Review
Ανασκόπηση

# Pregnancy and the perinatal period: The impact of attachment theory

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In this study we aim to examine and integrate current literature and research on attachment theory and its expression on the specific field of obstetrics, the perinatal period. In medical settings in general, and in the field of obstetrics in specific, which is the clinical domain of the perinatal period, obstetricians, psychiatrists and psychologists frequently come across antenatal and postnatal concerns, psychological issues as well as psychiatric symptomatology stemming from closer observation of the women's difficulties or reported by women themselves. To our theoretical understanding, in order to better comprehend these psychosocial concerns and deliver timely and more effective personalized interventions to women in need, it is of paramount importance to thoroughly examine the perspective proposed by attachment theory, as it was first developed by child psychiatrist-psychoanalyst John Bowlby and the newest theoretical developments on the field that followed. Subtypes of attachment style are examined regarding their imprint on the benefits, as well as the difficulties and risks they place on women during each perinatal stage. "Insecurity" in attachment and significant relationships appears to render women more vulnerable in relation to psychopathology, according to the literature reviewed. As far as the psychopathological symptoms and disorders related to the perinatal period and their connection to attachment are concerned, the main disorders and symptomatology discussed in the literature appear to be perinatal depression, postpartum depression, perinatal anxiety and posttraumatic stress symptoms related to pregnancy and labor. At the same time, "security" attachment-wise, tangibly observed in couples with strong intramarital support, appears to offer a protective barrier against adversities by enabling securely attached women to remain calmer and make better use of their emotional and social resources throughout the challenging perinatal phase. Consequently, mothers-to-be become more eligible to overcome perinatal difficulties by the use of patterns of behavior that promote their well-being. Through the in-depth review of the current literature on attachment theory available and the tools of knowledge it equips us with, we attempted to assemble the real challenges and needs deriv-

ing from the demands that pregnancy, labor and the postpartum place on new mothers, as well as the way close relationships become affected by or, correspondingly, can be positively used in order to protect and shield women and their families from acknowledged stressful perinatal phases.

**Key words**: Attachment theory, perinatal period, pregnancy, psychological adjustment.

## Introduction

The perinatal period, including in its realm the timeline around the beginning of pregnancy and reaching the postpartum period, can be effectively conceptualized as the main pathway to the transition to parenthood. The World Health Organization connects closely the maternal health with the perinatal health, pointing to their combined effects to the coveted outcome, the birth of a healthy neonate.[1]

Maternal perinatal psychological health constitutes a domain where psychologists, psychiatrists and obstetricians cooperatively combine their theoretical as well as clinical practical knowledge and the deriving preventive guidelines, in order to screen, support, treat and follow-up populations at risk for psychiatric symptoms and disorders or burdened with psychological vulnerabilities, which could affect pregnancy and maternal health and well-being.

The theory of attachment, as first conceptualized by the renowned child psychiatrist John Bowlby,[2–4] stemming from the fields of developmental psychology and psychoanalysis, proposes a theoretical scaffolding in order to support the aforementioned needs of both patients and clinicians. The perspective it offers allows a thorough understanding of how initial childhood experiences may explain and are responsible for the structuring of relating to other individuals. During pregnancy and early parenthood, the new mother's attachment patterns become of great importance in order to understand how the quality of her own relating to her mother and her partner proclaim the process of adaptation to her pregnancy and the evolving future attachment to her baby.

In the current project we aspire to re-examine the way in which attachment theory and its evolution has contributed in the comprehension of the difficulties and challenges a number of expectant women appear to undergo during pregnancy and postnatally, while aiming to appraise the existing literature in order to examine closely the effects of attachment in each perinatal stage: pregnancy, childbirth and the postpartum period.

## Attachment theory, an overview

Attachment theory, as initially developed by child psychiatrist and psychoanalyst John Bowlby, describes how and why children form bonds with their parents and caregivers, in a quest for closeness, stability, emotional health and security.[2–4] Following a Darwinian paradigm, Bowlby theorized attachment behavior as an evolutionary function, a "biological predisposition to form relationships",[5] facilitating adaptation and survival.[6,7]

In conditions of distress, infants elicit comfort and security from their caregivers through signals –like crying and crawling towards the caregiver– that inform the adults concerning their needs.[8] When caregivers provide prompt and appropriate relief, while being steadily and continuously responsive to care and attention - seeking behaviors stemming from the child, they gradually develop and ensure a secure proximity baseline and style of attachment for the child. This mode of relating provides the socio-emotional supplies the infant will use later in life in order to navigate the social world.[9,10]

