



The
University
Of
Sheffield.

Access to Electronic Thesis

Author: Cathryn Daley-McCoy
Thesis title: The Development and Preliminary Evaluation of an Intervention to Enhance Relationship Functioning during the Transition to Parenthood
Qualification: DClinPsy

This electronic thesis is protected by the Copyright, Designs and Patents Act 1988. No reproduction is permitted without consent of the author. It is also protected by the Creative Commons Licence allowing Attributions-Non-commercial-No derivatives.

This thesis was embargoed until 18 October 2016.

If this electronic thesis has been edited by the author it will be indicated as such on the title page and in the text.

**The Development and Preliminary Evaluation of an Intervention to Enhance
Relationship Functioning during the Transition to Parenthood**

The results, discussions and conclusions presented herein are identical to those in the printed version. This electronic version of the thesis has been edited solely to ensure conformance with copyright legislation and all excisions are noted in the text. The final, awarded and examined version is available for consultation via the University Library

*Thesis submitted for Doctor of Clinical Psychology
University of Sheffield*

Section 1: Literature Review

Dynamic moderators of relationship functioning during the transition to parenthood

1. Introduction

1.1. Relationship functioning during the transition to parenthood

In 2009 10.5 per 1000 people in marital relationships became divorced in England and Wales, with around 55% of affected couples having at least one child aged under 16 (Office for National Statistics, 2011). As such, nearly 100,000 children experienced a parental divorce during this period with approximately 21% aged less than 5 years old. As these figures do not account for the children of unmarried parents who separate, still more would have been at risk of experiencing the behavioural, emotional and academic difficulties often associated with the dissolution of parental relationships (Amato, 2001). According to the Office for National Statistics (2011), the divorce rate remained highest among those in their late twenties in 2009, which corresponds with the average age at which people were having their first child (ONS, 2010).

In his seminal work exploring the implications of becoming parents, LeMasters (1957) hypothesised that this transitional period represented a crisis for couples that required radical re-organisation within the family system. Since this time an extensive body of research regarding the transition to parenthood has amassed, aimed at qualifying and building upon this bleak preliminary analysis. The impact of becoming parents on the relationship between partners is an area that has received much empirical attention and is the focus of the present review.

An empirically-supported legacy remains about the detrimental impact of becoming parents on relationship functioning (Belsky, Lang & Rovine, 1985; Cowan, Cowan, Heming, Garrett, Coysh, Curtis-Boles, & Boles, 1985). Methodological shifts within transition to parenthood research has enabled more nuanced insights to emerge however, as chronicled by Lawrence, Rothman, Cobb and Bradbury (2008a) in their broad overview of major findings over the past 50 years. In particular, this has included the use of non-parent comparison groups and considering individual variability in relationship change for couples across time, rather than only examining group mean differences. In this way, the conceptualisation of new parenthood has evolved from a crisis to a normative transition that partners go through.

It is now generally accepted that declines in relationship functioning are commonly experienced by many couples, regardless of their parental status, and that the transition to parenthood as a time of strain may simply serve to amplify or accelerate these (for a meta-analytic review, see Mitnick, Heyman & Smith Slep, 2009). Moving away from analyses that only take account of central tendency has also highlighted that not all partners who become parents experience relationship decline, with those reporting stability or some improvement ranging from 33% for women (Shapiro, Gottman & Carrere, 2000) to 55% for men (Cowan & Cowan, 1995).

Yet the implications of relationship decline for individual health and well-being, parenting practices, childhood outcomes and family functioning have led researchers to examine whether certain factors moderate such changes (for a summary see Petch & Halford, 2008). As part of their meta-analytic review, Mitnick et al. (2009)

attempted to identify groups of new parents at increased risk of experiencing relationship decline on the basis of several demographic variables. While none of these remained significant throughout the analysis process, it was concluded that young, non-white or unmarried couples and those in relationships of shorter duration before pregnancy were at highest risk for declines in relationship satisfaction (Mitnick et al., 2009).

Even when the misleading nature of such conclusions is set aside, identifying static factors that moderate relationship functioning in new parents offers little in terms of informing the development of effective strategies for affected couples. Instead, Petch and Halford (2008) advocate a focus on modifiable risk factors that offer scope for relationship enhancement through interventions aimed at new parents. An overview of such dynamic moderators is offered by Lawrence et al. (2008a) as well as Petch and Halford (2008), though these are not intended as systematic reviews and primarily focus on research completed within the United States. Lawrence, Rothman, Cobb, Rothman and Bradbury (2008b) also point out that some of the studies described fail to account for key sources of uncontrolled variability within their samples, such as distinguishing between first-time parents and those who already have children.

In light of these factors, this systematic review aims to broaden and extend existing knowledge about dynamic variables that have been found to moderate relationship functioning during the transition to parenthood. By accounting for the methodological issues raised by Lawrence et al. (2008b), it is hoped that this critical appraisal will serve to consolidate current insights in this area and provide direction for future research to

build upon this. Clinical implications for the development of intervention strategies will also be considered on the basis of this review.

1.2. Study Aims & Rationale

The aim of this study is to systematically review research that examines dynamic moderators of relationship functioning during the transition to parenthood. By integrating outcomes from included studies, this review aims to consolidate and extend current insights into the process of relationship change at this transitional point in the family life cycle. In addition to providing future directions for researchers interested in this area, it is hoped that this review will prove beneficial to clinicians working with or developing services for new parents.

1.3. Definition of Key Terms

1.3.1. Transition to Parenthood

For the purposes of this review, 'transition to parenthood' refers to the period from pregnancy to one year postpartum. While some of the studies reviewed include data collected beyond this point, the qualitative differences in caring for infants as they grow older introduces conceptual and practical variability in what parenting means. This is supported by Mitnick et al.'s (2009) finding that the point at which postnatal data was collected significantly moderated relationship outcomes. As such, careful attention will be paid to the timing of data collection throughout this review and emphasis placed on the period from pregnancy to 1 year postpartum.

1.3.2. Relationship Functioning

There has historically been much variation in the range and conceptualisation of terms in studies exploring relationship change during the transition to parenthood (Provost & Tremblay, 1991). This has prompted careful decision-making about the inclusion of studies in the current review. 'Relationship functioning' is used here to encapsulate various operational definitions of subjective satisfaction with or perceived quality of the relationship between partners.

1.3.3. Dynamic Moderators

For the purposes of this review, 'dynamic moderators' refer to potentially modifiable variables that affect the strength or direction of change in relationship functioning during the transition to parenthood (Baron & Kenny, 1986; Petch & Halford, 2008). Petch (2006) suggests that these be grouped into interpersonal process, parenthood-specific and contextual factors. These categories have been used to structure this review, in addition to considering potential dynamic moderators functioning at the individual level.

1.4. Inclusion Criteria

In line with the definition of key terms stated above, studies examining the impact of potential dynamic moderators on relationship functioning during the transition to parenthood are included in this review. In order to enhance the quality of research reviewed, only prospective longitudinal studies involving data collected at a minimum

of 2 time points that were published in peer-reviewed journals are included. Given the methodological and conceptual shifts in this area over recent decades, this review will only examine studies published in the last 20 years (Lawrence et al., 2008a).

In order to reduce a key source of uncontrolled variability identified by Lawrence et al. (2008b), only studies explicitly involving parents expecting their first child are included. One exception was made in which data from first-time and multiparous mothers was analysed separately (Salmela-Aro, Nurmi, Salsto & Hlmesmaki, 2010). Given the additional complexity of becoming parents for certain groups within society, such as people requiring fertility treatment, same-sex partners and where a parent or baby is seriously ill, studies involving such samples were not included. Finally, articles needed to be available in English to be included.

1.5. Search Strategy

The databases '*PsycINFO: 1967–March Week 3 2011*' and '*Ovid MEDLINE (R): 1948–March Week 3 2011*' were searched for the purpose of this review. Combinations of the key and related terms listed in Table 1 were systematically searched for, producing 672 results. Their titles and abstracts were screened, resulting in 25 articles published between 1990 and March 2011 in peer-reviewed journals. Four studies were excluded as data from first-time and multiparous parents was not analysed separately, 2 were not available in English and one was a shorter report of an included study. Searching the references of relevant articles and texts did not identify any further studies which met inclusion criteria. Thus, 18 studies are included in the current review.

Table 1: Key and Related Search Terms

Combine	With	And
Transition to parenthood First-time parents	Relationship Marital Couple Partnership Interpersonal	Functioning Satisfaction Adjustment Change Quality

2. Literature Review

2.1. Summary of Search Findings

Summary details for all 18 prospective longitudinal studies reviewed in this paper are provided in Table 2. Reflecting commonly observed trends within the literature, half of the studies involve samples of predominantly White North American married couples. Within the current review, ‘husband’ and ‘wife’ are only used in relation to the 11 studies that exclusively involved married couples. In all other cases, participants are referred to as ‘men’, ‘women’ and ‘partners’. Seven studies were completed in countries other than the United States and 2 of these are the only papers in the review to involve women rather than couples. Of the 16 studies involving both partners, sample sizes ranged from 56 to 293 couples. Of these, 4 studies included a non-parent comparison group, ranging in size from 20 to 106 couples.

Data collection periods ranged from 6 months to 8 years, with over half of the studies collecting data at more than 2 points in time (range:2-11). Eleven studies collected data only during the transition to parenthood, while 4 studies tracked couples prior to pregnancy and 7 collected data beyond the first postpartum year. The vast majority of studies used standardised, self-report measures to assess relationship functioning,

though there was much variation in the number and type of measures used. The Dyadic Adjustment Scale (Spanier, 1976) and Marital Adjustment Test (Locke & Wallace, 1959) were often used, both having sound psychometric properties and serving as a source of concurrent validity for other measures used.

A scale was developed to provide a quantitative rating of each study's quality, based upon the Quality Index (Downs & Black, 1998; see Appendix 2). Points were awarded for elements deemed to heighten the standard of reporting and methodological quality in terms of internal and external validity. Points for external validity were awarded least often, with only 4 studies describing the representativeness of their sample in relation to the sample or source population (Cox, Paley, Burchinal & Payne, 1999; Houts, Bennet-Walker, Paley & Cox, 2008; Lawrence, Nylén & Cobb, 2007; Shapiro et al., 2000). Studies were scored out of 17 and 21 for those involving non-parent comparison groups, with percentages of the scale maximum reported in Table 2 alongside key methodological limitations. These, in addition to key outcomes of interest, are considered in more depth throughout the review.

The review begins by considering potential dynamic moderators which operate at an individual level. Interpersonal-level variables are then reviewed, firstly in terms of communication, problem-solving and conflict, before perceptions of support are considered. Parenthood-specific factors are then examined, with prenatal expectations and meeting infant care needs considered separately. Potential dynamic moderators functioning at the contextual level are the last to be reviewed, before overall conclusions, clinical implications and directions for future research on the basis of the review are considered.

Table 2: Summary of Search Findings

Study	Sample	Data Collection	Relationship Functioning Measure	Dynamic Moderators: Key Postnatal Outcomes	Key Limitations (Quality Rating)
Claxton & Perry-Jenkins (2008)	127 US new-parent couples	4 waves of data collected during late pregnancy, 1- and 12 months postpartum and within 4 weeks of mothers' return to work	2 scales of the Relationship Questionnaire (RQ: Braiker & Kelly, 1979)	Declines in leisure time predicted poorer relationship outcomes	Definition and measurement of leisure not very robust (70.6%)
Cox, Paley, Burchinal & Payne (1999)	135 married US new-parent couples	4 waves of data collected during pregnancy and 3, 12 and 24 months postpartum	Marital Satisfaction Scale (Huston, 1983) 3 scales of the RQ Intimacy scale of the PAIR (Shaefer & Olson, 1981)	Higher depressive symptoms and negative problem-solving predicted declines in marital satisfaction for both spouses	Lack of specificity regarding attrition across phases; time of prenatal assessment varied across couples (70.6%)
Crohan (1996)	65 married US new-parent couples and 106 childless couples	2 waves of data collected in the first year of marriage and 2 years later	Marital happiness index (Crohan & Veroff, 1989)	Increased negative conflict predicted declines in marital happiness	Variability in timing of postnatal data; Sample representativeness and attrition unclear (57.1%)
Doss, Rhoades, Stanley & Markman (2009)	132 married US new-parent couples and 86 childless couples	9 waves of data used in the study, collected prior to marriage and annually for 8 years thereafter	Observed negative communication; self-report measures for 6 domains of relationship functioning	Negative communication predicted declines in relationship functioning ; Higher income predicted smaller declines for men	Variability in timing of data collection; reason for remaining childless not explored among comparison group (61.9%)
Gjerdingen & Center (2005)	128 US new-parent couples	2 waves of data collected during pregnancy and 6 months postpartum	1 item adapted from the Kansas Marital Satisfaction Scale (Schumm et al, 1986)	Decreased partner support and inequity in housework predicted declines in relationship functioning	Used single-item measures; Partner support defined as expressions of caring; Attrition bias (47.1%)
Hackel & Ruble (1992)	50 married US new-parent couples and 20 childless couples	2 waves of data collected during pregnancy and 4 months postpartum	Marital Adjustment Test (Locke & Wallace, 1959) 2 subscales of the PAIR Conflict scale of the RQ	More commitment to and subsequent violation of expectations predicted greater declines for women	Comparison group selected from different population; Attrition bias (57.1%)

Harwood, McLean & Durkin (2007)	71 new mothers living in Australia	2 waves of data collected during the latter half of pregnancy and 4 months postpartum	Dyadic Adjustment Scale (DAS; Spanier, 1976)	Violated expectations about parenting predicted declines in relationship functioning	Validity of how optimistic expectations were defined; representativeness of sample not explored (70.6%)
Houts, Barnett-Walker, Paley & Cox (2008)*	135 married US new-parent couples	5 waves of data collected during pregnancy and 3-, 12-, 24 months and 5 years postpartum	Measure based upon the Life Satisfaction Scale (Campbell, Converse & Rodgers, 1976) 3 scales of the RQ Intimacy scale of the PAIR	A curvilinear pattern of problem-solving in couples, commonly at its most negative between pregnancy and 3 months postpartum	Time of prenatal assessment varied; reported measures used inconsistent with original study (82.4%)
Kluwer & Johnson (2007)	293 Dutch new-parent couples	3 waves of data collected during pregnancy and at 6- and 15 months postpartum	5-item measure of global relationship quality derived from the Investment Model Scale (Rusbult et al, 1998)	Increased conflict frequency predicted declines in relationship quality	Lack of specificity regarding conflict measure; construct validity of non-standardised measure not clear (76.5%)
Lawrence, Nylén & Cobb (2007)	56 married US new-parent couples	7 to 11 waves of data collected to include the first 6 months of marriage, late pregnancy, 3- and 6 months postpartum	The Quality of Marriage Index (Norton, 1983)	Disconfirmed prenatal expectations predicted decline in marital satisfaction	Reliability of analytical method to determine disconfirmation (88.2%)
Levy-Shiff (1994)	102 married Israeli new-parent couples	2 waves of data collected during the last trimester of pregnancy and at 8 to 9 months postpartum	MAT	Greater paternal care-giving predicted better marital adjustment; greater work-role centrality predicted poorer outcomes for women	Representativeness of sample not clear; appropriateness of regression analysis given numerous variables (78.6%)
Meijer & van den Wittenboer (2007)	107 Dutch new-parent couples	4 waves of data collected during the last month of pregnancy, 2- and 7 weeks postpartum and 1 year postpartum	Marital satisfaction measured by 4 questions on a 5-point scale	Parenting efficacy in both partners interacted with other variables to predict relationship change	Rationale and operational definition of relationship functioning not clear; non-standardised tool (52.9%)

Pancer, Pratt, Hansberger & Gallant (2000)	69 Canadian new-parent couples	2 waves of data collected at 3 months prior to birth and 6 months postpartum	MAT	More integrated and complex expectations about new parenthood predicted better relationship outcomes for women	Sample representativeness not reported; regression analysis used with small N and numerous variables (64.7%)
Rholes, Simpson, Campbell & Grich (2001)	106 married US new-parent couples	2 waves of data was collected 6 weeks before birth and 6 months postpartum	Satisfaction scale of the DAS RQ	Declines in perceived spousal support predicted poorer relationship outcomes in wives	Sample representativeness unclear; reported "marginally significant" results (58.8%)
Salmela-Aro, Nurmi, Salisto & Hlmesmaki(2010)	111 Finnish new mothers	3 waves of data collected during early pregnancy, one month before birth and 3 months postpartum	DAS	Perceived spousal support and relationship functioning predicted each other across pregnancy	Analytical procedure did not inform directionality or refer to postnatal data; unclear reporting (41.2%)
Shapiro, Gottman & Carrere (2000)	43 married US new-parent couples and 39 childless couples	Up to 8 waves of data collected annually during the first 4 to 6 years of marriage and once during pregnancy and 3 months postpartum for parents	MAT	Expressed fondness from husbands predicted stability or improved relationship functioning for both spouses	Did not explore the reasons why non-parent couples had remained childless (95.2%)
Terry, McHugh & Noller (1991)	59 married Australian new-parent couples	2 waves of data collected during late pregnancy and at 3 months postpartum	DAS	Postnatal satisfaction with partner's role performance directly related to women's relationship functioning	Rationale for measurement decisions not clear; sample attrition not explored (47.1%)
Wallace & Gotlib (1990)	97 married US new-parent couples	3 waves of data collected during pregnancy and at 1- and 6 months postpartum	DAS	Greater parenting stress predicted poorer marital adjustment	Did not explore whether pregnancy was planned or sample attrition (58.8%)

* Extension of study by Cox et al (1999)

2.2. Dynamic Moderators of Relationship Functioning

2.2.1. *Individual Moderators*

While static moderators of relationship functioning have the potential to optimise targeted input, the development and content of effective interventions is dependent upon identifying risk factors that are modifiable. Dynamic factors operating at the individual level are the first to be considered, though few of the reviewed studies examined such variables. In recognition of the interaction between maternal depression and marital distress at other points in the family life cycle, Cox et al. (1999) assessed low mood as part of their study. Spouses with more depressive symptoms reported less marital satisfaction during pregnancy and this consistently deteriorated after birth.

Parents of unplanned daughters who had higher depressive symptoms were found to be at particular risk of adverse relationship changes. This interaction was hypothesised to be partly related to lower paternal efficacy in caring for daughters, leading to inequity in the division of childcare (Cox et al., 1999). The homogenous nature of this predominantly White, rural, North American sample may limit the generalisation of such findings however. Future studies with more diverse samples are therefore required to lend empirical support to the moderating effect of low mood on relationship functioning during the transition to parenthood.

Significant associations between mental health and relationship functioning were also reported by Gjerdingen and Center (2005), Harwood et al. (2007) and Pancer, Pratt,

Hansberger and Gallant (2000). Gjerdingen and Center (2005) also found that satisfaction among women was positively related to their partner's mental health. However, the directionality of these relationships was not examined which limits further speculation about the moderating effect of mental health difficulties. Gjerdingen and Center (2005) also assessed physical health and sleep though no significant interactions with relationship satisfaction were found.

