

**Value Change and Well-Being During Pregnancy and Postpartum, In First-Time Mothers**

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## **Abstract**

Past research has described becoming a mother for the first time as being akin to a major life event (Oakley, 1980, as cited in Rogan et al. 1997) with easy adaptation unusual and with such a transition adversely impacting upon well-being (Clark et al. 2008). Earlier research into values has suggested that they remain relatively stable in adulthood but are vulnerable to change following a major life transition. Notwithstanding this, there is little or no research on value change during pregnancy and following giving birth and to consider any potential impact that this may have on the psychological well-being of the new mother. The current project was a longitudinal study looking at value change and the impact that this would have on well-being in first time mothers during pregnancy and again postpartum. Participants were recruited online and then asked to complete an online battery of measures. The results demonstrated that following this life transition of child birth there was no specific change in the structure of values, but did evidence that certain values did increase in their level of importance from pregnancy to postpartum, whilst others decreased. Results also demonstrated that value fulfilment reduced from pregnancy to postpartum and confirmed that this was clearly linked to the mother's well-being. Lastly, the appraisal of the pregnancy was linked to value fulfilment and higher levels of cognitive well-being, both during pregnancy and postpartum and also a higher level of affective well-being postpartum. In conclusion the results demonstrated useful findings which have allowed there to be more understanding of values and value fulfilment in the context of this life transition and how this is linked to both the appraisal of the pregnancy and how all are linked to subjective well-being.

## Chapter 1: Introduction

The arrival of a child represents a highly emotional, major life transition. It is one which brings with it enormous and far reaching change, especially in first time mothers. While the transition to parenthood has, on the one hand, been associated with positive psychological change and health benefits (Erikson, 1963, as cited in Galatzer-Levy et al. 2011; Umberson, 1987), it has also been associated with; increased fatigue, depressed mood, feelings of stress, reduced self-esteem and a small but significant decline in marital satisfaction (Cowan & Cowan, 2000). Galatzer-Levy et al. (2011) spoke about the seemingly paradoxical findings of research concerning this life transition, attending to the fact that parenthood is highly valued for its hedonic qualities and is associated with positive affect, and yet it has been consistently linked to negative subjective well-being (McLanahan & Adams, 1987).

Feldman (1987, as cited in Levy-Shiff, 1998) noted that mothers vary in their response to parenting, ranging from parental dysfunction and severe depression, through various degrees of stress and strains, to a sense of wellbeing and efficacious parental functioning. Yet despite the evidence that such a transition is often a very difficult time, the dominant narrative to becoming a new mother is often positively focused and often there is little acknowledgment given to more difficult experiences. Thus, what is evident from research is that this transition is associated with huge change, which has been linked to subjective well-being. However, there remains little focus on what theory underpins such change and how this may be used to explain why difficulties are experienced.

It adds to our understanding of this transition to briefly consider the experience of mental illness in this population. It is well recognised that perinatal women are at an increased risk of experiencing affective illnesses (Royal College of Psychiatrists, 2000, as cited in Allan et al. 2013). According to a survey, two in five parents experience a mental health issue during or after pregnancy with their first child and many feel too afraid to seek professional support (NICE, 2014)<sup>1</sup>. However there has been the recent

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<sup>1</sup> As sourced from <https://www.nice.org.uk/guidance> on 1st May 2016



move towards thinking about how individuals strive to maintain positive well-being. This has been mirrored by the National Health Service, where there has been an increasing interest in recovery being more than the alleviation of negative symptoms, and instead being about the engendering of physical, mental and social well-being (National Institute for Mental Health in England [NIMHE], 2005).

Furthermore, research has yielded results that suggest a link between subjective well-being and human values (Sagiv & Schwartz, 2000; Sagiv et al. 2004), which is the primary focus of the current research. Thus, the aim of the current project is to establish if there is value change after becoming a mother for the first time and how this is linked to well-being. As discussed, research demonstrates that becoming a new parent is a life transition that is commonly associated with a reduction in well-being, and a thus life transition that could contribute to value change. It is commonly understood that human values are formed during adolescence (Erikson, 1968) and that they remain relatively stable in adulthood, unless there are substantial changes across multiple aspects of an individual's life. There are sources of value change in adulthood, such as: historical events that impact on specific age cohorts (e.g., war, depression), physical ageing (e.g., loss of strength or memory), and life stage (e.g., child rearing, widowhood) (Schwartz, 2005). So, it would be expected that such a change would be accompanied by value change.

The following research offers a review of the literature surrounding this topic area and how it relates to the current project. The review will be structured to cover the main areas of existing literature on theories of human values, the process of value change, the different types of value change, value change following a major life event and value change and well-being. This will then be discussed in the context of becoming a first-time mother. Lastly, we will discuss appraisals in relation to both value change and well-being.

## **What are Values?**

Since the development of value based research there have been numerous conceptualisations of what a 'value' is and how it can be most accurately understood, yet there ceases to be one primary definition. Thus, it is first useful to attend to the different definitions of human values, to facilitate our understanding of what they are and how they relate to the current research project.

Values convey what is important to us in our lives (Calogero et al, 2009). They are defined as broad goals that guide people's perceptions, attitudes and behaviours across contexts, cultures and time (Rokeach, 1973; Schwartz, 1992). Bardi et al. (2014) further contribute to the suggestion that values are linked to behaviours and that when people choose to change their life in a particular way, for example by embarking on a particular area of study or career, this will be partly based on their values. This is of particular importance to the current project.

Value theorists have assumed an understanding of values "as the criteria people use to select and justify actions and to evaluate people (including the self) and events" (Schwartz, 1992). Individuals hold different values with varying degrees of importance. A particular value may be very important to one person but viewed as unimportant to another (Schwartz, 2005). They are widely viewed as central aspects of the self (Brewer & Roccas, 2001; Rokeach, 1973) and are expected to be less changeable than attitudes and needs.

When we consider defining a human value, it is useful to think of what is important to us in life. Literature suggests that we as individuals hold a number of values with varying degrees of importance, for example a particular value may be very important to one person and less so to another (Schwartz 1992). Values are thought to be infused with feeling and can be defined as desirable goals that motivate action. The overriding view is that values develop from a combination of socialisation, life experiences, personality traits, individual needs and culture (Rokeach, 1973; Schwartz, 1992).

Schwartz and Bilsky (1990) define values as cognitive structures, and others conceptualise them more specifically as schemas, which are defined as “well-organized structure(s) of cognitions about some social entity such as a person, group, role or event” (Michener et al. 2004). Schwartz and Bilsky (1990) suggested that values can be retrieved from memory with conscious awareness on demand, which suggests that people know what their values are and that they can be measured directly by asking people to rate their importance (Bardi & Goodwin, 2011). Conversely, there is the understanding that values can also operate without consciousness (Schwartz, 1996). Bardi & Schwartz (2003) showed that people are motivated to act according to their values without being consciously aware of the driving force of these values at the time of their action.

Overall, a human value is understood to be a cognitive construct that conveys important life goals. They are general beliefs about personally desirable end-states or behaviours, which are ordered by their personal importance, guide evaluation and behaviour (Schwartz, 1992). They are connected to perceptions, attitudes, goals, and guide life choices. Thus, by considering what a value is and attending to the different conceptualisations, we are able to see how complex a human value is and consider how following such a life transition they may change.

### **Development of Values Research**

When considering human values, it is beneficial to think about how values research has developed and changed from its early development. Spranger (1928, as cited in Allport 1961) proposed six types of people, corresponding to their most important and general beliefs, ways of thinking and preferred patterns of living. Each type is described as being oriented toward a basic value: (1) Theoretical: truth; (2) Economic: usefulness; (3) Aesthetic: harmony and beauty; (4) Social: love for people; (5) Political: power and leadership; (6) Religious: unity or moral excellence. The idea was further developed by Allport (1961), who reasoned that a personal philosophy of life, related to values, is a core feature of personality which implies a direction of motivation, future goals and current choices.

Rokeach (1973) built on this and offered a new theory, defining human values as ‘core conceptions of the desirable within every individual and society’. This theory suggests that values serve as standards or criteria to guide not only action but also judgment, choice, attitude, evaluation, argument, exhortation, rationalization, and attribution of causality’ (Rokeach, 1973). He posited that the study of values was pivotal in facilitating our understanding in research within any discipline. Rokeach created the Rokeach Value Survey (RVS)<sup>2</sup>, to allow for this exploration. The survey provided a theoretical perspective on the nature of values, which are understood within a cognitive framework and consist of two sets of values. Rokeach (1973) defined instrumental values as ‘beliefs or conceptions about desirable modes of behavior that are instrumental to the attainment of desirable end points, such as honesty, responsibility and capability’. He defined terminal values as ‘beliefs or conceptions about ultimate goals of existence that are worth surviving for, such as happiness, self-respect and freedom’.

Schwartz offered what is arguably the most used and well research theory on human values, which will be discussed in more depth in the next section. However, it is useful to attend to the development of Schwartz Value Theory while discussing how values theories have developed. Schwartz (1992) considered values as being what we consider as important to us in our lives. He suggested that as individuals we each hold numerous values that vary in terms of their importance and this may differ between individuals. The theory aims to measure values that are recognised throughout all major cultures and are thus universal. Schwartz (2005) outlined five main aspects in his definition of human values, which are considered important by many value theorists and have been regarded as the most useful way to conceptualise basic human values. His central suggestion was that values are beliefs tied inextricably to emotion and not objective, cold ideas. According to Schwartz, values are a motivational construct and they refer to the desirable goals people strive to attain. These values transcend specific actions and situations and are abstract goals. The abstract nature of values distinguishes them from concepts like norms and attitudes, which usually refer to specific actions,

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<sup>2</sup> The Rokeach Value Survey (RVS) is a values classification instrument. The instrument is designed for rank-order scaling of 36 values (Rokeach, 1973)

objects or situations. Values guide the selection or evaluation of actions, policies, people and events. That is to say, values serve as standards or criteria and are ordered by importance relative to one another. People's values form an ordered system of value priorities that characterize them as individuals. This hierarchical feature of values also distinguishes them from norms and attitudes. The Values Theory defines values as desirable, trans-situational goals, varying in importance, which serve as guiding principles in people's lives (Schwartz, 2005). The five features discussed are common to all values, but what separates values is the motivational goal which they express.

### **Schwartz Theory of Human Values**

This section will focus on the exploration of Schwartz' early theory of Human Values (1992) and its importance to the current project, first attending to the rationale and justification for adopting this theory as central to this project and then by outlining the main features of the theory. The section will then consider the theory in light of its development and refinement.

Schwartz (1992, 1994) developed a schematic representation of what he finds to be an almost universal structure of human values. This theory is commonly regarded as the most well-established values theory and is empirically grounded (Cieciuch et al., 2013). Furthermore, this theory has been developed and refined in light of empirical evidence across many iterations (e.g. Schwartz & Bilsky, 1990; Schwartz, 1992; Schwartz, 2005; Schwartz et al., 2012). This theory offers a wealth of empirical evidence as to the robustness of the measure and led to the development of a number of standardised measures of human values. The first instrument developed from this theory was The Schwartz Value Survey (SVS; Schwartz, 1992, 2005)<sup>3</sup>, followed by The Portrait Values Questionnaire (PVQ) and then The Portrait Values Questionnaire-40 (PVQ-40), which will be used as the values measure in this project and is discussed in more detail later. Thus, the justification for using it as the central theory for this

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<sup>3</sup> The Schwartz Value Survey (SVS; Schwartz, 1992, 2005) is a scale used to measure values by asking respondents to rate the importance of 56 specific values and was developed before the PVQ-40.

project is due to both its wide acceptance as the most established human values theory and its vast empirical literature base.

As discussed Schwartz (1992) developed a theory of human values, that identified ten motivationally distinct, broad and basic values, which are derived from three universal requirements of the human condition: needs of individuals as biological organisms, requisites of coordinated social interaction, and survival and welfare needs of groups. The ten basic values are intended to include all the core values recognized in cultures around the world. These ten values cover the distinct content categories found in earlier value theories, in value questionnaires from different cultures and in religious and philosophical discussions of values. It is possible to classify virtually all of the items found in lists of specific values from different cultures into one of these ten motivationally distinct values. The ten values are self-direction, stimulation, hedonism, power, achievement, security, conformity, tradition, benevolence and universalism, and they are ordered by importance (see table 1.1).

**Table1.1:** *Definition of Schwartz 10 human values and the motivational features*

<b>Value type</b>	<b>Motivational emphasis</b>
Power	Social status and prestige, control or dominance over people and resources
Achievement	Personal success through demonstrating competence according to social standards
Hedonism	Pleasure and sensuous gratification for oneself
Stimulation	Excitement, novelty and challenge in life
Self-direction	Independent thought and action – choosing, creating and exploring
Universalism	Understanding, appreciation, tolerance and protection for the welfare of all people and for nature
Benevolence	Preservation and enhancement of the welfare of people with whom one has frequent personal contact
Tradition	Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide
Conformity	Restraint of actions, inclinations and impulses likely to upset or harm others and violate social expectations or norms
Security	Safety, harmony and stability of society, or relationships, and of self

Fundamental to this theory is the idea that values form a circular organisation (see Figure 1) which reflects the motivations each value expresses.



Figure 1: Schwartz Human Value Wheel

The circular pattern of the value wheel explains the pattern of conflict and compatibility between values, which is referred to as a ‘motivational continuum’ (Schwartz, 1992). Opposing value types stem in opposing directions from the centre of the structure and values which are compatible are in close proximity going around the circle, in light of shared motivational orientations for adjacent values (Bilsky & Schwartz, 1994). One aspect of the value structure is that the pursuit of any value may conflict with the pursuit of another, possibly opposing, value. Schwartz (2012) offered the example that pursuing achievement values will typically conflict with pursuing benevolence values, as the action of pursuing one is incongruent with pursuing another. As illustrated by the value structure, values that are next to one another or that share the same section of the diagram, have more overlapping motivational underpinnings.

More recently, Schwartz et al. (2012) presented a refined theory of human values, which extended upon the 1992 theory of ten human values by identifying a continuum of nineteen meaningful, conceptually distinct values (Schwartz, 2012) (see figure 2).



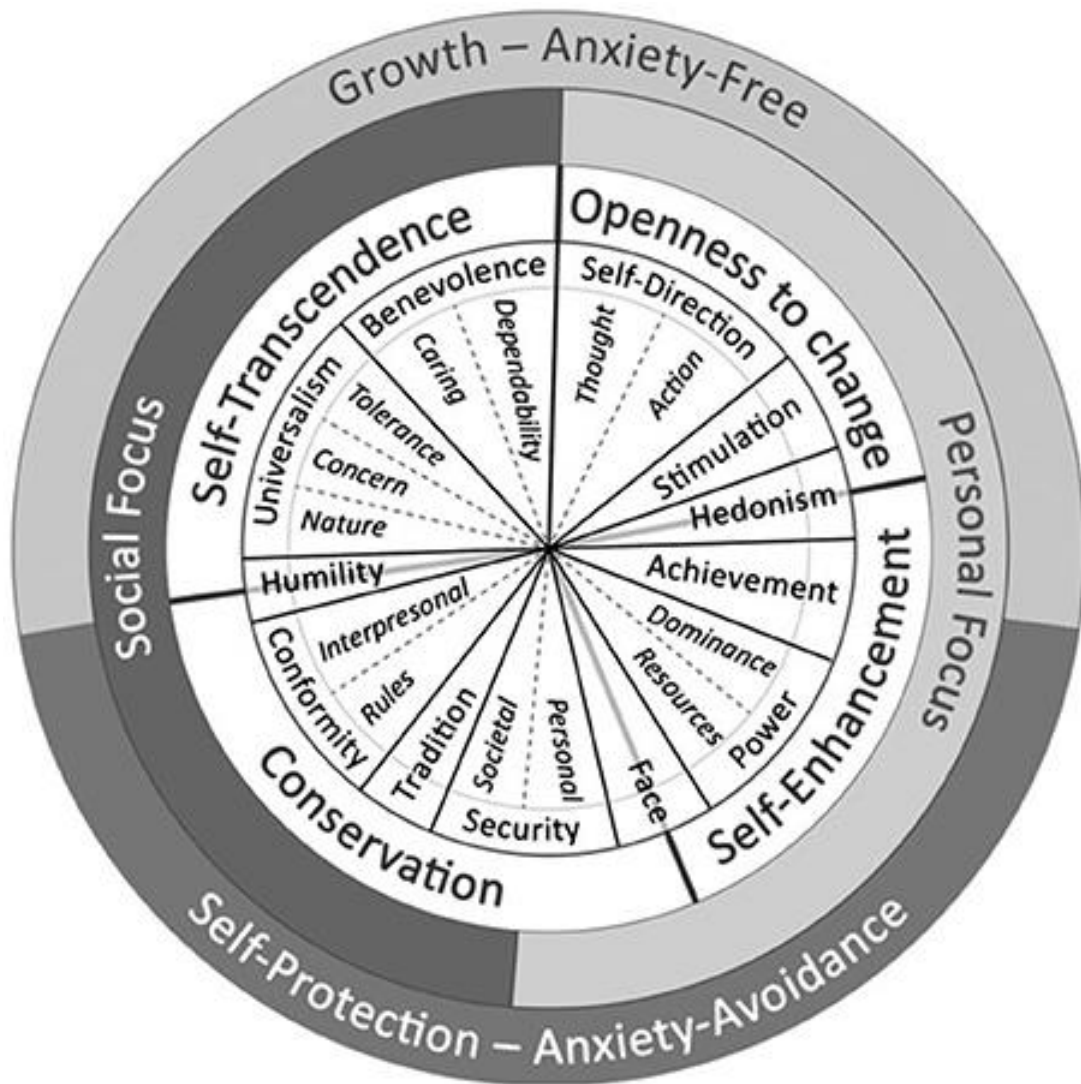


Figure 2: Schwartz et al. (2012) refined theory of human values.