These primal interactions between the child and the caregiver are internalized early in life and guide the infant's expectations and evaluations of relationship experiences through the individual's lifespan. They provide the scaffolding for the emergence of relationship patterns even across generations.[11] This is mediated by the development of "internal working models"[12–14] –or "relational prototypes" according to Bowlby– mental constructs of the self and of significant others which depict the way attachment and proximity have been experienced and perceived by each individual since infancy. These internal working models can be further expanded to the formation of adult romantic attachment styles, guided by the attachment scaffolding developed during infancy,

childhood and adolescence. Attachment dynamics tend to remain stable throughout adulthood.[15]

Additionally, the attachment theory paradigm[16] assumes that disruption of these early relationships may bear a far-reaching adverse effect on the individual's future important relationships, mental and physical health, health – related behaviors, overall well-being and personality development; it appears that even minor interruptions and separation experiences, jeopardize the development of a healthy and secure bond.

Given the sociocultural markers of his era, to provide examples while raising awareness concerning the lifelong effect of attachment theory, Bowlby identified specific stress-prone situations which yield in activation of the attachment mechanism. Hence, he acknowledged marriage, childbearing and parenting as milestones of life events that induce the arousal of affectionate attachments and relationships, exposing women to greater risk for emotional stress and depression, if the fulfillment of their emotional needs rest unmet.

The main styles of attachment, secure and insecure, primarily describe the mode of parental responsiveness and stability of caregiving. Following Bowlby's innovative framework, Ainsworth and her colleagues developed an experiment, namely the "Strange Situation" procedure, based on observing children's interaction patterns and immediate responses upon separation from their main caregiver, their mother. Given the observational remarks and results of the experimental work of the "Strange Situation", Ainsworth suggested an inclusive and extended proposal regarding the attachment style categorization. Grounded on the caregiver's past responsiveness to the infant's signals for comfort and attention, infants' behaviors, as observed during the experimental procedure, reflect the degree and quality of proximity and caregiving received and established so far.[7,17,18]

Based on Ainsworth's work therefore, styles of attachment can be further subcategorized in three consequent categories: "secure, insecure ambivalent and insecure avoidant". More explicitly, infants showing distress when separated from their caregiver, allowing being comforted when being reunited with them and actively exploring surroundings and environment in the presence of the attachment figure are identified as having a "secure" attachment style. Infants appearing anxious upon separation from their caregiver and ambivalent when the attachment figure returns, while having difficulty exploring their surroundings due to preoccupation with the caregiver, are identified as belonging to the "insecure ambivalent" category. Finally, infants appearing neither distressed or anxious when the caregiver leaves the room, avoiding contact with them upon their return and directing all attention to the surroundings not including the attachment figure, were identified as "insecure avoidant".

Researchers further expanding on the theory of attachment and drawing on the hypothesis that the internal working models regarding attachment tend to remain stable throughout adulthood, used the same line of thought to understand and observe the development and maintenance of romantic relationships. Hazan and Shaver, first proposed how secure, anxious and avoidant adults possibly felt in romantic relationships portraying their past personal experiences in attachment.[19]

Bartholomew & Horowitz,[20] developing on the theory of adult attachment proposed the addition of a fourth style named "fearful avoidant", describing adults appearing dismissive of being romantically involved while actually being fearful of relationships. The same theorists, further exploring attachment theory research, focused in the observation of attachment and relating in the adult romantic relationships. They suggested that the individual's attachment style reflects positive or negative thoughts regarding the self and others. The four-category classification deriving from the aforementioned postulation describes a "secure, preoccupied, dismissive and fearful/disorganized" attachment style, based on whether or not individuals consider themselves to be worthy of receiving support from their partner in a romantic relationship and positive or negative representations of the partner's accessibility and responsiveness upon their quests for intimacy and support.