2.2.2. Interpersonal Factors

2.2.2.1. Communication, Problem-Solving and Conflict

Patterns of communication, problem-solving and conflict represent some of the most frequently examined variables in this area and feature in 6 of the studies reviewed. Increased spousal conflict following birth was reported by Kluwer and Johnson (2007) as well as Crohan (1996), who also found significantly higher rates among couples who became parents compared to those who did not. Parents engaged in fewer constructive and more destructive conflict behaviours over time, especially passive avoidance among White couples (Crohan, 1996). Cox et al. (1999) reported similar shifts in observed couple interactions during the first year of parenthood, though the use of growth curve analysis indicated much within-sample variability.

Houts et al. (2008) utilised the same dataset to extend these findings, reporting that couples' engagement in positive communication often followed a curvilinear pattern. Observed dialogue was most positive for many couples during pregnancy, before dipping to its lowest at 3 months after birth and then returning toward pre-birth levels

by 1 year postpartum. Latent transition analysis was then used to assess the stability of problem-solving styles, with only 20.3% of couples being found to move between styles (Houts et al., 2008). However, the most common shift was from constructive to destructive patterns between pregnancy and 3 months postpartum. While this suggests the initial adjustment to parenthood is particularly challenging, age may act as a buffer given that spouses who consistently engaged in constructive problem-solving were significantly older (Houts et al., 2008).

Doss, Rhoades, Stanley and Markman (2009) also reported a high level of stability in women's use of poor conflict management across time. Higher prenatal levels also predicted significant increases in the intensity of perceived relationship problems for both parents following birth, while observed negative communication most consistently predicted declines in relationship functioning (Doss et al., 2009). Given the number and range of variables examined in the study, this is a very significant outcome and is consistent with earlier findings that increased negative conflict often predicts adverse changes in relationship functioning among new parents (Crohan, 1996; Kluwer & Johnson, 2007).

One interesting exception was Crohan's (1996) finding that passive avoidance rather than constructive conflict behaviours predicted greater marital happiness in parents following birth. However, this finding must be interpreted within the context of non-standardised, retrospective, self-report measures being used to assess conflict. As well as being based on 2 waves of data analysed in terms of group mean differences, the timing of data collection was not standardised to assess couples at similar points in the transition to parenthood. This was also the case for Doss et al. (2009) and may have

implications for the rigour of these findings given the curvilinear pattern in interpersonal interactions found by Houts et al. (2008).

These methodological issues were not present in the study by Cox et al. (1999), who found that couples where neither partner was observed using positive problem-solving communication reported the least satisfaction with their relationship and experienced the most deterioration following birth. Unlike Crohan (1996) and Doss et al. (2009) however, this study did not include data collected prior to pregnancy which precludes accounting for relationship changes that may have already occurred (Boyce, Condon, Barto & Corkindate, 2007). Specifically, this could involve partners acting in more conciliatory ways during pregnancy.

By using growth curve analysis to track Individual patterns of relationship change in couples from marriage to parenthood on the basis of multiple data points, Shapiro et al. (2000) go furthest in overcoming the methodological limitations of the other studies reviewed. This is reflected in the study having the highest quality rating overall (95.2% of the scale maximum). Wives who became mothers in this study were less likely to experience relationship decline when husbands expressed greater fondness and both were more expansive in the way they talked about their relationship as newlyweds. Declining satisfaction among wives who became mothers was predicted by husbands expressing greater negativity or disappointment about their relationship, or either spouse describing their lives as chaotic when first married (Shapiro et al., 2000).

This study also included a comparison group, though delineating samples on the basis of parental status without establishing whether remaining childless was an active choice renders outcomes vulnerable to inference. Only Crohan (1996) and Hackel and Ruble (1992) assessed this to some extent, though childless couples in the latter study were not recruited from the same source population as parents. However in spite of significant methodological variation across the studies in this section, it is clear that changes in communication, problem-solving and conflict are experienced by many new parents and these can adversely affect relationship functioning.

Future studies should continue to explore the trajectory of such variables across the transition to parenthood, given the curvilinear pattern identified by Houts et al. (2008). This highlights the importance of multiple waves of data collected over time, especially given the moderating effect that the timing of postnatal data collection has been found to have on relationship functioning (Mitnick et al., 2009). Careful attention to such factors may allow a consolidated understanding about commonly experienced interpersonal difficulties at this transitional time and how parents may be best supported to manage these.

2.2.2.2. Perceived Partner Support

Perceived support from partners is the second type of interpersonal-level variable to be considered and has been examined in 3 of the reviewed studies. In their study assessing the impact of adult attachment orientations on interpersonal processes during the transition to parenthood, Rholes, Simpson, Campbell and Grich (2001) found that changes in perceived spousal support following birth mediated the

association between wives' ambivalence and marital satisfaction. However, these regression analyses were complicated by highly correlated spousal attachment orientations.

Rholes et al. (2001) and Gjerdingen and Center (2005) both found that perceptions of support declined significantly for both partners following birth. This was found to predict declines in relationship satisfaction for women by Rholes et al. (2001) and for both partners by Gjerdingen and Center (2005). However both variables in the latter study were measured using one item and partner support was operationally defined as expressions of caring, which may both threaten internal validity. Sample attrition was also significant, with those dropping out being younger and less educated (Gjerdingen & Center, 2005).

In contrast to these studies which both involved North American samples, Salmela-Aro et al. (2010) examined perceived partner support for personal goals among pregnant Finnish women. Path analysis identified a cumulative cycle between partner support and relationship satisfaction among women expecting their first child, where each was found to predict the other across pregnancy. However, further analyses may have lent clarity to the direction of this relationship and reference was not made to postnatal data. The greatest amount of support was perceived for birth- and family-related goals, though these findings also took account of data from multiparous women.

It is difficult to draw any firm conclusions on the basis of these findings, given the variability in how partner support was conceptualised across a small number of studies. When considered together, the findings may support the idea of a

'honeymoon' period during pregnancy when partners act in more conciliatory ways and are thus perceived as more supportive (Boyce et al., 2007). Yet these outcomes are all based on few data points collected across a very short time frame, with much variation in terms of sample composition and measurement. Additionally, the range of quality ratings attained by the studies in this section suggest much room for improvement (41.2-58.8%) and support the need for further investigation.

2.2.3. Parenthood-Specific Factors

2.2.3.1. Prenatal Expectations

Many of the studies reviewed examined the role of parenthood-specific variables, the first type to be considered here being prenatal expectations. The first of 4 studies that examined these assessed the strength and importance of expectations regarding the division of childcare and housework (Hackel & Ruble, 1992). Results indicated that women in less traditional couples who engaged in flexible decision-making and had discussed the division of tasks prior to birth were more committed to prenatal expectations and reported more relationship deterioration when these were violated.

Women in more traditional relationships reported greater satisfaction when their expectations about their share of labour were exceeded and vice versa. However, the representativeness of these results is unclear given the dominance of White, highly educated and well-paid Christian couples. There was also significant attrition of women who reported more conflict during pregnancy. It is also possible that the theoretical constructs used to conceptualise the strength and importance of prenatal

expectations were actually capturing their realism, thus threatening the internal validity of these findings.

Speculation about whether the realism of expectations was the dimension actually being captured also arose in relation to the study by Pancer et al. (2000). They assessed the extent to which prospective parents had considered the impact of the transition on various areas of their life (complexity) and how well these had been formed into a balanced perspective (integration). Expectations were found to become more complex and integrated for both partners following birth, though this only predicted positive relationship change for women (Pancer et al., 2000). Thinking in more complex ways about parenthood seemed to amplify stress among men, which may reflect a growing reality of their critical new role.

While Harwood, McLean and Durkin (2007) aimed to examine the optimism of prenatal expectations, the fact that these were met or exceeded for 64.8% of participants may again be more reflective of realism being the tapped construct. This rate is higher than that reported by Hackel and Ruble (1992), which could be related to cross-cultural and trans-generational differences. For example, the Australian women in the more recent study by Harwood et al. (2007) were possibly better placed to anticipate what becoming a parent could entail for them.

In spite of such considerations, violated expectations consistently predicted adverse changes in relationship functioning across both studies. However, the findings of all 3 studies are derived from 2 waves of data collected over a relatively short time frame that have been analysed on the basis of group mean differences.

In overcoming these issues, the final study by Lawrence et al. (2007) is by far the most methodologically sound in this section and this is reflected in its having the highest quality rating (88.2%). Further support was lent in terms of external validity by having the most culturally diverse sample of all the reviewed studies. While their definition and measurement of prenatal expectations was also more rigorous, it is of note that Harwood et al. (2007) had rejected their selected method of determining the extent to which these were confirmed for being too susceptible to variance. In keeping with earlier findings, couples' perceptions of becoming parents exceeded their prenatal expectations on average and declines in marital satisfaction were predicted when these were disconfirmed (Lawrence et al., 2007).

In spite of much variation in sample composition and methodology across the studies in this section, commonalities regarding the impact of violated prenatal expectations on relationship functioning clearly exist. While having more complex expectations about what it means to become a parent may be stressful for some, it is likely to reduce the chances of new parents feeling dissatisfied with their situation following their baby's arrival. The promotion of more realistic expectations about the impact of becoming parents in terms of relationship functioning and other commonly experienced changes may therefore serve a protective function and as such, should be considered in relation to support offered to this group.

2.2.3.2. Meeting Infant Care Needs

Three of the studies reviewed considered the potential moderating effect of meeting infant care needs on relationship change among new parents. This was conceptualised as parenting stress by Wallace and Gotlib (1990), with higher levels predicting poorer marital adjustment in wives following birth. This also interacted with wives' prenatal marital adjustment to predict similar postnatal outcomes for husbands. Unlike many of the other studies reviewed however, Wallace and Gottlib (1990) did not ascertain whether pregnancies were planned which may impact upon stress experienced in the parent-child system.

Parental care-giving behaviour, assessed on the basis of self-report and observations, was one of many variables to be examined in relation to marital change by Levy-Shiff (1994). She found that contributions to childcare appeared more equal among Israeli parents from Western socio-cultural backgrounds, though all fathers were generally more involved in caring for boys. Greater paternal care-giving and play interacted with personality traits to predict better marital adjustment for both spouses, yet greater maternal care-giving actually predicted lower marital adjustment in men (Levy-Shiff, 1994). These outcomes fit with Acitelli's (1992) hypothesis that effort on the part of men has more intrinsic value regarding marital outcomes for both partners.

Acitelli's (1992) 'husband hypothesis' also featured in the final study by Meijer and van den Wittenboer (2007), who examined whether infant sleep and crying predicted marital satisfaction. Paternal parenting efficacy reportedly interacted with maternal parenting efficacy, infant sleep and crying to predict marital satisfaction in women,

while marital satisfaction in men appeared negatively related to maternal parenting efficacy (Meijer & van den Wittenboer, 2007). It proved difficult to interpret the results of this study however, given the standard of reporting and this is reflected in the low quality rating attained (52.9%).

While the findings from Levy-Shiff (1994) and Meijer and van den Wittenboer (2007) both appear to support Acitelli's (1992) 'husband hypothesis', the negative association found between maternal parenting variables and relationship functioning in men seem at odds with some of the results from Wallace and Gottlib (1990). Again however, it is difficult to draw definitive conclusions given the small number of studies examining different constructs across diverse samples. Further investigation is greatly needed to lend clarity in this area, particularly when the potential benefits of enhancing men's parental involvement for both partners is set against the exclusion still experienced by men in relation to antenatal services (Deave, Johnson & Imgram, 2008).

2.2.4. Contextual Factors

Of the studies that examined potential moderators operating at the contextual level, 4 included measures related to work. While Hackel and Ruble (1992) did not identify any significant interactions between relationship functioning and women's employment status, Levy-Shiff (1994) found that the importance placed upon work identities by women was negatively related to postnatal marital satisfaction. However, work-role centrality did not contribute significantly to predicting relationship change over time on the basis of regression analysis (Levy-Shiff, 1994).

Terry, McHugh and Noller (1991) focused on the division of housework following birth and partners' satisfaction with each other's performance. Women tended to be more dissatisfied with their partner's contribution though again this did not predict changes in marital quality. Testing for simple effects did indicate that postnatal levels were higher when women were satisfied with their husband's contribution, though these findings are based on role satisfaction scores being dichotomised along a median split. It was also not possible to assess how satisfaction with the role performance of partners changed over time as this was only measured during the postnatal period.

Gjerdingen and Center (2007) also found that women's satisfaction with the division of housework was positively related to postnatal relationship functioning and mental health outcomes. This also predicted better outcomes for men, in addition to working fewer hours and contributing less equally to housework. The study also took hours of childcare into account, though earlier findings were not replicated (Levy-Shiff, 1994). Specifically, partners seemed more satisfied when the balance of childcare and other work shifted away from them. It is worth noting however, that this study attained one of the lowest quality ratings given several threats to internal and external validity noted within its design (47.1%).

One study examined how the amount and nature of leisure time changed across the transition to parenthood, and the subsequent impact on relationship satisfaction (Claxton & Perry-Jenkins, 2008). Multi-level modelling indicated that shared leisure time declined sharply following birth before gradually increasing across the first year postpartum. Higher levels during pregnancy predicted greater love for both spouses across time, while more independent leisure time predicted less love and more conflict

for fathers one year after birth. Associations between these variables were more pronounced when declines in the respective type of leisure time were steeper.

However the way in which leisure time was assessed left what constituted the different types open to interpretation, thus presenting a significant threat to internal validity. This study was also built on the premise that shared leisure time is an important aspect of relationships in North American culture, meaning that findings may have limited cross-cultural validity. As this was the only study to examine leisure time however, it is not possible to speculate further on this. External validity was further threatened by the significant attrition of co-habiting couples which resulted in a sample of predominantly White married couples (Claxton & Perry-Jenkins, 2008).

Finally, many studies included a measure of socio-economic status though only Doss et al. (2009) assessed its potential moderating effect as a contextual stressor. While self-reported financial stress during pregnancy did not predict relationship change across the transition to parenthood, higher income predicted smaller declines for new fathers and smaller increases in the perceived intensity of relationship problems for new mothers (Doss et al., 2009). This difference may be related to higher incomes being associated with greater work responsibilities outside the home for fathers and thus less input in relation to family-related activities, which in turn could adversely impact upon women's perception of the relationship.

3. Summary and Conclusions

The aim of the current review was to examine research findings regarding potential dynamic moderators of relationship functioning within the transition to parenthood literature base from the past 20 years. While the 18 reviewed studies all utilised prospective longitudinal designs to examine such associations, there was much variation in methodological quality and this is reflected in quality scores ranging from 41.2% to 95.2%. This has proven a useful summary statistic in capturing the variable rigor applied to sampling, measurement and analysis across the studies. The lack of attention paid to threats to external validity was notable, given that points were given for this least often.

In comparison to the studies summarised in the overview of relationship functioning during the transition to parenthood research by Lawrence et al. (2008a), a greater number completed outside North America are represented in the current study. On the basis of relationship deterioration being consistently reported across all the studies reviewed, this finding lends support to the cross-cultural universality of these adverse changes among new parents. Yet it is still clear that research in this area continues to be based predominantly on the experience of White married North American couples. The absence of UK studies reflects the relative dearth of transition to parenthood research completed with British couples.

In terms of potential dynamic moderators of relationship functioning, there was a clear dominance of studies examining the impact of communication, problem-solving and conflict patterns in new parents. The overall quality of the studies in this section was

also relatively superior, with two-thirds achieving over 70% of the scale maximum. The greater number and quality of these studies, relative to other sections, goes some way in countering their methodological and conceptual variations and lends significant weight to the common themes identified. These include adverse changes in communication and conflict during the transition to parenthood, with higher pre-birth levels predicting relationship deterioration after birth.

While couples' engagement in problem-solving strategies appeared more stable across time, less constructive styles were also found to predict deterioration in relationship functioning (Doss et al., 2009; Houts et al., 2008). It is of note that the studies demonstrating the highest degree of consistency in findings have all involved samples of predominantly married White North American couples (Cox et al., 1999; Doss et al., 2009; Houts et al., 2008; Shapiro et al., 2000). While some counter-intuitive findings emerged from the studies that involved more culturally diverse samples, confident interpretation of these was over-shadowed by key methodological limitations (Crohan, 1996; Kluwer & Johnson, 2007). Replication with more culturally diverse samples is therefore needed to clarify these discrepancies.

Fewer studies examined the potential moderating impact of prenatal expectations on relationship functioning during the transition to parenthood, and these were generally of less methodological calibre. However, the identification of consistent themes facilitated a more confident interpretation of findings. In spite of variation in how prenatal expectations were conceptualised and measured, violation of these predicted relationship deterioration in new parents. This may support the value of partners

developing shared prenatal expectations that are more realistic in order to reduce the likelihood of later disappointment and distress.

The emergence of consistent findings was much more limited by conceptual and methodological issues in the other sections of the study. Perceptions of partner support and involvement in meeting infant care needs did appear to affect the relationship between new parents. In particular, the findings of several studies seemed to support Acitelli's (1992) hypothesis that effort on the part of men has more intrinsic value in terms of well-being in both partners. Yet the general low quality and smaller number of studies within these sections makes it difficult to draw any further conclusions.

Similarly, it was difficult to speculate in any great depth on potential moderators functioning at the individual or contextual level, given that most were only examined in one study. One exception was depression, which was consistently found to be inversely related to relationship functioning in new parents. However, the direction of this association was only explored in the study by Cox et al. (1999) and appeared mediated by specific static factors. Work-related variables were also examined in several studies, though the lack of consistent findings is likely to be related to how this was conceptualised, operationally defined and measured across studies.

3.1. Clinical Implications

The findings of this review are in keeping with earlier studies in showing that becoming parents can serve to amplify or accelerate declines in relationship functioning

commonly experienced by many couples. While such change may therefore be framed as normative, its association with adverse outcomes in terms of individual functioning, parenting practices, child development and overall family well-being should not be downplayed (Petch & Halford, 2008). In recognition of this, researchers and clinicians have attempted to develop preventative programmes that aim to buffer couples against relationship deterioration, enhance family resilience and ultimately reduce the likelihood that families will require more intensive clinical input in the future.

The dominance and consistency of results regarding the impact that adverse changes in communication and problem-solving can have on relationship functioning legitimise a focus on this within many interventions (Petch & Halford, 2008). While the curvilinear pattern reported by Houts et al. (2008) indicated that problem-solving styles tended to become more positive toward the end of the first year of parenthood, the initial drop immediately after birth is likely to heighten the stress experienced within new families. This is a particularly vulnerable time for new parents in terms of individual distress and may therefore provide a rationale for low-intensity preventative input at this time (O'Hara & Swain, 1996).

Similarly, the promotion of more realistic expectations about the impact of becoming parents for couples could serve a protective function. For example, new parents may feel less distressed about adverse changes in their interactions if they knew that many couples initially experience this during the transition to parenthood (Deave et al., 2008; Houts et al., 2008). Normalising common experiences in this way before they occur could enable prospective parents to anticipate such changes and thus reduce the likelihood of violated expectations.

While based upon less rigorous methodology, associations indicated between relationship functioning, perceptions of partner support and parenting involvement have significant implications for antenatal input. In their qualitative investigation into the support needs of new parents in the UK, Deave et al. (2008) reported that many men continued to feel excluded by maternity services and much of the literature produced for new parents. However, if Acitelli's (1992) 'husband hypothesis' is borne out, engaging new fathers effectively in order to promote parenting efficacy and mutual support is crucial for the well-being of both partners.

