregnancy* is a web-based self-help training intended to enhance wellbeing. Participants use a website to follow the intervention. The training is structured into four modules (see table 1), each of which is dedicated to one field in the positive psychology. The first module is dedicated to Mindfulness and Self-acceptance, the second module is dedicated to Savoring, the third module is dedicated to Connectedness and the fourth module is dedicated to Optimism. In each module there is a part pertaining to psycho education, one or two exercises and advise regarding the pregnancy. There are some recommended books and videos with further information about the pregnancy and related topics.

There are six different exercises. The *Body Scan exercise*, the *Three Good Things In Life exercise*, the *Savor The Moment exercise*, the *Connectedness exercise*, the *Best Possible Self exercise* and the *Baby Steps exercise*. These exercises are based on the theory of Seligman (2005) to enhance wellbeing through fulfilling five factors.

The first factor is positive emotions, which the exercises *Three Good Things In Life* and *Savor The Moment* are connected to. The second factor is engagement, which comes back in the *Best Possible Self exercise* and the *Baby Steps exercise*. The third factor achievement comes back in these exercises and in the *Connectedness exercise*. The fourth factor relationships can be found in the *Connectedness* exercise. Finally, the last factor meaning is connected to all of the exercises. These exercises are based on the sustainable happiness model from Lyubomirsky, Sheldon and Schkade (2005). The participants learn one of two exercises in order to enhance their wellbeing every week and are asked to practice them every day until the end of the intervention. That is what Seligman means by a 'habitual commitment'. The exercises *Three Good Things In Life* and *Savor The Moment* are designed to enhance grateful thinking, which is, as mentioned earlier, important to experience satisfaction and enjoyment. The *Best Possible Self exercise* is also an exercise that fits in the sustainable happiness model. It helps to learn about oneself.

The target group of this study grew up with the Internet; they spend approximately 196 hours online (Douneva, Jaron & Thielsch, 2015). Therefore an intervention that is online is suitable for this group. The intervention is web-based which makes it more attractive to teenage mothers and creates an online experience. The main part of the intervention is online. This means that modules and exercise instructions are online. Although this creates a virtual experience, practicing the exercises is meant to take place in real life.

#### This study

At this moment the intervention is studied in a randomized controlled study. But to get better insight in things to improve the intervention and the extent to which the theoretical processes occurred, it is important to do qualitative research. At the same time insight in the extent of use is important because effects can only occur if the intervention is actual used. From research we know that none adherence happens often regarding to web based interventions. (Kelders, Kok, Ossebaard and Van Gemert-Pijnen, 2012).

Studying use, appreciation and effect of the intervention *Positive Pregnancy* is helpful and interesting because how often participants use the intervention has a positive relation with how positive participants appreciate the intervention and the other way round. Furthermore

the appreciation is connected with the effect. It can help to improve the intervention and it can help more mothers to increase their wellbeing, experience a more positive pregnancy while ultimately having a positive life long affect on the child. It is also interesting because it offers an opportunity to see if the theoretical exercises have their expected impact. Therefore the research question is: How did the participants use and appreciate the intervention and what kind of effect and impact does the *positive pregnancy* intervention have according to them?

# 2. Methods

This study is a qualitative study. The study entails semi-structured interviews between the researcher and the participant.

#### 2.1 Participants and Procedures

The inclusion criteria for participants in this study are stated as follows: The participants must be in the age group between 18 and 19 years of age. Although a teenage mother is defined as a girl between the ages of 13 and 19 years of age, the participant had to be at least 18 in order to legally participate in the study. Also the participants have to be pregnant for the first time, able to speak and read Dutch or German and have access to the Internet. In addition the participant has decided against an abortion.

The recruitment took place through voluntary sampling. A flyer (see Appendix A) of the intervention was send to various Facebook groups and websites for teenage mothers as well as to a midwifery practice in Germany to recruit the participants. The flyer entailed some information regarding the intervention, pictures of it and an e-mail address to contact the researchers if there are any questions about the intervention or the study. It was very difficult to find respondents who fitted into the criteria for participating in the study. There was no feedback at all from the Facebook groups. With the help of the midwifery practice few pregnant teenagers who fitted in the criteria were found. Most of them did not want to participate in the study without naming a reason. Some of them said that they were too busy. Finally there were three girls who said that they would participate in the study. To recruit more participants the criteria were made less strict and it was also possible to follow the intervention one week instead of five. But also with this adjustment nobody wanted to participate in the study. So the criteria were eased again and we decided to let girls participate who were no pregnant but who were in the right age category. A lot of girls from the social environment of the researcher were asked to follow the intervention for one week. Still nobody wanted to participate. Finally it was possible to find two participants in the right age category who said they would have a close look at the intervention and then they would tell in an interview what they think about the intervention.