Thus a securely attached individual scores positively in both reflections of self and other, a preoccupied person thinks low of their self-worthiness while high concerning their positive regard of the other, the dismissive individual bears a positive image of the self and a negative or distrustful view of the other and

finally the fearful/disorganized individual thinks in negative terms regarding both the self and the other in terms of self-worthiness in receiving comfort and support, as well as accessibility and responsiveness from the part of the other.[20,21]

## The neurobiology of attachment

The psychological description of the attachment processes so far described is ostensibly founded on the neurobiological depiction of the formation of attachment and early development. All interactions the infant experiences, given the starting point when the maternal-infant relationship begins in utero and continues through preschool age, involve neurobiological events that form mental and medical health later in life.[22]

It has been demonstrated that higher quality parenting in the first three months can amend the risk of disorganised attachment due to maternal postpartum depression. A firmer understanding of the neurobiological changes attachment variability is eligible to provoke to the evolving infant brain, may prove crucial for child and developmental psychologists' educational needs in order for them to aptly identify the possible ways to intervene in cases where the mother-infant relationship is at risk.[23]

The hypothalamic-pituitary-adrenal (HPA) axis and the reward neurocircuitry have been shown to play significant roles in the attachment formation process and in psychiatric illness morbidity later in adulthood.[22]

The developing fetal hypothalamus is affected by the maternal HPA axis, and at the time of birth, it is fully developed.[24] It functions through the HPA axis to produce cortisol, the body's main stress hormone, by the adreanl glands. In high doses, cortisol may have a neurotoxic effect on the rest of the developing brain by inhibiting neuronal connections, while at low levels it promotes neuronal development and growth through neuroplasticity.[25] It becomes evident that modulation of cortisol during the crucial period of neural development is of great importance. What has been shown to decrease cortisol levels is oxytocin and social interaction, making maternal physical and emotional connection very important regarding their effect on the developing brain and neuroplasticity.[26,27] To further support the cruciality of the effect of the HPA axis hyperactivity, Quirin, Pruessner & Kuhl, demonstrated that adults with insecure attachment exhibit a hyperactive HPA axis and cortisol response to acute stress, highlighting the long lasting parameter of these effects.[28]

During those first critical three months of the infant's life and development, the hippocampus, which is part of the limbic system and involved in spatial and emotional memory, fully develops. As the hippocampus further matures it enables the baby to remember and recognize his/her mother, emotionally engage with her and safeguard their bond.[29] According to Chambers, the hippocampus has a large number of glucocorticoid receptors causing significant sensitivity to stress and cortisol production through the HPA axis. When the baby becomes stressed, higher doses of cortisol produced may cause neurotoxicity to the hippocampus.[22] Experiments performed on rat pups regarding early separation of the neonates from their mothers, as a parallel of human circumstances of neglect, showed these pups developed smaller hippocampi compared to non-separated pups.[30,31]

In the case of the amygdala, it seems that influences on its development begin even before birth, as it has been shown that both maternal depression and cortisol imbalances in the mother during pregnancy negatively affect the size of the child's amygdala later in life.[32]

Further expanding on the neurobiological imprints that follow attachment interactions each individual develops with their caregivers very early in life, oxytocin hormone proves important regarding attachment and synchronocity between mother and her child. According to Levine et al,[33] there is scientific evidence that in pregnant mothers, an increase in maternal oxytocin levels during the first and second trimester of gestation may predict mothering behaviour after labor. More specifically, in securely attached individuals, oxytocin levels are generally higher and tend to increase during stressful circumstances, during play and they also tend to synchronize during interaction with one's infant.[34] However, in the case of women with a history of child abuse, they appear to show lower levels of oxytocin in general and during pregnancy and the postpartum period.[35]

Summarizing the above, synchronicity of oxytocin between parents and their children affects the child's oxytocin regulation; when child and parent interact, oxytocin levels normally increase in both parents and child. In the case of securely attached mothers, oxytocin levels rise during play with their children, while, interestingly, in the case of insecurely attached mothers, their oxytocin levels decrease with play.[36]

Secure attachment has also been correlated with higher oxytocin levels and decreased subjective stress during an acutely stressful situation, further highlighting the soothing effect of ocytocin and security in attachment regarding stress regulation.[34]

## Attachment during adulthood; a protective shield or risk factor during adversities

Ongoing research indicates that during adulthood, symbolic threats reactivate the attachment style system of the individual experiencing stressful personal incidents. In such instances, the individual tends to seek security through proximity to others, in order to reproduce security – related representations that will induce and reestablish calmness and balance.[37]

A rich body of literature and research indicate that adult attachment orientations play a significant role in relation to the coping strategies individuals will use in these cases of intense stress and hardships.[8,9]

Drawing on the continuum of attachment, securely attached individuals are expected to appraise stressful events with optimism, while seeking practical and emotional help, relief and support from trusted significant others.[38,39] By doing so, they achieve to remain relatively stable and comforted through adversities, to regulate stress, to minimize distress but also to enhance bonds and the depth and quality of relating with those they feel connected and attached to.