3.2. Suggestions for Future Research

Over half of the studies reviewed collected data at more than 2 time points, while just over a third had data collection periods that extended beyond the transition to parenthood. This is encouraging given that relationship functioning has been found to change in non-linear ways over time and is moderated by the timing of data collection (Mitnick et al., 2008). Cox et al. (1999) accordingly suggest that collecting multiple waves of data at different points across the transition to parenthood will enable patterns of change to be detected, rather than transitory fluctuations. These considerations should continue to be reflected within future research.

In recognition of the ongoing dominance of research findings based upon the experience of married White North American couples within transition to parenthood research, future studies should aim to utilise more culturally diverse samples. The dearth of such research involving British couples is particularly of note given the

recognition that they are by no means immune to the experience of adverse relationship change on becoming parents (Deave et al., 2008). Future studies should therefore acknowledge this cross-cultural universality through greater representation of samples from outside North America.

While there is a dominance of consistent findings regarding patterns of communication and problem-solving, there is a clear lack of cultural diversity within these studies. It is therefore particularly important that such findings are replicated with non-US samples. The small number of studies and vastly different ways in which variables were conceptualised also made it difficult to interpret findings in relation to several categories. These included perceptions of partner support, parenting involvement in meeting infant care needs and contextual factors such as work and leisure time. More research is therefore needed in these areas before reliable conclusions about their potential moderating effect can be drawn.

Finally, any attempts to replicate the findings of these studies may benefit from consideration of the quality ratings reported in the current review. By avoiding the major methodological limitations highlighted and only replicating studies of the highest quality in each section, findings can be usefully consolidated or qualified as appropriate. For example, further research into the impact of disconfirmed prenatal expectations would be best placed to replicate the study by Lawrence et al. (2007) in light of its superior quality.

3.3. Conclusion

The findings of this review indicate that changes in relationship functioning during the transition to parenthood may be moderated by several dynamic variables that operate across different levels. Additionally, this does not reflect the equivocal support for the role of demographic and other static factors in this process. Some specific interactions between static and dynamic variables were indicated within this review, such as Houts et al.'s (2008) finding that older parents were more likely to consistently engage in constructive problem-solving across the transition to parenthood. However, it is likely that these findings only begin to reflect the complex mechanisms behind relationship change during this transitional time in the family life cycle.

Findings in relation to patterns of communication, problem-solving and conflict, and prenatal expectations suggest consistent themes that lend themselves to more confident interpretation. As such, it is possible to consider how consolidated knowledge in relation to these variables could be usefully applied to meet the needs of new parents. However, other categories are characterised by low-quality studies, much conceptual and methodological variation and equivocal findings. Much more research of a higher quality is needed in relation to these before final conclusions can be drawn.

References

- Acitelli, L. K. (1992). Gender differences in relationship awareness and marital satisfaction among young married couples. *Personality and Social Psychology Bulletin, 18*, 102-110.
- Amato, P. R. (2001). Children of divorce in the 1990s: An update of the Amato and Keith (1991) meta-analysis. *Journal of Family Psychology, 15*, 355-370.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Belsky, J., Lang, M. E., & Rovine, M. (1985). Stability and change in marriage across the transition to parenthood: A second study. *Journal of Marriage and the Family, 47*, (4), 855-865.
- Boyce, P., Condon, J., Barton, J., & Corkindale, C. (2007). First-time fathers' study: Psychological distress in expectant fathers during pregnancy. *Australian and New Zealand Journal of Psychiatry, 41*, 718-725.
- Claxton, A., & Perry-Jenkins, M. (2008). No fun anymore: Leisure and marital quality across the transition to parenthood. *Journal of Marriage and Family, 70*, (1), 28-43.

Cowan, C. P., & Cowan, P. A. (1995). Interventions to ease the transition to parenthood: Why they are needed and what they can do. *Family Relations*, *44*, 412-423.

Cowan, C., Cowan, P., Heming, G., Garrett, E., Coysh, W., Curtis-Boles, H., & Boles, A. (1985). Transition to parenthood: His, hers, and theirs. *Journal of Family Issues*, *6*, 461-481.

Cox, J., Paley, B., Burchinal, M., & Payne, C. (1999). Marital perceptions and interactions across the transition to parenthood. *Journal of Marriage and Family*, *61*, (3), 611- 625.

Crohan, S. E. (1996). Marital quality and conflict across the transition to parenthood in African-American and White couples. *Journal of Marriage and the Family*, *58*, (4), 933-944.

Deave, T., Johnson, D., & Ingram, J. (2008). Transition to parenthood: The needs of parents in pregnancy and early parenthood. *Pregnancy and Childbirth*, *8*, 30–44.

Doss, B. D., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2009). The effect of the transition to parenthood on relationship quality: An 8-year prospective study. *Journal of Personality and Social Psychology*, *96*, (3), 601-619.

Downs, S. H., & Black, N. (1998). The feasibility of creating a checklist for the assessment of the methodological quality both of randomised and non-randomised

studies of health care interventions. *Journal of Epidemiology & Community Health*, 52, (6), 377-384.

Gjerdingen, D. K., & Center, B. A. (2005). The relationship of postpartum partner satisfaction to parents' work, health and social characteristics. *Women & Health*, 40, (4), 25-39.

Hackel, L. S., & Ruble, D. N. (1992). Changes in the marital relationship after the first baby is born: Predicting the impact of expectancy disconfirmation. *Journal of Personality & Social Psychology*, 62, (6), 944-957.

Harwood, K., McLean, N., & Durkin, K. (2007). First-time mothers' expectations of parenthood: What happens when optimistic expectations are not matched by later experiences? *Developmental Psychology*, 43, (1), 1-12.

Houts, R. M., Barnett-Walker, K. C., Paley, B., & Cox, M. J. (2008). Patterns of couple interaction during the transition to parenthood. *Personal Relationships*, 15, 103-122.

Kluwer, E. S., & Johnson, M. D. (2007). Conflict frequency and relationship quality across the transition to parenthood. *Journal of Marriage and Family*, 69, (5), 1089-1106.

Lawrence, E., Nylen, K., & Cobb, R. J. (2007). Prenatal expectations and marital satisfaction over the transition to parenthood. *Journal of Family Psychology*, 21, 155-164.

Lawrence, E., Rothman, A. D., Cobb, R. J., & Bradbury, T. (2008a). Marital satisfaction across the transition to parenthood: Three eras of research. In M. S. Schulz, M. Linepruett, P. K. Derig & R. D. Parke (Eds.), *Strengthening Couple Relationships for optimal child development: Lessons from Research and Intervention* (pp 97-114). Washington DC: American Psychological Association.

Lawrence, E., Rothman, A. D., Cobb, R. J., Rothman, M. T., & Bradbury, T. N. (2008b). Marital satisfaction across the transition to parenthood. *Journal of Family Psychology*, 22, (1), 41-50.

LeMasters, E. E. (1957). Parenthood as a crisis. *Marriage and Family Living*, 19, (4), 352-355.

Levy-Shiff, R. (1994). Individual and contextual correlates of marital change across the transition to parenthood. *Developmental Psychology*, 30, 591-601.

Locke, H., & Wallace, K., (1959). Short marital adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living*, 21, 251-255.

Meijer, A. M., & van den Wittenboer, G. L. H. (2007). Contributions of infants' sleep and crying to marital relationship of first-time parent couples in the 1st year after childbirth. *Journal of Family Psychology*, 21, 49-57.

Mitnick, D. M., Heyman, R. E., & Smith Slep, A. M. (2009). Changes in relationship satisfaction across the transition to parenthood. *Journal of Family Psychology, 23*, (6), 648-652.

Office for National Statistics. (2010). *Statistical bulletin: Live births in England and Wales by characteristics of the mother*. www.statistics.gov.uk

Office for National Statistics. (2011). Statistical bulletin: Divorces in England and Wales, 2009. www.statistics.gov.uk

O'Hara, M. W., & Swain, A. M. (1996). Rates and risks of postpartum depression: A meta-analysis. *International Review of Psychiatry, 8*, (1), 37-54.

Pancer, M. S., Pratt, M., Hunsberger, B., & Gallant, M. (2000). Thinking ahead: Complexity of expectations and the transition to parenthood. *Journal of Personality, 68*, (2), 253-280.

Petch, J. (2006). The couple CARE for Parents Program: Enhancing couple relationships across the transition to parenthood. Doctoral submission: www4.gu.edu.au:8080/adroot/uploads/approved/adt-QGU20070219.104652/public/01Front.pdf

Petch, J., & Halford, K. W. (2008). Psycho-education to enhance couples' transition to parenthood. *Clinical Psychology Review, 28*, 1125 – 1137.

Provost, M. A., & Tremblay, S. (1991). La nouveau-ne et la couple: adversaries ou partenaires? [The newborn and the couple: adversaries or partners?]. *Sante Mentale au Quebec*, 16, (1), 235-250.

Rholes, W. S., Simpson, J. A., Campbell, L., & Grich, J. (2001). Adult attachment and the transition to parenthood. *Journal of Personality and Social Psychology*, 81, (3), 421-435.

Salmela-Aro, K. Nurmi, J., Salsto, T., & Hlmesmaki, E. (2010). Spousal support for personal goals and relationship satisfaction among women during the transition to parenthood. *International Journal of Behavioral Development*, 34, (3), 229-237.

Shapiro, A. F., Gottman, J. M., & Carrere, S. (2000). The baby and the marriage: Identifying factors that buffer against decline in marital satisfaction after the first baby arrives. *Journal of Family Psychology*, 14, 59-70.

Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, 38, 15-39.

Terry, D. J., McHugh, T. A., & Noller, P. (1991). Role dissatisfaction and the decline in marital quality across the transition to parenthood. *Australian Journal of Psychology*, 43, (3), 129-132.

Wallace, P. M., & Gotlib, I. H. (1990). Marital adjustment during the transition to parenthood: Stability and predictors of change. *Journal of Marriage and Family*, 52, (1), 21-29.

Section 2: Research Report

The development and preliminary evaluation of an antenatal intervention to enhance relationship functioning during the transition to parenthood

Abstract: The aim of this study was to develop and assess the feasibility of a low-intensity antenatal intervention aimed at enhancing relationship functioning in couples during the transition to parenthood. The 2-hour psycho-educative programme was developed on the basis of empirical research and delivered as an adjunct to local NHS antenatal classes. A preliminary indication of the intervention's effectiveness was provided by comparing pre- and post-intervention data from 47 participants who received the intervention with 36 participants who did not. A cluster randomised design was used as antenatal classes rather than individual participants were randomly allocated to either the intervention or control condition. Outcomes were assessed in terms of relationship satisfaction, couple communication and psychological distress. 3 significant phases x conditions interactions were indicated using mixed-methods ANOVAs; women in the intervention condition reported significantly less deterioration in relationship satisfaction, while men in the intervention condition reported significantly less deterioration in couple communication and significant improvement in symptoms of psychological distress. The intervention appeared feasible in terms of pragmatic delivery, as well as on rates of uptake and attendance at sessions. Acceptability, assessed on the basis of participant feedback, also indicated that people were reasonably satisfied with the intervention and would recommend it to friends.

These positive preliminary indicators seem to provide a rationale for future large-scale investigation.

1. Introduction

According to developmental perspectives, relationships between partners must be able to adapt in order to accommodate the shifting roles and responsibilities that characterise different stages in the family life cycle (Floyd, Markman, Shalade, Blumberg & Stanley, 1995). This is often considered to be particularly important during the transition to parenthood, given the myriad of changes that marks it out as one of the most significant developmental phases of adulthood (Levy-Shiff, 1994). Like other major transitions in the family life cycle, how change on becoming a parent is understood and managed can have significant implications for the well-being of all those in the system (Floyd et al., 1995).

Changes in relationship functioning during the transition to parenthood has received much attention from clinicians and researchers over several decades, since being described as a time of crisis for couples in the seminal work of LeMasters (1957). With the advent of more rigorous research methodologies, this bleak forecast has been revised; it is now widely accepted that becoming parents can serve to accelerate or amplify normative declines in relationship functioning that are experienced by many couples (Mitnick, Heyman & Smith Slep, 2009). Those who have experienced such deterioration following the birth of their first child often report increased conflict and fewer positive exchanges with their partners (Cox , Paley, Burchinal & Payne, 1999; Doss, Rhoades, Stanley & Markman, 2009).

The Impact of Relationship Change during the Transition to Parenthood

In addition to the interpersonal impact of decreased satisfaction and increased conflict in couples, decline in relationship functioning during the transition to parenthood has also been associated with increased psychological distress in new mothers and fathers (Cox et al., 1999). On the basis of a meta-analysis involving 59 studies, relationship difficulties between partners was cited as a key risk factor for postnatal depression in addition to previous experience of psychological distress, low social support and stressful life events (O'Hara & Swain, 1996). Given that pregnancy and birth can be stressful in themselves, the increased prevalence of depression during new parenthood is understandable yet potentially moderated by interpersonal factors (O'Hara & Swain, 1996).

Deterioration in relationship functioning in new-parent couples has also been linked to greater parenting stress (Wallace & Gotlib, 1990) and negative parenting practices (Erel & Burman, 1995). Increased conflict between parents can also adversely affect parent-child and sibling interactions given its central role in the family system (Floyd et al., 1995). Such issues have also been found to impact negatively on the emotional well-being of children (Grych & Finchman, 1990), in addition to a range of other developmental outcomes including social competence, self-esteem and academic functioning (Cowan & Cowan, 1992).

In light of such implications for interpersonal, individual and family functioning, concerted efforts have been made to buffer couples against the stressors of becoming new parents and reduce the likelihood that they will experience declines in their relationship. The value of such preventative stances is supported by Kluwer and Johnson's (2007) finding that distress evident during pregnancy is intensified and maintained across the transition to parenthood, as opposed to emerging following the baby's birth. Preventative approaches aimed at enhancing relationship functioning during pregnancy may therefore represent a useful way forward, especially given the openness to skills development and interventions reported by new and expectant parents (Halford, Markman, Kling & Stanley, 2003).

Relationship Enhancement in New Parents

Attempts have been made to identify those who may be at increased risk of experiencing adverse changes in relationship functioning on the basis of demographic and other static variables, such as parental divorce within families-of-origin (Cowan & Cowan, 1992; Doss et al., 2009; Mitnick et al., 2009). While this offers the potential to target preventative approaches at couples considered to be in greatest need, research findings regarding the predictive value of static variables remain equivocal (Petch & Halford, 2008). As such, this calls the value of developing stepped-care approaches that attempt to match the intensity of input with need on the basis of demographic and other static factors into question.

In many respects there is a stronger rationale for preventative strategies that are delivered to all expectant parents, especially given the widespread prevalence of

adverse relationship change experienced after the birth of the first baby. Specifically, these have been reported by as many as 67% of new mothers (Shapiro, Gottman & Carrere, 2000) and 45% of new fathers (Cowan & Cowan, 1995) during the first year of parenthood. The rationale for universally-delivered strategies is also supported by the ease of accessing this population through established antenatal care pathways. Preventative strategies which are delivered universally to couples expecting their first child may also provide a way of reaching a broader, more diverse range of new parents who may not otherwise have accessed support in the event of postnatal distress.

The Effectiveness of Universal Preventative Strategies

The effectiveness of such strategies was examined by Petch and Halford (2008), in their review of psycho-educative interventions aimed at facilitating adjustment during the transition to parenthood. All of the studies reviewed were randomised controlled trials (RCTs), with 5 specifically aiming to enhance relationship functioning in new parents. Common themes regarding effective communication and conflict resolution, as well as the promotion of parenting sensitivity and realistic expectations about becoming a parent, were evident across the interventions evaluated in these studies (Petch & Halford, 2008).

Growth curve analysis was utilised in one study to re-examine data from earlier longitudinal research completed by Cowan and Cowan (1992), in order to introduce more methodological rigor (Schulz, Cowan & Cowan, 2006). The intervention itself was the most intensive of all those reviewed in terms of time and involved couples meeting in small facilitated groups for 24 weekly sessions, each lasting for 2.5 hours. On the

basis of data collected at 5 time points over a period of 5.5 years, linear declines in relationship functioning were observed across both the intervention and control condition (Schulz et al., 2006). However, the rate of decline was reported to be nearly 4 times higher for couples who did not receive the intervention and this significant difference was still evident 5 years after birth.

While the content of group discussions was theory-driven, themes for these semi-structured sessions were identified on a weekly basis by the married couples who were facilitating each group. This threat to treatment fidelity was not an issue in the other studies reviewed given the more structured nature of their interventions. In the study by Shapiro and Gottman (2005), this involved a psycho-educative intervention aiming to enhance couple communication through the development of conflict resolution skills. Participants attended a 2-day antenatal workshop for which effectiveness was evaluated on outcome measures completed during pregnancy, and at 3- and 12 months postpartum (Shapiro & Gottman, 2005).

Complex, non-linear patterns of change were largely reported across outcomes, though marital quality had improved significantly for both spouses within the intervention group compared to those in the control group 1 year after birth. Depressive symptoms had also declined significantly for women in the intervention condition by this point, though had increased slightly for men in this group after initial improvement at 3 months postpartum. Couple communication, as measured by observed hostile affect, initially increased for women across both conditions though this was much steeper and remained higher than pre-birth levels for those in the control group at 1 year postpartum. Conversely, hostile affect declined for men across

both conditions though this was significantly steeper for those in the intervention condition (Shapiro & Gottman, 2005).

The Australian study by Halford, Petch and Creedy (2010) marks the only one reviewed that was not completed in North America. Postnatal input was also provided within their intervention, involving 5 units of self-administered exercises completed by couples at home and facilitated by telephone contact with the research team. These followed a 6-hour antenatal workshop that focused on enhancing parenting efficacy as well as relationship functioning. Results indicated that erosion in relationship adjustment was prevented in women compared to a treatment-control group on measures collected at 5- and 12 months postpartum. While this finding was not replicated for men, couple communication was significantly enhanced for those in the intervention condition (Halford et al., 2010).

Although a self-directed element was incorporated, Halford et al. (2010) still report 12 hours of professional time spent on each couple which could prove difficult to justify for a non-clinical sample at a time of economic austerity. The intervention evaluated by Midmer, Wilson and Cummings (1995) does represent a reduction in length, though still comprised 2 3-hour antenatal communication sessions delivered by social workers. Postnatal outcomes collected at 6 weeks and 6 months postpartum indicated that couples in the intervention condition experienced better adjustment than those in the control condition, who reported significant decline in terms of relationship functioning and increased anxiety (Midmer et al., 1995).

The final study by Hawkins, Fawcett, Carroll and Gilliland (2006) featured the least intensive intervention, comprising 15-minute blocks delivered within existing antenatal classes (5 weekly sessions in total) and 'homework' between sessions. In order to assess whether facilitator encouragement was necessary, a self-guided arm involving the same content was also included. While participating couples reported reasonable engagement and high satisfaction with the intervention, no significant treatment effects were observed (Hawkins et al., 2006). A specific issue raised by the authors related to the stable, homogeneous nature of the predominantly Mormon sample. Similar to the other 4 studies, there tended to be an over-representation of well-educated, high-functioning couples (Petch & Halford, 2008).

The Needs of New Parents in the UK

These findings suggest that the content of universal interventions have the capacity to enhance relationship functioning in couples during the transition to parenthood (Petch & Halford, 2008). However, it is not yet clear whether they can be delivered in a way that is both meaningful and low-intensity in terms of time as well as content. It is also of note that none of the studies reviewed were completed in the UK, reflecting the relative dearth of transition to parenthood research involving British samples. Yet the qualitative study by Deave, Johnson and Ingram (2008) indicates that British couples are in no way immune to the challenges often experienced at this time.