So the participants were three pregnant teenagers in the age category between 18 and 19 and one 18-year and one 19-year-old girl who were not pregnant. The participants were in their last year of high school and were motivated to get a good degree. So the participants were highly educated students and they had relatively high socio economic status. They were all living together with their parents, who supported them financially and emotionally.

All potential participants received an informed consent form, where they were informed about the study in terms of the focus of the study, the amount of time needed for the study as detailed instructions. Participants were allowed to stop at any time and their data would remain confidential (see Appendix C). Two interviews were conducted via telephone, because its participants lived too far away to conduct the interview in person at locations of these participants. The other three interviews were face-to-face interviews and took place in a quiet room, without distraction from other people. The three interviews from the participants who followed the intervention lasted about 30 minutes. The two participants who did not follow the intervention had the time to look through the intervention and to take notes. The interviews with these two participants lasted about 15 minutes.

#### 2.2 Interview schedule

An interview schedule was used to interview its participants about the intervention. The interview was structured in parts about the use, appreciation and effect of the intervention. Questions about the use consisted of how often the exercises were used and where these exercises were carried out. In terms of measuring customer appreciation, questions pertaining to the satisfaction of the user were asked. Some of these questions included the participants' thoughts about the exercises as well as their opinion concerning the web design. Finally, participants were asked if they felt happier after doing the intervention. The interview schedule for the two participants who were not pregnant was a bit different. They were asked questions about the appreciation of the intervention and about possible suggestions to improve the intervention. They were not asked about how they used the intervention or if they experienced any effect, because they did not follow the intervention and therefore they were not able to answer questions regarding these topics.

#### 2.3 Analysis

The interviews were transcribed verbatim and they were analyzed with the help of a deductive and inductive coding system. Deductive coding means that the interviews were coded with the help of previous defined codes, while inductive coding means that the interview was not previously coded with defined codes but rather derived from the interview data (Crosby, DiClemente & Salazar, 2006). The deductive analysis structured the interviews in three main codes: Use, appreciation and effect. The inductive analysis structured these three codes into further sub codes. For the inductive coding the interviews were read and on the basis of the reading the interviews could be structured within the three codes into parts about one topic. These parts were whole sentences, but also longer parts of one answer. Then the topics that occurred most in the interviews were summarized to the sub codes. The main code use was divided in *past* and *present use*, whereas *past use* was further divided into *when* and *where*, how often, and use of a notebook. The main code appreciation was dived into design, information, additional information, modules, exercises and recommendations. The sub code exercises was further divided into instructions and degree of difficulty. One person made the code schema and the same person also did the coding. The interviews were coded with ATLAS.ti.

## 3. Results

#### 3.1 Use

This code includes everything about when the participants did the intervention and especially where the exercises were done, how often and if they were still being used. Also the use of a notebook is included in the code. That means if the participants did use a notebook to do the exercises.

#### Use of the intervention

That means how the participants used the exercises during the five weeks of the intervention. *When and where the modules were used?* 

Two of the three pregnant participants did the intervention exercises in their bed just before going to bed in the evening. One participant did the exercises during the day. She said: *'I just did the exercises whenever I had time for it, so most of the days that was during the midday' (18, pregnant)* 

#### How often were the modules used?

None of the participants did the exercises on a regular daily basis, but every participant did the exercises at least two times a week, whereas two participants did the exercises up to four times a week for about 15 to 25 minutes. Not enough time and being tired were the two reasons for not doing the exercises daily. Because of their pregnancy the participants were getting support and less strict rules regarding to attendance and household chores, but they still had a lot to do and had busy days. They also had to see the doctor or other medical services once a while. Some were undergoing special therapies, which helped prepare them for birth and motherhood. In addition to this, the pregnancy itself was often exhausting and costs a lot of energy. One participant said:

*When I had a busy day I had no motivation to do the exercises, I just wanted to do nothing'* (18, pregnant)

#### Use of a notebook

Only one of the participants used a notebook. She liked the idea to write down what she thought about the exercises and thus the possibility to re-read it at some time. The other participants did not find it necessary to write down their thoughts, because they found it enough to do the exercises for themselves by purely thinking about them.

#### Present use

This code means to what extend the participants use the intervention after following it five weeks. Two of the participants said that they still use the exercises, because they liked them so much. They still do the *Three Good Things exercise* and the *Body Scan exercise*. Whereas the other participant stopped doing the exercises after she finished the intervention because she had not really like them to begin with and she was now too busy. In addition, the participant commented that five weeks had been long enough to do the exercises and that it was no longer necessary because she had already benefitted from its effects, she argued: *'The exercises were really good for me, but they had they effect and now I am good' (19, pregnant)* 

## 3.2 Appreciation

The code appreciation includes what the participants thought regarding the intervention in terms of what they liked and disliked about the design of the website, the modules and the

exercises. The table summarizes the codes and quotes related to the appreciation of the intervention.