Along similar lines, individuals under the anxious category of attachment tend to feel uncertain about whether they will be loved and emotionally supported and protected; they may overemphasize threats and become emotional, intrusive or persistent in their attempts to gain protection and attention from others.[8]

Finally, individuals with an avoidant type of attachment and relating will have a tendency to lean on their own capacities to support themselves (what Bowlby called "compulsive self-reliance")[16] and not openly seek help from significant others, even though this could be valuable regarding their survival and wellbeing. They may also be prone to alleviate stress by cognitively suppressing hazard related thoughts and thus avoid expressing distress and despair.[9,39–41]

From all the above it becomes evident that every individual's history of attachment as well as current styles of relating with significant others and family members may prove either promoting to a more resilient and "healthy" self – with openly expressing emotional and practical support needs, i.e. willingly discussing somatic symptoms and thus searching for health care solutions promptly – or maladaptive, with denying distress and vulnerability to self, hiding needs from others and thus reaching a point when one may end up losing the opportunity to receive timely help from professionals.

## Attachment and its application in medical settings: the field of Obstetrics

In medical settings, and more specifically in the field of obstetrics being the focus field for the current approach, attachment theory has long been studied by psychologists, psychiatrists and health care providers in relation to women's experiences, seek of care, use of resources provided and compliance to therapeutic advice.[42]

Under the perspective of attachment theory, clinicians in the fields of psychology and obstetrics aim to understand in a better way how to respond to presenting symptomatology and needs of their patients, through bearing into consideration the possible patterns and manners through which patients interact with significant and important others, including their health care providers. The main intention, therefore, is to intensify patient satisfaction, treatment adherence and more balanced patient-doctor relationships.

Narrowing our interest in the field of obstetrics and the perinatal period, another long-term goal equally important is how to make good use of the benefits of attachment theory as described, while at the same time highlighting the possible risk factors it entails.

## Perinatal period and attachment correlates

In confirmation to the position that attachment tends to become intergenerationally transmitted, (16) simply put, repeated throughout generations, we understand the cruciality of its protective role in the future psychological health of the newborn babies whose mothers experienced responsive and sensitive relationships with their own mothers. Therefore, we consider the onset of pregnancy as the beginning of a new attachment relationship.

A large body of literature[43–51] helps us understand that a securely attached to her own mother expectant mother, and thus subsequently securely attached to her husband/partner woman, bears very good chances to develop positive attitudes regarding pregnancy and her unborn baby.

Those positive attitudes include self-confidence regarding motherhood and caregiving, warm, caring and positive stance towards her unborn baby, better pregnancy health practices (i.e. compliance and adherence to medical counseling and guidelines) and thus better neonatal outcomes, quality of early mother-child interactions after birth and safeguarding of her psychological well-being during the demanding phase of pregnancy and the post-natal period.

Contrary to the benefits of attachment security, attachment insecurity is largely considered a risk factor towards the development of negative feelings, difficulties in adherence to the maternal role and impediments regarding the prenatal attachment process with the baby, especially for the age groups of teenage mothers (under 18 years of age) and women older than 35 years of age.[52,53]

Apart from maternal age, more factors influencing the development of mother-baby prenatal attachment during the perinatal period, according to data gathered through the Maternal-Fetal Attachment Scale (MFAS) and the Maternal Antenatal Emotional Attachment Scale (MAEAS)[45] are: surrogacy (surrogate mothers avoid attaching themselves to the fetus as a means of self-protection), psychological factors such as the presence of depression or anxiety or both and, of course, social support. The latter parameter coincides well with the aforementioned element of the cruciality of marital/relationship satisfaction and the quality of the perceived relationship with the baby's father, in relation to the maternal capacity to establish spontaneous attachment to her unborn child/neonate. According to Laxton-Kane & Slade, other factors such as parity, cultural differences, in vitro fertilization (IVF), perinatal loss and high risk of pregnancy, did not appear to result in differences regarding prenatal attachment.[45]

Embracing deeper into the issue of how prenatal attachment may be negatively influenced, and thus enable better prevention measures for high-risk mother-child incidents, previous studies have additionally indicated the presence of poor fetal health, poor maternal physical health and prenatal distress as potential risk factors.[54,55]

In relation to maternal physical condition in specific, it seems that a cyclical mechanism of poor maternal attachment history, pregnancy health problems and psychological distress, all of which possibly related to antenatal depression, place an alarmingly adverse environment for the developing fetus and its chances for receiving a healthy attachment to the mother, pre and postnatally.[56]

## Attachment styles and coping strategies during pregnancy

Mikulincer & Florian,[50] provided us with a robust description of how secure, anxious and avoidant expectant mothers tend to behave in attachment style terms, as juxtaposed in the first chapters of this review, regarding the characteristics of reactions each style entails- in relation to their forming relationship with their unborn child.