This exploratory study used purposive sampling to examine perceived support needs of new parents given their experience of antenatal care provided by the National Health Service (NHS) in the UK (Deave et al., 2008). Twenty couples from a range of socio-

economic backgrounds were interviewed during pregnancy as well as 3 to 4 months postpartum to counter the dominance of purely retrospective accounts within the literature. In addition to identifying themes related to practical support and infant care, couples described being shocked by and unprepared for adverse changes in their relationship on becoming parents. Deave et al. (2008) described how there was “some sadness and bemusement that no one had talked to them about the changes they would experience in their relationships” (p.36).

Given that midwives were largely felt to be the most reliable sources of information, it was concluded that antenatal care services may be best placed to prepare new-parent couples for normative relationship changes following the birth of their first baby (Deave et al., 2008). Doing so would also have the potential to address another of the themes identified, namely men’s ongoing sense of exclusion from maternity services. Yet the recognised benefits of actively involving fathers from pregnancy in terms of long-term family well-being are reflected in all recent care directives pertaining to new parents (Department of Health, 2007; National Institute for Health and Clinical Excellence, 2006). However, clarity regarding the extent and way in which this has translated into local service provision is required.

1.1. Study Aims

While several universal preventative strategies aimed at enhancing relationship functioning during the transition to parenthood have been developed, few have demonstrated that such input can be delivered in an effective, yet low-intensity format that could be routinely delivered to reach a broad number and range of couples. Such

an intervention could offer a way to strengthen relationships and enhance the capacity of parents to manage the developmental demands and stressors associated with transitional points in the family life cycle. Reducing familial vulnerability to distress and dysfunction in this way could ultimately have a favourable impact on future service needs, highlighting the potential clinical significance of such interventions.

The purpose of the current study was therefore to develop and assess the feasibility of a low-intensity antenatal intervention, aimed at enhancing relationship functioning in couples in the UK during the transition to parenthood. The intervention consisted of a 2-hour psycho-educative programme that was developed on the basis of empirical research and delivered as an adjunct to existing NHS antenatal classes, which are free to all expectant parents living in Britain (NICE, 2006). In line with guidance regarding patient benefit research from the National Institute for Health Research (NIHR, 2011), it was hoped that a favourable indication of feasibility may provide a rationale for large-scale investigation of this intervention in the future.

Antenatal classes in the study were randomly allocated to either a control (standard care) or intervention condition, making this a cluster RCT. Participants in classes allocated to the intervention condition were invited to attend an additional session embedded in the existing antenatal class structure, during which the intervention was delivered. Promoting realistic expectations about what becoming a parent may involve and developing communication skills aimed at effective problem-solving constitute the key elements of the intervention.

The initial question addressed in the study was about the intervention's feasibility, assessed on the basis of pragmatic delivery and acceptability. Acceptability was assessed on the basis of participants' evaluation of and engagement with the programme. While there is much overlap with earlier studies in terms of the themes addressed in the current intervention, this is the first time that the acceptability of and engagement with such content was explored with a UK sample. As such, specific hypotheses were not identified.

The second question addressed in the study was in relation to treatment effects. A preliminary indication of the intervention's effectiveness was provided by comparing baseline and postnatal outcomes on measures of relationship functioning, couple communication and psychological distress across conditions. Given the structured and facilitated nature of the intervention, in addition to the findings of the study by Deave et al. (2008), it was hypothesised that:

- Women and men who did not receive the intervention would report deterioration on measures of relationship functioning, couple communication and psychological distress at postnatal follow-up
- Women and men who received the intervention would generally report more favourable outcomes on measures of relationship functioning, couple communication and psychological distress at postnatal follow-up

2. Method

2.1. Participants

Participants in the study were couples expecting their first child who had registered to attend NHS antenatal classes at a local maternity hospital between October 2010 and February 2011. 14 sets of classes were targeted for recruitment, which constitute the clusters in this cluster RCT. Each set of classes involved 5 weekly evening sessions that lasted for 2 hours and were facilitated by a midwife.

Inclusion Criteria: While all those expected to attend the target classes were invited to participate in the intervention, only data from married, co-habiting or civil partners was included for research purposes. This was due to the study's focus on relationship functioning in couples as opposed to other relationships represented among birthing partners, such as close friends and relatives. Participants also had to provide written consent and have sufficient English to complete the outcome measures in order to be included in the study.

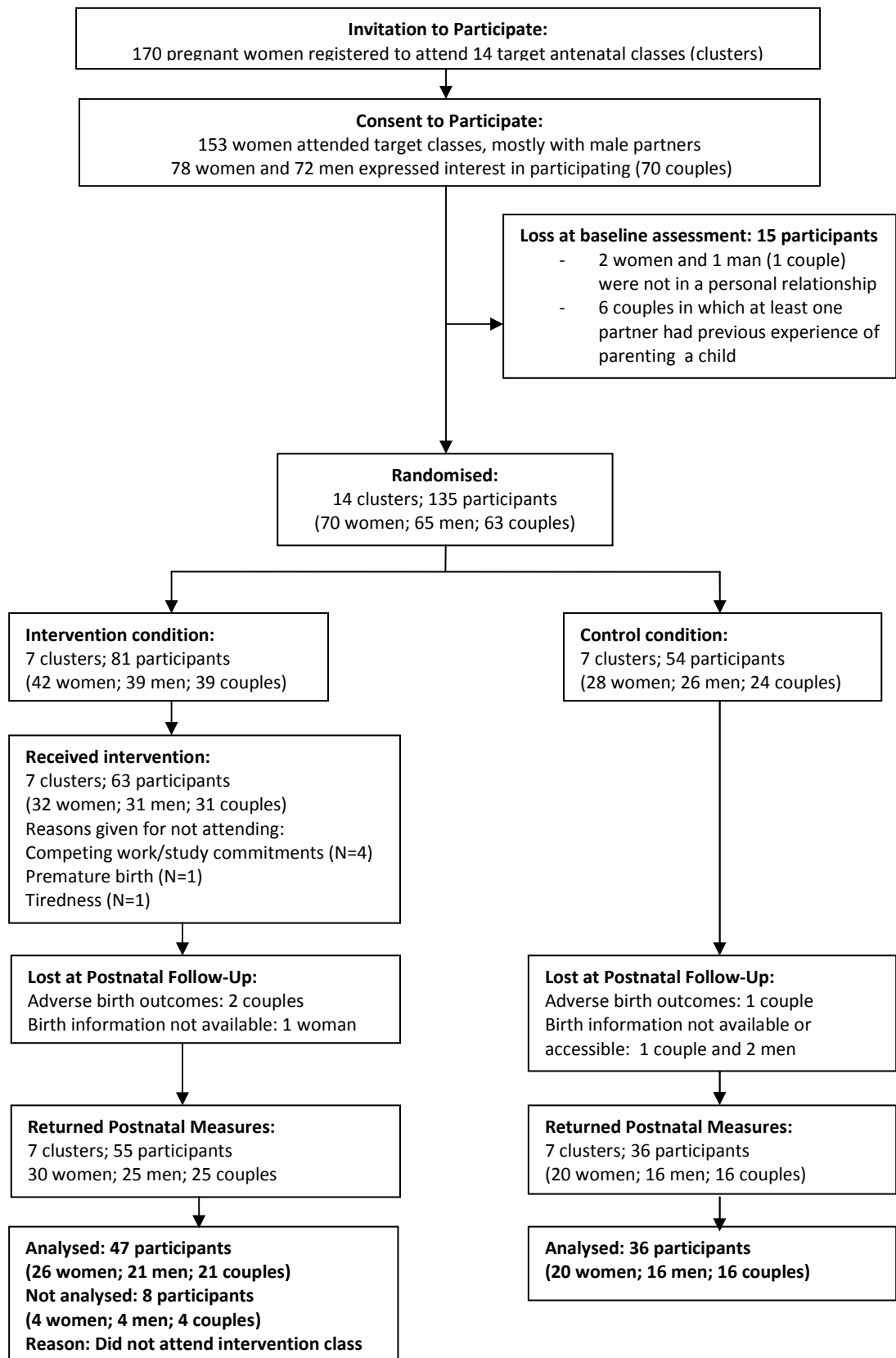
Exclusion Criteria: Couples' data was excluded at baseline assessment if either partner had pre-existing experience of parenting a child and at postnatal follow-up in the event of an adverse birth outcome. This included still birth, neonatal or maternal death, or a neonatal admission of 1 week or longer. Previous studies have also explicitly excluded women expecting multiple births and those younger than 18 years in recognition of the additional complexities often inherent in such cases (Halford et al., 2010; Shapiro & Gottman 2005). However, this was not necessary in the current study as specialist antenatal classes have been developed for these groups of women in the local area and these were not targeted for recruitment.

The flow of participants through the study can be seen in the CONSORT statement in Figure 1 (Campbell, Elbourne & Altman, 2004). In total, 170 pregnant women had registered to attend the 14 antenatal classes targeted for recruitment. Of these, 153 women attended their respective classes and the vast majority were accompanied by birthing partners who tended to be the biological father of the unborn baby. This is consistent with attendance patterns recorded for local antenatal classes held in 2010 (Rogers, Murphy & Herbert, 2011) and was reflected in uptake for the current study consisting entirely of individuals in heterosexual relationships. As such, partners are referred to as 'men' throughout the remainder of the study.

In total, 150 individuals consented to participate in the study (78 women and 72 men; 70 couples). This means that 51% of women who attended one of the 14 targeted antenatal classes consented to participate in the study. Data from 8 women and 7 men (N=15) was lost at baseline assessment once inclusion and exclusion criteria were applied, most commonly due to either partner having previous experience of parenting a child (N=12).

Data from 3 couples was excluded at postnatal follow-up as hospital records had indicated an adverse birth outcome (N=6). Birth outcomes were not available in 2 other cases, possibly due to women giving birth out of area. This resulted in the exclusion of 2 women and 1 man who had consented to participate. It was also necessary to exclude men in cases where their partner had not consented to participate, as it was not possible to check their hospital records for birth outcomes (N=2). Once inclusion and exclusion criteria were applied, a total of 124 participants remained in the study (65 women and 59 men; 59 couples).

Figure 1 – CONSORT Statement of Participant Flow



2.2. Sample Size Calculation

This quantitative study utilised a mixed-methods design to evaluate the effects of the antenatal intervention on measures of relationship functioning, couple communication and psychological distress across time and between groups. On the basis of 2 groups being assessed at 2 time points and assuming a 'medium' effect size of $f=0.25$, a significance level of 0.05 and a correlation of 0.5, the power analysis program G-Power indicated that 80% power would be achieved with a total RCT sample of 34 couples. As each set of antenatal classes could accommodate up to 12 pregnant women and their birthing partners, it was originally anticipated that over-sampling would allow for approximately 80% sample attrition.

As this study was a cluster RCT due to the random allocation of antenatal classes rather than participants, it was necessary to apply an inflation factor to this figure to account for the degree to which data within clusters tends to be correlated (i.e. the intra-class correlation; Campbell, Grimshaw & Steen, 2000a). As such, data from participants within clusters cannot be assumed to be independent, which in turn results in a loss of statistical power. Campbell, Mollison, Steen, Grimshaw and Eccles (2000b) argue that the implications for power and analysis in cluster RCTs have largely been overlooked in healthcare research, increasing the likelihood of inaccurate results and misleading conclusions. A pertinent illustration of this was Hawkins et al.'s (2006) failure to account for this 'design effect' in their sample size calculation or analyses.

Assuming a conservative value for the intra-class correlation of 0.05 on the basis of outcomes in UK primary care implementation research (Campbell et al., 2000a) and an

average of 3 couples per cluster observed in the current study once attrition was taken into account, the inflation factor is given by: $1+(3-1)0.05=1.1$. When this value was applied to the original sample size of 34, an actual required sample size of 38 couples was given. Data from women and men was analysed separately on grounds of theoretical difference with respect to their experience of the transition to parenthood.

2.3. Procedure

Letters of invitation and Information sheets about the study were posted to all 170 women who had registered to attend one of the 14 target antenatal classes, 2 weeks before their first class. Written consent to participate was then sought from pregnant women and their partners during first classes, following a brief overview of the study by the primary researcher. The consent form and participant information sheet were both developed in accordance with National Research Ethics Service guidelines (NRES, 2009; see Appendix 3). Those interested in taking part were also encouraged to ask any outstanding questions about the study at this point to ensure informed consent, in line with professional and ethical standards (British Psychological Society, 2006; NRES, 2009). Those who consented to participate were then given time during the first class to complete baseline questionnaires (as described below).

Antenatal classes were allocated to either the intervention or control condition in sequential blocks of 4 using balanced block randomisation to ensure an equivalent number of classes in each condition. The randomisation process was completed by the Research Support Officer at the Clinical Psychology Unit, who was independent of the study, and the primary researcher was only informed of the condition to which each

class had been allocated subsequent to its first session. The outcome of this process was relayed to participants by their midwives at the beginning of their second class.

As can be seen in Figure 1, 7 classes were randomly allocated to each condition. Those in the intervention condition were extended by one 2-hour session to facilitate the delivery of the intervention, which took place at Week 5 and was followed by a final standard session. Incorporating the additional session into the existing class structure in this way aimed to optimise uptake and attendance. It was initially hoped that the intervention could be delivered in a way that ensured sets of classes in both conditions remained equal in length. However, it was not possible to accommodate this within the service setting.

2.3.1. Development, Delivery and Evaluation of the Intervention

All materials utilised in the delivery of the intervention can be seen in Appendix 4. The premise underlying the intervention was primarily about normalising adverse changes in relationship functioning reported by many couples on becoming parents and sharing potentially useful ways of managing these. The content of the intervention is based upon empirical research into dynamic moderators of relationship functioning during the transition to parenthood. Similar to the intervention studies reviewed by Petch and Halford (2008), the main themes are: 1) the promotion of realistic expectations about becoming parents and 2) the development of communication skills to potentially aid effective problem-solving.

The adaptive function of having more realistic expectations about new parenthood is supported by the consistent finding that couples are more likely to experience declines in their relationship when expectations are violated (Harwood, McLean & Durkin, 2007; Lawrence, Nylén & Cobb, 2007). Participants are therefore encouraged to reflect on their own expectations in relation to some common areas of conflict for new parents, and discuss these with their partner to identify discrepancies. Common areas of conflict include readiness for sexual intimacy, division of housework, resuming social activities and appropriate childcare arrangements. The importance of mutual support as a way of managing new challenges is also emphasised, which reflects advice given by midwives within standard classes (Cowan & Cowan, 1992).

Effective communication and problem-solving skills are also widely associated with positive relationship outcomes during times of stress and change in the family life cycle, including the transition to parenthood (Floyd et al., 1995; Cox et al., 1999). Houts, Barnett-Walker, Paley and Cox (2008) found that couples who consistently engaged in constructive patterns of problem-solving and communication during early parenthood were significantly less likely to separate or divorce by the time their child was 5 years old. Couples are therefore encouraged to think about their interactional patterns and how these may be affected by the normative stressors of becoming new parents.

The Intent-Impact model of communication (Gottman, Notarius, Gonso & Markman, 1976) and concepts from Powell's (2000) assertive skills programme were drawn upon to shape the current intervention. These are based upon humanistic (Roger, 1957) and social learning principles (Stuart, 1980), which have been applied to enhance

relationship functioning at other transitional points in the family life cycle (Floyd et al., 1995). The current intervention also involves active skills development in terms of communication and problem-solving, reflecting elements of similar approaches that were identified as the most useful by participants (Hawkins et al., 2006).

The active and educative components of the current intervention were all designed to be highly accessible and low-intensity to reflect the broad, non-clinical nature of the targeted sample. Active elements were also designed to be completed by couples rather than the group as a whole, to reduce potential discomfort that could adversely affect engagement. All of the intervention sessions were facilitated by the primary researcher, who has substantial experience of delivering group programmes across a variety of clinical and non-clinical settings. Midwives were also present during sessions to attend to any antenatal care needs and both professionals were available at the end of each class to discuss any issues and signpost to other services as necessary.

A pilot study was initially conducted with an antenatal class not otherwise involved in the study, in order to identify any pragmatic issues regarding the content or delivery of the intervention. Midwives also completed a checklist during each session to indicate whether key elements of the intervention were completed, which enabled assessment of treatment fidelity across classes. Finally, participants were asked to complete a brief evaluation form at the end of intervention sessions to provide feedback about the intervention's acceptability. The outcomes of all these processes are discussed within the overall evaluation of the intervention's acceptability.

2.3.2. Data Collection

Following the completion of baseline measures during initial antenatal classes, these were re-administered to participants 6 weeks after their babies were born to facilitate post-intervention comparisons. Midwives routinely checked hospital records for birth outcomes following intervention sessions, in order to inform the dispatch of postnatal measures. These were not sent in the event of adverse birth outcomes or when no information about the birth was available. As well as consenting to hospital records being checked for birth outcomes, participants had also indicated on their consent form whether they wanted to receive postnatal measures by post or email.

Measures were sent to each participant separately and partners were encouraged to complete these independently. These were re-issued if the original set was not returned within 2 weeks and text messages were used to inform of their dispatch in cases where participants had provided mobile phone numbers, in line with the findings of a systemic review on optimising return rates (Edwards et al., 2002). Efforts were made to minimise demand characteristics given that the primary researcher was also the facilitator. This included informing participants that outcome measures would not be examined until the study was complete and ensuring that the primary researcher's name was not used in the email or postal address that questionnaires were returned to.

2.4. Measures

Copies of all the measures used in the current study can be seen in Appendix 5.

Antenatal Information: This form was completed at baseline assessment to gather demographic information and determine inclusion in the study. Questions included age, occupation, relationship status, relationship duration, whether the pregnancy was planned, feelings about the pregnancy initially and at baseline assessment, and pre-existing parenting responsibilities.

Relationship Functioning: The Couple Satisfaction Scale (CSS; Olson & Larson, 2008) was administered at baseline assessment and postnatal follow-up to assess changes in relationship functioning. This 10-item measure was developed to offer researchers and clinicians a brief means of assessing relationship satisfaction and is one of 14 scales which make up the PREPARE/ENRICH Inventory (Olson, Fournier & Druckman, 1983). Each item is rated on a 5-point Likert scale, generating total scores between 10 and 50. Comparison data based upon a North American sample of 50,000 married couples (Olson, Olson-Sigg & Larson, 2008) and 438 British couples (Prepare-Enrich UK, 2003) who sought support for marriage enhancement is available for the measure.

The CSS (Olson & Larson, 2008) achieved Cronbach's alphas of 0.70 for women and 0.63 for men on baseline measures. Interestingly, these values rose to 0.75 for women and 0.66 for men with the omission of this item: *'My partner and I feel closer because of our spiritual beliefs'*. While few differences have been reported between North American and British couples on the basis of comparison data (Prepare-Enrich UK, 2003), this finding may be indicative of an ethnocentric threat to validity. A more acceptable Cronbach's alpha of 0.74 (0.76 excluding the item described above) was achieved on the basis of men's postnatal scores.

However, it is again of note that values achieved on the basis of postnatal ratings were higher for women and men with the omission of the item: *'Sometimes my partner's friends or family interfere with our relationship'*. Given that this finding only emerged during the postnatal period, it is likely to reflect changes specific to the introduction of a baby into the family system. The implications of these findings with respect to the measure's reliability in the current study are considered further within the discussion.