Again, the refined theory depicted the values as being within a circular structure, but increased the number of values from ten to nineteen. Schwartz et al. (2012) noted that this provided greater heuristic and explanatory power than the original theory of ten values. The refined theory allows a more precise expression of the central assumptions of the original theory. The value structure can be further divided into anxiety-based and anxiety-free values. Anxiety-free values include: benevolence, universalism, self-direction, stimulation and hedonism. Anxiety-based values include: power, tradition and security (Schwartz, 2012). Anxiety-free values promote personal growth, whereas anxiety based values are directed by threat evoked motivation in an attempt to cope with uncertainty (Daniel et al. 2013).

Despite the overwhelming acknowledgement that Schwartz theory has made a valuable contribution towards the development of values research, the theory has more recently been met with some critique. Gouveia et al. (2014) recently posited a functional theory of basic human values which they describe as an improvement on current dominant value models, namely, the theory of Schwartz (1992). Within their proposal they suggest that there are a number of aspects of Schwartz' theory that are open to review. Firstly, they note that due to the various configurations that the Schwartz theory has undergone since its inception, that this suggests that the theory lacked parsimony and theoretical focus due to the number of different configurations that it had undergone since its initial development.

Furthermore, they noted that two primary functions of values can be identified in the existing psychological literature, being that values guide actions (Rokeach, 1973; Schwartz, 1992) and are cognitive expressions of needs (Inglehart, 1977; Maslow, 1954). Yet, they suggest that this is not attended to in Schwartz theory and that a theoretical and explicit explanation of the underlying functional characteristics of this structure has not been explored by this theory.

They also comment on the circular motivational continuum of values, which has been a central facet of Schwartz theory. They suggest that this theory pays attention to only a two-dimensional structure, while they propose a two-by-three-dimensional structure. The authors suggest that the Schwartz theory (1992) posits that the two value functions form distinct functional dimensions. The first dimension outlines a circle of goals based on the type of orientation values serve when guiding human behaviours, while the second dimension outlines levels of needs based on the type of motivator values serve when cognitively representing human needs.

In an earlier paper Gouveia (2003) discussed the similarities between the functional model and Schwartz model of values. Gouveia (2003) noted that despite the numerical difference, the motivational types were easily identified according to the functional dimensions. However, they suggested that despite the findings suggested existence values (reflecting survival needs) are underrepresented in Schwartz's value instrument and model.

It is important to attend to the critique that is offered with regard to Schwartz value theory to ensure that we can offer a balanced perspective when discussing the literature. Equally, through attending to such critique we are able to say with a degree of confidence that we are basing the study on a theory that is rooted in previous empirical research, which offers a better degree of validity. It is also equally important to recognise that there exist very little and that as a theory and measurement of values, it remains widely used in empirical research and hence the theory and measure of choice on which the current study rests.

### **Theories of Value Change and the Suggested Structure of Change**

As discussed, early research has led to the overriding perception that values are relatively static. However, there is now a more shared understanding that values may be vulnerable to change, and that this can be in response to a number of triggers and carried out through a number of different routes. More specifically, research suggest that values are more vulnerable to change in response to a major life event, yet the empirical research base for this remains sparse.

Bardi and Goodwin (2011) defined value change as a change in the importance of a value, with such a change being either short- or long-term. They suggested two routes of value change: automatic and effortful. They proposed that automatic value change can be better understood through understanding values as schemas. They noted that value change can occur automatically in the presence of certain environmental features, which may be associated with certain schemas. They suggested that an environmental cue may act to prime a certain schema, thereby leading to a response to the event using this schema. They suggested that this primed schema may include values that the individual does not hold as particularly important, but at the time of activation these values may affect responses to the event due to the activation of the schema. They added that this process automatically strengthens the links of schemas that include specific values. Thus, the automaticity of this process may lead to value change. The authors defined effortful value change as being related to environmental cues, which may directly invoke thinking about values. They suggest that this may lead people to challenge their values, re-evaluate their importance, and as a result possibly

change them. Hence, this route to value change involves awareness and effortful processing.

Bardi and Goodwin (2011) further suggested that there are five facilitators of such change: priming, adaptation, identification, consistency maintenance, and direct persuasion attempts. For the purpose of this project, we will be focusing on adaptation of values to a new life situation. For example, the authors suggested that new life situations are often accompanied by new environmental cues, such as a baby crying in the case of parenthood, which may lead to automatic change to values. Equally, value change may be more effortful. For example, a new life situation may challenge a person's values as the previous values are not adaptive in the new situation.

After discussing the route of value change, it is helpful to distinguish between the two types of value change. Bardi et al. (2009) discuss mean level changes and rank order changes. They explain mean level change as a change in the mean importance of a value across a sample of participants, for example a change across a group of college students. They define rank order change as being a change in the order of the values an individual hold, suggesting that intra- individual value change occurs when someone changes the order of their values in terms of importance.

Research has consistently demonstrated that both types of change can occur in response to a new life situation. Bardi et al. (2009) looked at value change in high school students in Germany and neighbouring countries, as the authors suggested that this was a time of change for the participants. Data on values was collected using the Portraits Value Questionnaire (PVQ-40; Schwartz, 2001) at the start and the end of the school year. The results suggested that there was both intra-individual value and mean value change. This added to research that suggests that value change is more likely to occur during adolescence than during adulthood, as values are less formed and less enmeshed with past experiences (Erikson, 1968, as cited in Daniel et al. 2013).

The authors employed the same methodology in a subsequent study, however, this time using college-aged participants (Bardi et al. 2009). They sought to determine if the same value change would occur in older participants, as it is widely accepted that

values are likely to be more stable in older participants and will change only following a major life transition. The Schwartz Value Survey (SVS; Schwartz, 1992) was used to measure values, as this is widely regarded as having good internal reliability, temporal stability and external validity. The questionnaire was administered online at both time points. The results again supported value change on both the mean and intra-individual levels. There was a mean level decrease in the importance of benevolence and an increase in the importance of power. In terms of the intra-individual level, universalism and benevolence exchanged places, as seen in study one.

Schwartz and Bardi (1997) offer a further explanation as to the route of value change, suggesting two processes: acclimatisation and compensation. They suggest that many individuals form value priorities which are matched with the reinforcement contingencies that their life circumstances afford them, thus they acclimate their values to match with their circumstances (Schwartz & Bardi, 1997). Therefore, values which are attainable are pursued and those which are not are reduced in importance. However, they suggest that for a more restricted set of values, a compensation mechanism may sometimes be applicable. This usually applies to values that are deemed out of personal control, for example personal security and material well-being. The compensation theory is based on the theory of Human Needs as proposed by Maslow (1959) and the idea of deficit needs. Maslow (1959) suggested that when an individual sees a value being more deprived, that this will actually work to raise this value in importance. For example, as an individual experiences more economic hardship, they come to value the attainment of wealth more (Inglehart, 1991, as cited in Schwartz & Bardi, 1997). This underpins the idea that value structure and change is an adaptive process. This was supported by the findings of Schwartz and Bardi (1997), who looked at value priority and acclimatisation in Eastern European Countries.

To summarise, the literature discussed above demonstrates value change following a life transition, with the studies being suggestive of such change across different age ranges and in response to a range of life transitions. The evidence further suggests that change can be at both the mean and intra-individual level. However, as discussed in the research and often noted as a limitation (Bardi et al. 2014), much of the literature on value change has used participants recruited from either schools or

universities. With this in mind, it would be useful to add to the evidence base with a different research population who are experiencing a life transition.

### **Different types of Value Change Following a Life Transition: Self-Selection Vs Socialisation**

Literature has successfully demonstrated value change following a life transition. However, there is debate as to whether values fit the transition from the outset, suggesting that such transitions are selected due to the values that are already held (self-selection), or conversely, whether values are adapted to better fit the transition (value socialisation). Value socialisation can be understood as one kind of adaptation (Bardi et al. 2014). To determine this, three longitudinal studies looking at adjustment to values in response to self-chosen life transitions were carried out by Bardi et al. (2014). The three studies looked at different life transitions and different extents of life changes.

The first study looked at police trainees in England. Participants were asked to complete the Schwartz Value Survey (1992) during the induction week and again during training. The values of police trainees at the beginning of their training were compared to the general population in Britain using data from the European Social Survey (ESS), which includes a value questionnaire based on the Schwartz (1992) Value Survey. The results indicated that police trainees already held values that were in fitting with their occupation when they started training and they differed from that of the general population. This is suggestive of choosing life transitions that fit values from the outset.

In study two (Bardi et al. 2014), questionnaires were distributed to psychology and business students at a university in England. Participants were asked to complete questionnaires at the beginning of each academic year. Similarly, participants completed the Schwartz (1992) Value Survey. The results suggested that the value profile of psychology students at the beginning of their studies differed from the value profile of business students at that time. Psychology students attributed higher importance to benevolence and universalism values and lower importance to power values compared with business students. The different value profiles of each set of

participants were suggestive of self-selection. However, unlike the previous study the results also demonstrated a difference within each of the groups, suggesting some evidence for socialisation.

The third study by Bardi et al (2104) was a longitudinal study of Polish Migrants who planned to stay for at least two years in the UK. They completed the Portrait Value Questionnaire (PVQ-40; Schwartz et al. 2001) survey at three time points. The data from the participant's values questionnaire was compared with results from Polish section of the ESS, to determine if the value profile of Polish migrants would differ from people remaining in Poland or be similar to the value profile of people in Britain. The results demonstrated that the value profile of Polish migrants differed significantly from that of people who had remained in Poland and were more similar to British values, which was suggestive of value-based self-selection. In addition, the longitudinal data demonstrated value socialisation as they found that values changed over the three time points, becoming more similar to the value profile of British nationals. Thus, this study demonstrated both value-based self-selection and value socialisation into life transitions. It could therefore be understood that the more a transition impacts upon aspects of life, the more value change is likely to occur. As discussed, becoming a new parent is accompanied by many life changes, including increased fatigue, depressed mood as well as changes to role and a substantial reorganisation of the self (Cowan & Cowan, 2000). This, it is likely to be a time when values are likely to be vulnerable to change (Schwartz, 2005).

The research findings demonstrate two different types of value change, automatic or effortful, occurring in response to different life transitions and across different populations. Furthermore, all of the studies discussed use similar methodologies to the methodology adopted in the proposed thesis research. This allows inferences regarding the subsequent findings to be drawn between them, namely that values do change following a major life event, both as the result of self-selection and socialisation.

### **Adaptation of Values Following a Major or Traumatic Life Event**

Attention had been given to both routes (automatic and effortful) and types of value change (mean and rank order) and whether transitions are self-chosen or whether values are socialised to fit with life transitions. As discussed through the introduction is the idea that giving birth and becoming a parent is akin to a major event. Oakley (1980, as cited in Rogan et al. 1997) described motherhood, especially with first time mothers, as being akin to other major life events, concluding that easy adaption to motherhood is in fact unusual. Furthermore, pregnancy, giving birth and the early parenthood period involve upheavals in emotions, relationships, roles, and values, which demand considerable attention (Tudiver & Tudiver, 1982). Studies have shown that unsuccessful resolution of these upheavals has been associated with adverse outcomes for both mother and child (Tudiver & Tudiver, 1982). Despite this there is little research on value change during pregnancy and following giving birth and the potential impact that this may have on the psychological well-being of the new mother. With this in mind, it is useful to consider the existing literature on value change in response following a major or traumatic life event.

As discussed, value change can occur following a life-transition. However, when considering value change, it furthers our understanding to consider change following stressful and traumatic life events, such as terrorist attacks. It is suggested that such an event can challenge an individual's assumptive world, undermining implicit but fundamental beliefs and values (Janoff-Bulman, 1989, as cited in Verkasalo et al. 2006) and consequently this can lead to value change.

Verkasalo et al. (2006) assessed values before and after the terrorist attack on the World Trade Centre in America. Participants were from four samples of high school students from Helsinki, Finland. One set of data was collected prior to the attacks, the second set of data was collected on the day immediately following the incident, the third was collected between 11 and 48 days after the attack and fourth sample was collected 5 months after the World Trade Centre attack. Values were measured using the Schwartz Value Survey (1992). The data collected the day after the attack showed higher security values, however it was noted that this change was short-term and values changed back when compared to a matched sample of value measure obtained before the attack. This literature therefore suggests that life changes are likely to lead to value



change, whether they are self-chosen or more traumatic events, although the evidence of this is again sparse in quantity. Verkasalo et al. (2006) discuss the lack of literature focusing on responses to traumas using a longitudinal design.

Daniel et al. (2013) carried out a longitudinal study on value change following exposure to war, in a group of adolescents. The authors found that value change did occur, and found that anxiety-based values increased and conversely that anxiety-free values decreased in importance, representing a decreased focus on growth and interest in others (Schwartz, 2010). This further adds to the literature that value change does occur in response to traumatic life circumstances.

Pregnancy and the transition to parenthood is a major developmental period with important and far reaching implications. Research has consistently suggested that this is often a stressful event and brings about more profound changes than any other developmental stages (Deave et al. 2008). Women widely report that becoming a mother, especially for the first time, brings with it massive changes to life-styles and routines. Easy adaptation is not usual, is uniformly problematic and is not bound by any time-frame (Darville et al. 2006). Thus, becoming a parent is akin to a major life event and is likely to impact on individual values and lead to value change. This change may have psychological consequences, yet to date there is no research exploring this.

### **Value Fulfilment**

In addition to looking at value change, the study will also look at the extent to which participants feel that they have the opportunity to do activities that allow expression of certain values, after becoming a mother. We will discuss the existing literature on value fulfilment and consider how this is related to well-being.

Existing literature suggests that values are linked to behaviour, with people behaving in a way that allows the expression of values (Bardi & Schwartz, 2003). Sagiv et al. (2004) suggested that environments that are compatible with an individual's goals and values are more likely to provide them with opportunities to fulfil such goals and values, but when an environment is incongruent values will be blocked from

fulfillment. Value fulfillment has been linked to the experience of positive well-being resulting from successful attainment of values (Brunstein et al.1998; Oishi et al. 1999). This adds to the perspective that the fulfillment of values facilitates positive well-being.

Adding to this explanation, Sagiv and Schwartz (2000) suggested the Person-Environment Value Congruency Theory, positing that it is linked to well-being. They noted that environments that are congruent with an individual's goals and values afford them with opportunities to attain their important goals. Conversely, incongruent environments do not offer individuals with opportunities to act on their values, which blocks the fulfillment of their important goals.

Thus, if values are positively correlated with the opportunity to fulfil, we look for more opportunities to express values that are important. Conversely, values will be negatively correlated with value fulfilment if participants are frustrated that during pregnancy and early motherhood they are unable to do things that express important values. This will be discussed further in the hypothesis section.

### **Definitions of Well-Being**

As discussed, as part of the study we will be looking at well-being from pregnancy to postpartum, to establish if this is associated with value change. With this in mind, it is helpful to first consider the overall concept of well-being and then attend to the different definitions, which are often discussed in psychological literature. We will focus more specifically on subjective well-being and consider how this is related to the current research on value change, from pregnancy to postpartum in first time mothers-to-be.

Well-being refers to how people evaluate their lives and there are numerous different definitions of this, with little consensus as to one specific definition. It is widely acknowledged in literature regarding well-being that as a construct it is complex and dynamic, which helps to explain the number of different definitions that exist. Vazquez et al. (2009), however, argue that all proposed definitions and assessments of 'well-being' can be related back to two ancient philosophical orientations: hedonism

and eudaimonism. Many subsequent studies agree that the concept of well-being has derived from these two orientations.

### **Hedonic Well-Being**

Hedonic well-being refers to how and why people experience their lives in a positive way. This concept combines both negative and positive affect and levels of life satisfaction, and often focuses on the experience of pleasant feelings (Diener et al. 1999). The primary understanding amongst psychologists of this orientation is that well-being consists of subjective happiness and concerns the experience of pleasure versus displeasure, broadly construed to include all judgments about the good/bad elements of life. Happiness is thus not reducible to physical hedonism, for it can be derived from the attainment of goals or valued outcomes in varied realms (Diener et al. 1998). Hedonic well-being is widely thought to be representative of psychological well-being.

### **Eudaimonic Well-Being**

As previously mentioned, it was thought it would be valuable to outline the main philosophical orientations, so here we attend to eudaimonic well-being to enhance our understanding of the overall concept of well-being. However, we will not be looking at this aspect of well-being in the current paper.

The term Eudaimonia is valuable because it refers to well-being as distinct from happiness per se. Eudaimonic theories maintain that not all desires—not all outcomes that a person might value—would yield well-being when achieved. Even though they are pleasure producing, some outcomes are not good for people and would not promote wellness. Thus, from the eudaimonic perspective, subjective happiness cannot be equated with well-being. Waterman (1993) stated that, whereas happiness is hedonically defined, the eudaimonic conception of well-being calls upon people to live in accordance with their eudaimonia, or true self. He suggested that Eudaimonia occurs when people's life activities are most congruent or meshing with deeply held values

and are holistically or fully engaged. Eudaimonic well-being is widely thought to be representative of psychological well-being.

### **Subjective Well-Being**

For the current research, the focus will be on the measure of subjective well-being, which refers to how an individual experiences their quality of their life. It includes both cognitive and affective aspects. Theorists have defined happiness as a combination of life satisfaction and the relative frequency of positive and negative affect. Diener et al. (2002) defined subjective well-being as being life satisfaction, positive affect and the absence of negative affect, all of which are being included within the current study. Subjective well-being is a concept that therefore encompasses moods and emotions as well as evaluations of one's satisfaction with general and specific areas of one's life.