Sub code		Quote
Design		'The website was soothing, the colors were really nice and warm and the moving objects in the background were really calming'
		'The website on its own made a really positive impression'
Information		'I already knew quite a lot, but there were also new information, so it was still interesting for me'
		'The information was easy to understand, they were written in an interesting style'
		' The amount of information was good, it was not to much information'
Additional information		<i>'Oh, there could be useful if you want to go really deep into a special topic, but the information on the website was enough for me'</i>
		'I was not interested enough to read the additional information'
Modules		'I once read that doing something on a regular basis for five weeks makes it a habit, and I think this was the case because I am thinking much more positive now after following the intervention'
Exercises		
	Degree of Difficulty	'Yes, you had to go deep into your own mind, that was quite a challenge'

 Table 2: What the participants liked about the intervention

 Quote

Table 3: What the participants did not like about the intervention

Sub code		Quote
Design		<i>'The blue boxes came like out of the nowhere into the nice girly colors'</i>
Exercises	Instructions	'When I saw the instructions for the fourth module I thought to myself, Oh No, so much to read. A short video would have been nice there'

#### Design

The design of the intervention received positive reviews from its participants. In addition, features such as structure, color, graphics, as well as the proportion of the text to the graphics received great reviews. One participant concluded:

'The website was soothing, the colors were really nice and warm and the moving objects in the background were really calming' (18, not pregnant)

One participant did not like the blue information boxes, because she thought that blue did not fit together with the other colors. She argued:

'The blue boxes came like out of the nowhere into the nice girly colors' (19, not pregnant)

#### Information

The participants evaluated the information about pregnancy and related topics positively. All participants said that the information on the website about the pregnancy and the birth was interesting and useful. They stated that they already did know some of the information, also the two participants who were not pregnant. But four of the participants said that they still learned something from the information and therefore found it useful. One participant felt like she already knew about the information posted on the website, but still found this information useful. Some participants already knew about different birthing options because they had already informed themselves about is. Another participant noted she received this information from her mother. The participant said:

'I already knew quite a lot, but there was also new information, so it was still interesting for me' (19, pregnant)

#### Additional information

Four participants liked that there were some links and recommend reading listed, because they liked that they had the possibly to get more information if they want to. But they did not look up these resources, because they were not interested enough. One participant did not even notice that resources were listed at all. The participants did not take advantage of this additional information, because they thought the information on the website was enough. One of the participants said:

'Oh, there could be useful if you want to go really deep into a special topic, but the information on the website was enough for me' (19, pregnant)

#### Modules

All participants liked that the intervention was divided into four modules. It made the experience more diverse and interesting to them.

'I liked the idea of the different modules, so the intervention was not boring to do, because every week there was a new topic with new exercises.'

They liked that the intervention lasted five weeks, because it was not too long, but long enough to notice an effect. One of the participants who was pregnant said:

'I once read that doing something on a regular basis for five weeks makes it a habit, and I think that was the case, I am thinking much more positive about everything now after following the intervention' (18, pregnant)

#### Exercises

#### Instructions

Participants found it easy to understand the instructions for the exercises. Only one participant had difficulty understanding the instructions the first time around. That was because there was a long text that was a little difficult to understand for her. One participant voiced the desire for more pictures and videos explaining exercises instead of text. She argued that this would reduce the time and effort needed in order to understand the exercises. Concluding that a video or picture is more interesting than the use of a text. One participant admitted: *'When I saw the instructions for the fourth module I thought by my self, Oh No, so much to read. A short video had been nice there' (19, not pregnant)* 

#### Degree of difficulty

All five participants said that the exercises themselves were easy to do, but not too easy. They were not too easy in the way they were mentally demanding; they were easy to understand and to complete. One participant said that you had to think intensively about yourself and that made the exercises a little challenging. She said:

'Yes, you had to go deep into your own mind, that was quite a challenge' (19, pregnant)

#### Recommendation

All five participants would have recommended the intervention to another teenage mother, because of the advantages they experienced by following the intervention. The time they

spent doing the intervention, was time they had to themselves and this was important, especially for expecting mothers. Also the more positive view they have about themselves, their lives and their future created an even bigger advantage for other mothers experiencing the intervention.

# 3.3 Effect

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The code effect includes what kind of effect the participants experienced in terms of the intervention itself and the effect of each exercise. The table summarizes the codes and quotes related to the effect of the intervention.