Considering the fetus as the "other" with whom the new mother is about to come closely related to and the actual state of pregnancy as a stressful period and life change that energizes attachment patterns, the authors[50] observed the following:

- Securely attached women/new mothers showed positive bonding to their fetus from the start (first trimester) and remained stably positively attached to their unborn baby throughout the whole gestational period, scaffolding positive postnatal attachment foundations.
- Anxiously attached women were characterized with compromised mental health during pregnancy. However, their bonding to their fetus improved as pregnancy progressed, so that they finally

reached similar levels of attachment disposition as securely attached women did, and finally,

- Avoidant women tended to deal with pregnancy related issues and distress by using by default distancing as a coping mechanism, while they reported better mental health and bonding sentiments towards their child solely during the second trimester of pregnancy.

## Maternal mental health during pregnancy and its impact on mother-infant attachment

It has so far become clear that the attachment patterns each individual develops and most probably stably exerts throughout his/her life emanate from past or primal experiences with their own caregivers. Sometimes these patterns are "intergenerationally transmitted"[16] from traumatized adults who in their turn proved incapable to become sentimentally available for their own infant when time was due. Thus, trauma and attachment proliferate across generations in the case of some families, as parents with a trauma history (abuse, neglect, abandonment, parental death) tend to pass on their behavioral symptomatology to their children, either by direct exposure due to their lack of capacity to healthily relate to their child, or by repeating their own painful past.[57,58]

It is very common for children of trauma survivors to develop mental health and behavioral issues such as depressive symptomatology, anxiety, psychosomatic problems, sentiments of guilt and aggressive tendencies.[59,60]

Such difficult family histories, along with issues in attachment frequently provide an unfortunate baseline for psychopathology. In cases when the protective role of attachment and care is impinged, the trauma that lays across the generations becomes a risk factor regarding future and new attachment relationships to-be-formed, such as the one expectant mothers will form with their child, rendering prenatal attachment a task difficult to fulfill, contrary to expectant mothers who reported no interpersonal traumatic history.[58]

Pregnant women with insecure attachment styles appear to be at greater risk for postpartum depression, as numerous studies indicate.[61–65]

It seems that when insecure schemas of thought and correspondent behavioral patterns become activated, this contributes to pregnant women under the insecure classification feeling more anxious or depressed throughout the whole perinatal period. Especially those belonging to the "fearful" category, reportedly experienced greater distress during the perinatal period.

Under the insecurely attached woman's perspective, even events like a healthy pregnancy may be presumed as stressful and anxiety provoking, as cognitions about relationships including interpersonal dissatisfaction, low self-esteem and negative mood become dominant, rendering them susceptible to feeling alone, isolated and depressed.[61,65]

Conversely, under the umbrella of secure attachment, everyday hassles and challenges of pregnancy become easily tackled by women falling under this category, as they are shielded by cognitions and behaviors that enable them to protect themselves from mood imbalance and disturbance.

## Childbirth, partner support and pain management in terms of attachment

Childbirth can be a rather stressful event and experience for the mother-to-be, especially in the case of first-time mothers. Apart from the physical stress the body naturally goes through, a biological procedure that promotes labor as such, the new mother experiences a relative loss of control in relation to her body, as clinicians and professionals take medical charge of the procedure, in cooperation with the mother. Main sources of anxiety related to childbirth include fear of labor as well as the pregnant woman's sense of self-efficacy, namely, her ability and readiness to control labor pain.[66,67]

In some cases, as it has been reported, severe childbirth anxiety has been associated with obstetric complications that include prolonged labor, instrumental vaginal deliveries or the choice of caesarian sections.[68,69]

Partner influence and presence in terms of quality support and not of physical presence solely, becomes especially significant as research shows, with respect to pain management during and after delivery.[70] Given the fact that partners today are increasingly likely to be present and available during and after labor as such, their role and contribution be-

comes paramount, as main providers of support and security for the new mother.[71,72]

It becomes noteworthy that especially the securely attached individuals appear to benefit the most from the fact that their partners support them and alleviate a stressful labor, by contributing to a less painful experience. Security in attachment, therefore, not only promotes a healthier and stronger ability of coping with stressful situations, as indicated by leading researchers in the field of attachment theory,[37,50] but also bears a positive physical impact on the individual, a biological expression of its effect. At the other end of the spectrum, it is notable, as literature indicates,[73] that individuals under the insecure attachment patterns appear to report more pain and catastrophizing thoughts centered around pain, thus feeling less in control of it than securely attached people do.