A popular measure of life satisfaction, the cognitive component of subjective well-being, is the Satisfaction with Life Scale (SWLS, Diener et al. 1985). The Positive and Negative Affect Schedule (PANAS-X; Watson, Clark, & Tellegen, 1988) is a widely used measure for exploring both positive and negative affect, both of which are the chosen measures of subjective well-being used in the current study.

### **Well-Being in First Time Mothers**

The concept of 'well-being' is particularly important in relation to first-time mothers. It is widely acknowledged that pregnancy and childbirth are physically and emotionally demanding times, which is often associated with heightened levels of emotion and psychological status (Wrede et al., 2006). Furthermore, the transition to parenthood has been associated with increased fatigue, depressed mood, feelings of stress, reduced self-esteem, and a small but significant decline in marital satisfaction (Cowan & Cowan, 2000). More specifically, childbirth has also consistently been shown to be associated with a reduction in level of subjective well-being (Powdthavee, 2009). Clark et al. (2008) similarly demonstrated that parents show a significant reduction in response to childbirth on a measure of subjective well-being and that this decline is sustained.

Therefore, it is abundantly clear that such a life transition needs to be understood more deeply so that we know why it is often associated with a reduction in subjective well-being. It is thus important in adding to our understanding of why such a transition leads to a reduction so that more positive well-being can be facilitated together with a focus for future clinical interventions.

### **Value Change as Adaptive and the Impact on the Well-Being of First Time Mothers**

The literature discussed so far supports that well-being is linked to values, suggesting that when important values are achieved there is a positive impact on well-being. Conversely, when they are blocked there is a negative impact. However, what we want to further establish is how such value change occurs and to understand if this is adaptive in first time mothers. Previous literature has suggested that ‘good value fit’ is adaptive and is correlated with better well-being (Sagiv et al. 2004), and so is likely to facilitate adjustment and coping. Research has generally yielded similar results, suggesting that value change is linked to a change in behaviour and the self, and that this is likely to have an impact on well-being and mood. However, there has been some variation in the strength of such findings.

One study looked at value priorities and both the cognitive and affective aspects of subjective well-being (Sagiv & Schwartz, 2000). The study looked at whether successfully satisfying values may be linked to positive subjective well-being. It was suggested that individuals may experience difficulties if the values they hold as important differ from what is achievable in their environment. They suggested that people are more likely to experience positive well-being when they can express and fulfil their values and thus attain their goals. Participants were recruited from an Israeli University, who were studying psychology or business administration. Participants were asked to complete an expanded version of the Schwartz Value Inventory (1992). The Satisfaction-with-Life Scale (Diener et al. 1985) was the cognitive measure of subjective well-being and the affective component was measured using the five positive items from the 10-item Positive and Negative Affect Scale (PANAS-X; Watson et al., 1988). In addition they were also asked to complete the General Mental Health Scale

from the Trier Personality Inventory (Becker, 1989, as cited in Sagiv & Schwartz, 2000), a further measure of subjective well-being. The results demonstrated a link between value satisfaction and positive well-being.

The literature supports that well-being is linked to values, suggesting that when important values are achieved there is a positive impact on well-being and conversely when they are blocked that there is a negative impact. In our current study, we propose that if values change between Time 1, pregnancy, and Time 2 following birth, and that if they are blocked from being achieved, there will be an adverse impact in well-being. If they are reordered but achieved, then there will be no impact on well-being. Research suggests that new mothers often struggle with their identity after becoming a parent and that this can impact on psychological well-being (Ayers et al. 2006). With this in mind, and taking into account the literature surrounding value change following a life transition, adaptation and its impact on well-being in both the general population and new mothers, it is important that pregnancy and becoming a mother is more fully understood.

Becoming a first time mother is indeed one of the biggest life transitions a woman can experience. While for some mother's pregnancy is likely to be a self-chosen life transition, for others it may not be and so will be appraised differently. Some may be able to satisfy their values, while others may find their values unattainable. Through the present study we aim to look at value change and well-being during pregnancy and after giving birth in first time mothers and establish if change occurs and if so how this impacts on subjective well-being and how this is related to individual appraisals of the pregnancy.

### **Adaptation Following Birth and How This May Lead to Value Change**

As discussed, life changes are likely to lead to value change as people adapt their values in a way that better fits their new situation and aids their adjustment (Bardi & Goodwin, 2011; Rokeach, 1973; Schwartz & Bardi, 1997). It is understood that good value fit is adaptive and is correlated with more positive well-being (Sagiv et al. 2004), and is likely to facilitate adjustment and coping. Mothers, especially first time mothers,

experience a substantial reorganisation of the self when they enter motherhood, this links to the idea that for values to change to occur there needs to be changes in a number of areas of a person's life. However, nothing is known about whether such change will occur and the impact that such change may have on well-being.

Darville et al. (2006) looked at a sample of first time mothers in the UK, who completed an interview between 6 and 15 weeks following the birth of their first child. The aim of the study was to explore the transition from the mother's perspective and identify any unmet needs. The main themes identified in the analysis of the interviews were control, support and forming a family. The authors suggested that these themes were central to the core category of changes in the women's self-concept. They further suggested that the participants felt that they had lost control over their lives, during both the pregnancy and following the birth, suggesting difficulties in the transition and adaptation to such a life event. Thus, this could be used to suggest that an increase in power values would be expected in first-time parts as they attempt to regain control over their lives, which has similarly been found by Schwartz (2012) and Daniel et al. (2013). The author's key finding was that first-time mothers face difficulties with this transitional time and have needs that they feel are unmet. This suggests that adaptation to parenthood is often met with difficulty as women struggle to adjust and cope with the various demands and changes (Darville et al. 2006; Raynor, 2006).

Similarly, Deave et al. (2008) looked at first time mothers-to-be, who had an uncomplicated pregnancy and who had not had a previous live baby. If there was a partner present at the time of interviewing then they were included. The interviews were undertaken at home in the last trimester of pregnancy (focused on preparation for parenthood) and the postnatal period (focused on baby care). Postnatal issues identified included: support, information and preparation, as well as breastfeeding and the pressure to do so; parents' relationships and the challenges they had been and were going through; partners' perspectives on their involvement; and finally, inclusion in the care his partner had received both antenatally and postnatally. Parents also expressed feelings such as fear, excitement and joy about becoming parents. Much like the previous study, this highlights the complexity of the transition to parenthood and the range of emotions that are experienced as a consequence. As discussed, adjustment and

coping are facilitated by adaptive values. By more fully understanding the role and route of value change would facilitate the understanding of why many women experience difficulties following pregnancy.

## **Appraisals**

As part of the study we want to try to further understand the process of value change in relation to the individual appraisal of the pregnancy and how this will impact on the process of value change and thus well-being. For example, if a participant had appraised the situation in a negative way, this may be because she sees her values as being violated (e.g., cannot pursue freedom anymore) this may impact on psychological well-being and consequently lead to the experience of psychological distress. Or conversely, if the situation is appraised in a more positive way, it would be more likely that she does not see her values as having been violated but instead her values may have changed in the order of importance (e.g., freedom is less important now) and that this would have less of an impact on psychological well-being and cause less distress. To note, for the purpose of the study we have defined the appraisal of the pregnancy as being the participant's emotional reaction to finding out about their pregnancy.

A cognitive appraisal refers to an individual's interpretation and experience of a situation and they may be more predictive of the individual's responses than the objective situation itself (Lazarus, 1993, as cited in Levy-Shiff et al. 1998). It is the evaluative processes that links a situational encounter with meaning, for example whether a situation is understood to be challenging and positive or stressful and threatening. Appraisals intervene between the initial perception and subsequent experience of the situation, and the argument has been made that they may be more predictive of the individual's responses than the objective situation itself (Lazarus, 1993 as cited in Levy-Shiff et al. 1998). Furthermore, they serve as a path through which diverse personal and environmental variables influence outcomes and shape the quality of emotional, physiological and behavioural responses (Tomaka et al. 1993).



Importantly, coping is defined as the cognitive and behavioural efforts used to manage specific external and internal situations when they are appraised as placing demand on an individual's resources (Lazarus, 1993, as cited in Levy-Shiff et al. 1998). While some research has been suggestive of changes to beliefs, coping and adaptation when becoming a parent, there is comparatively less research that has focused on the role of cognitive appraisals and how this impacts on coping, despite the apparent link. Levy-Shiff et al. (1998) however did look at appraisals and coping in first time mothers-to-be in Israel. The results revealed that cognitive appraisals and coping strategies are predictive of maternal adjustment to parenting.

Therefore, as part of the study we wanted to contribute to the research on the appraisal of the pregnancy and further understand how the appraisal of a situation is associated to value change and how this is linked to well-being within the sample.

## **Hypotheses**

The main research questions proposed are: Do values change as a result of becoming a first time mother? Which values are most likely to change as a result of becoming a first time mother? To what direction are the values likely to change? For example, are they still seen as important but unachievable and thus compromised, or are values adapted to fit the new life situation and thus change in terms of their order of importance. Finally, how do such changes impact on well-being? The study also sought to consider if there was a change in value fulfilment from pregnancy to postpartum and if this was linked to well-being, and also aimed to examine if there was a link between the appraisal of the pregnancy and well-being.

1. It is hypothesised that there will be a significant change in value priorities from pregnancy to postpartum.

1.a. It is hypothesised that there will be mean level change in Benevolence, being that it will increase in importance from pregnancy to postpartum. It is understood that through increasing this value it will facilitate adaptation to the

life transition, as it will increase one's motivation to enhance the welfare of others with whom they have frequent personal contact, in this case, their baby. Thus, if Benevolence is to increase in importance it can be seen as adaptation to a new life transition.

1.b It is hypothesised that there will be mean level change in Self-Direction, being that it will reduce in importance as this is not adaptive to this life transition. It is understood that valuing Self-Direction would make it difficult to acclimate to the situation as this includes the pursuit of independence and freedom, which would be difficult to realise following such a transition.

1.c It is hypothesised that there will be mean level change in Security, being that it will increase in importance as this is adaptive to this life transition. It is thought that the value of Security would increase in response to such a life transition where the individual has to now care for another vulnerable person.

1.d It is hypothesised that there will be mean level change in Hedonism, being that it will reduce in importance as this is not adaptive to this life transition. It is understood that valuing Hedonism would make it difficult to acclimate to the situation as it would be difficult to realise this value following such a transition.

2. It is hypothesised that there will be less opportunity for the successful fulfilment of Achievement, Hedonism, Self-Direction, Stimulation and Security values from pregnancy to postpartum, as measured on the value fulfilment questionnaire and that this will be linked to a decrease in well-being from pregnancy to postpartum.
3. It is hypothesised that a more positive cognitive appraisal of the pregnancy is positively linked to better well-being.

## **Chapter 2: Method**

### **Ethical Approval**

The study received ethical approval by the Royal Holloway, University of London Research Ethics Committee in April 2014 (see Appendix A).

### **Study Design**

The study was by longitudinal design. Participants completed a series of online questionnaires, which were accessible via an online link and also included access to the information sheet and consent form. Participants were asked to complete the same series of standardised measures at two separate time points: Time One (T1) which was during pregnancy and Time Two (T2) which was postpartum. T1 was the initial point of recruitment and was at any point during the participant's pregnancy and T2 was aimed to be at 8 weeks postpartum. This time frame was taken based upon the theory that there are three postpartum psychological phases that a new mother goes through following birth and that this is likely to have been completed 8 weeks after giving birth. They were identified as the taking in phase which lasts 2-3 days, the taking hold phase which lasts 2 days to 3 weeks and the letting go phase which lasts between 3 and eight weeks (Rubin, 1967). Although a considerably dated theory, it is often cited in more recent work looking at the postnatal period. Thus it was thought that if we were able to collect data that was at around 8 weeks that it would allow there to be the collection of data that reflected more of a realistic change in values in response to such a life transition, as the postpartum stages would have been completed. It was assumed from this that collecting data from this time point onwards would allow the collection of data that would more meaningfully demonstrate value change in response to such a life transition and the associated changes not only in response to the initial upheaval associated with the very early stages of becoming a parent for the first time.

There is a wealth of previous longitudinal research has similarly collected follow up data at 8 weeks postpartum. For example, Heron et al. (2009) looked at hypomania and depression symptoms in pregnancy and the postpartum period. The

initial data collected for during pregnancy was at 12 weeks, however they similarly gathered the follow up data at 8 weeks postpartum. George et al. (2013) employed a similar methodology to the current research study to look at anxiety symptoms and coping strategies in the perinatal period, as with the current study the initial data collection during pregnancy was from the 26<sup>th</sup> - 35<sup>th</sup> week of gestation (T1) to 6–8 weeks after childbirth (T2). More recently Silversten et al. (2015) looked at sleep problems pre and post child birth. Participants were asked to complete a questionnaire at gestational week 17, and thereafter received a questionnaire by mail at week 32 of pregnancy, 8 weeks after delivery, and 2 years after delivery. Again this shows that while their initial data collection varied in comparison to the current study, that correspondingly the postpartum data at 8 weeks following birth.

## **Sample**

The inclusion criteria were: any female, who at T1 was currently pregnant, with no biological children of their own and over the age of 16. Thus, the sample were all female, first time mothers-to-be who met the inclusion criteria. A total of n =104 participants completed the questionnaire at T1, with a mean age of 31 (range 22 to 41, SD = 3.68). Of the sample at pregnancy n = 54 completed the questionnaire at T2, which was a total attrition rate of 48% despite significant efforts to retain them within the study. However, of the total sample at pregnancy 10% (n=10) did attrite but had not yet met the criteria to complete the study postpartum, given that they had either not given birth or were not past the 6-to-8-week window that we had identified as being the ideal stage to collect data at T2. To try and reduce the attrition rate participants were contacted a number of times, via email and text message, to try and encourage their participation. The current attrition rate was similar to previous findings by Bardi et al. (2014), who reported rates of between 35-50% across three different longitudinal studies.

To examine potential bias due to attrition, we compared participants who took part during pregnancy and postpartum with those who took part at only during pregnancy, on all demographics, value fulfilment, value importance, appraisal of the

pregnancy and SWLS. We first used a Chi-Squared analysis to analyse the demographics. There is no significant difference between groups when looking at ethnicity ( $\chi^2(9) = .44, p=1.0$ ), employment status ( $\chi^2(24)= 29.93, p.19$ ) or level of education ( $\chi^2(49)= 27.01, p.99$ ). A Multiple Analysis of Variance (MANOVA) was carried out to establish if there was a significant difference between groups on any of the continuous variables. There was no significant difference found for age ( $F(1,44)= .00, p=1.0$ ), SWLS ( $F(1,41) = .29, p =.61$ ) or the appraisal of the pregnancy, either a positive appraisal ( $F(1,42)= 2.49, p. 12$ ) or a negative appraisal ( $F(1,42) = 1.1, p=.29$ ). There was no significant difference between value fulfilment ( $F(1,43) = 2.09, p=.89$ ). A further MANOVA on the 10 values revealed that the overall pattern of value importance across the 10 values did not differ significantly between the groups ( $F(10,33) =.703, p =.715$ ). This demonstrates that there was no attrition bias in the sample, for individuals who completed the study postpartum.

Of the overall sample who took part in the study at T1, 28 % ( $n = 29$ ) reported that they had had a previous pregnancies and 72% ( $n = 75$ ) had not. Furthermore, 8% ( $n=8$ ) reported that they had received medical treatment to facilitate pregnancy, 89% ( $n=93$ ) did not and 3% ( $n=3$ ) did not respond to the question. Of the sample, 90% ( $n=94$ ) were married or in a civil or domestic partnership and 10% ( $n=10$ ) reported their relationship status as single or never married. There were no other relationship statuses recorded. The sample were largely white in terms of ethnicity (94%). The data demonstrates that the sample was limited in terms of ethnic diversity, which limits the generalisability of the findings. This may be reflective of the recruitment method; by accessing a sample population via the NCT and snowballing technique, the population would be more likely to be of white British ethnicity. This will be explored in more detail in the discussion section.

The educational status of participants who completed the study at the pregnancy stage was also collected. From the descriptive statistics it is clear that the sample was

representative of females who had gone on to further education, with the majority going on to pursue education to degree level or above.<sup>4</sup>

The employment of status of the sample was collected at T1 and demonstrated that the majority of participants were in full-time paid employment<sup>5</sup>. The majority of participants (75%) were in full time paid employment, which is reflective of the wider population. The employment rate (the proportion of people aged from 16 to 64 who were in work) was 73.6% (www.ons.gov.uk) in 2015. This adds to the degree to which we are able to generalise the findings to the wider population in the United Kingdom, as of 2015.

## **Recruitment**

Recruitment first started in April 2015 and ended in March 2016. Participants were recruited using a number of online methods. Participants were recruitment via the National Childbirth Trust (NCT) groups. Contact was first made with the head office of NCT who requested to view the RHUL ethical approval. Once this was shared, the request was taken to their in-house research committee and then subsequently approved. Local NCT groups were then contacted by the researcher on a one-by-one basis and asked to share the study link on their web pages. Some NCT groups agreed to send out an email to their members and other groups asked for paper copies, which were distributed during sessions. In addition, the study was also shared on forums, websites and other online platforms that were focused on pregnancy and parenthood. Social media was also an effective recruitment method and the study was shared on a number of outlets, including Facebook and Twitter. Further, the snowballing technique was an effective form of recruitment, with participants forwarding on the questionnaire to individual people that they knew matched the inclusion criteria.

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<sup>4</sup> Breakdown of educational status of overall sample at T1: secondary school (1%), college credits (8%), vocational training (5%), associate degree (1%), bachelor's degree (40%), master's degree (28%), professional degree (7%), doctoral degree (7%).

<sup>5</sup> Breakdown of employment status of overall sample at T1: unemployed (9%), volunteering (1%), unpaid employment (1%), part-time paid (4%), full time paid (75%), self-employed (8%), full time student (3%).