## Table 4: Experienced effects of the intervention

Sub code	Quote
More awareness of feeling and emotions	'I am much more aware of what I feel now, I focus more on my emotions then I ever did before')
Feeling better in general	'During the five weeks of the intervention I felt much better regarding my situation, and I am still feeling better'
	'Because I had to do the exercises I had to take some time for myself, and that was a good thing. Taking time for yourself is important to feel good, I think'
More awareness of the quality of relationships	'I became more aware about the kind of relationships I have with the people around me and suddenly noticed that I do not want my child to grow up in an environment with bad relationships, so I either worked on them or ended them'
More positivity and focus on good things	'Usually when I thought about my day I always thought okay that was not bad but also nor really good. Now I see how many good thing I experience during a normal day and that makes me really happy'
	'I am ending my days in a much more positive way now' 'When I am feeling not so god, I think about the positive things from my day and then I feel happy immediately.'

#### More awareness of feelings and emotions

All of the pregnant participants noticed a slightly positive effect on their wellbeing. All of them mentioned that they became more aware and conscious about themselves, about their emotions, wishes and their situation in general. One participant mentioned:

'I am much more aware of what I feel now, I focus more on my emotions then I ever did before' (19, pregnant)

#### Feeling better in general

The participants reported that the intervention had an effect in the way that they felt well during the five weeks of the intervention. One participant summarized:

'During the five weeks of the intervention I felt much better regarding my situation, and I am still feeling better' (18, pregnant)

The three pregnant participants experienced a more positive body image as a result of the *Body Scan exercise*. They felt more comfortable, more relaxed and calmer. One participant concluded:

'The body scan exercise was a good exercise for me to calm down, I often did it before going to bed and it helped me to fall a sleep faster' (18, pregnant)

#### More awareness of the quality of relationships

The three pregnant participants had actually improved their social relations because of the *Connectedness exercise*. One participant said, that because of the exercise, she knew which people she find important enough to have in her life and the future life of her baby. *'I became more aware about the kind of relationships I have with the people around me and suddenly noticed that I do not want my child to grow up in an environment with bad relationships, so I either worked on them or ended them' (18, pregnant) Another participant said that she learned to express more empathy because of this exercise. But one participant said that her relationships were already really good, so she found the exercise not really useful.* 

#### More positivity and focus on good things

All three pregnant participants experienced a more positive view on their day and so on their life in general because of the three good things exercise. They said they were more aware of little things that have a big impact on being positive.

'Usually when I thought about my day I always thought okay that was not bad but also not really good. Now I see how many good thing I experience during a normal day and that makes me really happy' (18, pregnant)

'The intervention helps to realize how much positive things there are in your life, when you really focus on them you can become much more happy. (18, pregnant)

One participant not only thought about three good things, but also about the bad things that happened during the day, as a result she realized that there were many more positive things, which also had a really positive affect on her.

### Suggestions

The main code *suggestions* is divided into the sub codes spelling mistakes, layout questionnaires, possibility for interaction and less time investment. The codes include everything participants said to improve the intervention. The table summarizes the codes and quotes related to the suggestions of the intervention. There were a few suggestions to improve the intervention.

Sub Code	Quote
Spelling mistakes	'Sometimes I was really confused because all of a sudden there were words in Spanish in the text, not to mention spelling mistakes, which made an unprofessional impression.'
Layout questionnaires	'The layout of the questionnaire were not really good, when I wanted to answer a question I had to scroll up to the top l the time, because the kind to answer changed al the time, and I could not see the whole questionnaire at once'
Possibility for interaction	'It would be nice, if you could speak with other people about the intervention, I think it would help to hear what other mothers are experiencing'
Less time investment	When you are pregnant at age 18 or 19 you are nor only pregnant there are so many thing beside that you have to deal with, and often that makes you really tired, so I think doing the exercises a few times a week is enough to still experience an effect and have enough time for other things'

## Table 5: What the participants said to improve intervention

There were some mistakes regarding to the texts on the website. One participant noticed that there were a few spelling mistakes as well as Spanish words in the text.

'Sometimes I was really confused because there suddenly was a Spanish word in the text and furthermore there were some spelling mistakes, that made a bit of an unprofessional impression' (18, not pregnant)

The participant suggested changing this. Furthermore, there were some problems with the layout of the questionnaires. According to one participant it was not possible to answer all questions at once.

'The layout of the questionnaire were not really good, when I wanted to answer a question I had to scroll up to the top l the time, because the kind to answer changed all the time, and I could not see the whole questionnaire at once' (18, not pregnant)

Besides that two participants had the wish for a more interactive intervention. These participants voiced the idea of an open forum where they could speak about the intervention, the exercises, as well as their personal situation, instead of doing this through the medium of a notebook.

'It would be nice, if you could speak with other people about the intervention, I think it would help to hear what other mothers are experiencing' (18, pregnant)

Another participant mentioned that the intervention is about positive psychology, but to know what positive psychology exactly is, you had to read more information about it. The participant suggested information regarding positive psychology in a short text on the website itself. Then it is possible to get to know what positive psychology is without doing much of an effort. One participant did not like the *Body Scan exercise*, because she found 20 minutes too long and therefore she suggested shortening the exercise to six minutes.