## The postpartum period, transition to parenthood and attachment derivatives

According to Hawkins, Cowan & Cowan,[74] the transition to parenthood tends to enhance personal as well as marital well-being, in a percentage of couples.

At the same time, however, this transitional phase can sometimes bring turmoil and prove rather challenging.[75] It could be assessed as a major indicator of how the newly formed family will cope from this moment forward, with the family's foundations basically structured around the resources it has been psychologically equipped with, as well as the attachment parameters each member represents and belongs to.

In many cases,[76–78] as reported in Simpson's et al[63] research work, it has been postulated that sometimes new parents experience declines and ruptures in marital satisfaction and companionate activities, as well as an increase in personal difficulties and intramarital conflict during the first months postpartum, a case especially true for new mothers having dealt with the perinatal exigencies of pregnancy, childbirth and the rigorous childcare of the newborn.

Results on the specific domain of attachment expressions postpartum,[79] indicated that in the case of insecure ambivalent women, where support from their partner was perceived as low antenatally, larger declines in the spousal support and marital satisfaction were reported during the postnatal transition to parenthood period. Conversely, given the same attachment subcategory, women with insecure ambivalent attachment style reporting higher levels of perceived antenatal spousal support, consequently reported higher levels of marital satisfaction and postnatal support from their husband.

In the case of dismissive individuals on the other hand, where a tendency to elude connectedness and intimacy is often associated with the specific attachment style, literature[79] highlights a "less close and less supportive orientation" towards children in childrearing in general, a default psychological mechanism characterizing the difficulties insecure-avoidant individuals unfortunately face, as Bowlby first postulated.[16] Along similar lines, Priel & Besser,[80] suggested that it seems plausible that mothers tend to structure their perinatal attachment orientations towards their newborn-child based on the templates of attachment they have already formed in relation to the baby's father, their partner. This indicates that representations and, therefore, the beginning of attachment with their unborn baby bears strong similarities to maternal descriptions of the baby's father.[80,81]

## Psychopathology during the postpartum period

In addition, the postpartum period and the stressors of the adjustment to parenthood often proves a difficult period for women running greater risk for psychopathological expressions.

Post-partum depression (PPD), posttraumatic stress symptoms, perinatal anxiety and depressive symptoms in general, seem to be rather prominent among pregnant women.[82] Risk factors for postpartum depression usually include recent stressful events, lack of social and interpersonal support and low self-esteem.[83] Another risk factor for the development of PPD includes women under the insecure attachment category, who appear to be more vulnerable regarding the stressors of the new life transition that activates the insecure attachment worldview, schemas and associated behaviors.[61,63,65,73,84,85]

In the case of posttraumatic stress symptoms, their main starting point usually includes a baseline of prior psychiatric problems, stressful or frightening labor experiences, difficulties in delivery, painful or traumatic

incidents around childbirth and medical implications regarding the mother or the baby's health.[86,87]

Further studies also indicate a comorbidity of depressive symptoms as well as concordance of symptomatology within couples, with paternal symptomatology following his attendance at his partner's labor.[88,89]

Once again, it seems that social and emotional intramarital support within the couple's dynamics help alleviate the difficulties and restore well-being and feelings of stability, for both partners, whereas insecurity in attachment augments dissatisfaction concerning spousal support and understanding, thus enabling psychopathology to be maintained to unaltered states.[87,90–92]

## Conclusion

Throughout the current paper we attempted a juxtaposition of the literature regarding the major issue of the expression of the attachment theory, during the crucial and demanding life-altering phase of the perinatal period. Viewed through the lens of symbolizing a significant period including stressful personal milestones as far as the mother-to-be is concerned, it is believed and has been observed reactivating her attachment style system, thus reproducing thought representations and behaviors indicative and representative of her own personal attachment style patterns.