However, recruitment as a whole was difficult and we found that our sample size during pregnancy was far smaller than anticipated and with anticipated high rate of attrition. As will be discussed, our sample size postpartum was too small to allow for the use of a regression analysis, which was the planned analysis. Over the course of recruitment, it was difficult to advertise the study on a number of forums, with the details often being taken down very quickly. This was also the case on a number of social media forums. Additionally, there were time constraints around the study, which meant that recruitment had to be completed by March 2016. We also needed to ensure that recruitment at T1 was early enough to allow participants to be eligible to complete the study at T2.

### **Power**

We had initially planned to carry out a Regression Analysis with interactions. A power calculation indicated that to carry out this analysis a minimum sample size of 140 would be required to ensure that sufficient power was achieved and to reduce the chance of Type II error. A medium effect of (0.15) was used, as indicated by Aiken and West (1991) with the standard statistical power of .80 (as indicated by Cohen, 1988) and using a two-tailed test at a significance level of .05. As it was a longitudinal study and thus attrition was likely, we had planned to recruit a sample of 300, at T1, to account for this and allow there to be a sample of 150 at T2. However, we were unable to achieve a sample of this size and were unable to carry out a Regression Analysis. Although a smaller sample size was achieved for what was required for a regression with interactions, the sample yielded enough power for a correlation analysis at T1, and at both time points t-test and MANOVA. as for an effect size of .50, as found in previous literature (Bardi et al. 2014) with the standard statistical power of .80, and using a two-tailed test, at a significance level of .05, the minimum sample size is 34. However, we used a MANOVA, which is statistically more powerful for use on moderately correlated variables (Field, 2011).

### **Demographic Information Sheet**

The participants' age, gender, current employment status, relationship status, level of education, ethnic origin, country of origin, religious beliefs and marital status were collected at T1. This form (see Appendix B) was designed specifically for the present study. The categories for ethnicity were based on categories used by the Office for National Statistics ([www.ons.gov.uk](http://www.ons.gov.uk)). To allow for contact to be made at T2, participants were asked to give their first name and email address (see Appendix B). This allowed the researcher to ensure that contact could be made to distribute the study at T2 and allow for accurate record keeping in terms of which participants had completed the study.

## **Procedure**

Once participants had decided to take part, they were able to access the study via an online link. The online link directed the participant to all the information needed to complete the study. Once they had agreed to take part, they clicked through the information in the following order. They were first taken to an information sheet (see Appendix C) detailing the main aims of the study and the process of their involvement. They were given the opportunity to make contact with the researcher via email or phone to ask questions. If they agreed to take part they were then asked to complete the consent form (see Appendix D). Following this the participants were taken through the online questionnaires, starting with the demographic questionnaire (see Appendix B). They were asked to give information around their individual pregnancy (see Appendix E) and answer questions relating to their appraisal of the pregnancy. They were then asked to complete the short values questionnaire, which was designed for the study. Following this, participants were asked to complete a series of standardised measures, which will be discussed in more detail in the next section. This included the Positive and Negative Affect Scale, the Satisfaction with Life Scale and the Portrait Values Questionnaire-40. Upon completion, participants were thanked for their participation and reminded that they would be contacted again following their due date. They were provided with a number of online and telephone resources in case they had experienced any distress (see Appendix L).



Participants were contacted again via email 6-8 weeks following their due date. They were provided with an online link which took them through the following measures: the specific values questionnaire, the PANAS-X, SWLS and the PVQ-40. After completion of the T2 questionnaires, participants were thanked for their participation and notified that they would be entered into a prize draw for vouchers. They were also given a debrief sheet.

## **Measures**

Participants were asked to complete a number of standardised questionnaires at T1 and again at T2, as detailed below.

The Portrait Values Questionnaire (PVQ-40; Schwartz et al., 2001) was used as a measure of values (see Appendix F). The PVQ-40 was developed from the Schwartz Value Survey (SVS; Schwartz, 1992), with the intention of creating a measure that is less abstract and less cognitively complex. Literature suggests that this is the case and that the PVQ-40 is more easily accessible for participants (Schwartz, 2005).

The PVQ-40 is a 40 item questionnaire that includes descriptive “portraits” (value items). For example, ‘Thinking up new ideas and being creative is important to her’. Each portrait describes a person’s goals, aspirations or wishes, which implicitly point towards a particular value. Participants are asked to indicate how much the described person is similar to them on a 6-point scale ranging from 1 (very much like me) to 6 (not like me at all). There are a number of portraits that depict each of the 10 human values: six for universalism, five for security, four each for tradition, conformity, benevolence, self-direction and achievement and three each for stimulation, hedonism and power. The measure is available in a male and female version. Given that the study used a female only demographic, the female version was used.

Schwartz (2005) carried out a structural analysis looking at the PVQ-40 using a sample of adults (n=7480) from across seven countries (Chile, Germany, Indonesia, Italy, Peru, Poland and Ukraine) to assess the validity and reliability of the measure.

The test-retest coefficients were good at one month (range of coefficients .67 to .94) and remaining considerably consistent even after two years (.50 to .66). The literature reported that the internal consistency across the 10 values was variable, ranging from unacceptable (Cronbach  $\alpha$  =.47) to acceptable (Cronbach  $\alpha$  =.80). A high level of external validity has been reported (Schwartz & Bardi, 2001) (see table 2.1).

**Table 2.1:** Cronbach alpha for internal reliabilities for PVQ-40 (Schwartz 2005).

	Cronbach's Alpha	
	Mean	Range
Power	.68	.60-.77
Achievement	.80	.72-.85
Hedonism	.79	.72-.84
Stimulation	.71	.61-.75
Self-Direction	.60	.49-.64
Universalism	.77	.70-.81
Benevolence	.67	.62-.73
Tradition	.47	.39-.64
Conformity	.67	.62-.72
Security	.66	.59-.69

Bamberg et al. (2001) assessed convergent and discriminant validity of the measure using a sample of German students, using a multitrait-multimethod (MTMM) approach. The authors found evidence of both convergent and discriminant validity. Furthermore, the PVQ-40 is well correlated with the SVS, an already valid and reliable measure of values, in both an adult ( $r$ = .94) and student sample ( $r$ =.95) (Schwartz, 2005).

In summary, the PVQ-40 is a valid and reliable measure of human values that has been widely used in academic research. In addition, the measure is validated cross-culturally and the participants in the studies have been ethnically diverse. With this in mind, it adds to the validity of the study to have a measure that is well validated cross-culturally.

As discussed, we will be looking at the affective aspect of subjective well-being, to establish if this is related to human values. The chosen measure was The Positive and Negative Affect Schedule (PANAS-X), as it offers psychometric reliability and is a well-used measure of subjective well-being in empirical research. The specifics of the measure and the internal validity and external reliability will be discussed in more detail later in this section.

The Positive and Negative Affect Schedule (PANAS-X) is a 60-item questionnaire (see Appendix G) which consists of a number of words and phrases that describe different feelings and emotions. For example, 'Cheerful' or 'Distressed'. Participants are asked to read each item and then mark the appropriate answer in the space next to that word, to indicate the extent to which they have felt this way during 'the past week'. This is done using a Likert scale of 1 (very slightly) to 5 (extremely). To score a scale, the sum of the responses is taken, with higher scores indicating more positive affect.

The PANAS-X- is an extended version of The Positive and Negative Affect Schedule (Watson et al. 1999). This was originally two 10-item affect scales assessing, with one scale to assess Positive Affect and the other to measure Negative Affect. These are referred to as the higher order scales. The PANAS-X included the higher order scales with the addition of the lower order emotional states: Fear, Sadness, Guilt, Hostility, Shyness, Fatigue, Surprise, Joviality, Self-Assurance, Attentiveness and Serenity. The lower order states are the specific, discrete affective emotional states that emerge from within the broader dimensions of positive and negative emotional experience (Watson & Clark 1999). Each scale is composed of a number of further discreet affective states (see table 2.2).

**Table 2.2: Item Composition of the PANAS-X Scales**

<b>Scale</b>	<b>Specific Items</b>
General Negative Affect:	afraid, scared, nervous, jittery, guilty, ashamed, irritable, hostile, upset, distressed
Fear:	afraid, scared, frightened, nervous, jittery, shaky
Sadness:	sad, blue, downhearted, alone, lonely
Guilt:	guilty, ashamed, blameworthy, angry at self, disgusted with self, dissatisfied with self
Hostility:	angry, irritable, hostile, scornful, disgusted, loathing
Shyness:	shy, bashful, sheepish, timid
Fatigue:	sleepy, tired, sluggish, drowsy
General Positive Affect:	active, alert, attentive, enthusiastic, excited, inspired, interested, proud, strong, determined
Joviality:	cheerful, happy, joyful, delighted, enthusiastic, excited, lively, energetic
Self-Assurance:	proud, strong, confident, bold, fearless, daring
Attentiveness:	alert, attentive, concentrating, determined
Serenity:	calm, relaxed, at ease
Surprise:	surprised, amazed, astonished

In assessing the overall validity and reliability of the PANAS-X scale, the authors first assessed the validity and reliability of the PANAS-X, demonstrating that it is a consistent and reliable measure of subjective well-being. Internal consistency is reported to be high when measuring both Positive (Cronbach  $\alpha = .83 - .90$ ) and Negative Affect (Cronbach  $\alpha = .85 - .90$ ) (Watson & Clark, 1999) (see table 2.3). This is also consistent when assessing state or trait affect and the reliabilities are unaffected by instructions relating to the time frame in which to consider when completing it, for example, thinking about the hour, day, or week, or by the cohort of participants. Test-retest reliability was good, for both Positive (.93) and Negative Affect (.89).

Literature has also found the lower order scales on the PANAS-X to be a valid and reliable. The lower order scales are highly correlated (median  $r = .73$ ), with a mean inter-item correlation of .45 or greater. Test-retest validity was also found to be high, with coefficients ranging from .51 to .71 when measuring trait affect and ranging from .85 to .91 when measuring state affect (Watson & Clark, 1999).

Furthermore, the PANAS-X also demonstrates validity against a number of clinical measures of affect. For example, the negative affect subscale has been correlated with the Beck Depression Inventory ( $r=.59$ ) (BDI; Beck et al. 1961, as cited in Watson & Clark, 1999) and the Fear scale has been correlated ( $r=.74$ ) with the HSCL Anxiety scale and the Hostility scale correlated ( $r= .55$ ). The PANAS-X higher order scales also yielded similar results, further demonstrating the validity of the measure against standardised clinical measures (Watson & Clark, 1999).

To summarise, the extensive data reviewed by Watson and Clark (1999) demonstrated that trait scores on the PANAS-X scales are: stable over time, show significant convergent and discriminant validity, and are highly correlated with corresponding measures of aggregated state affect. It is a measure that is widely used in clinical practice and gives a reliable and valid measure of well-being.

The Satisfaction with Life Scale (SWLS; Diener et al. 1985) was chosen as the measure of the cognitive component of subjective well-being (see Appendix H). The Satisfaction with Life Scale is used as a measure of the life satisfaction component of subjective well-being, by measuring cognitive judgments about satisfaction with life. The measure is comprised of only five items and has consistently demonstrated good psychometric properties (Pavot & Diener, 1993), which will be discussed in detail later in this section. The scale asks participants to rate the extent to which they agree or disagree with a range of statements, such as 'In most ways my life is close to my ideal'. This is based on a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The possible range of scores lies between 5 and 35, with a score 5 – 9 representing that the participant is 'extremely dissatisfied' and a score of 30 – 35

suggestive that the participant is ‘highly satisfied’ (Diener, 2006). To obtain an overall score for the SWLS we used an average of the participants scores across the five items.

Pavot and Diener (1993) reviewed data from six studies in which the coefficient alpha for the SWLS ranged from 0.79 to 0.89, indicating that the scale has good internal consistency. More recently, Adler and Fagley (2005) and Steger et al. (2007) reported coefficient alphas of 0.87 and 0.86 respectively. The measure has also demonstrated strong of test–retest reliability with a coefficient of 0.84 (Pavot, et al. 1991) and 0.80 (Steger et al., 2006). The SWLS has also been found to be strongly related to clinical measures of distress. Blais et al. (1989, as cited in Pavot & Diener, 2008) reported a strong negative correlation ( $r=-.72$ ) between the SWLS and the Beck Depression Inventory (Beck et al. 1961) and Arrindell et al. (1991, as cited in Pavot & Diener, 2008) found that it was negatively correlated with all of the symptom dimensions of the Symptom Checklist. The measure has also been used in clinical settings and has been found to be correlated with psychiatric symptoms. Meyer et al. (2004) found that the average score on the SWLS was significantly lower for a sample of psychiatric patients compared to a non-psychiatric control group.

Thus, overall the SWLS has shown to be a valid and reliable measure of subjective well-being that has been extensively used in clinical practice and research. Due to its strong validity and reliability and the short administration time it a valuable complimentary measure when administering a large battery of questionnaires.

Information was collected at T1 regarding specific details of the participant’s pregnancy (see Appendix I). These questions were included to allow for the collection of information regarding the individual’s appraisal of the pregnancy.

This included:

- Before becoming pregnant have you had any previous pregnancies?
- If yes, how long ago was your last pregnancy?
- How long were you actively trying to become pregnant?
- Did you undergo any medical treatment to help you to become pregnant, such as IVF? And if so what?

Additionally, participants were asked to fill out a questionnaire relating to their emotional reaction to finding out about their pregnancy (see appendix E). This measure was created for the study and was included as a means of eliciting information about the appraisal of the pregnancy. This measure was included to give an understanding of how the participant had perceived their pregnancy, whether it be in a more positive or negative way. Participants were given a list of emotions and asked to mark the extent to which they experienced each emotion when finding out about their pregnancy, using a five-point Likert scale of 1 (Very Slightly/Not at all) to 5 (Extremely). The items were decided upon by using a range of words to depict a range of positive and negative affective states, that could be used to explain how the participant felt upon learning that they were pregnant.

This information was collected to allow there to be understanding of how the initial appraisal of the pregnancy can be linked to the process of value change and thus well-being. More specifically, it was hypothesised that if a participant appraised the situation in a negative way, this could be due to a perception that certain values will be violated (e.g., cannot pursue freedom anymore) and that this will adversely impact on well-being and lead to the experience of psychological distress. However, it could be that if the situation is appraised in a more positive way that values are not perceived as violated but instead will change in the order of importance (e.g., freedom is less important now), and that this would have less of an effect on well-being.

In addition, a further short value-fulfilment questionnaire was included, which was designed specifically for the study (see Appendix J), this was to establish the degree to which participants were able to fulfil values during pregnancy and again postpartum. Participants were asked to complete this at T1 and T2. This measure consisted of 11 items looking at the values total, of which Hedonism, Stimulation, Self-Direction, Security and Achievement. Hedonism and Security consisted of only one item, Achievement two items, Stimulation three items and Self- Direction four items.

Participants were asked to read each statement and mark how often they feel that they have had the opportunity to do activities that were found to allow expression of

certain values (Bardi & Schwartz, 2003) since becoming pregnant (T1) or since becoming a Mother (T2), such as ‘to make decisions about my own life’. They were asked to mark the frequency of this by marking on a five-point scale, ranging from 1 (‘Always’) to 5 (‘Never’). This was to focus on values that were thought to be more vulnerable to change after giving birth, such as freedom, hedonism and security. The internal reliabilities of this measure are discussed in detail in chapter 3.

### **Ethical Considerations**

Participants were provided with an information sheet before they took part in the study, detailing the nature of the research, what would be required from their participation and to allow for informed consent. Participants were offered the opportunity to speak to the researcher to ask any questions about the study before taking part, via phone or email.

Participants were made aware of their right to withdraw from the study at any point and to refrain from answering any questions that they did not feel comfortable in answering. If this was the case, they were made aware that their data would be deleted from the database and destroyed, however this did not occur.

It was identified that there may have been a heightened chance of participants experiencing some emotional distress, due to the upheaval and change associated with such a major life transition. In addition, there was the potential that some participants may have experienced difficulties following the birth. With this in mind a number of helplines and internet based support services were offered at the end of the questionnaire, at both T1 and T2 (see Appendix K).



## **Chapter 3: Results**

### **Analysis plan**

It was initially proposed that a regression analysis would be the statistical analysis of choice, however, with the small sample size at T2 we did not have sufficient power to carry out this type of analysis, as previously discussed. Thus, a Multiple Analysis of Variance (MANOVA) was carried out to establish differences between the means of value priorities and value fulfilment across the two time points. A t-test was also used to look for differences of subjective cognitive well-being across time by looking at the difference between scores on the Satisfaction with Life Scale. In addition, a Pearson's *r* Correlation analysis was conducted to establish if there were significant associations between the variables, during pregnancy and during the postpartum period, and then looking at difference between the pregnancy and postpartum period.

### **Preliminary Analysis**

IBM SPSS Statistical Data Editor Version 21 was used to analyse the data. Before carrying out any analysis the data was checked for missing data and to assess if it met parametric assumptions in terms of distribution. Skeweness and Kurtosis was calculated and deemed within normal distribution if the z- score < 2.58 (Field, 2013). In the instance that parametric assumptions were not met and the data was more than three standard deviations from the mean, the individual scores were Winsorised. This will be discussed and the data presented by first attending to T1 and then to T2.

### **Preliminary Analysis of Portrait Values Questionnaire-40 During pregnancy**

Scores on the different subscales of the PVQ-40 (Universalism, Benevolence, Conformity, Tradition, Security, Power, Achievement, Hedonism, Stimulation and Self-Direction) were all analysed to establish if they were normally distributed and hence meet parametric assumptions. All of the values, aside from Self Direction, were normally distributed, with a z score of < 2.58. Self- Direction was slightly positively skewed ( $z = 2.60$ ,  $p < .01$ ), however kurtosis ( $z = 2.17$ ,  $p < .01$ ) was found to be

acceptable. However, the skew did not depart from normality enough to be considered non-normal and no changes to the data were indicated.