None of the participants found it possible to do the exercises on a regular daily basis, so all of them recommended changing it to two to four times a week.

'When you are pregnant at age 18 or 19 you are nor only pregnant there are so many other things that you have to deal with in addition. That is often exhausting. So I think doing the exercises a few times a week is enough to still experience an effect and have enough time for other things' (19, not pregnant)

# 4. Discussion

This study aimed to investigate how participants used and appreciated the web-based intervention *Positive Pregnancy* and what kind of effect the intervention had according to them. The intervention is one of the first interventions that focus on enhancing wellbeing of

pregnant women by using the science of positive psychology instead of preventing a second pregnancy and drug abuse. There are different findings regarding the use, appreciation and effect of the intervention. Overall the participants evaluated the intervention positive.

#### Use

Evaluating the use of the intervention yields interesting findings. It was recommended to the participants to do the intervention exercises everyday. However none of the participants found this possible on a daily basis. The main problem was that the participants did not have enough time, were tired very often and not able to do the exercises every day. That is especially because the participants are in their last year of high school and had a busy school day. Against the expectation that young mothers do not finishing school and so having low chances to get a good job, the participants are getting the highest school degree possible, and so they actually have good chances to get a job or even to go to university. So the participants in this study are not like the average teenage mothers. They are going to be highly educated and therefore it was not possible for them to do the exercises everyday. Not spending the recommended amount of time on the intervention could have a negative influence on the effect on the intervention. According to Seligman et al (2005) only doing the exercises on a regular basis can enhance wellbeing in the long term. The time investment in the exercises varied from two times a week to four times a week. However at the same time it can have a positive influence on the future of the participants. Despite the fact that they became pregnant at a young age, it is still very likely that they will get a good job and be able to ensure a good future for themselves and their child.

#### Appreciation

Overall the appreciation of the intervention was very positive. The participants liked the design of the website, the information on it and the modules. Most of the participants really appreciated the colors of the website. That is really important, because a good combinations of color can have up to 60% influence on whether or not the website is accepted or rejected. Liking the colors of a website has a positive impact on how long one stays on a website and that can have influence on the effect of the intervention (Importance of Color Selection in Website Design (n.d.)). Also the participants liked most of the exercises. Every participant really appreciated the *Three Good Things exercise*. The participants liked it very much and most of them are still doing the exercise, because they noticed a very positive effect on their mood and their reflection on their lives. This finding is supported by the theory of

Frederickson et al (2001) that to enhance wellbeing it is crucial to focus on enhancing positive emotions.

#### Effect

Most of the participants reported that they noticed a positive effect because of the intervention. They said that they felt slightly better during the intervention. The reported effects were that the participants had a much more positive view about their lives, they saw the positive things that happened to them and noticed that they dominate over the negative ones. These made them feel happy and satisfied. That is what the sustainable happiness model suggested (Lyubomirsky, Sheldon and Schkade, 2005). If people try to be more grateful and by this they look for the good things that happened to them during their day, they feel more satisfied and enjoy the things more they normally took for granted (Lyubomirsky, Sheldon and Schkade, 2005). And that makes them feel happier and so they experience more wellbeing. Another effect was that the experienced body image was improved and that social relations are freshened up. These findings are grounded on the theory of Seligman (2005), who said that five factors are important to enhance wellbeing. One of the factors was relationship and another one was positive emotions according to oneself. Trough improving these factors the overall wellbeing can be enhanced.

Despite their overall positive views the participants had some useful suggestions for improvement. Participants reported that a factor they missed was social interaction and support. There was the wish for peer support in order to discuss the intervention as well as the exercises. There was also the desire to speak about personal problems and the current situation. Not to mention to have someone to share their feelings with. That could be because people tend naturally to want peer contact and support from other people. As mentioned earlier teenage pregnancy is often linked to feelings of low social support. That could be a reason why participants requested more peer contact. Nuckolls et al. (1972) did a study with a group of pregnant women and the influence of social support. Two groups experienced the same life changes, but only the group with low social support experienced an increase in complications regarding to the pregnancy. That shows how important social support is for pregnant women and it could explain why some individuals need to discuss their situation with their peers. In order to improve the intervention there could be something like a discussion board, where participants can contact other participants. That could also be a reason why the participants did not use a notebook, because they did not see the benefit of writing the exercises down, only for themselves when they cannot share it with someone.

Moreover, the term Positive Psychology can be explained on the website itself and the instructions for Module 4 can be supported by some pictures or a video. Also some spelling mistakes must be corrected in order to avoid seeming unprofessional. If people see a website they decide in less than 50ms if they find it appealing or not. If they immediately detect a spelling mistake or a word that confuses them, they will not find the website appealing and therefore will not appreciate the intervention as much as they could (Douneva, Jaron & Thielsch, 2015).