Couple Communication: The 10-item ENRICH Couple Communication Scale is another of the PREPARE/ENRICH Inventory scales (CCS; Olson & Larson, 2008; Olson et al., 1983) and was administered at baseline and postnatal follow-up to examine changes in couple communication. The scoring process and comparison data for this measure are the same as described above for the CSS (Olson & Larson, 2008). This measure achieved Cronbach's alphas of 0.87 for women and 0.74 for men on the basis of baseline scores, with no evidence of issues similar to those described above.

Psychological Distress: The 10-item Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden & Sagovsky, 1987) was administered at baseline and postnatal follow-up to examine changes in psychological distress. In addition to being a well-established tool for detecting postnatal depressive symptoms in women, the EPDS has shown good sensitivity and specificity for detecting antenatal depression with a retest reliability of 0.81 (Bunevicius, Dusminskas, Pop, Pedersen, & Bunevicius, 2009). The measure is also validated for new fathers with a reported Cronbach's alpha of 0.81 and split-half reliability of 0.78 (Matthey, Barnett, Kavanagh & Howie, 2001). An anxiety subscale has also been identified, though the full measure correlates just as strongly with

anxiety-specific measures and should therefore be considered a measure of both anxiety and depression (Brouwers, van Baar & Pop, 2001).

Items are rated from 0 to 3, generating overall scores between 0 and 30. Brouwers et al. (2001) suggest that EPDS scores of 11 or more indicate the presence of psychological distress in new mothers that warrants input, while Matthey et al. (2001) recommend a slightly lower score of 9 for men. Baseline EPDS ratings achieved Cronbach's alphas of 0.82 for women and 0.75 for men in the current study.

Acceptability of the Intervention: Participants in the intervention condition were asked to complete an 8-item evaluation form at the end of the research session to assess the intervention's acceptability. It was based upon the Client Satisfaction Questionnaire, which was developed to evaluate psychological interventions (Bomstein & Rychtarick, 1983). Items were rated from 0 to 10 and space was provided for qualitative feedback. It was not possible to calculate an overall score as scale maximums did not represent optimal ratings in all cases. For example, a score of 5 was optimal for 'Pace', as scores of 0 indicated that the pace was too slow and scores of 10 indicated that the pace was too fast. Items were therefore considered on an individual basis, though the overall form achieved a Cronbach's alpha of 0.86. This suggests that it may have been feasible to calculate an averaged score for each participant to represent overall acceptability.

Postnatal Information: This form was completed at postnatal follow-up to gather information about the birth and determine exclusion from the study. Questions include the method of delivery, the length of time mothers and babies remained in hospital following birth and perceptions of the labour and birth. Participants who had

not attended the intervention session when it was offered were invited to share reasons for this to contribute to the assessment of its feasibility.

Those who did attend were asked to indicate whether they had used any of the skills shared in the class or on the summary sheet and how useful these had been on a scale from 0 to 10, as a way of assessing engagement with and thus acceptability of the intervention.

2.5. Data Analysis

Attendance rates, baseline information about attendees and treatment fidelity across research sessions were examined using descriptive and inferential statistics to address the study's initial question about the feasibility of the intervention. Quantitative items from participant evaluation forms were then assessed using descriptive statistics and contextualised using qualitative feedback to examine the intervention's acceptability. Specifically, comments written on evaluation forms were grouped into 8 categories to correspond with the measure's quantitative items and were then used illustratively.

Preliminary analyses were then completed to examine sample representativeness, as well as between-group differences at baseline assessment and following postnatal attrition. This involved completing independent t-tests, or Mann-Whitney U-tests where data was not normally distributed and in the case of ordinal-level variables. Cross-tabulations and chi-square tests were completed in the case of nominal data. Decisions about the use of non-parametric tests were based upon visual inspection of the sample distributions for each variable, skew and kurtosis statistics and whether equality of variance could be assumed in parametric tests.

Mixed-methods analyses of variance (ANOVAs) were then completed to address the study's question in relation to treatment effects. It was hypothesised that women and men who received the intervention would report more favourable postnatal outcomes than those who did not in terms of relationship functioning, couple communication and psychological distress (dependent variables). Phase of data collection (i.e. baseline assessment or postnatal follow-up) constituted the within-subjects factor in the mixed-methods ANOVAs, while treatment condition constituted the between-subjects factor. In addition to examining the main effect of these factors on each of the 3 dependent variables, phase x condition interactions were also assessed as part of this analysis. Data from women and men were analysed separately on theoretical grounds.

Due to the cluster randomised design, suitable adjustments were required within analyses to account for the extent to which data within clusters tends to be correlated. Options include comparing mean scores at the cluster-level, though this was not deemed suitable in the current study given that clusters were not of a uniform size (Campbell et al., 2000b). Individual-level analysis was felt to be more statistically sound and efficient in terms of enhancing analytic power, though all obtained test and significance statistics had to be adjusted using the inflation factor to account for the design effect (Campbell et al., 2000b).

Specifically, it was necessary to divide F-statistics from ANOVAs and χ^2 -statistics from chi-square tests by the inflation factor (IF=1.1 in the current study) in order to obtain adjusted values (Campbell et al., 2000b). T-test statistics and z-statistics reported for non-parametric equivalents can be divided by the square root of the inflation factor ($\sqrt{IF}=\sqrt{1.1}=1.05$) in order to obtain adjusted values (Campbell et al., 2000b). As these

adjustments reduce test statistics and thus significance levels, they were only calculated when a significant effect was initially indicated by unadjusted statistics. Adjusted significance values were obtained using an online statistical tables calculator powered by Vassar University (<http://faculty.vassar.edu/lowry/tabs.html>). Initial unadjusted statistics were completed using SPSS and adjustments calculated by hand.

2.6. Ethical Considerations

Ethical approval for the current study was granted by Leeds Central Research Ethics Committee (see Appendix 1). As this was a control trial, the ethical implications of withholding the intervention from participants in the 'standard care' condition were considered. While it is often preferable to offer any treatment to such participants once a study is complete, the intervention developed for the purposes of this study had not been evaluated in terms of its effectiveness at the time the study was being designed. Such measures were therefore not deemed necessary, though information sheets summarising the content of the intervention provided at the end of research classes were sent to participants in the control condition once the study was complete.

Careful consideration was also given to the development and delivery of the intervention itself to ensure that the normative changes and challenges of new parenthood addressed within the content were not 'pathologised'. This also fitted with the concept of this being a low-intensity intervention targeted at a non-clinical sample. In order to enhance the non-stigmatising nature of the intervention, all practical exercises involved partners working together in couples to enable voluntary engagement. Feedback during intervention sessions was also participant-led and not

sought by the facilitator, with individuals encouraged to only share what they felt comfortable with.

It was also necessary to build a mechanism into the design for responding to women and men who reported psychological distress scores that indicated clinical need (Brouwers et al., 2001; Matthey et al., 2001). It was agreed that such participants would be contacted by the primary researcher to recommend that they speak with their GP. However, it was only possible to do this upon the study's completion, as postnatal measures were not processed until the data collection phase was entirely over. In addition to making this explicit in the participant information sheet, it was anticipated that elevated levels of psychological distress in women would be identified by community midwives in their routine use of the EPDS (Cox et al., 1987).

3. Results

All supplementary analyses can be seen in Appendix 6.

Feasibility of the Intervention

Pragmatic Feasibility

Attendance rates and treatment fidelity across intervention sessions were examined in order to address the first part of the study question relating to the intervention's feasibility. Specifically, these were examined to give an indication about preliminary

uptake and the pragmatic feasibility of delivering the intervention as a low-intensity adjunct to existing antenatal classes.

The flow of participants illustrated in Figure 1 shows that 77.8% of the participants who still remained in the study at baseline assessment attended the intervention class offered to them (32 women and 31 men; 31 couples). Reasons provided by the 4 couples who did not attend their intervention session but returned postnatal measures are listed in Figure 1 and include fatigue, competing commitments and premature birth. Premature birth was also known to the midwives as a causative factor in 2 other cases, accounting in total for 14.8% of participants (N=12).

Everyone from the 7 antenatal classes randomly assigned to the intervention condition was invited to attend an additional session regardless of participation in the research or exclusion at baseline assessment, resulting in a total of 73 people (36 couples and 1 woman who participated in couple-based exercises via telephone at her own request). Of the women who completed baseline measures, those who attended an intervention session (N=33) were significantly older (adjusted $t=2.25$; $df=43$; $p=0.029$, 2-tailed) and had more skilled jobs (adjusted $z=2.03$; $p=0.043$) than those who did not (N=13). Unadjusted statistics for these analyses are reported in Section 1 of Appendix 6.

The pragmatic feasibility of delivering the intervention consistently across classes was facilitated by the development of an intervention schedule. A corresponding checklist to ensure the presence of key elements within the intervention was then completed by midwives during each intervention session to provide a measure of treatment fidelity (both documents can be seen in Appendix 4). On the basis of this process, adherence

to the intervention schedule was found to range from 91.7% to 100% with an average rating of 98.2%.

Acceptability

Feasibility was also examined on the basis of how acceptable participants found the intervention. This was initially assessed using evaluation forms completed at the end of intervention sessions and summary data for the 8 items that form the measure can be seen in Table 1. People reported being reasonably satisfied with the class and that they would recommend it to friends, as indicated by mean scores of 7.56 and 8.07 out of 10. The difficulty and pace of the session appeared largely unproblematic, indicated by average scores being relatively close to respective optimal ratings of 0 and 5. Some people did provide qualitative written feedback that indicated a preference for more time for practical exercises in place of didactic elements (N=4).

Average ratings of how interesting the intervention was and its relevance also seemed acceptable (7.26 and 7.25 out of 10 respectively). These were reflected in several descriptions of the intervention as “thought-provoking” and “worthwhile” (N=7). Yet an interesting pattern of comments relating to the personal relevance of the content was also identified. Several participants seemed to appreciate the general relevance of the session for expectant parents, but felt that their relationship was already characterised by the principles shared (N=10). The intervention was therefore felt to be useful as a “memory-jogger” or providing an opportunity to discuss issues that are often over-looked in relationships (N=7):

“We already have good communication skills I think but this gave us a space to address some sensitive stuff we hadn’t previously”

(Participant 3, Class 5)

In terms of specific elements, the promotion of realistic expectations about common challenges that are experienced by many new parents was consistently rated as more useful than the communication and problem-solving skills practice (overall mean of 7.40 out of 10 compared to 6.99 out of 10). Feedback from 4 participants in the pilot study had already resulted in more time dedicated to exploring expectations about parenthood within the final intervention schedule:

“The most useful part of the course was discussing common issues that arise once the baby is here. It is useful...to have the opportunity to resolve/talk through issues now rather than after they have become a problem”

(Participant 7; Pilot Study)

Written feedback regarding the usefulness of the communication and problem-solving skills practice was more mixed; while the golden rules in effective communication and focus on common gender differences were specifically named as “useful”, others found such elements “dated” and “very prescriptive”.

The aim of delivering a low-intensity intervention in a non-stigmatising way was supported by descriptions of the content being “pitched at the right level” and the environment being “supportive” and “non-threatening”. 3 participants also described being pleased that a summary sheet was provided to facilitate ongoing dialogue about

the points raised in the session. These positive indicators did not translate into high rates of participants practising the additional skills provided in the summary sheet at home however (31.9% of those who attended an intervention session and returned postnatal measures; see Table 2).

While more participants reported practising the skills learned in class at home (72.3%), the skills suggested in the summary sheet were reported to be slightly more useful overall (mean=7.27 out of 10 compared to 6.44 out of 10). Differences between the mean ratings of women and men appeared minimal, though a greater percentage of women reported practising skills at home.

Table 1: Participant Evaluation of Intervention Classes

	Pilot Study	INTERVENTION CLASSES							Overall Mean
		1	2	3	4	5	6	7	
N	10	8	10	10	8	18	6	13	10.4
Mean (SD)									
Interesting	8.50 (0.71)	8.38 (0.74)	7.40 (0.70)	7.50 (1.35)	6.38 (2.67)	6.56 (1.95)	8.33 (0.82)	7.31 (2.21)	7.26 (1.80)
Difficult	1.10 (1.60)	2.12 (2.36)	1.50 (1.58)	2.00 (2.54)	1.75 (2.05)	2.50 (1.92)	1.00 (1.27)	1.38 (2.14)	1.85 (2.01)
Pace	5.30 (1.60)	5.50 (1.31)	5.40 (1.51)	5.10 (0.32)	5.00 (0.93)	5.00 (1.28)	5.33 (0.82)	4.92 (2.02)	5.14 (1.31)
Usefulness:									
<i>Common Challenges</i>	7.90 (1.66)	8.50 (1.07)	7.90 (0.74)	7.20 (1.32)	6.25 (1.91)	6.78 (1.67)	8.33 (1.21)	7.62 (2.06)	7.40 (1.65)
<i>Communication skills</i>	7.50 (1.43)	8.12 (0.64)	7.60 (1.08)	7.00 (0.82)	6.25 (2.55)	6.00 (2.30)	7.67 (1.63)	7.33 (2.54)	6.99 (1.98)
Relevance	8.30 (1.25)	8.00 (1.07)	7.90 (2.08)	7.00 (1.33)	5.50 (2.67)	6.67 (2.09)	7.83 (1.84)	8.08 (1.44)	7.25 (1.97)
Recommendation	9.30 (1.16)	8.37 (1.19)	8.10 (1.66)	7.10 (1.20)	6.25 (2.49)	6.89 (2.22)	8.67 (1.21)	8.23 (1.83)	7.56 (1.93)
Satisfaction	9.60 (0.70)	8.62 (0.92)	8.60 (0.84)	8.10 (1.45)	7.62 (2.45)	7.33 (1.82)	8.83 (0.98)	8.23 (2.09)	8.07 (1.69)

Table 2: Home Use and Perceived Usefulness of Skills

	INTERVENTION CLASSES							Total
	1	2	3	4	5	6	7	
WOMEN - N (%)	4 (100)	2 (100)	3(100)	2(100)	8 (100)	3 (100)	4 (100)	26 (100)
Used skills from class	2 (50)	2 (100)	2(66.7)	2(100)	7 (87.5)	2 (66.7)	4 (100)	21(80.8)
Used skills on summary sheet	1 (25)	1 (50)	0 (0)	1 (50)	4 (50)	2 (66.7)	0 (0)	9 (34.6)
Mean (SD)								
Usefulness of class skills	5.50 (0.71)	7.00 (0.00)	7.00 (1.41)	5.00 (2.83)	7.00 (1.53)	6.50 (0.71)	6.25 (1.26)	6.48 (1.40)
Usefulness of summary sheet skills	5.00 (-)	7.00 (-)	- (-)	8.00 (-)	7.75 (1.50)	7.00 (0.00)	- (-)	7.22 (1.30)
MEN N - (%)	3 (100)	1 (100)	2(100)	2 (100)	3 (100)	6 (100)	4 (100)	21 (100)
Used skills from class	2 (66.7)	1 (100)	1 (50)	2 (100)	2 (66.7)	2 (33.3)	3 (75)	13 (61.9)
Used skills on summary sheet	0 (0)	1 (100)	0 (0)	1 (50)	2 (66.7)	1 (16.7)	1 (25)	6 (28.6)
Mean (SD)								
Usefulness of class skills	6.50 (0.71)	7.00 (-)	5.00 (-)	5.00 (2.83)	8.00 (1.41)	5.00 (4.24)	7.33 (0.58)	6.38 (1.98)
Usefulness of summary sheet skills	- (-)	7.00 (-)	- (-)	7.00 (-)	8.00 (1.41)	7.00 (-)	7.00 (-)	7.33 (0.82)

Sample Characteristics

Postnatal Return Rates

Of the 124 participants who remained in the study once inclusion and exclusion criteria were applied, 76 (61.3%) were in the 7 classes randomly allocated to the intervention condition (39 women and 37 men; 37 couples) and 48 (38.7%) were in the 7 classes randomly allocated to the control condition (26 women and 22 men; 22 couples). In total, 91 participants (73.4%) returned postnatal measures approximately 7 to 10 weeks after their baby was born (50 women and 41 men; 41 couples). Of these, 55 (60.4%) were from the 7 intervention clusters (30 women and 25 men; 25 couples) and 36 (39.6%) were from the 7 control clusters (20 women and 16 men, 16 couples). As such, overall return rates for the intervention and control conditions were 72.4% and 75% respectively.

Preliminary analyses indicated that women from the intervention clusters who returned postnatal measures (N=30) were significantly older than those who did not (N=9): (adjusted $t=2.16$; $df=37$; $p=0.037$, 2-tailed). Significantly fewer women from this group who were engaged to be married returned postnatal measures than would be expected if no differences existed: (adjusted $\chi^2(2, N=39)=7.45$; $p=0.024$). Women in the control condition who returned postnatal measures (N=20) were significantly more satisfied with their relationship at baseline assessment than those who did not (N=6): (adjusted $t=2.16$; $df=24$; $p=0.041$, 2-tailed).

Men in the intervention condition who returned postnatal measures (N=25) reported more depressive symptoms at baseline assessment than those who did not (N=12): (adjusted $z=2.32$; $p=0.020$). A trend in men with more highly skilled jobs returning postnatal measures also approached significance in this group (adjusted $z=1.91$; $p=0.056$). A near-significant trend was also observed in terms of men in the control condition who returned postnatal measures reporting higher couple communication at baseline assessment (adjusted $z=1.95$; $p=0.051$). However, these outcomes must be interpreted with caution given the small number of cases who did not return postnatal measures. Unadjusted test statistics for these analyses are reported in full in Sections 2 and 3 of Appendix 6.

Baseline Characteristics

As can be seen from Figure 1, data from 4 couples in the intervention condition who returned postnatal measures could not be included in testing for treatment effects as they had not attended the additional session. As such, all subsequent analyses are based upon 47 participants across 7 intervention clusters (26 women and 21 men; 21 couples) and 36 participants across 7 control clusters (20 women and 16 men; 16 couples). Summary baseline data for these women and men can be seen in Table 3. No significant differences were found between conditions on any of the baseline variables (unadjusted statistics for these analyses are reported in full in Section 4 of Appendix 6).