The internal reliabilities were variable across the 10 values, the Cronbach's alpha reliability coefficients were equivalent to those found in previous research papers (Schwartz, 2005) and ranged from .49 to .77 (as cited in Bardi et al, 2014). More specifically only four (Universalism, Conformity, Achievement and Stimulation) out of the ten values were found to have an acceptable level of internal reliability of  $> .70$  (see table 3.1).

**Table 3.1:** *Cronbach's Alpha for PVQ-40 during Pregnancy*

Sub Scale Category	Cronbach's alpha
Universalism	.70
Benevolence	.67
Conformity	.71
Tradition	.41
Security	.64
Power	.65
Achievement	.83
Hedonism	.67
Stimulation	.75
Self-direction	.56

As discussed, there were six values that had low internal validity, these were Benevolence, Tradition, Security, Power, Hedonism, and Self-Direction. In order to manage this, it was decided that some items would be removed in order to achieve a more acceptable level of internal consistency. More specifically, for the subscale of Benevolence item 33 ('forgiving people who have hurt her or is important to her. She tried to see the good in them and not to hold a grudge') was omitted from the analysis. This increased the Cronbach's Alpha to .67 from .49. It was thought that this item may not have been understood in the way that was intended and thus that there may have been errors when completing it. For Self-Direction, it was agreed that all items would

be kept as there were no significant gains made by removing items. Similarly, Tradition was far below the accepted level and after further analysis there would have been no benefit of removing any items because this would not have increased the Cronbach's alpha to a more acceptable level of reliability.

### **Preliminary Analysis of Value Fulfilment During Pregnancy**

The scores for subcategories of value fulfilment (Hedonism, Stimulation, Self-Direction, Security and Achievement) were all normally distributed. The internal consistencies were calculated and all found to be high (see table 3.2). Hedonism and Security consisted of only one item, therefore internal reliability is not discussed.

**Table 3.2:** *Cronbach's alpha for Value fulfilment during Pregnancy*

Sub Scale Category	Cronbach alpha
Achievement	.82
Stimulation	.71
Self-direction	.74

### **Preliminary Analysis of Positive and Negative Affect Scale – X During Pregnancy**

Scores on the all of the General Positive Affect and General Negative Affect subscales of the PANAS-X were analysed for normal distribution and for internal consistency. General Negative Affect was normally distributed, however General Positive Affect was significantly positively skewed ( $z=3.68$ ,  $p < .01$ ). Kurtosis was found to be acceptable ( $z = 1.09$ ,  $p < .01$ ) (see table 3.3).

**Table 3.3:** *Cronbach's alpha for internal consistency for PANAS-X subcategories during Pregnancy*

Sub Scale Category	Cronbach alpha
General Positive	.89
General Negative	.81

### **Preliminary Analysis of Satisfaction With Life Scale During Pregnancy**

Scores on the SWLS scale was significant positively skewed ( $z = 6.57, p < .001$ ), yet Kurtosis was within acceptable limits ( $z = 3.07, p < .001$ ). Further analysis demonstrated that there was one outlier, which was more than three standard deviations from the mean. This score was Winsorised to allow for retention of the scores in the data set and to allow for the use of parametric testing. The measure had strong internal reliability (Cronbach's Alpha = .86).

### **Preliminary Analysis of Appraisal During Pregnancy**

Scores on the questionnaire relating to the appraisal of the pregnancy were broken down into positive and negative appraisal, both sets of scores were not normally distributed. Scores for a positive appraisal were significantly negatively skewed ( $z = 7.45, p < .001$ ), but Kurtosis was within acceptable limits ( $z = 2.57, < .001$ ). It was identified that there were two outliers, which were more than three standard deviations from the mean. Scores on the negative subscale were significantly positively skewed ( $z = 5.23, < .001$ ) and again Kurtosis was within normal limits ( $z = 2.20, < .001$ ). It was identified that there were two outliers which were more than three standard deviations from the mean. These scores were Winsorised to allow for retention of the scores in the data set and to allow for the use of parametric testing.

### **Was there a difference in Value Profiles from Pregnancy to Postpartum?**

A Multiple Analysis of Variance was carried out to see if there was a change in value priority between pregnancy and postpartum. This analysis is recommended for such longitudinal analyses (Mroczek, 2007). Furthermore, a MANOVA, offers more

statistical power, in comparison to other method of analysis, when variables are at least moderately correlated variables (Field, 2011).

**Table 3.4:** *Values on PVQ-40 in order of ranking at T1 ad T2*

Value	T1		T2	
	Mean	Standard Deviation	Mean	Standard Deviation
Benevolence	5.20	.63	5.13	.76
Self-direction	4.84	.74	4.70	.71
Universalism	4.53	.73	4.54	.79
Hedonism	4.39	.86	4.31	.75
Security	4.30	.91	4.14	.94
Achievement	4.17	1.14	4.08	1.11
Stimulation	3.72	1.13	3.78	1.00
Conformity	4.03	.98	3.73	.96
Power	3.14	1.01	3.33	.95
Tradition	3.32	.82	3.07	.91

There was no significant overall change found between values priorities on the PVQ-40 within subjects ( $F(1,48) = 1.48, p = .19$ ) across the two time points. However, when looking at the univariate analysis there was a significant difference across the time points for Conformity ( $F(1,48) = 4.72, p = .04$ ) and Power ( $F(1,48) = 9.88, p = .02$ ), with both decreasing in mean importance from T1 to T2. It was hypothesised that the values most likely to be vulnerable to change would be Self-Direction, Security, Hedonism and Benevolence, although the analysis demonstrates that there was no significant reordering of values these from pregnancy to postpartum. The results demonstrate that Self-Direction, Security and Hedonism reduced slightly from T1 to T2 and Benevolence rose slightly.

There was no significant overall change found between values priorities on the PVQ-40 within subjects ( $F(1,48) = 1.48, p = .19$ ) across the two time points. However, when looking at the univariate analysis there was a significant difference across the

time points for Conformity ( $F(1,48) = 4.72, p = .04$ ) and Power ( $F(1,48) = 9.88, p = .02$ ), with both decreasing in mean importance from T1 to T2.

A further MANOVA, using Bonferroni Corrections, was carried out on single items from the PVQ-40 that were of specific interest to the study, this included items looking at creativity, admiration, achievement, freedom, independence, benevolence, pleasure, excitement, stimulation, success and security. This was to see if there was any significant difference on single items. There was a significant difference found between items 11, ('It is important to her to make her own decisions about what she does. She likes to be free to plan and to choose her activities for herself') ( $F(1,48) = 7.70, p = .008$ ) and 34 ('It is important to her to be independent. She likes to rely on herself') ( $F(1,48) = 5.55, p = .023$ ), from pregnancy to postpartum, with both items decreasing in importance. These individual items were both considered to describe the value of independence and were part of the subscale of Self Direction. As would be expected due to the nature of the life transition, it is expected that there is a reduction in the level of independence. This suggests that in part, when a value is blocked from being fulfilled, that it adversely impacts on well-being. A further MANOVA was carried out to look at value change across time, controlling for the time between completing T1 and T2, however, there was no significant difference found ( $F(1,37) = 1.09, p = .303$ ).

### **Were any of the human values correlated with well-being?**

Scores across some of the Values on the PVQ-40 were correlated with scores on the SWLS scale using a .05 level of significance (see table 3.5) during pregnancy. However, the results demonstrated that the correlations were largely insignificant and low, with there being only one significant correlation, which has similarly found that human values are not strongly correlated with well-being (Buchanan & Bardi, 2015).

**Table 3.5** *Correlation Coefficients for PVQ-40 and SWLS during Pregnancy*

Correlation Coefficients	
	SWLS
Power	-.10
Achievement	.22**
Hedonism	-.02
Stimulation	.08
Self-Direction	.13
Universalism	-.00
Benevolence	.02
Tradition	.18
Conformity	-.16
Security	.10

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

The results demonstrated that only Achievement ( $r(99) = .22, p = .03$ ) was significantly positively correlated with SWLS. This demonstrated that there is a link between the value of Achievement and the cognitive aspect of subjective well-being and adds to the acceptance of the hypothesis that human values will be positively correlated with well-being. Scores across some of the Values on the PVQ-40 were correlated with scores on the SWLS scale at postpartum using a .05 level of significance (see table 3.6).

**Table 3.6:** *Correlation coefficient for PVQ-40 and SWLS Postpartum*

Correlation Coefficients	
	SWLS
Power	.01
Achievement	.21
Hedonism	.20**
Stimulation	.08
Self-Direction	-.12
Universalism	-.04
Benevolence	.15
Tradition	-.18
Conformity	-.37**
Security	.15

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

A significant positive correlation was found between SWLS and Hedonism on the PVQ-40 at T2 and a significant negative correlated between SWLS and Conformity. This suggests that as Hedonism is ranked as being more important scores on the SWLS increase and conversely, that as SWLS increases Conformity becomes less important. Again this adds to the hypothesis that there will be a link between values on the PVQ-40 and well-being.

A Pearson's *r* correlation was carried out between the PVQ-40 and the PANAS-X scales during pregnancy to determine if there was an association between the values and the affective components of well-being (see table 3.7).



**Table 3.7:** *Pearson's r correlation coefficient for PVQ-40 and PANAS-X positive affective scales during Pregnancy*

	Correlation Coefficients	
	General Positive	General Negative
Power	-.09	.27**
Achievement	.04	.10
Hedonism	-.16	.06
Stimulation	-.04	.02
Self-Direction	.15	-.10
Universalism	.22*	-.07
Benevolence	.12	-.01
Tradition	-.10	.03
Conformity	-.18	-.12
Security	-.02	-.19

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

**Table 3.8:** *Pearson's r correlation coefficient for PVQ-40 and PANAS-X positive affective scales postpartum*

	Correlation Coefficients	
	General	General
	Positive	Negative
Power	.12	-.12
Achievement	.20	-.07
Hedonism	-.12	-.01
Stimulation	.05	.08
Self-Direction	-.01	-.06
Universalism	.08	.29
Benevolence	.14	.22
Tradition	-.23	-.20
Conformity	-.13	-.24
Security	.12	-.04

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

As shown in table 3.8 there was no correlation between the general positive and general negative affective scales on the PANAS-X and the values on the PVQ-40, at postpartum.

**Was there less opportunity for the successful fulfilment of values from pregnancy to postpartum and was this will be linked to subjective well-being?**

A MANOVA was carried out to see if there was a change in value fulfilment across the time points, this showed that there was a significant difference between value fulfilment across the time points ( $F(1,46) = 15.59, p < .00$ ), and more specifically that overall values were less fulfilled postpartum. This allows the acceptance of the hypothesis, that the life transition would bring with it changes that would lead to important values being blocked from being achieved. The univariate analysis demonstrates that there was a significant difference in values fulfilment for Hedonism ( $F(1,46) = 24.32, p < .01$ ), Stimulation ( $F(1,46) = 27.44, p < .001$ ) and Self Direction ( $F(1,46) = 61.71, p < .00$ ), all of which were less fulfilled. But there was no significant change for Achievement

( $F(1,46) = 3.89, p=.056$ ) or Security ( $F(1,46) = 2.25, p .14$ ). This suggests that we can accept the experimental hypothesis that such a life transition would bring with it changes that would impact on the ability to fulfil certain values, which we know from the value priorities at both time points, were consistently ranked the most highly. This was carried out again, this time controlling for time, this did not demonstrate any significant difference  $F(1, 37) = 1.21, p = .222$ ).

To establish if value fulfilment at postpartum was related to a change in well-being from pregnancy to postpartum, we looked at the difference in scores on the SWLS from postpartum and correlated this with value fulfilment at postpartum (see table 3.9).

**Table 3.9:** *Correlation coefficient for change on the SWLS and value fulfilment postpartum*

	Correlation Coefficients				
	Hedonism	Stimulation	Self-Direction	Security	Achievement
SWLS	.49**	.44**	.29	.35*	.46**

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

As Table 3.9 demonstrates, the change in scores on the SWLS from pregnancy to postpartum was significantly positively correlated with the fulfilment of Hedonism, Stimulation, Security and Achievement.

To establish if value fulfilment at postpartum was related to a change in well-being from pregnancy to postpartum, we looked at the difference in positive and negative affect scales on the PANAS-X from postpartum and correlated this with value fulfilment at postpartum (see table 3.10).

**Table 3.10:** *Correlation coefficient for change on the PANAS-X and value fulfilment postpartum*

	Correlation Coefficients				
	Hedonism	Stimulation	Self-Direction	Security	Achievement
Positive Affect	.16	-.07	-.07	.14	.01
Negative Affect	.14	-.08	.14	-.21	.28*

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

As the analysis demonstrates there the change in Negative Affect was significantly positively correlated with the fulfilment of Achievement.

### **Was there a correlation between value fulfilment and well-being?**

Value fulfilment was correlated with both measure of well-being at both pregnancy and again at postpartum. All of the values of the Value fulfilment questionnaire were significantly positively correlated with scores on SWLS at T1 (see table 3.11).

**Table 3.11:** *Correlation Coefficient for Value Fulfilment and SWLS*

	Correlation Coefficients				
	Hedonism	Stimulation	Self-Direction	Security	Achievement
SWLS	.40**	.36**	.39**	.21*	.38**

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

This demonstrates that the more participants that were able to fulfil these values, the higher they rated their well-being on the SWLS scale. This suggests a link between value fulfilment and the cognitive component of subjective well-being.

Again, a Pearson's  $r$  correlation was carried out to determine if there was a significant association between value fulfilment and SWLS postpartum (see table 3.12).

**Table 3.12:** *Cronbach's Alpha Correlation coefficient for Value Fulfilment and SWLS Postpartum*

	Correlation Coefficients				
	Achievement	Hedonism	Stimulation	Self-Direction	Security
SWLS	.45**	.36**	.36**	.32**	.23

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

Satisfaction with Life was correlated with value fulfilment at T2, there was a significant positive correlation between SWLS and fulfilment of Achievement ( $r(52) = .45, p < .001$ ), Hedonism ( $r(52) = .36, p = .009$ ), Stimulation ( $r(54) = .36, p = .008$ ) and Self-Direction ( $r(52) = .32, p < .019$ ), showing that fulfilment of these values is associated with high levels of well-being.

Following on for this a person  $r$  correlation was conducted to establish the relationship between value fulfilment and the different affective scales on the PANAS-X at T1 only (see table 3.13). The PANAS-X was not used in postpartum analysis due to inconsistent internal reliabilities.

**Table 3.13** *Pearson's r correlation coefficient for Value Fulfilment positive and negative affective scales of the PANAS-X at T1*

	Correlation Coefficients	
	General	General
	Positive	Negative
Achievement	.54**	-.40**
Hedonism	.56**	-.33**
Stimulation	.53**	-.44**
Self-Direction	.34**	-.51**
Security	.28**	-.41**

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

**Table 3.14** *Pearson's r correlation coefficient for Value Fulfilment positive and negative affective scales of the PANAS-X postpartum*

	Correlation Coefficients	
	General	General
	Positive	Negative
Achievement	.47**	.16
Hedonism	.48**	.20
Stimulation	.23	-.02
Self-Direction	.35*	-.06
Security	.13	-.19

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

Postpartum the results demonstrate that successfully fulfilling the values of achievement, hedonism and self-direction were significantly positively correlated with general positive affect on the PANAS-X.

When looking at the differences from pregnancy to postpartum, the result demonstrated that values were less fulfilled for pregnancy to postpartum and that there was a reduction in the cognitive aspects of subjective well-being. When looking at the affective aspect of well-being the results demonstrate that at postpartum that there was no correlation between value fulfilment and negative affect. However, the results show that there was a correlation between fulfilment the values of Achievement, Hedonism and Self-Direction and the experience of positive affect.

### **Was there any difference in well-being from Pregnancy to Postpartum?**

Well-being scores on the SWLS scale were compared using a paired samples t-test. There was no significant difference found within subjects on scores of SWLS from T1 to T2 ( $t(47) = 1.38, p = .194$ ). However, there was a slight reduction in the mean score of SWLS scores from T1 to T2. Although this was not significant it does demonstrate that there was a trend towards a reduction in well-being. A further paired samples t-test was conducted on the positive and negative affective scales of the PANAS-X. the analysis demonstrated that there was no significant difference from pregnancy to

postpartum on the positive affective scales ( $t(37) = 1.62$ ,  $p = .872$ ). However, the analysis did show that there was a significant difference on the negative affective scale ( $t(47) = -4.126$ ,  $p < .001$ ). However, as subsequently discussed, the negative affective scale yielded low internal reliability, thus due to the low alpha, interpretations should be viewed with caution.

**Was a more positive cognitive appraisal of the pregnancy linked to better well-being and was this associated with value fulfilment?**

When looking at the overall sample at T1, the appraisal of the pregnancy was more positive (mean=4.41, SD=.71) as opposed to negative (mean=1.93, SD=.61). This suggests that, as a sample, the life transition was viewed in a positive way. This allows the inference that this can be considered a self-chosen life transition.

The individual appraisal of pregnancy was not significantly correlated with any of the values on the PVQ-40. The individual appraisal of the pregnancy was then correlated with Value Fulfilment (see table 3.15).

**Table 3.15:** *Pearson r correlation coefficients for appraisal of pregnancy and Value Fulfilment*

	Correlation Coefficients				
	Achievement	Hedonism	Stimulation	Self-Direction	Security
Pos Appraisal	.29**	.24*	.21*	.14	.29**
Neg Appraisal	-.28**	-.25**	-.28**	-.30**	-.29**

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

A positive appraisal of the pregnancy was significantly positively correlated with; Achievement, Hedonism, Stimulation and Security, however there was no significant correlation between with Self Direction and a positive appraisal of the pregnancy. That is, the more the pregnancy was appraised in positive way, the more the individual was able to feel that they could fulfil certain values. The negative appraisal of the pregnancy was significantly negatively correlated with value fulfilment (see table

3.9), that is, a more negative appraisal of the pregnancy was associated with lower level of values fulfilment, across all of the values.