#### Limitations

The results of this study should be interpreted with some cautions, due to several limitations. A limitation of the study itself was the small number of pregnant participants. Because of the recruitment difficulties only three participants were actually pregnant and did follow the intervention for five weeks. So to get a more diverse evaluation and so to get more options to improve the intervention a higher number of pregnant participants would be better. The participants all have a relatively high socio economic status, which has a positive influence on experience wellbeing. People, who have a higher socio economic status experience more wellbeing in general (Unicef, 2008). So if the study were conducted with people with a lower socio economic status, maybe the results would then show that the intervention had another effect and the participants used and appreciated the intervention differently. That the participants are all having a relatively high socio economic status could also have had an influence on the outcomes in terms of understanding. The participants reported that the exercises were relatively easy to do and also easy to understand. But if the participants would have had a lower socio economic status, maybe they would not found the exercises easy and the information could have been difficult for them to understand. Also was the intervention directed to the average teenage mother and the average teenage mother has a lower socio economic status. So the participants of this study were not a good representation of the whole target group. In further research it would be better to recruit participants with a lower social economic status to see if there is a difference in use, appreciation and effect of the intervention.

Another limitation has to do with the analysis. During the coding process only one researcher was involved. The analysis and therefore the results would be more reliable if they would have been at least two researchers who coded the interviews together and so did the analysis (Scott, 1955).

For further research it would also be interesting to change the intervention into a more interactive intervention, including the possibility for peer support in terms of a discussion board. Then they could be investigated if peer support has an influence on the use and the appreciation of the intervention and subsequently on the effect of the intervention. It could be that participants use the intervention more often if there is the possibility for interaction that could have a positive influence on the appreciation whereby this could have influence on the effect so that participants finish the intervention with higher levels of wellbeing.

# **5.** Conclusion

The participants did not use the intervention in the indented way. They did not do the exercises every day, but two to four times a week. Nevertheless the participants really appreciated the intervention *Positive Pregnancy*. They evaluated the design of the website and the intention of the exercises very positive. The participants experienced a positive effect during the intervention. The effect was that they had a more positive view on their situation, their future and themselves. Also they became more aware of their own emotions and the quality of their relationships.

The aim of the intervention was to enhance wellbeing and as a side effect to prevent teenage mothers from birth complications and negative consequences. Negative consequences like school dropout and having lower chances to get a good paid job. Also consequences like psychological disorders can, as a side effect, be prevented. Another side effect is to prevent the children of these mothers from the negative consequences of a teenage pregnancy, like behavioral problems and school dropout. But to archive these effect the intervention must be as good as possible and therefore it was important to do this study. To see how teenage mothers use and appreciate the intervention and what kind of effect their experience. Now there is more information about these three factors and the intervention can be improved to finally achieve its goal to enhance wellbeing with all its positive side effects.

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# Appendices

# Appendix A: Flyer

#### Wist je...

... dat het **welzijn van je zwangerschap** het mentale en fysieke welzijn van je baby kan beïnvloeden?

... dat hoe meer **positieve gevoelens** je tijdens e zwangerschap ervaart, hoe meer verbeter je het psychologisch vermogen, dat belangrijk is om moeilijke situaties aan te gaan ?



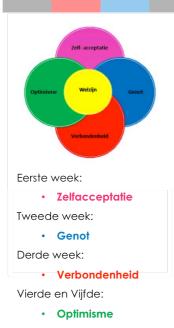
#### Laat je zwangerschap bloien!

Onderzoekers van de Universiteit Valencia hebben in samenwerking een online opleiding van de positieve psychologie voor alle zwangere vrouwen ontworpen





Deze online opleiding gaat over 5 weken e bestaat uit 4 modules. Het doel van deze opleiding is het om je te helpen het welzijn te verhogen alleen door makkelijke positieve activiteiten gebaseerd op de wetenschap van de positieve psychologie.



#### Wil je graag mee doen?

Voor meer informatie ga naar de officiële web pagina van de opleiding:

http://pospre.wix.com/bvregistratie

of schrijf een mail naar:

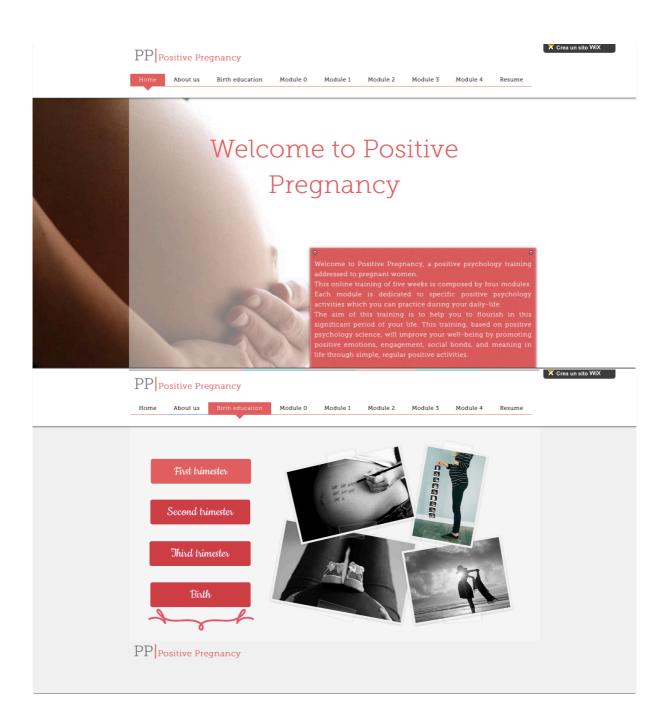
posprenetherland@gmail.com



# Bloeiende Verwachting



# Appendix B: Screenshots of the website



-	PP Positive	Pregnancy				X Crea un sito WiX
	Home	About us	Birth education	Module 0	Registration	

#### Module 0 - Positive Pregnancy

#### Did you know...

...that your pregnancy emotional well-being can influence the physical and mental well-being of your baby?

...that the more you experience positive emotions, the more you improve your psychological capital which will be extremely important to face difficult situation?

... that living a positive pregnancy contributes to decrease the possibilities to develop some psychological problems after the childbirth?

Positive pregnancy training has this aim: help you to flourish in this significant period of your life, proposing a comprehensive, creative, and supportive program in the science of human flourishing: positive psychology.



#### Let us flourish!

We can imagine our well-being as a beautiful flower. Each petal of this flower corresponds to a positive psychology dimension that foster our flourishing and, consequently the child's physical and mental well-being.

Positive Pregnancy proposes and guides you to nurture your well-being flower, through some positive activities. They consist in simple, intentional, and regular exercises that can be easily integrated into the daily routine. These activities are guite potent sources of positive emotion, which are a precious antidote against depression, anxiety, and negative emotions



Module 1 - Mindfulness and self-acceptance

#### Objectives

Welcome to the first module of the Positive Pregnancy training. This first step is dedicated to develop and enhance an attitude which allows us to fully live the moment with all our sense, being completely present with our mind and body.

In order to reach this objective, we will do an easy exercise, the Body scan exercise, which can help us to feel fully aware about our experiences.

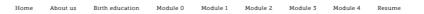
#### Disembodied mind

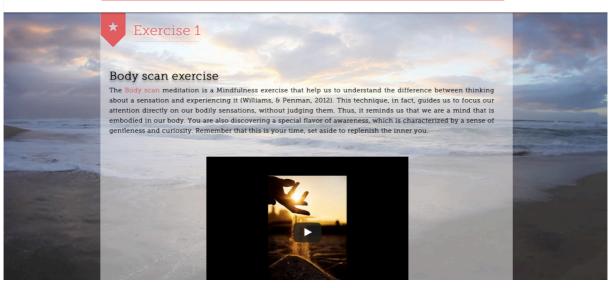
Did you ever have the impression that you live for the most of the time 'in your mind'? As if you almost forgot how to live an experience through your senses. Most of us are barely aware of our bodies at all. We can easily spend so much time in 'our head' that we almost forget that we have a body. We can spend hours planning, remembering, analyzing, judging, brooding and comparing. None of these things is 'wrong' in itself, but they can easily end up undermining our physical and mental wellbeing. Treat the body as somehow separate from us causes a profound sense of dislocation, right at the hearth of our being. If there is one thing that we need to learn in order to bring peace and 'ease of being' into our lives in the midst of a frantic world, it is how to 'come home'. to this part of



#### PP Positive Pregnancy

🗙 Crea un sito WiX





# Appendix C: Consent form



UNIVERSITY OF TWENTE.



# **CONSENT FORM**

Your participation to this study consists in taking part to an online positive psychology training addressed to pregnant women. The aim of this training is enhance the wellbeing of the future mothers through the use of simple daily positive psychology exercises. Many previous studies have demonstrated that these techniques can have a positive effect on the well-being (in term of, for instance, positive mood, positive social relations, and coping skills).

# I freely consent to participate to the study: "Positive Pregnancy training"

I have clearly understood the aim of the study explained me.

I have clearly understood that the present study has been designed in order to enhance the scientific knowledge and that the University of Valencia will use the data exclusively for the present research.

I have clearly understood that data collected during this study are strictly confidential and they in no way lead to my identification. Search results will not permit to identify the participant. Outcomes will be published in an anonymous form in any presentation or publication about the study. The data, on digital and hard format, will be kept restricted for 15 years.

I have clearly understood that I am free to withdraw anytime and without a justification and prejudices.