Table 3: Summary Baseline Data for Women and Men across Conditions

	INTERVENTION CLUSTERS		CONTROL CLUSTERS	
	Women	Men	Women	Men
N (%)	26 (100)	21 (100)	20 (100)	16 (100)
Occupation:				
- Skill level 1 to 2	4 (15.4)	3 (14.3)	4 (20)	2 (12.5)
- Skill level 3 to 4	22 (84.6)	17 (81)	14 (70)	13 (81.25)
- Missing/unclassifiable	-	1 (4.7)	2 (10)	1 (6.25)
Relationship Status:				
- Married	22 (84.6)	19 (90.5)	14 (70)	10 (62.5)
- Engaged	2 (7.7)	-	2 (10)	2 (12.5)
- Co-habiting	2 (7.7)	2 (9.5)	3 (15)	3 (18.75)
- Civil Partners	-	-	1 (5)	1 (6.25)
Relationship Duration:				
- Less than 2 years	1 (3.8)	2 (9.5)	1 (5)	1 (6.25)
- 2 to 3 years	4 (15.4)	1 (4.8)	4 (20)	4 (25)
- 3 to 5 years	6 (23.1)	5 (23.8)	5 (25)	3 (18.75)
- More than 5 years	15 (57.7)	12 (61.9)	10 (50)	8 (50)
Planned Pregnancy:				
- Yes	23 (88.5)	18 (85.7)	18 (90)	14 (87.5)
- No	3 (11.5)	3 (14.3)	2 (10)	2 (12.5)
Mean (SD)				
Age	31.96 (3.12)	31.50 (3.64)	30.95 (3.97)	33.38 (5.37)
Feelings about pregnancy:				
- Initially	8.00 (2.61)	8.38 (1.66)	8.95 (1.23)	8.88 (1.15)
- At baseline	9.19 (0.85)	9.05 (1.12)	9.65 (0.49)	9.56 (0.73)
- Change in Feelings	1.19 (2.64)	0.67 (1.59)	0.70 (1.26)	0.69 (1.20)
Relationship Functioning	40.19 (5.35)	41.33 (3.76)	41.35 (4.40)	39.38 (4.50)
Couple Communication	41.92 (6.57)	43.81 (3.88)	43.55 (4.96)	42.69 (4.80)
Psychological Distress	7.69 (3.89)	6.29 (3.47)	6.50 (4.37)	5.00 (3.69)

The mean age of women included for the purposes of analysis was 31.52 years (SD= 3.51; range: 26-42 years). The age distribution of female participants is in keeping with observed rates within the local maternity hospital, with approximately two-thirds of women attending antenatal classes in 2010 being aged between 25 and 34 years old (Rogers et al., 2011). While women in the study were older on average than the mean age of 27.6 years for first-time mothers in England and Wales, this reflects an ongoing trend within local services (Office for National Statistics, 2010a; Rogers et al., 2011). Yet it is worth noting the significant attrition of younger women returning measures at

postnatal follow-up. The mean age of men included for the purposes of analysis was 32.33 years (SD=4.52; range: 26-45 years).

While information about ethnicity was not collected, anecdotal observations indicated that most participants were from White British backgrounds. This is in keeping with approximately 90% of women accessing local antenatal classes in 2010 being from White British backgrounds and reflects the acknowledged under-representation of service-users from minority ethnic backgrounds (Rogers et al., 2011). Occupation was classified on the basis of skill level using the Standard Occupation Classification index (ONS, 2010b). Jobs requiring a professional qualification (skill level 4) were the most represented, reflecting the trend observed in local antenatal classes in January 2011 albeit at a much higher rate (65.8% compared to 25%; Rogers et al., 2011). Comparison with this audit also indicates that participants with jobs requiring less specialist skills are under-represented in the study (16.5% compared to 25%; Rogers et al., 2011).

78.3% of participants were married (N=65), which reflects marriage being the most common home context for births in England and Wales during 2009, particularly for mothers aged 25 years and older (ONS, 2010a). 55.4% of participants had been with their partner for more than 5 years (N=46) and pregnancies were planned in 88% of cases (N=73). On the basis of ratings on a 10-point scale, pregnancies had initially been perceived quite positively (Mean=8.49; SD=1.57; range=1-10) and this had generally increased by the time of attending antenatal classes (Mean=9.34; SD=0.86;

range=6-10). Specifically, 89.2% of participants reported stable or increased positivity about their pregnancy over time (N=74).

The average score on the relationship functioning measure at baseline assessment was 40.70 for women (SD=4.94; range: 28-50) and 40.49 for men (SD= 4.15; range: 32-48), which are slightly lower than the mean score of 46 for non-parent North American couples reported by Olson et al. (1989). The comparison sample provided for the measure reports a mean score of 33 (SD=8.9) among US couples seeking support for marriage enhancement (Olson et al., 2008).

The average score on the couple communication measure at baseline assessment was 42.64 for women (SD=5.90; range: 24-50) and 43.32 for men (SD=4.28; range: 32-50). These are both higher than the mean score of 31 (SD=9.2) for the US comparison sample (Olson et al., 2008), though are more in keeping with the mean score of 39.5 (SD=5.77) reported for a UK sample of 438 couples seeking marriage enhancement support (Prepare-Enrich UK, 2003).

The mean score for the psychological distress measure was 7.17 for women (SD=4.10; range: 0-14) and 5.73 for men (SD=3.57; range: 1-15). Scores for 26.1% of women (N=12) and 21.6% of men (N=8) at baseline assessment met or exceeded the clinical cut-off scores recommended by Brouwers et al. (2001) and Matthey et al. (2001).

Postnatal Characteristics

Summary postnatal data for women and men in both conditions can be seen in Table 4. Chi-square analysis completed to examine group differences in the frequency of delivery methods across 4 categories showed that 4 cells had expected counts less than 5. Categories were therefore collapsed into vaginal births (assisted and unassisted) and births by caesarean (planned and emergency) to facilitate 2*2 comparisons. This analysis showed that 1 cell had an expected count of less than 5 so an exact significance test was selected for Pearson's chi-square. Differences in the rate of vaginal and caesarean births across conditions were not found to be significant. Yet the frequency of vaginal deliveries among women in the control condition was more in keeping with the rate of 60% reported in England during 2008 and 2009 (NHS Institute for Innovation and Improvement, 2011).

Participants were also asked to rate how labour and birth compared to expectations on a 10-point scale, with scores of 5 indicating perceptions that matched expectations. As can be seen from Table 4, perceptions of labour and birth matched expectations fairly well with no significant differences found across gender or condition on the basis of 2*2 between-subjects ANOVAs. These results, in addition to the chi-square analysis described above, can be seen in Table 5.

Table 4: Summary Postnatal Data for Women and Men across Conditions

	INTERVENTION CLASSES		CONTROL CLASSES	
	Women	Men	Women	Men
N (%)	26 (100)	21 (100)	20(100)	16 (100)
Delivery Method:				
- <i>Vaginal births</i>	22 (84.6)	-	13 (65)	-
- <i>Births by caesarean</i>	4 (15.4)	-	7 (35)	-
Mean (SD)				
Perception of Labour	5.48 (2.18)	5.30 (2.11)	4.58 (2.14)	5.07 (2.09)
Perceptions of Birth	5.85 (2.38)	6.05 (2.21)	5.10 (3.14)	6.13 (1.85)
Relationship Functioning	39.62 (5.82)	39.81 (4.81)	38.55 (4.61)	37.50 (5.07)
Couple Communication	40.35 (6.55)	42.38 (4.39)	41.00 (7.41)	38.88 (5.63)
Psychological Distress	7.32 (3.45)	4.40 (2.52)	6.58 (4.31)	5.13 (2.85)

Table 5: Differences in Delivery Method Rates & Perceptions of Labour and Birth

Variable	Test Statistic	Exact p value
Delivery Method	$\chi^2=6.39$	0.169
Perception of Labour:		
<i>Between condition</i>	$F=1.31$	0.257
<i>Between gender</i>	$F=0.10$	0.753
<i>Condition*gender interaction</i>	$F=0.46$	0.499
Perception of Birth:		
<i>Between condition</i>	$F=0.35$	0.555
<i>Between gender</i>	$F=1.22$	0.272
<i>Condition*gender interaction</i>	$F=0.55$	0.461

Graphs illustrating mean change in women's and men's outcome scores across conditions and between phases are presented in Figure 2. Consistent downward trajectories across the first 4 graphs indicate that women and men in both conditions reported some deterioration in relationship functioning and couple communication after their baby's birth. Women and men in the control condition also reported increased psychological distress at postnatal follow-up, shown by an upward trajectory in the final 2 graphs. In contrast, women and men in the intervention condition generally reported decreased psychological distress following their baby's birth.

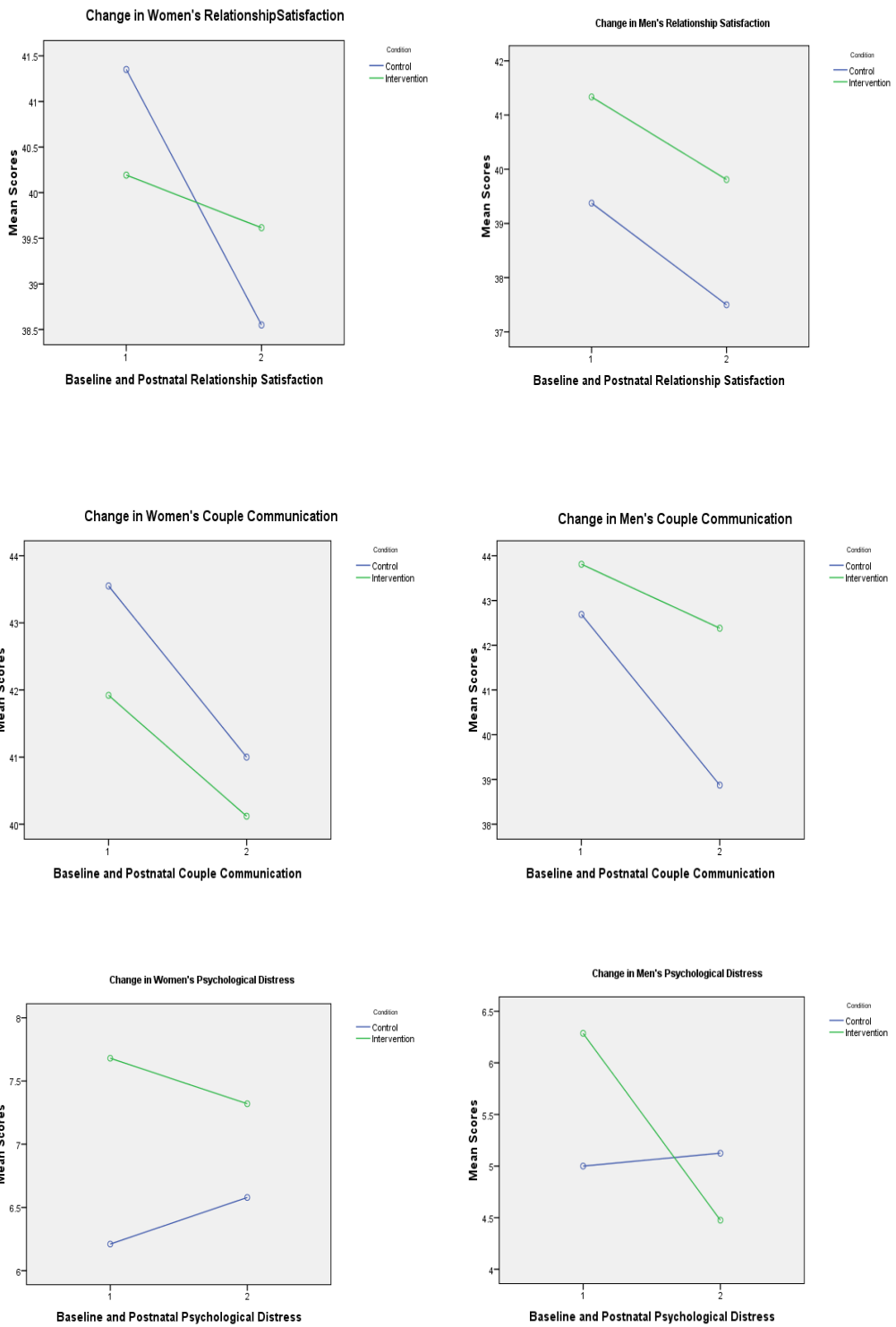


Figure 2: Graphs illustrating change in outcome measures for women and men

Effectiveness of the Intervention

In order to address the final study question and provide a preliminary indication of the intervention's effectiveness, 2*2 mixed-methods ANOVAs were completed to examine change in the 3 outcome measures (DVs) across phases (within-subjects factor) and between conditions (between-subjects factor). Wilcoxon Signed-Ranks and Mann-Whitney U-tests were utilised in the case of men's psychological distress scores, given the skewed sample distribution for this variable. It was hypothesised that women and men who received the intervention would report more favourable postnatal outcomes than those who did not in terms of relationship functioning, couple communication and psychological distress.

Results of all the analyses completed to examine treatment effectiveness can be seen in Table 6. The significance values reported in this section were obtained by dividing original p values by the number of means in each procedure, in order to reflect the directional nature of the hypothesis described above. One-tailed significance values were reported for non-parametric tests used to examine men's psychological distress. Clustering was also accounted for when a significant effect was indicated, following the adjustments described previously (Campbell et al., 2000b).

Significant main effects in terms of adverse change in relationship satisfaction and couple communication across phases were found for women (adjusted $F(1,44)=7.16$; $p=0.005$; partial $\eta^2=0.15$ and $F(1,43)=8.72$; $p=0.003$; partial $\eta^2=0.18$ respectively)

and men (adjusted $F(1,35)=6.24$; $p=0.009$; partial $\eta^2=0.16$ and $F(1, 35)=12.53$; $p=0.001$; partial $\eta^2=0.28$ respectively). Such effects were not identified in terms of change in psychological distress scores across phases for either women or men. This is likely due to the counteractive effects of general improvement among those in the intervention condition and general deterioration among those in the control condition. These contrasting outcomes appeared more marked for men on the basis of visual inspection (see Figure 2), with 66.7% of men in the intervention condition reporting fewer depressive symptoms at postnatal follow-up ($N=14$).

In terms of phases x conditions interactions, women in the intervention condition reported significantly less deterioration in their relationship satisfaction compared to women in the control condition: adjusted $F(1, 44)=3.11$; $p=0.021$; $\eta^2=0.07$). Men in the intervention condition reported significantly less deterioration in couple communication compared to men in the control condition: adjusted $F(1, 35)=2.59$; $p=0.029$; $\eta^2=0.08$).

While it was not appropriate to perform 2-way ANOVAs on men's psychological distress scores and thus examine phases x conditions interactions directly, change scores were calculated for each participant and were assessed for group differences using the Mann-Whiney U-test (Bland, 2004). A 'medium' effect was found (Cohen's $d=0.47$) with men in the intervention condition reporting significant improvement in terms of psychological distress compared to men in the control condition: adjusted $z=1.99$; $p=0.023$.

Table 6: Comparison of Postnatal Outcome Scores across Phases and Between Conditions

Variable	WOMEN			MEN			
	Statistic	p value	Effect Size	Statistic	p value	Effect Size	
Relationship Functioning	<i>Across Phase</i>	7.88	0.004**	0.15	6.86	0.007*	0.16
	<i>Phase*Condition Interaction</i>	3.42	0.018*	0.07	0.07	0.197	0.00
Couple Communication	<i>Across Phase</i>	9.69	0.002**	0.18	13.78	0.001***	0.28
	<i>Phase*Condition Interaction</i>	0.29	0.149	0.01	2.85	0.025*	0.08
Psychological Distress	<i>Across Phase</i>	0.00	0.498	0.00	1.56^	0.060	-
	<i>Between Condition</i>	-	-	-	1.99^	0.023*	0.47
	<i>Phase*Condition Interaction</i>	0.31	0.115	0.01	-	-	-

^ Statistics derived from the Wilcoxon Signed Ranks test and the Mann-Whiney U-test

* Significant at the 0.05 level; ** Significant a the 0.005 level; *** Significant at the 0.001level

4. Discussion

The aim of the current study was to complete a preliminary evaluation of an antenatal intervention which had been developed to enhance relationship functioning across the transition to parenthood, conceptualised in terms of relationship satisfaction and couple communication. The study also examined whether participants who received the intervention differed from those who did not in terms of psychological distress, which has been found to be inversely related to relationship functioning among new parents (Cox et al., 1999). A cluster randomised design was used to facilitate the examination of these questions, with the low-intensity intervention being delivered as an adjunct to existing NHS antenatal classes.

The first question addressed in the study was initially about the feasibility of delivering the intervention in this way. When conceptualised in terms of demand, it is of note that just over half of the women approached consented to participate compared to 66% in the similar study by Hawkins et al. (2006). Given that financial incentives were offered for participation, in contrast to the current study, initial uptake seems very encouraging. Retaining around three-quarters of the sample across phases and rates being roughly equivalent across conditions was another positive indication of interest in the study, in addition to reasonable attendance rates at intervention classes. These findings may lend support for Deave et al.'s (2008) conclusion about the noted absence and subsequent need for such input within current antenatal care services.

The intervention's acceptability formed the latter part of the initial question asked in the study and was assessed on the basis of feedback from those who attended the additional session. People reported being reasonably satisfied and felt they would recommend the session to friends, though feedback was more consistently positive for the element promoting realistic expectations than for effective communication and problem-solving skills practice. This is in contrast to findings reported by Hawkins et al. (2006), where participants described the element of communication skills practice as the most useful part of the intervention.

This discrepancy may be attributable to the high-functioning nature of the sample in the current study, given the small number of people reporting low scores on the relationship measures and the over-representation of professional and thus well-educated couples. While this highlights a general need to assess the acceptability of the intervention with a more diverse sample, further examination of the usefulness of specific elements may offer a more feasible way to build content into the existing antenatal programme. For example, it may be more realistic to incorporate a brief segment to promote realistic expectations about the impact of becoming parents on couples than to extend classes by an entire session.

The small number of participants who reported trying the additional exercises suggested on the summary sheet raises issues about how the pragmatic utility of self-directed elements, aimed at consolidating knowledge and skills beyond the low-intensity intervention, can be optimised. This is particularly challenging in relation to

periods of major change such as the transition to parenthood, given the complete absorption that can occur proximal to birth. As such, information sheets initially perceived as useful are mislaid, forgotten or thrown away as adjusting to the new role of parent takes precedence. It may therefore be useful to consider the potential benefits of re-issuing summary sheets by post following birth in order to compare uptake and effects.

The remaining question addressed in the study concerned the effectiveness of the intervention in enhancing relationship functioning among new parents. Deterioration in relationship satisfaction and couple communication observed in women and men across both groups was in keeping with “normative” declines reported in the studies by Halford et al. (2010) and Schulz et al. (2006). The finding that women who received the intervention reported significantly less deterioration in terms of relationship satisfaction is also consistent with these studies, in addition to Shapiro and Gottman (2005). However, Schulz et al. (2006) reported a similar outcome for men and this was not borne out in the current findings.

In contrast, men in the intervention condition were found to report significantly less deterioration in terms of couple communication following the birth of their baby while no such differences were found for women. The parallels between these results and outcomes reported for participants at 3 months postpartum by Shapiro and Gottman (2005) are very interesting and may lend support to this transitional process being subtly different for women and men. This also raises interesting questions about what

would have been indicated over a longer period of postnatal assessment in the current study, given the non-linear patterns of change reported by Shapiro and Gottman (2005).

Similarly, men in the intervention condition reported significant improvement in terms of psychological distress compared to men in the control condition. Once again, the absence of similar outcomes for women reflects the findings reported by Shapiro and Gottman (2005) though improvement was later seen at 1 year postpartum. These different trajectories for women and men may support Midmer et al.'s (1995) assertion that the transition to parenthood is a qualitatively different experience for women and men, given the greater changes in lifestyle that typically occur for new mothers. Using qualitative methodology to explore this further may provide interesting insights into the processes underlying these differences.

4.1. Theoretical Implications

The current study is couched within a contemporary developmental perspective, which posits that the family life cycle is made up of various stages that are characterised by differing roles and responsibilities (Floyd et al., 1995). Greater capacity to adapt and thus accommodate new challenges when transitioning from stage to stage has long been associated with enhanced functioning within families and as such, reflects the rationale underlying the intervention being examined here. The decision to target couples was partly informed by Cowan and Cowan's (1992) model specific to the

transition to parenthood, which cites the relationship between new parents as one of 5 inter-related factors that influence how well the transition is navigated.