The individual appraisal of the pregnancy was correlated with scores on the SWLS scale. Positive appraisal ( $r(97) = .32$   $p < .001$ ) was significantly positively correlated with scores on the SWLS scale and a higher negative appraisal ( $r(96) = -.28$ ,  $p = .006$ ) was significantly negatively correlated with scores on SWLS scale.

The PANAS-X was then correlated with the individual appraisal of the pregnancy (see table 3.16) to establish if there was an association.

**Table 3.16:** *Pearson's r correlation coefficient for Appraisal of pregnancy and positive affective scales of PANAS-X*

	Correlation Coefficients	
	General Positive	General Negative
Positive Appraisal	.31**	-.29**
Negative Appraisal	-.09	.46**

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

The results demonstrate that a positive appraisal of the pregnancy was significantly positively correlated with general positive affect and significantly negatively correlated with negative affect and a negative appraisal was significantly negatively correlated with general negative affect.

The number of weeks into pregnancy was significantly positively correlated with a positive appraisal of the pregnancy ( $r(99) = .24$   $p = .015$ ) at a 0.01 level of significance. Thus the further into the pregnancy for the participant, the more positive the appraisal of the pregnancy. Weeks into pregnancy was not significantly correlated with a negative appraisal.



A Pearson's  $r$  correlation was carried out between the PVQ-40 and the PANAS-X scales to determine if there was an association between the values and the affective components of well-being (see table 3.17).

**Table 3.17:** *Pearson's  $r$  correlation coefficient for PVQ-40 and PANAS-X general positive affective and general negative affect scales during Pregnancy*

	Correlation Coefficients	
	General Positive	General Negative
Power	-.09	.27**
Achievement	.04	.10
Hedonism	-.16	.06
Stimulation	-.04	.02
Self-Direction	.15	-.10
Universalism	.22*	-.07
Benevolence	.12	-.01
Tradition	-.10	.03
Conformity	-.18	-.12
Security	-.02	-.19

\*\* Correlation significant is at the 0.01 level (2-tailed)

\* Correlation significant is at the 0.05 level (2-tailed)

Universalism was significantly positively correlated with General Positive Affect and Power was found to be significantly positively correlated with General Negative Affect.

### **Is there an association between Values and Value Fulfilment during pregnancy?**

To establish the relationship between the variables at T1 a Pearson's  $r$  correlation was carried out, first looking at the data to establish if there was a correlation between variables, a  $p < .01$  level of significance to account for the exploratory nature of this analysis. Value priority on the PVQ-40 were correlated with Value Fulfilment at T1 (see table 3.18).

**Table 3.18:** *Pearson's r correlation coefficient for PVQ-40 and Value Fulfilment during pregnancy*

	Correlation Coefficients				
	Achievement	Hedonism	Stimulation	Self-Direction	Security
Power	-.15	-.07	-.21	-.23	-.17
Achievement	-.02	-.14	-.29**	-.27**	-.09
Hedonism	-.10	-.11	-.15	.07	-.08
Stimulation	-.09	-.06	.06	.00	-.08
Self-Direction	.13	-.01	.11	.01	-.06
Universalism	.16	.01	.24	.15	.14
Benevolence	.08	.20	.23	.24	.25
Tradition	-.05	-.07	-.01	-.01	-.04
Conformity	.04	.06	.00	.07	.07
Security	.09	.17	.08	.18	.03

\*\* Correlation significant is at the 0.01 level (2-tailed)

Fulfilment of Stimulation and fulfilment of Self-Direction were both significantly negatively correlated with the value Achievement.

### **Preliminary Analysis of Portrait Values Questionnaire Postpartum**

The PVQ-40 at T2 met parametric assumptions, being that both Skew and Kurtosis were within the acceptable limits, with a z score of < 2.58 (Field, 2013). As with T1, the internal reliabilities of the values on the PVQ-40 postpartum were analysed to establish if they demonstrated acceptable interval validity (see table 3.19).

**Table 3.19:** *Cronbach's alpha for internal consistency for PVQ-40 Postpartum*

Sub Scale Category	Cronbach alpha
Universalism	.76
Benevolence	.72
Conformity	.70
Tradition	.62
Security	.59
Power	.66
Achievement	.86
Hedonism	.70
Stimulation	.63
Self-direction	.67

As with T1 the reliabilities were mixed, however there was an overall trend towards the values having acceptable internal reliabilities (see table 3.19), as is in line with previous research (Schwartz, 2005).

### **Preliminary Analysis of Value Fulfilment at Postpartum**

For Value Fulfilment at T2, Skeweness and Kurtosis were calculated and deemed within normal distribution for all of the values, aside from Security which was found that it was slightly positively skewed ( $z=2.65$ ,  $p >.01$ ), however Kurtosis was within acceptable limits ( $z=1.78$ ). The internal reliabilities for value fulfilment postpartum were the tested (see table 3.21). Both Achievement and Self-Direction were within acceptable limits, however Stimulation was considerably low (Cronbach's Alpha =.45).

**Table 3.20:** *Cronbach alphas for internal consistency for Value Fulfilment subcategories at T2*

Sub Scale Category	Cronbach alpha
Achievement	.72
Stimulation	.45
Self-direction	.72

### **Preliminary Analysis of Positive and Negative Affect Scale in Postpartum**

Analysis was carried out to the internal reliabilities for all of the scales on the PANAS-X at T2 (see table 3.21).

**Table 3.21:** *Cronbach's alpha for internal consistency for PANAS-X Postpartum*

Sub Scale Category	Cronbach alpha
General Positive	.79
General Negative	.60

As can be seen above (see table 3.23) the internal reliabilities for the General Positive and Negative subscales of the PANAS-X at T2. It is the most commonly accepted that a Cronbach's alpha should be  $>.70$ , with literature ranging from acceptable values of alpha, of  $.70$  to  $0.95$  (Tavakol & Dennick, 2011). Given this we need to treat any findings with caution.

### **Preliminary Analysis of the Satisfaction with Life Scale in Postpartum**

Scores on the SWLS scale were normally distributed ( $z = -2.82$ ) across participants at T2, there was a good level of internal reliability among the items on the scale (Cronbach's alpha =  $.88$ ).

### **Were there any significant associations between the variables from that data that was collected at Postpartum?**

The data at T2 was analysed first to determine if it met parametric assumptions and then to establish the association between variables at T2, postpartum. Again the data was analysed using a Pearson's  $r$  correlation using a  $p < .01$  level of significance to account for the exploratory nature of this analysis. The length of time following birth was not significantly positively correlated with fulfilment of any values on the value fulfilment questionnaire. Age was not correlated with value fulfilment at T2 or with scores on the SWLS ( $r(48) = -.30, p = .04$ ).

### **Was there any Correlation between variables Pregnancy and Postpartum?**

A correlation analysis was carried out between variables at T1 to see if they were linked to variables at T2. Again the data was analysed using a Pearson's  $r$  correlation using a  $p < .01$  level of significance to account for the exploratory nature of this analysis. There was a significant difference in the mean-rating of values, with values reducing in importance from pregnancy to postpartum ( $t(49) = 1.40, p = <.001$ ). This is suggestive of values being less important across time.

A correlation analysis was carried out to determine if there was a relationship between variables from pregnancy, T1 and postpartum, T2. There was no association between SWLS scores between T1 and T2 ( $r(36) = .19, p = .27$ ), with higher scores at T1 being associated with lower scores at T2. There was no significant correlation found between appraisal of the pregnancy and value priorities on the PVQ-40 at T2. This demonstrates that the way that the pregnancy was appraised, be it more positively or more negatively, was not associated with value priority on the PVQ-40.

A positive appraisal of pregnancy was significantly positively correlated with fulfilment of Achievement ( $r(47) = .29, p = .046$ ) and Self Direction ( $r(47) = .39, p = .006$ ) at T2. Being that as the pregnancy was appraised more positively postpartum, that participants would feel that they could more successfully fulfil values. Furthermore, a

more positive appraisal of the pregnancy was significantly positively correlated with SWLS postpartum ( $r(47) = .39, p = .007$ ).

### **Were there significant correlations with the additional variables collected?**

Age was not significantly correlated with value fulfilment, SWLS, appraisal of pregnancy or any of the scales of the PANAS-X during pregnancy. The number of weeks into pregnancy was not significantly correlated with values on the PVQ-40-40 or value fulfilment. Previous pregnancies were not correlated with appraisal of pregnancy or SWLS at either time point. Similarly, previous medical treatment to facilitate pregnancy was not correlated with SWLS at either T1 or T2. During T1 completion of the questionnaire ranged from 8-40 weeks into the pregnancy. There was trend towards completing the questionnaire towards the latter stages of pregnancy, with a mean of 27 weeks ( $SD=7.50$ ) and mode of 32.

### **Conclusion of Results**

As discussed the study did not have a large enough sample at T1 to account for attrition, leaving the sample at T2 being too small to allow for a regression analysis, thus limiting the analysis and inferences that we are able to draw from the results. However, by using a correlation analysis and a MANOVA we were able to carry out analysis that yielded interesting results that allow interesting exploration of our hypotheses. First we will discuss the results in relation to pregnancy, followed by postpartum and then discussing change between pregnancy and postpartum.

The data collected at T1 demonstrated some links between values and well-being, which have been found in previous literature, however these had a small effect size and were inconsistent, hence they need to be treated with caution. More specifically, Achievement was associated with cognitive subjective well-being and Power was associated with fear. Furthermore, at T1 the results demonstrated that successfully fulfilling a value is positively linked to cognitive subjective well-being and affective well-being. Furthermore, as values are more successfully achieved, there is less

experience of negative well-being, which is in line with previous findings (Oishi et al. 1999; Sagiv & Schwartz, 2000).

The appraisal of the pregnancy was not associated with any of the ten human values on as measure on the PVQ-40. However, the results did show that the appraisal of the pregnancy was associated with successful fulfilment of values i.e. being that a positive appraisal was associated with more fulfilment and a negative appraisal less fulfilment. Furthermore, a positive appraisal was associated with higher levels of the cognitive aspect of subjective well-being and conversely, a negative appraisal was associated with lower levels of the cognitive aspect of subjective well-being. The appraisal was also linked to the affective element of subjective well-being during pregnancy. As would be expected a positive appraisal correlated with associated positive affect scales and was significantly negatively correlated with negative affective scales, this included; general negative affect, fear, hostility, guilt and sadness. It was noted that the further into the pregnancy for the participant, the more positive the appraisal of the pregnancy.

At T2 Hedonism on the PVQ-40 was associated with more positive cognitive aspect of subjective well-being, suggesting that as Hedonism is ranked as being more important scores on the SWLS increase and conversely, that as SWLS scores increase Conformity becomes less important. Again value fulfilment was associated with increased subjective well-being.

When looking at the differences from pregnancy to postpartum, the result demonstrated that values were less fulfilled for pregnancy to postpartum and that there was a reduction in the cognitive aspects of subjective well-being. There was a significant difference in the mean-rating of values, with values reducing in importance from pregnancy to postpartum ( $t(49) = 1.40, p < .001$ ). This is suggestive of values being less important across time.

## **Chapter 4: Discussion**

The aim of the present study was to explore human value change and value fulfilment in first time mothers, to see if there was a change from pregnancy to postpartum and to consider if this was linked to cognitive and affective aspect of subjective well-being. It was hypothesised that there would be a change in the prioritisation of human values from pregnancy to postpartum, with the values changing in their relative order. Alternatively, should values not be found to be reordered, these values would potentially be blocked from being fulfilled, which would have had an adverse effect on well-being. It was thought that such a life transition would lead to a change in the individual importance of values and that this would be expected to apply to certain values more than others. Due to the expected nature of the changes, it was thought that the values most likely to change would be Achievement, Hedonism, Stimulation, Self-Direction and Benevolence. It was also hypothesised that values would be less fulfilled from pregnancy to birth and that this would further lead to decreased well-being.

### **Summary of Findings**

There was no significant change in the order of values from pregnancy to postpartum. There was an association between values and both cognitive and affective well-being during pregnancy. However, the effect sizes were small, so results need to be interpreted with caution. There was some association between cognitive well-being and values postpartum. The results demonstrate that successfully fulfilling a value is positively linked to cognitive subjective well-being, both at pregnancy and postpartum and also linked to affective well-being during pregnancy. The appraisal of the pregnancy was not associated with any of the ten human values, but was associated with successful fulfilment of values both during pregnancy and at postpartum. Furthermore, a positive appraisal was associated with higher levels of the cognitive and affective well-being. The overall importance of values, when the mean of all values is taken from the PVQ-40, reduced from pregnancy to postpartum.



### **Was There Any Difference in The Rank Order or Mean Level Change of Values from Pregnancy to Postpartum?**

The first hypothesis aimed to look if there would be a significant difference in value priorities from pregnancy to postpartum, which were measured using the PVQ-40. The results demonstrated that there was no difference in the rank order of value from pregnancy to postpartum, hence no change to value structure. However, interestingly, the values that were hypothesised as being vulnerable to change due to the circumstances of the life transition, were seemingly the values that were ranked as the most important across both time points in the overall values structure. These values were Self-Direction, Hedonism and Benevolence with Universalism also being highly rated. Power however was an exception as it was actually ranked as the least important. Thus, the findings from pregnancy to postpartum show that there was negligible reordering of values in terms of the rank order. Therefore, we cannot accept the hypothesis that such a major life transition would lead to a significant reordering of values. This can be understood in terms of socialisation, which is a form of adaptation, as proposed by Bardi et al. (2014), who suggested that values can change in response to a transition. Thus, it may have been that values changed prior to the collection of data at T1. Or alternatively, that the transition was self-chosen and reordering of values did not have to take place as such values were already held. This is in line with previous findings by Bardi et al. (2014), who found that some life transitions fit the values held by an individual from the outset.

It was hypothesised that Benevolence would increase in importance from pregnancy to postpartum. It was understood that this will have an adaptive function and will act to motivate individuals to parent. This can be linked to the theory value change does occur following a life transition, and that values which are adaptive to the transition are likely to increase in importance, referring again to socialisation of values (Bardi et al. 2014), whether the transition is self-chosen (Bardi et al. 2014) or traumatic (Verkasalo et al. 2006). However, the results demonstrated that it actually reduced in importance from T1 to T2.

It was hypothesised that Self-Direction would reduce in importance as it was thought that it would not be adaptive to such a life transition. Self-direction was indeed observed to decrease but not significantly. However, there was a significant difference found when looking at specific items that made up the value of Self-Direction, more specifically the two items that describe independence. As would be expected, due to the nature of the life transition there is a reduction in the level of independence one is able to realise. This can be best understood in terms of acclimatisation. Schwartz and Bardi, (1997) suggested that individuals form value priorities which are matched with the reinforcement contingencies that their life circumstances afford them. Thus, they acclimate their values to match with their circumstances (Schwartz & Bardi, 1997). Therefore, values which are attainable are pursued and those which are not are reduced in importance. This would make sense given that Self-Direction is made up of, Freedom, Independence, Curiosity and Creativity, which may be difficult to prioritise given such a life transition. This further adds to the existing literature stating that value change can be adaptive whether a life transition is self-chosen or experienced as being traumatic (Verkasalo et al. 2006).

It is also of interest that Power increased in importance from pregnancy to postpartum. It was anticipated that this would also have an adaptive function allowing for control over an unfamiliar situation, thus reducing anxiety and motivating individuals to parent. The findings did demonstrate that from pregnancy to postpartum, Power increased in importance. This can be used to suggest that following such a transition participants experienced a loss of control, as would be expected from a transition that brings far reaching changes. In adapting to this situation Power would increase in importance to facilitate an increase in feeling in control, which was originally suggested by Schwartz et al (2012). This is also in line with the previous findings of Daniel et al. (2103), who suggested that Power can increase in response to an anxiety evoking situation that brings with it a loss of control. This further confirms that values can adapt in response to a life transition, as suggested by Bardi et al. (2011). This also links to the findings of Darville et al. (2006) who looked at a sample of first time mothers and found many felt that they had lost control over their lives.

## **Was There a Relationship Between Values and Well-Being?**

To establish if there was a relationship between values and well-being a correlation analysis was carried out, at T1 and then T2. We also looked at the relationship between values during pregnancy to see if they were associated with well-being at postpartum. At T1 Achievement was the only value on that was associated with cognitive aspect of subjective well-being, as measured by the SWLS scale. This suggests that as Achievement is ranked as more important, then there is an increase in well-being. Universalism was significantly positively correlated with General Positive Affect. Achievement was significantly positively correlated with Surprise. This suggests that there is an association between Achievement and Surprise. As Achievement is placed higher up in the ranking of values participants report feeling more Surprised. Interestingly, Power was found to be significantly positively correlated with General Negative Affect and Fear. The association here could be linked to the suggestion by Schwartz et al. (2012), who in their refined theory of human values, theorised that valuing Power helps to control what happens by minimising anxiety arousing threats. This was subsequently also found in a longitudinal study of value change following war, by Daniel et al. (2013). Moreover, the findings here contribute to the existing literature base, being that values are linked to subjective well-being.

The values of, Hedonism, Stimulation, Self-Direction, Benevolence and Tradition, from the PVQ-40, were not found to be correlated with affective subjective well-being. This is in line with other research, which has similarly found that human values are not strongly correlated with well-being (Buchanan & Bardi, 2015). However, it also contradicts previous research, which has found Self-Direction and Stimulation values to be correlated positively, and Tradition, Conformity and Security values correlated negatively, with the affective aspect of well-being (Sagiv & Schwartz, 2000).