# Name and Surname (in block letters):

Date and place :

Signature:

In case of minor:

Name and Surname (in block letters) of parent or legal tutor :

Date and place:

Signature:

Beste Deelnemer,

Voor mijn studie Psychologie aan de Universiteit Twente doe ik onderzoek naar de webcursus *bloeiende verwachting*. Dit is een korte online cursus voor jonge zwangere vrouwen. De oefeningen in de cursus zijn gebaseerd op de wetenschap van de positieve psychologie. Ze zijn bedoeld om het welzijn van aanstaande jonge moeders te verhogen.

Omdat de cursus nog in ontwikkeling is, en de effecten ervan nog niet zijn onderzocht, vindt dit onderzoek plaats. Met mijn onderzoek wil ik graag nagaan wat jonge aanstaande moeders vinden van deze cursus. Daarom wil ik enkele vrouwen vragen de cursus uit te proberen, en na afloop met mij een interview te houden.

Als je besluit om aan dit onderzoek mee te doen vragen we je het volgende

- 1. de cursus te volgen en de oefeningen te doen
- 2. enkele keren een online vragenlijst in te vullen
- 3. nadat je de cursus hebt afgerond een kort interview met mij te doen met vragen over de cursus

hieronder worden deze onderdelen verder toegelicht:

- 1. De cursus: De cursus houdt in dat je in een periode van vijf weken vier modules gaat volgen. In elke module krijg je informatie en leer je één of meer oefeningen, die je iedere dag gaat doen. De oefeningen duren rond tien minuten. Als het je niet lukt, om de oefeningen iedere dag te doen is dat niet erg. Probeer het gewoon zo vaak te doen, als het voor jou mogelijk is.
- 2. De vragenlijsten: We vragen je om gedurende vijf weken elke week een korte online vragenlist te invullen. Dit duurt rond tien minuten. Aan het eind van de cursus vragen we je een wat langere vragenlijst in te vullen, van ongeveer 20 minuten, en ook een maand na afloop van de interventie vragen we je nog eens

een langere vragenlijst van rond 20 minuten in te vullen. De vragen in de vragenlijst gaan over verschillende onderwerpen zoals over je welzijn, of je misschien symptomen van depressie ervaart, over je angst verbonden met de zwangerschap, hoe tevreden je met je leven bent, of je sociale steun ervaart en ook over de interventie zelf. We zullen je een aantal keren dezelfde vragen voorleggen, zodat we kunnen kijken of er dingen veranderd zijn over de tijd.

3. Het interview: Het interview zou rond 30 minuten duren en ik je zal vragen wat je van de oefeningen vond, of ze je hebben geholpen en of je nog suggesties hebt voor verbeteringen. Het interview kan per telefoon, Skype of persoonlijk plaats vinden (bij je thuis of op een neutrale plek).

## Wat gebeurt er met je gegevens?

De scores op de vragenlijst worden (anoniem) opgeslagen en meegenomen in een groot onderzoek onder leiding van prof. Banos van de Universiteit Valencia.. De antwoorden op de interviews worden verwerkt in een verslag, waarin nergens namen zullen worden genoemd, en ervoor gezorgd wordt dat de informatie niet naar personen herleidbaar is.

## Waarom zou ik meedoen?

Mogelijke voordelen van deelnemen zijn:

Misschien ga je jezelf sterker en veerkrachtiger voelen. Dat komt doordat de oefeningen zijn gebaseerd op bestaande oefeningen, waardoor mensen zich vaak beter en veerkrachtiger gaan voelen. De oefeningen zijn gebaseerd op de positieve psychologie, en die heeft als doel je welzijn te verbeteren. Een andere reden om deel te nemen zou kunnen zijn dat je ons helpt de cursus verder te verbeteren. Zo help je in de toekomst misschien andere jonge moeders.

Mogelijke nadelen zijn:

Om de cursus te volgen en de vragenlijsten in te vullen moet je wel even wat tijd vrij (kunnen)

#### Maken.

### Deelname is 100% vrijwillig!

Wij hopen dat je mee wil doen. Bedenk echter dat alleen jij bepaalt of je mee wil doen. Ook als je halverwege wil stoppen, kan dat, zonder verdere opgave van reden.

Indien je mee wil doen aan dit onderzoek, vul dan a.u.b. het volgende formulier in:

- Ik verklaar op een voor mij duidelijke wijze te zijn ingelicht over de aard, methode, doel van het onderzoek.
- Ik weet dat de gegevens en resultaten van het onderzoek alleen anoniem en vertrouwelijk aan derden bekend gemaakt zullen worden.
- Mijn vragen zijn naar tevredenheid beantwoord.
- Ik stem geheel vrijwillig in met deelname aan dit onderzoek.
- Ik behoud me daarbij het recht voor om op elk moment zonder opgaaf van redenen mijn deelname aan dit onderzoek te beëindigen.

Naam deelnemer: .....

Datum: .....

Handtekening deelnemer: .....