Downward trajectories in interpersonal functioning observed across both conditions in the current study are consistent with the widely accepted view that the transition to parenthood can serve to accelerate or amplify normative relationship decline experienced by many couples (Mitnick et al., 2009). Like several precedent studies however, the significant differences observed in the rate of deterioration between conditions lends support to the concept of being able to buffer families or enhance their capacity to manage the changes and challenges inherent at transitional points in the family life cycle. The preventative nature of the current intervention also reflects the potential utility of heightening insight and mobilising resources prior to difficulties emerging (Floyd et al., 1995).

It is of note that both women and men in the control condition reported an increase in their experience of psychological distress after their baby was born, in contrast to those in the intervention group. Specifically, men who attended the intervention session reported significant improvement in their experience of psychological distress. It is possible that this outcome is related to feeling more informed and thus prepared about what parenthood will involve, supported by the consistently higher usefulness ratings awarded to content aimed at promoting realistic expectations. The enhanced rate of improvement reported by men who received the intervention compared to women may also be linked to the more limited resources and sources of support

targeted at new fathers, thus heightening the value of the intervention offered in the current study. In any case, the differential outcomes support the decision to examine data from women and men separately on theoretical grounds.

4.2. Clinical Implications

Overall, these preliminary indications of effectiveness are very encouraging in lending partial support to the study hypotheses, replicating findings from earlier research and providing a rationale for further large-scale investigation. Specifically, these findings indicate the effectiveness of a low-intensity antenatal intervention buffering couples against the normative stressors of new parenthood. This is the first study of its kind to be completed in the UK and could represent a feasible way to deliver effective preventative input to large numbers of people with relative ease.

While the intervention was facilitated by a trainee clinical psychologist for this study, the session was developed to be delivered by midwifery staff members and as such, negates the costing implications of hiring in other professional time. Much thought and liaison went into ensuring that the tone and accessibility of the intervention fitted with the content of existing sessions, which was deemed as especially important given the non-clinical nature of the targeted sample. This, in addition to the development of an intervention schedule to optimise consistent delivery across classes, would appear to enhance the pragmatic feasibility of midwives facilitating this session in the future.

The enthusiasm with which the content was received by midwives and how easily it fitted into the existing antenatal programme was very encouraging. For staff, the intervention seemed to capture current directives about promoting a longer-term view of what it means to become a family and involving fathers more actively in antenatal care (DoH, 2007). In addition to the recognised benefits for overall family well-being, the current results suggest that enhancing the accessibility of maternity services for men could also offer a much-needed support pathway given the increased risk of psychological distress at this time (O'Hara & Swain, 1996). This is illustrated by the rate of men in the intervention condition who reached the clinical threshold for psychological distress moving from 19.1% to 4.8% across phases (Matthey et al., 2002).

4.3. Strengths and Limitations

The encouraging nature of the results regarding acceptability and effectiveness are all the more interesting when the impact of selective uptake and attrition bias are taken into account. Professional and thus well-educated couples were over-represented and of these, most were in established, functional relationships where pregnancies had been planned and were positively anticipated. While this may represent an ideal in making the transition to parenthood, it is by no means the universal experience of all new parents. The indication of positive effects in this high-functioning group thus raises interesting questions about potential outcomes among more diverse samples.

Another area that would benefit from particular scrutiny is in relation to measurement of relationship satisfaction and couple communication. These tools were chosen for their psychometric properties, brevity and accessibility. Yet internal consistency issues and lack of appropriate normative data raise questions about their appropriateness in a transition to parenthood study. This study also deviates from earlier research by not using an observational measure of couple communication (Cox et al., 1999; Doss et al., 2009; Levy-Shiff, 1994; Shapiro et al., 2000). While this decision was largely driven by pragmatic constraints, using individual, self-report measures to capture interpersonal processes has clear implications for internal validity.

A particular strength within the current study was the attention paid to the clustered design effect, which is often overlooked in healthcare research to the detriment of reliable results and interpretations (Bland, 2004; Campbell et al., 2000b). Coupled with the small sample in this feasibility study however, this necessary design choice placed limitations on the statistical procedures available for use. Analytical procedures that can examine variables simultaneously operating at different levels would have been the test of choice within the current study, such as multi-level modelling (Campbell et al., 2000b). As such, it was not possible to inspect the range of variables assessed in an integrated way in order to facilitate insight into more complex interactions.

4.4. Directions for Future Research

The aim of this study was to develop and carry out a preliminary evaluation of an antenatal intervention on the basis of its feasibility and effectiveness. Given the encouraging results indicated from this, there would now seem to be a rationale for further large-scale investigation in order to establish whether these preliminary outcomes can be replicated. While the sample utilised in the current study was adequate for the purposes of examining initial feasibility, its representativeness is limited by selective uptake and attrition bias. Careful thought must therefore be given to accessing more diverse samples; this could include trial arms facilitated in local children's centre to access harder-to-reach communities.

Investigation into the respective utility of the intervention's specific elements should also be carried out in parallel to identify whether variations in content would resonate with particular demographic groups. Measurement should aim to involve more waves of data collected over a longer follow-up period in recognition of the non-linear ways in which variables of interest have been found to change within the transition to parenthood literature (Shapiro & Gottman, 2005). This also overcomes the risk of detecting short-term fluctuations rather than meaningful change (Cox et al., 1999). Processes occurring at the interpersonal level should also be reflected in data that takes account of both partners and consideration about statistically rigorous ways to analyse such outcomes should inform the early stages of research design.

4.5. Conclusion

The results of this study lend partial support to the stated hypotheses in finding significant phases x conditions interactions on relationship functioning, couple communication and psychological distress measures. Women in the intervention condition reported significantly less deterioration in relationship satisfaction compared to those in the control condition, while men in the intervention condition reported less deterioration in couple communication and significant improvement in psychological distress. The intervention was also deemed feasible in terms of pragmatic delivery and reasonably acceptable in terms of participant uptake, engagement and satisfaction. It therefore offers preliminary support for the feasibility, acceptability and effectiveness of a low-intensity antenatal intervention in buffering couples against the normative stressors of becoming parents.

References

Bland, M. (2004). Cluster randomised trials in the medical literature: two bibliometric surveys. *BMC Medical Research Methodology*, 4, 21.

Bomstein, P. H., & Rychtarik, R. G. (1983). Consumer satisfaction in adult behaviour therapy. *Behaviour Therapy*, 14, 191–208.

British Psychological Society. (2006). *Code for Ethics and Conduct*. Leicester: BPS.

Brouwers, E. P. M., van Baar, A. L., & Pop, V. J. (2001). Does the Edinburgh Postnatal Depression Scale measure anxiety? *Journal of Psychosomatic Research*, 51, (5), 659–663.

Bunevicius, A., Dusminskas, L., Pop, V. J., Pedersen, C. A., & Bunevicius, R. (2009). Screening for antenatal depression with the Edinburgh Postnatal Depression Scale. *Journal of Psychosomatic Obstetrics & Gynecology*, 30, (4), 238–243.

Campbell, M. K., Elbourne, D. R., & Altman, D. G. (2004). CONSORT statement: extension to cluster randomised trials. *British Medical Journal*, 328, 702-708.

Campbell, M. K., Grimshaw, J. M., & Steen, I. N. (2000a). Sample size calculations for cluster randomised trials. *Journal of Health Services Research and Policy*, 5, 12-16.

Campbell, M. K., Mollison, J., Steen, N., Grimshaw, J. M., & Eccles, M. (2000b). Analysis of cluster randomized trials in primary care: A practical approach. *Family Practice, 17*, 192-196.

Cowan, C. P., & Cowan, P. A. (1992). *When partners become parents: The big life change for couples*. New York: Basic Books.

Cowan, C., & Cowan, P. A. (1995). Interventions to ease the transition to parenthood: Why they are needed and what they can do. *Family Relations, 44*, 412 – 423.

Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry, 150*, 782–786.

Cox, J., Paley, B., Burchinal, M., & Payne, C. (1999). Marital perceptions and interactions across the transition to parenthood. *Journal of Marriage and Family, 61*, (3), 611-625.

Deave, T., Johnson, D., & Ingram, J. (2008). Transition to parenthood: the needs of parents in pregnancy and early parenthood. *Pregnancy and Childbirth, 8*, 30–44.

Department of Health. (2007). *Maternity Matters: Choice, access and continuity of care in a safe service*. DOH www.dh.gov.uk

Doss, B. D., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2009). The effect of the transition to parenthood on relationship quality: An 8-year prospective study. *Journal of Personality and Social Psychology, 96*, (3), 601-619.

Edwards, P., Roberts, I., Carke, M., DiGuseppi, C., Pratap, S., Wentz, R., & Kwan, I. (2002). Increasing response rates to postal questionnaires: A systemic review. *British Medical Journal, 324*, 1-9.

Erel, O., & Burman, B. (1995). Interrelatedness of marital relations and parent-child relations: A meta-analytic review. *Psychological Bulletin, 118*, 108-132.

Floyd, F. J., Markman, H. J., Shalade, K., Blumberg, S., & Stanley, S. M. (1995). Preventative intervention and relationship enhancement. In N. S. Jacobson & A. S. Gurman (Eds.), *Clinical Handbook of Couple Therapy (pp212-231)*. New York: Guilford Press.

Gottman, J. M., Notarius, C. I., Gonso, J., & Markman, H. J. (1976). *A couple's guide to communication*. Illinois: Research Press.

Grych, J. H., & Fincham, F. D. (1990). Marital conflict and children's adjustment: A cognitive-contextual framework. *Psychological Bulletin, 108*, (2), 267-290.

Halford, W. K., Markman, H. J., Kling, G. H., & Stanley, S. M. (2003). Best practice in couple relationship education. *Journal of Marital and Family Therapy, 29*, (3), 385–406.

Halford, W. K., Petch, J., & Creedy, D. K. (2010). Promoting a positive transition to parenthood: A randomized clinical trial of couple relationship education. *Prevention Science, 11*, (1), 89-100.

Harwood, K., McLean, N., & Durkin, K. (2007). First-time mothers' expectations of parenthood: What happens when optimistic expectations are not matched by later experiences? *Developmental Psychology, 43*, (1), 1-12.

Hawkins, A. J., Fawcett, E. B., Carroll, J. S., & Gilliland, T. T. (2006). The Marriage Moments Program for Couples transitioning to parenthood: Divergent conclusions from formative and outcome evaluation data. *Journal of Family Psychology, 20*, (4), 561-570.

Houts, R. M., Barnett-Walker, K. C., Paley, B., & Cox, M. J. (2008). Patterns of couple interaction during the transition to parenthood. *Personal Relationships, 15*, 103-122.

Kluwer, E. S., & Johnson, M. D. (2007). Conflict frequency and relationship quality across the transition to parenthood. *Journal of Marriage and Family, 69*, (5), 1089-1106.

Lawrence, E., Nylan, K., & Cobb, R. J. (2007). Prenatal expectations and marital satisfaction over the transition to parenthood. *Journal of Family Psychology, 21*, 155-164.

LeMasters, E. E. (1957). Parenthood as a crisis. *Marriage and Family Living, 19*, (4), 352-355.

Levy-Shiff, R. (1994). Individual and contextual correlates of marital change across the transition to parenthood. *Developmental Psychology, 30*, 591-601.

Matthey, S., Barnett, B., Kavanagh, D. J., & Howie, P. (2001). Validation of the Edinburgh Postnatal depression Scale for men and comparison of item endorsement with their partners. *Journal of Affective Disorders, 64*, (2), 175–184.

Midmer, D., Wilson, L., & Cummings, S. (1995). A randomised controlled trial of the influence of prenatal parenting education on postpartum anxiety and marital adjustment. *Family Medicine, 27*, 200 – 205.

Mitnick, D. M., Heyman, R. E., & Smith Slep, A. M. (2009). Changes in relationship satisfaction across the transition to parenthood. *Journal of Family Psychology, 23*, (6), 648-652.

National Institute for Health and Clinical Excellence. (2006). *Routine postnatal care of women and their babies (Clinical Guidelien 37)*. NICE: National Collaborating Centre for Primary Care. www.nice.org.uk

National Institute for Health Research. (2011). *NIHR Research for Patient Benefit (RIPB) Programme: Guidance information for applicants*. NHS: National Institute for Health Research.

NHS Institute for Innovation and Improvement. (2011). *Focus on: Caesarean section*. NHS. www.institute.nhs.uk

National Research Ethics Service. (2009). *Information sheets and consent forms Guidance for researchers and reviewers*. National Patient Safety Agency: NHS UK. www.nres.npsa.nhs.uk/applications/guidance/#PIS

Office for National Statistics. (2010a). Statistical bulletin: Live births in England and Wales by characteristics of mother. www.statistics.gov.uk

Office for National Statistics. (2010b). Standard Occupational Classification 2010 (SOC2010). ONS. www.ons.gov.uk

O'Hara, M. W., & Swain, A. M. (1996). Rates and risks of postpartum depression: A meta-analysis. *International Review of Psychiatry, 8*, (1), 37-54.

Olson, D. H., Fournier, D. G., & Druckman, J. M. (1983). *PREPARE/ENRICH Counselor's Manual*. PREPARE/ENRICH, Inc.

Olson, D. H., & Larson, P. J. (2008). *PREPARE/ENRICH: Customized Version*. Minneapolis: Life Innovations

Olson, D. H., McCubbin, H. I., Barnes, H. L., Larsen, A. S., Muxen, M. J., & Wilson, M. A. (1989). *Families: What makes them work*. California: Sage Publications.

Olson, D. H., Olson-Sigg, A., & Larson, P. (2008). *The Couple Checkup: Find your relationship strengths*. Nashville: Thomas Nelson.

Petch, J., & Halford, K.W. (2008). Psycho-education to enhance couples' transition to parenthood. *Clinical Psychology Review, 28*, 1125–1137.

Powell, T. J. (2000). *The Mental Health Handbook*. Speedmark Publishing.

Prepare-Enrich UK. (2003). *Norm Comparison of UK & US Data*. www.prepare-enrich.co.uk/research/uk_us_comp.html

Rogers, C. R. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology, 21*, (2), 95-103.

Rogers, M., Murphy, M., & Herbert, R. (2011). Report on antenatal class provision 2010. Sheffield Teaching Hospitals NHS Foundation Trust.

Schulz, M. S., Cowan, C. P., & Cowan, P. A. (2006). Promoting healthy beginnings: A randomized controlled trial of a preventive intervention to preserve marital quality during the transition to parenthood. *Journal of Consulting & Clinical Psychology, 74*, (1), 20-31.

Shapiro, A. F., & Gottman, J. M. (2005). Effects on marriage of a psycho-education intervention with couples undergoing the transition to parenthood: Evaluation at 1-year post-intervention. *Journal of Family Communication, 5*, 1–24.

Shapiro, A. F., Gottman J. M., & Carrere, S. (2000). The baby and the marriage: Identifying factors that buffer against decline in marital satisfaction after the first baby arrives. *Journal of Family Psychology, 14*, (1), 59–70.

Stuart, R.B. (1980). *Helping couples change: a social learning approach to marital therapy*. New York: Guilford Press.

Wallace, P. M., & Gotlib, I. H. (1990). Marital adjustment during the transition to parenthood: Stability and predictors of change. *Journal of Marriage and Family*, 52, (1), 21-29.

APPENDIX 1

Letters of Approval and Current Notes for Journal Contributions



Department Of Psychology.
Clinical Psychology Unit.

Doctor of Clinical Psychology (DClin Psy) Programme
Clinical supervision training and NHS research training
& consultancy.

Clinical Psychology Unit
Department of Psychology
University of Sheffield
Western Bank
Sheffield S10 2TP UK

Telephone: 0114 2228570
Fax: 0114 2228610
Email: dclinsv@sheffield.ac.uk
Please address any correspondence to Ms. Christie
Harrison, Research Support Officer

22nd March 2010

To: Research Governance Office

Dear Sir/Madam,

RE: Confirmation of Scientific Approval of enclosed Research Project

Project title: The development and preliminary evaluation of an antenatal intervention aimed at enhancing relationship adjustment during the transition into parenthood

Investigators: Cathryn Daley-McCoy (DClin Psy Trainee, University of Sheffield); Prof Pauline Slade (Academic Supervisor, University of Sheffield).

I write to confirm that the enclosed proposal forms part of the educational requirements for the Doctoral Clinical Psychology Qualification (DClin Psy) run by the Clinical Psychology Unit, University of Sheffield.

Three independent reviewers appointed by the Clinical Psychology Unit Research Sub-committee have scientifically reviewed it.

I can confirm that all necessary amendments have been made to the satisfaction of the reviewers, who are now happy that the proposed study is of sound scientific quality. Consequently, the University will also be happy to indemnify it and to act as research sponsor once ethical approval has been gained.

Given the above, I would remind you that the Unit already has an agreement with your office to exempt this proposal from further scientific review. However, if you require any further information, please do not hesitate to contact me.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Rebecca Knowles'.

Dr. Rebecca Knowles
Director of Research Training

Cc. Cathryn Daley-McCoy; Prof Pauline Slade

Research Ethics Committee has notified the outcome of a SSA. In the meantime no study procedures should be initiated at non-NHS sites.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

For NHS research sites only, management permission for research (“R&D approval”) should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

Where the only involvement of the NHS organisation is as a Participant Identification Centre (PIC), management permission for research is not required but the R&D office should be notified of the study and agree to the organisation’s involvement. Guidance on procedures for PICs is available in IRAS. Further advice should be sought from the R&D office where necessary.

Sponsors are not required to notify the Committee of approvals from host organisations.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>	
Investigator CV		24 May 2010	
Protocol	2		
CV - Pauline Slade			
Cover letter accompanying the PIS	1	12 July 2010	
REC application		24 May 2010	
Participant Information Sheet	2	12 July 2010	
Response to Request for Further Information		12 July 2010	
Participant Consent Form		01 February 2009	
Questionnaire		01 February 2009	
Overview of proposed intervention		01 February 2009	
Communicating in time of stress		01 February 2009	
Demographic information sheet		01 February 2009	
Provisional research timetable		01 February 2009	
Edinburgh postnatal depression scale (EPDS)		01 February 2009	
Referees or other scientific critique report		22 March 2010	

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nres.npsa.nhs.uk.

10/H1313/58

Please quote this number on all correspondence

Yours sincerely

Dr Margaret L Faulk
Chair

Email: Rachel.bell@leedspft.nhs.uk

Enclosures: "After ethical review – guidance for researchers"
Copy to: Professor Simon Heller
Research & Development
Sheffield Teaching Hospitals NHS Foundation Trust
1st Floor
11 Broomfield Road, Sheffield, S10 2SE

Ref: STH15734/AD

Sheffield Teaching Hospitals 

NHS Foundation Trust

19 August 2010

Ms Cathryn Daley-McCoy
Trainee Clinical Psychologist
Clinical Psychology Unit
University of Sheffield
Western Bank
Sheffield
S10 2TN

Dear Cathryn

Authorisation of Project

STH ref:	STH 15734
Study title:	The development and preliminary evaluation of an antenatal intervention to enhance relationship adjustment during the transition into parenthood
Chief Investigator: (Student Investigator)	Ms Cathryn Daley-McCoy, University of Sheffield
Principal Investigator: (STH Local Contact)	Dr Helen Baston, STH
Sponsor:	STH NHS Foundation Trust
Funder:	UoS and OGN Directorate Funding

The Research Department has received the required documentation for the study as listed below:

- | | |
|--|--|
| 1. Sponsorship IMP studies (non-commercial) | NA |
| Sponsorship responsibilities between institutions | NA |
| Responsibilities of investigators | NA |
| Monitoring Arrangements | NA |
| 2. STH registration document: completed and signed | STH Finance Form, Dr H Baston, 28 June 10 |
| 3. Evidence of favourable scientific review | Department of Psychology, UoS, 22 March 10 |
| 4. Protocol – final version | V2, February 09 |
| 5. Participant Information sheet – final version | V2, 12 July 10 |
| 6. Consent form – final version | February 09 |
| 7. Signed letters of indemnity | NA |
| 8. ARSAC / IRMER certificate | NA |
| 9. Evidence of hosting approval from STH directorate | STH Finance Form, Mr A Parkas, 01 July 10 |



Chairman: David Stone DBF - Acting Chief Executive: Christopher Welsh

smoke-free
hospitals



The
University
Of
Sheffield.