A significant positive correlation was found between affective subjective well-being and Hedonism on the PVQ-40 at T2 and a significant negative correlated between cognitive subjective well-being and Conformity. Again, this contributes to the literature base that suggests values are linked to positive subjective well-being (Schwartz et al. 2012). Power, on the PVQ-40 was associated with negative affect and Universalism with positive affect, Sagiv and Schwartz (2000) during pregnancy, similarly found

Achievement to be associated with the affective aspect of well-being. There was no correlation between the general positive and general negative affective scales on the PANAS-X and the values on the PVQ-40, at postpartum.

Overall, these findings are in part supportive and in part contradictory to that of the existing literature base. However, what we are able to deduce is that there is a link between certain human values and both the cognitive and affective aspects of well-being, so we are able to accept, in part, our hypothesis that values and well-being are linked. More specifically, we can note that there is a positive association between Achievement and both components of subjective well-being in women, during the life transition of pregnancy.

### **Was There Any Difference Between Values Fulfilment from Pregnancy to Postpartum?**

It was hypothesised that there would be less opportunity for the successful fulfilment of values from pregnancy to postpartum and that this will be linked to a decrease in well-being. The results demonstrate that there was a significant decrease in value fulfilment from pregnancy to postpartum, so we are able to accept our hypothesis that such a transition would affect the successful fulfilment of values.

Overall there was a significant change in the fulfilment of values, as measured using the values fulfilment scales created for this study, from pregnancy to postpartum. All values showed a significant decrease in the fulfilment. More specifically, when looking at the individual items it was the values of Hedonism, Stimulation and Self Direction which demonstrated the most significant change. This demonstrated that with the transition from pregnancy to postpartum that there is a change in how a woman feels that they are able to fulfil certain values. This allows the acceptance of the hypothesis that there would be reduced value fulfilment from pregnancy to postpartum.

In addition, as the time following birth increased so did value fulfilment. This would make sense, given the distribution of the timeframe in which participants completed the study at postpartum. Thus, as women adjust more to this life transition, they are more able to fulfil the values that are important to them. However, it is also

important to consider that the individuals who did complete the study postpartum may well have been the individuals who have been able to more easily adapt to the transition or individuals who perhaps had less complicated births.

### **Is there a link between Value Fulfilment and Well-Being?**

One of the hypotheses was that when values were blocked from being fulfilled that this would lead to a decrease in well-being, as had been found in previous research (Sagiv et al. 2004). All of the values of the value fulfilment questionnaire were significantly positively correlated with well-being. The overriding trend was that when values were more fulfilled they were associated with higher levels of positive affect and lower levels of negative affect. Therefore, we are able to accept this hypothesis. Satisfaction with life was correlated with value fulfilment at T2, there was a significant positive correlation between SWLS and fulfilment of Achievement, Hedonism, Stimulation and Self-Direction, showing that fulfilment of these values is associated with higher levels of well-being. There was no significant correlation with Security and SWLS.

During pregnancy fulfilment of values was associated with cognitive well-being, as measured using the SWLS and also affective aspects of well-being, as measured by the PANAS-X. More specifically, the results demonstrated that by fulfilling values of Achievement, Hedonism, Stimulation, Self-Direction and Security, an individual will experience more positive cognitive well-being. These are consistent with the findings of Sagiv et al. (2004), that there is a link between value fulfilment and both the cognitive and affective aspects of well-being. Postpartum the results demonstrate that successfully fulfilling the values of achievement, hedonism and self-direction were significantly positively correlated with general positive affect on the PANAS-X.

In addition, the study also looked at the difference in well-being from pregnancy to postpartum and if this was correlated with cognitive and affective aspects of subjective well-being. Similarly, the results demonstrate that from pregnancy to postpartum cognitive well-being is significantly positively correlated with the fulfilment of the values of Hedonism, Stimulation, Security and Achievement.

Interestingly, in terms of affective well-being, the results showed that negative affect was significantly positively correlated with the fulfilment of the value of Achievement.

Overall the results allow us to accept that successfully fulfilling values is linked to positive well-being. Thus a conclusion can be drawn that when an individual is able to fulfil values, they perceive their life as being more satisfied and their affect as being more positive. This aligns with the finding of Oishi et al. (1999) and Sagiv et al. (2004). Therefore, we are able to conclude that following such a life transition that there is substantial change that affects one's ability to successfully fulfil values and that this is linked to reduced cognitive well-being.

### **Was there a link between the Appraisal of the Pregnancy, Values, Values Fulfilment or Well-Being?**

It was hypothesised that a more positive cognitive appraisal of the pregnancy would be linked to better well-being and would be associated with value fulfilment. This hypothesis can be accepted in light of the results. During pregnancy a positive appraisal was significantly positively correlated with scores on the SWLS scale and a negative appraisal correlated with scores on SWLS scale. Furthermore, a positive appraisal of the pregnancy was significantly positively correlated with associated positive affective scales, General Positive Affect, Joviality, Self-Assurance and Attentiveness. Conversely a positive appraisal of the pregnancy was significantly negatively correlated with a number of scales that are reflective of more negative affective scales, this included; General Negative Affect, Fear, Hostility, Guilt and Sadness. Therefore, as would be expected, as pregnancy is appraised in a more positive way it is associated with more positive well-being. This was also found at T2, when a more positive appraisal of the pregnancy was significantly positively correlated with SWLS.

At T1 the appraisal of pregnancy was not significantly correlated with any of the values on the PVQ-40, however it was correlated with value fulfilment. A positive appraisal of the pregnancy was significantly positively correlated with; Achievement, Hedonism, Stimulation and Security, however there was no significant correlation

between with Self Direction. That is, as the pregnancy was appraised in positive way, the more the individual was able to feel that they could fulfil certain values.

At T2 there was no significant correlation found between the appraisal of the pregnancy and value priorities on the PVQ-40. This demonstrates that the way that the pregnancy was appraised (be it more positively or more negatively) was not associated with value priority on the PVQ-40. Again, a positive appraisal of pregnancy was significantly positively correlated with value fulfilment, more specifically of Achievement and Self Direction. This suggests that as the pregnancy was appraised more positively postpartum, that participants would feel that they could more successfully fulfil values.

Overall, the appraisal of the pregnancy was more positive as opposed to negative, we can use these findings to contribute towards the inference that the life transition was a self-chosen transition. However, what we are unable to conclude is whether values fit the transition from the outset, suggesting that such transitions are selected due to the values that are already held (self-selection), or conversely, whether values are changed to fit the transition (value socialisation), (Bardi et al. 2014). As the transition was appraised in such a positive way it adds to the possibility that for many this was indeed a self-chosen transition, with the population already holding important values at onset of pregnancy.

However, it is useful to be mindful of the conceptualisation of appraisal in the current study and how this differs from other conceptualisations of the term. If we consider the conceptualisation of appraisal in a more overt sense, we would be looking at how the individual evaluates a specific event which will then in turn influence their emotional reaction to that event. Thus, it may have been useful to have created a measure that also effectively measured the evaluation and thus appraisal of the event as opposed to just a measure of the emotional reaction. Thus, it would have been useful to have included questions that elicited the extent to which the individual appraised the situation as challenging, threatening and uncontrollable, for example, ‘do you perceive there being any challenges?’ ‘do you feel that you will be able to cope?’ ‘do you feel

that you will have control over the situation?’. Alternatively, we could have named this specific measure as a measure about the emotional reactions to pregnancy.

### **Did Well-Being differ significantly from Pregnancy to Postpartum?**

It was hypothesised that there would be a reduction in well-being from pregnancy to postpartum, as a consequence of the life transition impacting upon values and value fulfilment. However, there was no significant difference found, however, there was a slight reduction in the mean score of SWLS scores from pregnancy to postpartum. Although this was not significant, it does show that that well-being did reduce. This is in line with previous empirical research, that has found becoming a parent, especially a first time parent, is associated with a decline in reported levels of subjective well-being (Walker, 1977; Myers, 1992; Powdthavee, 2009; Clark et al. 2008). The findings alone are a useful contribution to the existing literature base that well-being decreases following the birth of a child, which can work to justify that there is an importance in focusing on how to facilitate more positive well-being, as much as how to reduce the experience of mental health difficulties,

### **Theoretical Implications**

From the study we found that values remained stable overtime, even following such an extreme life transition. The findings are theoretically meaningful in strengthening our knowledge that values are stable. The findings mirror the previous findings of Bardi et al. (2014) who carried out three longitudinal studies looking at value change and stability following a major life transition. Bardi et al. (2014) found strong evidence to support that people’s values are well-matched with self-chosen life settings already at early stages of the life transition. They suggested that people tend to enter new life settings that provide a good fit to the values they already hold as important, leaving little need for value socialization. Thus, this demonstrates that values remain stable, as we similarly found.

Also theoretically meaningful was the finding that value fulfilment reduced in response to this life transition, however that this was not related to a reduction in well-



being. From this it is unclear if value fulfilment is related to the experience of more happiness, which is opposite to previous literature, that suggests value fulfilment has been linked to the experience of positive well-being resulting from successful attainment of values (Brunstein et al.1998; Oishi et al. 1999). Thus, it could be that following some life transitions it is expected that values will be less fulfilled and thus because of this acknowledgment that there is less of an impact on well-being.

### **Clinical Implications**

We can clearly see from the research that value fulfilment decreases from pregnancy to postpartum and that this is linked to reduced well-being. Using the findings of the study it may be useful to think about clinical interventions and how this can be used to facilitate a more positive experience of this common and natural life transition.

As discussed in the introduction there is much focus on the experience of mental health difficulties following giving birth, which is understandable given the high rates of maternal mental health issues. Yet, there is a substantial wealth of research that consistently and clearly demonstrates that there is a reduction in subjective well-being around the time of child birth (Powdthavee, 2009). The current research adds to the empirical evidence around reduced well-being postpartum and can be used to strengthen the argument that more needs to be done to help promote public awareness that well-being is affected at this time. More clearly needs to be done to facilitate positive well-being. These findings could be incorporated into resources that are given to pregnant women when they attend antenatal clinics, to broaden awareness that such as transition is accompanied by difficulties and offering recommendations around strategies to foster more positive well-being. This can be linked more specifically to offering advice on what changes to expect and making suggestions of how to ensure successful fulfilment of values. This would inevitably help promote greater well-being in maternity. This should go hand-in-hand with identifying preventative measures to prepare people for changes in value fulfilment and well-being. Women have little opportunity to gain an understanding of what to expect in the weeks following birth, so they are often unprepared for this transition. We know that preparedness enables adaptation, therefore this is a strategy well worth taking forward by maternity agencies.

In light of the findings it would be useful to consider using an Acceptance and Commitment Therapy (ACT) framework. Acceptance and Commitment Therapy (ACT) first began in 1982 by Steven C. Hayes and was first tested by Robert Zettle in 1985. The aim of ACT is to maximise human potential for a rich, full and meaningful life. There are six core concepts of ACT, with one being the clarification of what is truly important and meaningful to them, such as values, then use that knowledge to guide, inspire and motivate to change their life for the better. This complements the current research and adds to the understanding that it is vitally important to an individual's life experiences and state of mind that they are able to satisfy values which are important to them, even if to do so requires some acceptance of new methods.

Furthermore, we know clinically that normalising difficult feelings is a useful technique used in psychotherapy, such as Solution Focused Therapy. Normalisation is generally defined as a therapist's use of indirect or direct statements that refer to client problems not necessarily viewed "as pathological manifestations but as ordinary difficulties of life" (O'Hanlon & Weiner-Davis, 1989). Although we are not referring to a pathological presentation, the focus would be to allow reduced well-being to be seen as more 'ordinary' and by doing so to open up conversations and narratives around pregnancy and the transition to becoming a new mother, that are more representative of true experiences.

### **Strengths of The Study**

As discussed much of the existing literature on value change has used participants recruited from either school or university (Bardi et al. 2014). With this in mind, it has been useful to add to the evidence base with a different research population and who are going through a life transition. This can be seen as a relative strength of the research. Furthermore, we have also been able to successfully demonstrate a link between value satisfaction and positive well-being, using the same measures of cognitive and affective well-being as Sagiv and Schwartz (2000), but with a different population.

Another strength of the study was the age range of the participants (22-42 years of age), which is reflective of the wider population who are likely to be going through

such a transition. The average age of mothers in the UK during 2014 increased to 30.2 years (ONS stats). Babies born in England and Wales in 2014 were most likely to have a mother aged 25 to 34, with over a half (59%) of mothers in this age group. A further 20% of babies were born to mothers aged under 25, while 21% had mothers aged 35 and over at the time of birth. ([www.ons.gov.uk](http://www.ons.gov.uk)). Thus, this allows the findings to be more generalisable.

The online design of the study affords more anonymity to participants than other research designs and should have enabled participants to answer questions with more honesty. Social desirability is one of the most common sources of bias affecting the validity of experimental and survey research findings (Nederhof, 1985). Furthermore, online based research designs mean that there is no interviewer in person, which may have encouraged participants to answer more honestly and consequently made results more reflective of the participant's experiences. Arguably this helps to increase the validity of the study. Furthermore, this survey method meant that participants had to invest less time to complete the study which may have contributed to a larger sample size. As it was an online questionnaire based design, it meant that participants could complete it at a time that was convenient to them. This may have been particularly important in the recruitment of participants postpartum.

### **Limitations of The Study**

There are a number of limitations of the present study that need to be considered when evaluating and considering the findings of this study. As discussed the PANAS-X at postpartum, yielded an unusually low internal reliability for the negative affective scale. This was surprising given that this is a widely used standardised measure that normally produces strong internal reliabilities. It was thought that this may have been attributed to small sample size postpartum. This limits the inferences that we can make with regards to the variables and links between the negative affective components of subjective well-being postpartum and is therefore a relative weakness in the study.

It is important to note that the time frame for completion of questionnaires during pregnancy was quite late into the pregnancy. As discussed in the results section,

there was a trend towards completing the questionnaire towards the latter stages of the overall time frame as prescribed. Potentially many of the women may have already held those values at the point that we asked them to complete the questionnaire, having been able to already socialise to the transition and adapt to the change. We are limited in the inferences we can make about whether there could have been structural change prior to data collection. Perhaps it would have been useful to have collected baseline data prior to participants becoming pregnant, which would have enabled there to be a comparison from this to both the pregnancy and postpartum data. This would have enabled us to consider the values profile and think about the process of change that may have already occurred. This would allow inferences to be made concerning what profiles are held, also the roles and routes of change. It would also have been useful to look at values at a later time point postpartum to see if this yielded a significant change in values, as research indicates that value change takes time (Bardi et al. 2014) and perhaps not enough time had passed for such change to occur.

Furthermore, the study was a longitudinal design. Due to this there was the difficulty of attrition, which is a common limitation of longitudinal research designs (Mroczek, 2007). To accommodate for this, we had proposed to recruit 150 participants at T1 to ensure that an adequate sample were retained in our sample at T2. This would have allowed there to be enough power for a regression analysis, similar to previous research (Bardi et al. 2014). We had initially planned to carry out a regression analysis with interactions. A power calculation indicated that to carry out this analysis a minimum sample size of 140 would be required to ensure that sufficient power was achieved and to reduce the chance of Type II error. As it was a longitudinal study and thus attrition was likely, we had planned to recruit a sample of 300, at T1, to account for. Working within the resources and constraints of this study, we were unable to achieve a sample of this size and were therefore rendered unable to carry out a regression analysis, which is an obvious weakness in the outcomes of the study.

It is helpful to keep in mind that the sample was self-selected, with participants having to volunteer and opt-in to complete the survey, which is an important consideration to hold in mind when conducting research within the social sciences. The methodology of the study means that participants were not selected at random, which

may introduce selection bias and influence the validity of study results (Nilsen et al. 2009). A further disadvantage of self-selection is that it can lead to exaggerated findings and incorrect inferences being drawn, although this may not be particularly poignant in this study it is important to hold it in mind when considering any limitations of the study.

The limited diversity of the sample was also a relative weakness, with the sample being predominately in white ethnicity with high levels of education and largely in employment. This could be suggestive of a limitation in the recruitment methodology as it was perhaps too narrow and would have benefitted from using a variety of methods of recruitment which would have allowed access to a more diverse pool of participants. This will be discussed further when addressing further research. This factor has an obvious impact upon the validity of the findings and limits the overall generalisability of the findings and how applicable they are to the wider population.

Throughout the study it proved very difficult to recruit via social media, beyond the questionnaire being distributed via the snowballing technique. Although there was a reasonable level of response from participants and we were able to recruit a minimally adequate sample size, this method was not as successful as had been hoped. It became evident that this method of recruitment was not as far reaching as initially predicted, with the vast majority of participants being in some way linked into the social network of the researcher. There were instances when people were quite wary of being contacted and reluctant to share the study on their pages. Furthermore, we wonder if there has been a recent change in attitudes and feelings towards the use of the internet and social media to advertise surveys and questionnaires, as there was an overall feeling of a lack of trust, of being over security conscious. Perhaps this was due to a rise in online threats, breach of privacy, sharing personal information, for we are all living in a time which has seen a significant rise in privacy concerns online.

A further limitation of the study was the lack of control group. It would have been valuable to have gathered data from a cohort of participants who were representative of the general population, this could either have been a general population of women or perhaps via the collection of data from the research population

prior to their pregnancy. Via collecting baseline data, it would allow for a comparison to be made between the control group and the research participants. This would allow the results to be applicable to the general population and the inferences drawn to be more thoroughly understood. For example, one weakness of the current study is that we are unable to say whether specific values were held by the sample or if they in fact changed but that this occurred prior to the data collection during pregnancy. A control group may have enabled this to be addressed. This information would have been valuable in allowing us to see if the values profile of the sample differed significantly from the general population at time points, which would enable more exploration of changes to the importance of values. In addition, a control group would have added to the overall validity and this would have strengthened the findings of the study.