Overall, attachment security and stability within the mother and father-to-be couple appeared to provide a promising baseline regarding the formation of positive attitudes towards the unborn baby and pregnancy, namely self-confidence regarding caregiving and motherhood, a caring positive stance towards the fetus/newborn baby and better adherence to medical counseling.

Contrary to these benefits, insecurity in attachment seemed to contribute to a risky emotional environment for the emergence of difficulties in adjustment to pregnancy and the maternal role, negatively affecting the developing mother-child bond.[11,43,45–50]

Regarding childbirth, the main stress - provoking issues are centered around pain management and the woman's self-efficacy in relation to overcoming the distress labor sometimes invokes.[93] Once again, under the condition of security in attachment partner support through physical and emotional presence seems to positively influence the alleviation of labor pain,[70] whereas insecurity in partnership and attachment appears to adversely impact on the pain variable, as well as the catastrophizing thoughts the mother-to-be reproduces around it.[73]

In the postpartum period, where many couples seem to experience marital conflict and dissatisfaction due to the overall difficulties of the demanding perinatal phase,[76–78] the attachment subcategory of insecure-ambivalent women receiving poor spousal support were faced with the larger declines in marital satisfaction postnatally.

As far as the psychopathological facets related to the perinatal period and their connection to attachment are concerned the main disorders and symptomatology discussed in the literature appear to be depression, depressive symptoms, postpartum depression, perinatal anxiety, and posttraumatic stress symptoms related to pregnancy and labor.[61–65,84–87] Insecurity in attachment and significant relationships brought women in a more vulnerable position which created a baseline for psychopathology to emerge or set it in.

At the same time, security in attachment tangibly observed in couples with strong intramarital support, as bibliography sturdily forecasts, places a protective shield against disturbances, by enabling securely attached women to remain calmer and make better use of their emotional and social resources in order to navigate themselves through the perinatal challenging phase and consequently overcome possible difficulties by the use of patterns of behavior that promote their well-being.[90–92]

The future of research but also of ostensible clinical work in the rich and profound field of attachment theory is essentially centered around how to make better use of the risk indicators it provides by highlighting the special needs and vulnerabilities individuals face, given their categorical correspondence to each type of attachment style.

Apart from appreciating and further enhancing the benefits of its impact on the stability and well-being of the securely attached individuals, it becomes crucial for psychologists, psychiatrists and obstetricians to develop techniques or clinical protocols aimed at enabling the less fortunate individuals belonging to the insecure attachment category to be equally sup-

ported and alleviated during times of distress, by preventing stress-augmenting parameters that activate alarms and by proposing targeted therapeutic interventions.

Everyone ostensibly benefits from efforts aligned with the protective role, or, on the other side, addressing the demands of the difficulties in attachment, as future psychological health of the individuals (new mothers in this case, their neonates and families, as well as the relationships and cooperation with the medical staff) bears better chances to elicit more adaptive-to-needs responses from close others thus hopefully ameliorate the challenges experienced so far.

In a more positive and hopeful tone, interventions that enable the transmission of security in attachment intergenerationally,[16,94] protecting the psychological well-being of the newborn babies and their relationships with their parents is of paramount importance and could fuel future research aspirations via applicable attachment-oriented therapeutic actions and psychoeducation.