Department Of Psychology.
Clinical Psychology Unit.

Doctor of Clinical Psychology (DClin Psy) Programme
Clinical supervision training and NHS research training
& consultancy.

Clinical Psychology Unit
Department of Psychology
University of Sheffield
Western Bank
Sheffield S10 2TP UK

Telephone: 0114 2228550
Fax: 0114 2226610
Email: c.harrison@sheffield.ac.uk

8th February 2011

Cathryn Daley-McCoy
Third year trainee
Clinical Psychology Unit
University of Sheffield

Dear Cathryn

I am writing to indicate our approval of the journal(s) you have nominated for publishing work contained in your research thesis.

Literature Review: Journal of Family Psychology

Research Report: Journal of Family Psychology

Please ensure that you bind this letter and copies of the relevant Instructions to Authors into an appendix in your thesis.

Yours sincerely

Dr Andrew Thompson
Director of Research Training

APPNEDIX 2

Quality Rating Scale

The Quality rating scale has been removed to protect copyright. The original scale is available to buy online.

APPENDIX 3

Invitation Letter, Participant Information Sheet and
Consent Form



**The Jessop Wing
Tree Root Walk
Sheffield
S10 2SF**

**Clinical Psychology Unit
Department of Psychology
University of Sheffield
Western Bank
Sheffield S10 2TN UK**

(Date)

Dear

Here at the Jessop Wing, we are committed to improving the care we provide to all those who use our services. Together with the University of Sheffield, we are looking at new ways to support expectant parents as they prepare to become a family.

Please read the enclosed information about a research study that you and your birthing partner are being invited to take part in. Taking part is of course completely voluntary. This study has been developed in response to new parents highlighting the need for help in preparing for changes in their relationship that often happen after a new baby's arrival.

You will have another opportunity to find out more about this research during your first antenatal class. In the meantime, please contact us if you have any questions.

We look forward to seeing you soon at your first antenatal class.

Yours sincerely

**Maeve Rogers
Parent Education Midwife
The Jessop Wing**

**Cathryn Daley-McCoy
Trainee Clinical Psychologist
University of Sheffield**

Enc.

When Couples Become Parents: Preparing for the changes and challenges that lie ahead

You and your birthing partner are being invited to take part in our research study. Before you decide, we would like you to understand why the research is being done and what it would involve for you. Once you have read this, it may be helpful to talk to others about the study before making a decision. You can also contact us if you have any questions.

What is the purpose of the study?

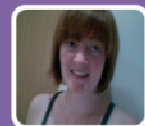
Becoming a parent can be a time of great joy and it also brings about many changes. For a lot of couples, this can mean that their relationship is affected by the arrival of a baby. We have developed an antenatal programme to help couples prepare for and manage relationship changes that often occur after the baby's arrival. This has been done in response to new parents highlighting the need for such input. The aim of the research study is to find out how useful this is for first-time parents.

How will the study go about finding this out?

Half of the classes involved in the study will have an extra session that looks at common challenges that new parents face in terms of changes in their relationship. The other half will involve standard antenatal classes (usual care). We will then compare the people who have attended the extra class with those who have received usual care to find out if the programme has been helpful. We do not know in advance which classes will have an extra session because this will be determined by chance just after each class starts.

Who is doing the research?

The research is being done by Cathyrn Daley-McCoy, a trainee clinical psychologist from the University of Sheffield. Cathyrn is collaborating with the midwives who run antenatal classes in Sheffield and she will be the person running each extra class. A midwife will also be present at each of the extra classes in case you have any questions.



Why have I been invited?

Everyone who has registered to attend the classes involved in the study is being invited to take part, which is over 160 expectant mothers and their birthing partners.

Do I have to take part?

It is up to you and your partner to decide whether each of you would like to join the study. After reading this information sheet you will be given the opportunity to ask questions and find out more about the study during your first antenatal class. Those who agree to take part will then be asked to sign a consent form. Even if you sign this, you are free to withdraw at any time. This will not affect the standard of care you receive. Deciding not to take part will not affect your antenatal classes in any way.

What if I am not in a relationship or my partner does not want to take part?

You are still very welcome to attend the extra session if you are offered it, though you will need to bring someone you know along to this as there will be some pair work involved. This could be a close friend or family member. Because the research is looking at relationships between couples, it simply means that mothers who are not in a relationship or whose partners are not attending will not be sent any follow-up questionnaires.

You are also welcome to participate in the study even if your partner does not wish to. If this is the case, they are still welcome to attend the extra session with you if this is offered to your class. They will simply not be asked to complete any questionnaires.

What will I have to do if I take part?

You will initially be asked to complete some short questionnaires during your first antenatal class. This should take about 15 minutes and time has been set aside for this. Once these have been completed an extra session will be added at random to half of the classes involved. You will be told at the beginning of your second class if you are in a class that has been extended by one session.

Extra sessions will take place during the fifth week of antenatal classes (one before the last). This extra class will happen at the same time and place as your other classes. During the class we will explore common challenges that many new parents face in terms of changes in their relationships. We will also practice skills that may help you to manage these challenges. At the end you will be given 5 minutes to complete a feedback form about the class.

Finally, you will be asked to complete a second set of short questionnaires 6 weeks after the birth of your baby. When giving your consent you will be asked if a midwife can check your medical records to find out when you have given birth and that your baby is well so we know it is okay to send this second set to you. You will also be asked on the consent form to indicate whether you would like to receive these by post or email. A mobile telephone number is also requested to allow us to text to let you know that the second set of questionnaires has been sent. If you do not return these within 10 days, we will automatically send you another set.

It will be necessary to complete the second set of questionnaires regardless of whether you were offered an extra session or not. This will allow us to compare the two groups to find out if the programme had any effect. These questionnaires will not be looked at until the entire study is complete, as is good practice. One of these questionnaires is also routinely completed by health visitors to check for signs of postnatal depression. This process is separate to our study which is using the questionnaire for research purposes only. As this questionnaire is looking for signs of emotional distress in new parents, you may find some of the questions to be of a sensitive nature.

Will my taking part in this study be kept confidential?

If you join the study, the information you provide may be looked at by authorised persons such as the Research Support Officer at the Clinical Psychology Unit (University of Sheffield). Individuals from the local governance authority may also look

at the data to check that the study is being carried out correctly. We all have a duty of confidentiality to you as a research participant and we will do our best to meet this duty. Throughout the course of the study the utmost care will be taken to ensure that data is being handled and stored securely. Once all the data has been gathered, all identifiable information will be removed to ensure complete anonymity. Confidentiality would only be broken if you told us something which suggested that you or someone else was at risk of harm. However, we would always try to discuss this with you before taking action.

What happens when the research study stops?

Once all the information has been collected the findings will be written up in a report. Please let us know if you would like to receive a copy of this.

If the questionnaires you complete suggest that you were experiencing a high level of emotional distress after your baby's arrival, we would contact you to suggest speaking to your GP or health visitor. As questionnaires will not be looked at until they have all been collected, it will not be possible to find this out and so contact you until the entire study is complete.

What are the possible benefits of taking part?

This study has been developed on the basis of sound ongoing research about the challenges that new parents face. By taking part you will be adding to this research which will help improve the support offered to new parents in the future. As well as helping couples to feel more fulfilled and supported, protecting relationships in this way may also enhance parenting and improve overall family well-being.

You have a 50% chance of being offered an extra session to learn about common challenges in becoming a parent. You will also have the chance to develop skills which may help you to manage these and similar challenges in the future. If you are not offered an extra session and wish to find out about its content, an information sheet will be made available to you at the end of the study.

What if there is a problem?

If any unresolved issues or concerns arise when attending the extra session you can speak to us about it. If necessary, we will help you to access more support. Please feel free to contact us at any time throughout the study if you have any queries or concerns. Our contact details can be found on the accompanying letter.

You will not be sent a second set of questionnaires in the event of any unexpected or adverse outcomes related to your pregnancy e.g. if your baby is admitted to the Special Care Unit for a week or more. You can also withdraw from the study at any time without having to provide a reason. If you decline to participate or decide to withdraw, your attendance at antenatal classes will not be affected in any way.

Making a complaint

If you have any complaints or concerns, you can let us know by leaving a message for Cathryn Daley-McCoy on 0114 2226650 or informing your midwife. Alternatively, you can contact Professor Pauline Slade (Project Co-Coordinator) on 0114 2226568. You can also use the University of Sheffield complaints procedure by contacting Dr Philip Harvey, Registrar and Secretary's Office, University of Sheffield, Firth Court, Western

Bank, Sheffield, S10 2TN. Finally, you can contact the NHS Patient Advice and Liaison Service (PALS) on 0800 0288059.

When Couples Become Parents: Consent Form

Name of Researcher: Cathyrn Daley-McCoy

Please initial each box to indicate that you have read and understood each element.

Statement	Initial
1. I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
2. I understand that I do not have to take part and that I am free to withdraw at any time without my medical care being affected.	
3. I understand that relevant sections of my medical notes will be looked at by a midwife for the purposes of the study and I give permission for this.	
4. I understand that information collected during the study may be seen by the Research Support Officer in the Clinical Psychology Unit at the University of Sheffield and by someone from the local research governance office. I give permission for these individuals to have access to this data.	
5. I agree to take part in this research study.	

Name:	Signature:	Date:
--------------	-------------------	--------------

Contact Details: *these are required so that we can send you the necessary questionnaires once the intervention has taken place. Please indicate whether you would prefer to be sent this information via post or email by ticking the appropriate box. You will receive a text to inform you that the information has been sent.*

Postal Address:

Email Address: Mobile No:

Appendix 4

Intervention Materials

The intervention materials have been removed to protect copyright. These resources may be requested from the primary researcher.

Appendix 5

Measures

The measures have been removed to protect copyright but can be accessed from the reference list.

APPENDIX 6

Supplementary Statistics

Section 1: Comparisons on the basis of Attendance at an Intervention Session

VARIABLE	STATISTICAL TEST	TEST STATISTIC	P VALUE	
Age	<i>Women</i>	Independent t-test	$t=2.36$	0.023*
	<i>Men</i>	Mann-Whitney U-test	$z=0.88$	0.418
Occupation:	<i>Women</i>	Mann-Whitney U-test	$z=2.12$	0.032*
	<i>Men</i>	Mann-Whitney U-test	$z=1.74$	0.083
Relationship Status	<i>Women</i>	Pearson Chi Square	$\chi^2=4.61$	0.217
	<i>Men</i>	Pearson Chi Square	$\chi^2=5.49$	0.122
Relationship Duration	<i>Women</i>	Mann-Whitney U-test	$z=1.50$	0.146
	<i>Men</i>	Mann-Whitney U-test	$z=1.30$	0.205
Planned Pregnancy:	<i>Women</i>	Pearson Chi Square	$\chi^2=1.42$	0.341
	<i>Men</i>	Pearson Chi Square	$\chi^2=0.31$	0.622
Feelings about Pregnancy: <u>a) Initially</u>	<i>Women</i>	Mann-Whitney U-test	$z=0.44$	0.669
	<i>Men</i>	Mann-Whitney U-test	$z=0.89$	0.399
<u>b) At baseline</u>	<i>Women</i>	Mann-Whitney U-test	$z=0.17$	0.888
	<i>Men</i>	Mann-Whitney U-test	$z=0.72$	0.532
<u>c) Change</u>	<i>Women</i>	Mann-Whitney U-test	$z=0.43$	0.673
	<i>Men</i>	Mann-Whitney U-test	$z=0.12$	0.893
Baseline Relationship Functioning	<i>Women</i>	Independent t-test	$t=1.61$	0.116
	<i>Men</i>	Independent t-test	$t=0.24$	0.814
Baseline Couple Communication	<i>Women</i>	Independent t-test	$t=0.57$	0.574
	<i>Men</i>	Mann-Whitney U-test	$z=0.23$	0.825
Baseline Psychological Distress	<i>Women</i>	Mann-Whitney U-test	$z=1.93$	0.053
	<i>Men</i>	Independent t-test	$t=0.64$	0.525

*Significant at the 0.05 level

Section 2: Comparison of Women on the basis of returning Postnatal Measures

VARIABLE	STATISTICAL TEST	TEST STATISTIC	P VALUE
Age <i>Intervention</i> <i>Control</i>	Independent t-test	$t=2.26$	0.030*
	Mann-Whitney U-Test	$z=0.67$	0.522
Occupation: <i>Intervention</i> <i>Control</i>	Mann-Whitney U-test	$z=0.66$	0.576
	Mann-Whitney U-test	$z=1.62$	0.125
Relationship Status <i>Intervention</i> <i>Control</i>	Pearson Chi Square	$\chi^2=8.20$	0.014*
	Pearson Chi Square	$\chi^2=1.57$	0.845
Relationship Duration <i>Intervention</i> <i>Control</i>	Mann-Whitney U-test	$z=1.20$	0.292
	Mann-Whitney U-test	$z=1.13$	0.295
Planned Pregnancy: <i>Intervention</i> <i>Control</i>	Pearson Chi Square	$\chi^2=1.39$	0.554
	Pearson Chi Square	$\chi^2=2.68$	0.166
Feelings about Pregnancy: <u>a) Initially</u> <i>Intervention</i> <i>Control</i> <u>b) At baseline</u> <i>Intervention</i> <i>Control</i> <u>c) Change</u> <i>Intervention</i> <i>Control</i>	Mann-Whitney U-test	$z=0.67$	0.524
	Mann-Whitney U-test	$z=1.66$	0.106
	Mann-Whitney U-test	$z=0.37$	0.756
	Mann-Whitney U-test	$z=1.35$	0.348
	Mann-Whitney U-test	$z=0.48$	0.652
	Mann-Whitney U-test	$z=1.18$	0.265
Relationship Functioning <i>Intervention</i> <i>Control</i>	Independent t-test	$t=1.36$	0.178
	Independent t-test	$t=2.27$	0.032*
Couple Communication <i>Intervention</i> <i>Control</i>	Independent t-test	$t=1.82$	0.078
	Independent t-test	$t=1.77$	0.090
Psychological Distress <i>Intervention</i> <i>Control</i>	Independent t-test	$t=0.54$	0.593
	Independent t-test	$t=0.98$	0.336

*Significant at the 0.05 level

Section 3: Comparison of Men on the basis of returning Postnatal Measures

VARIABLE	STATISTICAL TEST	TEST STATISTIC	P VALUE		
Age	<i>Intervention</i>	Independent t-test	t=1.77	0.086	
	<i>Control</i>	Independent t-test	t=1.36	0.189	
Occupation:	<i>Intervention</i>	Mann-Whitney U-test	Z=2.00	0.044*	
	<i>Control</i>	Mann-Whitney U-test	Z=0.80	0.470	
Relationship Status	<i>Intervention</i>	Pearson Chi Square	$\chi^2=4.14$	0.103	
	<i>Control</i>	Pearson Chi Square	$\chi^2=1.41$	0.854	
Relationship Duration	<i>Intervention</i>	Mann-Whitney U-test	z=0.68	0.485	
	<i>Control</i>	Mann-Whitney U-test	z=0.16	0.908	
Planned Pregnancy:	<i>Intervention</i>	Pearson Chi Square	$\chi^2=2.15$	0.282	
	<i>Control</i>	Pearson Chi Square	$\chi^2=0.06$	1.000	
Feelings about Pregnancy:	<u>a)Initially</u>	<i>Intervention</i>	Mann-Whitney U-test	z=1.76	0.083
		<i>Control</i>	Mann-Whitney U-test	z=0.12	0.944
	<u>b) At baseline</u>	<i>Intervention</i>	Mann-Whitney U-test	z=1.55	0.141
		<i>Control</i>	Mann-Whitney U-test	z=1.38	0.224
	<u>c) Change</u>	<i>Intervention</i>	Mann-Whitney U-test	z=0.45	0.642
		<i>Control</i>	Mann-Whitney U-test	z=0.24	0.858
Relationship Functioning	<i>Intervention</i>	Independent t-test	t=1.50	0.142	
	<i>Control</i>	Mann-Whitney U-test	z=0.63	0.552	
Couple Communication	<i>Intervention</i>	Independent t-test	t=0.96	0.344	
	<i>Control</i>	Mann-Whitney U-test	z=2.04	0.041*	
Psychological Distress	<i>Intervention</i>	Mann-Whitney U-test	z=2.43	0.014*	
	<i>Control</i>	Mann-Whitney U-test	z=0.71	0.503	

*Significant at the 0.05 level

Section 4: Comparison of Baseline Variables across Conditions

VARIABLE	STATISTICAL TEST	TEST STATISTIC	P VALUE	
Age	<i>Women</i>	Independent t-test	$t=0.97$	0.338
	<i>Men</i>	Independent t-test	$t=1.25$	0.221
Occupation:	<i>Women</i>	Mann-Whitney U-test	$z=0.73$	0.543
	<i>Men</i>	Mann-Whitney U-test	$z=0.85$	0.484
Relationship Status	<i>Women</i>	Pearson Chi Square	$\chi^2=2.37$	0.527
	<i>Men</i>	Pearson Chi Square	$\chi^2=5.42$	0.097
Relationship Duration	<i>Women</i>	Mann-Whitney U-test	$z=0.56$	0.350
	<i>Men</i>	Mann-Whitney U-test	$z=0.87$	0.391
Planned Pregnancy:	<i>Women</i>	Pearson Chi Square	$\chi^2=0.03$	1.000
	<i>Men</i>	Pearson Chi Square	$\chi^2=0.03$	1.000
Feelings about Pregnancy: <u>a)Initially</u> <u>b) At baseline</u> <u>c) Change</u>	<i>Women</i>	Mann-Whitney U-test	$z=0.95$	0.348
	<i>Men</i>	Mann-Whitney U-test	$z=0.78$	0.448
	<i>Women</i>	Mann-Whitney U-test	$z=1.81$	0.070
	<i>Men</i>	Mann-Whitney U-test	$z=1.56$	0.131
	<i>Women</i>	Mann-Whitney U-test	$z=0.22$	0.839
	<i>Men</i>	Mann-Whitney U-test	$z=0.35$	0.742
Baseline Relationship Functioning	<i>Women</i>	Independent t-test	$t=0.78$	0.437
	<i>Men</i>	Independent t-test	$t=1.44$	0.158
Baseline Couple Communication	<i>Women</i>	Independent t-test	$t=0.92$	0.363
	<i>Men</i>	Independent t-test	$t=0.79$	0.437
Baseline Psychological Distress	<i>Women</i>	Independent t-test	$t=0.98$	0.334
	<i>Men</i>	Mann-Whitney U-test	$z=1.52$	0.230