### **Further Research**

As discussed the resultant sample size was far smaller than required to undertake a regression analysis, as had been planned. With this in mind it would be advantageous to replicate the research with a far larger sample to further explore differences from pregnancy to postpartum. This may be achieved by employing a different recruitment method, for example by accessing multiple antenatal clinics within the National Health Service. Through doing this the researcher may be able to access a population that remains under the continued care of such services, which could help collection of data postpartum and seek to reduce attrition rates. Furthermore, future research may also benefit from being undertaken when there are greater resources and fewer constraints on time, as this could facilitate access to the sample population for a longer time frame, which would increase numbers and help to accommodate for attrition.

As noted in the limitations, the sample taken was limited in diversity, being predominately of white ethnicity, with high levels of education, and largely in employment. This was attributed to the recruitment method, thus if the study were to be replicated it would be useful to employ a different means of recruitment. It is vital for further research to access a more diverse population and increase the generalisability of the findings.

In future research it may be illuminating to additionally gather information about the circumstances of the labour and birth, this may enable there to be inferences drawn about adaptation. For example, information about the labour, such as the c section. This may enable there to be more inferences drawn about the adaptation process following the birth.

Previous research in other areas has included the comparison of the research sample to the general population in Britain using data from the European Social Survey (ESS) (Bardi et al. 2014), which includes a value questionnaire based on the Schwartz Value Survey (1992). This information would also be valuable in allowing us to see if the values profile of the sample differed significantly from the general population at time points, which would enable more exploration of changes to either the structure or importance of values.

## **Conclusions**

This has been the first study that has looked at values and value fulfilment in response to becoming a mother for the first time and how this is associated with subjective well-being. Thus, the results can add to the literature base on values and well-being and also on value fulfilment in response to a life transition and the links this has to well-being. The results of this study did not demonstrate any significant change in the structure of values from pregnancy to postpartum. As discussed this could be understood in the context of pregnancy being a self-chosen life transition or that such adaptation of values had taken place before data collection during pregnancy. However, there was an increase in both Benevolence and Power and a decrease in Self-Direction values from pregnancy to postpartum, which can be understood as being adaptive in light of the transition.

Perhaps the most striking of findings was that from pregnancy to postpartum values were less fulfilled and that there was a reduction in the cognitive aspects of subjective well-being. As discussed this can, in part, contribute to the understanding of why many new mothers experience a reduction in subjective well-being. It would be beneficial for the results to be incorporated into future clinical interventions together

with development of psycho-educational resources to broaden awareness for the future benefit of new mothers.

Furthermore, the results also demonstrate that the way in which the pregnancy is appraised is associated with successful fulfilment of values i.e. being that a positive appraisal was associated with more fulfilment and a negative appraisal less fulfilment. This can be used to further our understanding that there is a link between how a situation is appraised and the impact that this will have upon the successful fulfilment of values and upon well-being.

As discussed the study did not have a large enough sample at T1 to account for attrition, leaving the sample at T2 being too small to allow for a regression analysis, thus limiting the analysis and inferences that we are able to draw from the results. This can be attributed to both the limited resources and time constraints of the study, which in hindsight may have made a longitudinal design less viable. Shortfalls were also identified with recruitment methodology. Due to these factors we were regrettably unable to demonstrate the full suite of findings that had been targeted. Nonetheless, the achieved results demonstrated useful findings which have enabled a greater understanding of values and value fulfilment in the context of a life transition of this nature and of how this is linked to both the appraisal of the pregnancy and subjective well-being. Overall, valuable conclusions can be drawn from this study that will benefit future researchers in this important field.

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## **Appendices**

### **Appendix A: Ethical Approval**

Ref: 2015/016 Ethics Form Approved Subject to Amendment

PS

psychology.it.support@rhul.ac.uk

Reply all

To:

pava051@rhul.ac.uk;

Bardi, Anat;

Cc:

PSY-EthicsAdmin@rhul.ac.uk;

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Thu 12/03/2015 13:08

thesis

You forwarded this message on 16/04/2015 10:55

Application Details: [View the form click here](#) [Revise the form click here](#)

Applicant Name: Laura McHugh

Application title: Value change and well-being during pregnancy and following giving birth, in first time mothers

Comments: Approved subject to amendment. This means that the following amendments are required before the research can commence (note that even though these changes are required, evidence of the revisions does not have to be submitted to DEC):

Please make sure all forms are on correct letterhead.

## Appendix B: Demographic Information Sheet

What is your first name?

What is your email address?

What is your telephone number? (in case of changes to eHow old are you? (years) What is your gender: Male/ Female?

How would you describe your ethnicity (please tick).

- White
- Hispanic or Latino
- Black or African American
- Native American or American Indian
- Asian / Pacific Islander
- Other (please state).....What is your country of origin?  
.....

How would you describe your religious beliefs (please tick)?

- Catholic
- Christian
- Hindu
- Muslim
- Judaism
- Atheist
- Agnostic
- None
- Other (please specify).....

What is your marital status?

- Single, never married
- Married , civil or domestic partnership
- Widowed
- Divorced
- Separated

Tick the box that describes your employment status either currently or if applicable prior to maternity leave? (Please tick)

- Unemployed
- Volunteering
- Unpaid
- Part-time paid employment
- Full-time paid employment
- Self employed
- Retired
- Full time student

How would you describe your level of education? (please tick)

- No formal schooling completed
- Secondary/ High School or equivalent completed
- Some college credit, no degree
- Trade/technical/vocational training
- Associate degree
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate degree

## Appendix C: Information Sheet

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### Information Sheet

Value change and well-being during pregnancy and following giving birth, in first time mothers

My name is Laura McHugh and I am in my second year of a Clinical Psychology Doctorate at Royal Holloway, University of London. I am carrying out a study looking at value change and wellbeing in pregnant women, supervised by Dr Anat Bardi (email Anat.Bardi@rhul.ac.uk). I would appreciate your participation, because it would contribute to our understanding of the psychological factors that influence the transition to motherhood.

If you decide to take part, I will ask you to complete an online questionnaire both while you are pregnant and then again 8 weeks following giving birth. The measures will look at values, wellbeing and appraisal of pregnancy. We will also ask for some demographic information. This will take around 30 minutes and can be completed online following the link provided. Once you have completed the questionnaires for the second time we will enter you into a prize draw to win £100 vouchers for Mothercare.

Nobody except myself and my supervisor will have access to the information that you provide and this will be kept completely confidential. We will only record your first name so that we can use it to address you when we contact you for the next time of completing the questionnaire. We will record your email address and phone number to contact you for the next completion of the questionnaire, but after completing the study these personal details will be removed from the data file. The data will be stored securely in password protected computers.



You do not have to take part in this study if you don't want to. If you decide to take part you may withdraw at any time without having to give a reason. If there are any questions that you do not feel comfortable in answering then please leave this out and move to the next question.

Please print this screen for reference. Please feel free to ask any questions before you complete the consent form below. Your personal details will be stored separately from the anonymous information you provide for the research project. This study has been reviewed and approved by the Psychology Department internal ethical procedure at Royal Holloway, University of London.

Contact information for Laura McHugh (Researcher)

email: [pava051@live.rhul.ac.uk](mailto:pava051@live.rhul.ac.uk)

telephone: 01784 414012

Useful resources:

[www.mind.co.uk](http://www.mind.co.uk)

[www.nct.org.uk](http://www.nct.org.uk)

[www.netmums.com](http://www.netmums.com)

[www.nhs.uk](http://www.nhs.uk)

## Appendix D: Consent Form

Value change and well-being during pregnancy and following giving birth, in first time mothers

Participant email .....

You have been asked to participate in a study about values and well-being in pregnant women, which is being carried out by Laura McHugh.

Have you (please mark yes or no)

- |  |     |    |
|--|-----|----|
| <input type="radio"/> Read the information sheet about the study?  | yes | no |
| <input type="radio"/> Had an opportunity to ask questions?   | yes | no |
| <input type="radio"/> Got satisfactory answers to your questions?  | yes | no |
| <input type="radio"/> Understood that you're free to withdraw from the study<br>at any time, without giving a reason | yes | no |

Do you agree to take part in the study ? yes    no

Signature \_\_\_\_\_ Name in block letters \_\_\_\_\_

Date \_\_\_\_\_

NB: This consent form will be stored separately from the anonymous information you provide.

### Appendix E: Appraisal of Pregnancy

How would you describe your reaction to finding out you are pregnant? (please tick how much you felt each emotion)

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Happy					
Sad					
Angry					
Afraid					
Joyful					
Nervous					
Excited					
Frightened					
Delighted					
Upset					
Shocked					

## Appendix F: Positive and Negative Affect Scale X

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now. Use the following scale to record your answers:

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely
_____ cheerful	_____ sad	_____ active	_____ angry at self	
_____ disgusted	_____ calm	_____ guilty	_____ enthusiastic	
_____ attentive	_____ afraid	_____ joyful	_____ downhearted	
_____ bashful	_____ tired	_____ nervous	_____ sheepish	
_____ sluggish	_____ amazed	_____ lonely	_____ distressed	
_____ daring	_____ shaky	_____ sleepy	_____ blameworthy	
_____ surprised	_____ happy	_____ excited	_____ determined	
_____ strong	_____ timid	_____ hostile	_____ frightened	
_____ scornful	_____ alone	_____ proud	_____ astonished	
_____ relaxed	_____ alert	_____ jittery	_____ interested	
_____ irritable	_____ upset	_____ lively	_____ loathing	
_____ delighted	_____ angry	_____ ashamed	_____ confident	
_____ inspired	_____ bold	_____ at ease	_____ energetic	
_____ fearless	_____ blue	_____ scared	_____ concentrating	
_____ disgusted	_____ shy	_____ drowsy	_____ dissatisfied with self	
with self				

### Appendix G: Portrait Values Questionnaire -40

Please read each description and think about how much each person is or is not like you. Put a mark in the box to the right that shows how much the person in the description is like you.

	Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all
1. Thinking up new ideas and being creative is important to her. She likes to do things in her own original way.						
2. It is important to her to be rich. She wants to have a lot of money and expensive things.						
3. She thinks it is important that every person in the world be treated equally. She believes everyone should have equal opportunities in life.						
4. It's very important to her to show her abilities. She wants people to admire what she does.						
5. It is important to her to live in secure surroundings. She avoids anything that might endanger her safety.						

6. She thinks it is important to do lots of different things in life. She always looks for new things to try.						
7. She believes that people should do what they're told. She thinks people should follow rules at all times, even when no-one is watching.						
8. It is important to her to listen to people who are different from her. Even when she disagrees with them, she still wants to understand them.						
9. She thinks it's important not to ask for more than what you have. She believes that people should be satisfied with what they have.						
10. She seeks every chance she can to have fun. It is important to her to do things that give her pleasure.						
11. It is important to her to make her own decisions about what she does. She likes to be free to plan and to choose her activities for herself.						
12. It's very important to her to help the people around her. She wants to care for their well-being.						

13. Being very successful is important to her. She likes to impress other people.						
14. It is very important to her that her country be safe. She thinks the state must be on watch against threats from within and without.						
15. She likes to take risks. She is always looking for adventures.						
16. It is important to her always to behave properly. She wants to avoid doing anything people would say is wrong.						
17. It is important to her to be in charge and tell others what to do. She wants people to do what she says.						
18. It is important to her to be loyal to her friends. She wants to devote herself to people close to her						
19. She strongly believes that people should care for nature. Looking after the environment is important to her.						
20. Religious belief is important to her. She tries hard to do what her religion requires.						
21. It is important to her that things be organized and clean. She really does not like things to be a mess						

22. She thinks it's important to be interested in things. She likes to be curious and to try to understand all sorts of things.						
23. She believes all the worlds' people should live in harmony. Promoting peace among all groups in the world is important to her.						
24. She thinks it is important to be ambitious. She wants to show how capable she is.						
25. She thinks it is best to do things in traditional ways. It is important to her to keep up the customs she has learned.						
26. Enjoying life's pleasures is important to her. She likes to 'spoil' herself.						
27. It is important to her to respond to the needs of others. She tries to support those she knows.						
28. She believes she should always show respect to her parents and to older people. It is important to her to be obedient.						
29. She wants everyone to be treated justly, even people she doesn't know. It is important to her to protect the weak in society.						



30. She likes surprises. It is important to her to have an exciting life.						
31. She tries hard to avoid getting sick. Staying healthy is very important to her.						
32. Getting ahead in life is important to her. She strives to do better than others.						
33. Forgiving people who have hurt her is important to her. She tries to see what is good in them and not to hold a grudge.						
34. It is important to her to be independent. She likes to rely on herself.						
35. Having a stable government is important to her. She is concerned that the social order be protected.						
36. It is important to her to be polite to other people all the time. She tries never to disturb or irritate others.						
37. She really wants to enjoy life. Having a good time is very important to her.						
38. It is important to her to be humble and modest. She tries not to draw attention to herself.						

39. She always wants to be the one who makes the decisions. She likes to be the leader.						
40. It is important to her to adapt to nature						

### Appendix H: Satisfaction with Life Scale

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

	Strongly Agree	Agree	Slightly Agree	Neither agree not Disagree	Slightly Disagree	Disagree	Strongly Disagree
In most ways my life is close to my ideal.							
The conditions of my life are excellent.							
I am satisfied with my life							
So far I have gotten the important things I want in life							
If I could live my life over, I would change almost nothing							

## Appendix I: Circumstances around pregnancy

About your pregnancy

How many weeks into your pregnancy are you? \_\_\_\_\_

When is your due date? \_\_\_\_\_

Before becoming pregnant this time have you had any previous pregnancies?

- yes
- No

If you answered yes to the previous question, how many previous pregnancies?

- How many \_\_\_\_\_

If yes to the last question, how many months ago was your last pregnancy?

- how many months \_\_\_\_\_

Did you undergo any medical treatment to help you to become pregnant?

- yes
- No

## Appendix J: Value Fulfilment

Now that you are pregnant/since you have given birth how often you feel that you have the OPPORTUNITY to.....(please tick)

	Always	Often	Sometimes	Rarely	Never
To make decisions about my own life.					
To feel successful					
To do the things that I enjoy					
To do the things that I want to					
To do things that I feel are important to me					
To do things without planning ahead					
To do things without thinking of others					
To try or experience new things					
To feel safe					
To do things that give me a sense of achievement					
To do things that make me feel stimulated					

## Appendix K: Resources

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

We will contact you eight weeks following your due date to ask you to complete the second set of questionnaires.

### Useful Resources

#### Mothers for Mothers

Mothers for Mothers are a group for women who have suffered depression or distress after birth. They offer support, advice, and information mostly. this is mainly over the phone, but with occasional gatherings, and also the option of linking with a supporter who will personally maintain contact with you while things are difficult. Mother for Mothers works in Bristol, South Glos and BANES.

Helpline: 0117 975 6006

[www.mothersformothers.co.uk](http://www.mothersformothers.co.uk)

#### The National Childbirth Trust

The National Childbirth Trust may be known as a place for information and advice before you give birth, but they also run weekly informal classes for parents to share tips and difficulties, as well as more social coffee mornings.

Find your local group at [nct.org.uk](http://nct.org.uk)

Enquiry Line: 0870 444 8707

#### Gingerbread

Gingerbread is a place for lone parents and their families to get support.

Advice line: 0800 018 4318

[www.gingerbread.org.uk](http://www.gingerbread.org.uk)

#### Netmums

Netmums is a great resource for all sorts of friendly informal parenting information and it is run on a local level.

[www.netmums.com](http://www.netmums.com)

#### Useful Websites

[www.nhs.uk/livewell/childhealth](http://www.nhs.uk/livewell/childhealth) | [www.mind.co.uk](http://www.mind.co.uk)

[www.netmums.com](http://www.netmums.com)

[www.samaritans.org](http://www.samaritans.org) / telephone: 08457 90 90 90

## Appendix L: Debrief Sheet

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### **Value change and well-being during pregnancy and following giving birth, in first time mothers**

Thank you for taking part in my research study, your participation is greatly appreciated. The aim of the project was to establish if there is value change in first time mothers. As previous research tell us that values are likely to change following a major life transition, which becoming a first time mother is akin to. Pregnancy, giving birth and the early stages of parenthood is one of the biggest life transitions that a woman can experience and can impact on the well-being of the mother. Through this research we sought to gain further understanding of the process of psychological change that many new mothers are likely to experience and through this build on the existing knowledge base, with the aim of being able to offer more informed support and advice to new parents and health care professionals. As part of the study we also wanted to try to understand the process of value change in relation to individual appraisals of the pregnancy and how this may be related to the process of value change and how it relates to psychological well-being.

The main research questions were; which values are most likely to change as the result of becoming a first time mother? In what way are the values likely to change and how does this impact on well-being? How does individual appraisal of the pregnancy impact on value change and psychological well-being?

In the research we used a number of questionnaires to measure values, life satisfaction and well-being in first time mothers during their pregnancy and then we used the same measure at

around 8 weeks after the birth. We also gathered information about the individual appraisal by asking a number of questions about your individual experience of becoming pregnant.

We anticipate that the values most likely to be vulnerable to change when becoming a first time mother are; freedom, security, hedonism and benevolence. For example it was thought that it is likely that when becoming a new mother you may find that you are less able to act in a hedonistic way with a new baby, which with time, may lead to a reduction in the importance of these values. It was also thought that the value of security would become more important with a dependent child and that benevolence would become more important as being a new parent would involve more focus on the child and less on others.

Thank you again for your participation.

Contact information for Laura McHugh (Researcher)

email: pava051@live.rhul.ac.uk telephone: 01784 414012