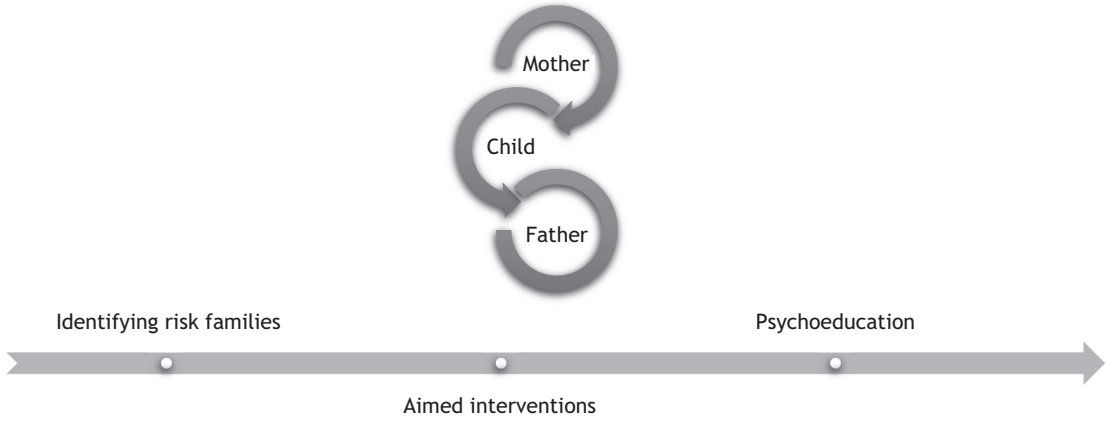


**Figure 1.** Helping families through integrated use of attachment theory.

# Εγκυμοσύνη και περιγεννητική περίοδος: Η επίδραση της θεωρίας δεσμού

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Η παρούσα εργασία έχει ως στόχο να εξετάσει σε βάθος την τρέχουσα βιβλιογραφία κι έρευνα αναφορικά με την παρουσία και επίδραση της θεωρίας δεσμού (attachment theory) στον τομέα της περιγεννητικής περιόδου και της σύγχρονης βιοψυχοκοινωνικής προσέγγισης της επιτόκου. Κατά

την κλινική πράξη και στον τομέα της μαιευτικής-γυναικολογίας εν προκειμένω ως το βασικό πλαίσιο παρατήρησης των περιγεννητικών ζητημάτων, μαιευτήρες, ψυχίατροι και ψυχολόγοι συχνά έρχονται αντιμέτωποι με περιστατικά γυναικών που αναφέρουν δυσκολίες ψυχολογικής προσαρμογής ή την παρουσία ψυχιατρικής συμπτωματολογίας λόγω των προβλημάτων που προκύπτουν κατά τη διάρκεια της εγκυμοσύνης και της λοχείας. Βασιζόμενοι στην επιστημονική βάση και εφαρμογή της θεωρίας του δεσμού, όπως αυτή αρχικά αναπτύχθηκε από τον παιδοψυχίατρο-ψυχαναλυτή John Bowlby και κατόπιν εξελίχθηκε από τους συνεχιστές του, προτείνουμε ως εργαλεία καλύτερης κατανόησης των ψυχολογικών παραμέτρων που παρατηρούνται κατά την περιγεννητική περίοδο, τις προδιαγραφές, τα οφέλη και τις πιθανές δυσκολίες που προσδιορίζονται και προβλέπονται ανά τύπο δεσμού (attachment style). Η εκτενής βιβλιογραφική ανασκόπηση έδειξε πως η παρουσία «ανασφαλούς τύπου δεσμού» ενδέχεται να συμβάλει στην ανάδυση συμπτωμάτων ψυχοπαθολογίας σε γυναίκες που διανύουν την περίοδο της εγκυμοσύνης αλλά και κατά τη μεταγεννητική περίοδο. Ψυχιατρικές διαταραχές που παρατηρούνται και καταγράφονται κατά την περιγεννητική περίοδο και φαίνεται να σχετίζονται με τις υποκατηγορίες ανασφαλούς δεσμού, είναι η περιγεννητική κατάθλιψη, η επιλόχεια κατάθλιψη, η διαταραχή άγχους και η διαταραχή μετατραυματικού στρες, με συμπτώματα σχετιζόμενα με την εγκυμοσύνη και τον τοκετό. Παράλληλα, η παρουσία «ασφαλούς τύπου δεσμού» που παρατηρείται σε ζευγάρια με δυνατό ποιοτικά δεσμό μεταξύ των δύο συντρόφων, φαίνεται να δρα προστατευτικά απέναντι σε ενδεχόμενες αντιξοότητες, βοηθώντας τις γυναίκες που ανήκουν στην κατηγορία του ασφαλούς δεσμού, να αντλήσουν από το απόθεμα των συναισθηματικών τους πόρων και του ευρύτερου καλώς έχειν της ψυχικής τους κατάστασης. Συνεπώς είναι αρτιότερα εξοπλισμένες να προετοιμαστούν με αποτελεσματικότερο τρόπο απέναντι στις πιθανές δυσκολίες που η περιγεννητική περίοδος συχνά συνεπάγεται. Σκοπός μας είναι η ενίσχυση των παρεχόμενων υπηρεσιών υγείας από τους επαγγελματίες που εστιάζουν στην περιγεννητική περίοδο (ψυχολόγοι, ψυχίατροι, μαιευτήρες-γυναικολόγοι) μέσω της συμβολής του θεωρητικού αυτού πλαισίου ώστε να εμπλουτιστούν περαιτέρω οι θεραπευτικές και ψυχοθεραπευτικές παρεμβάσεις σε πληθυσμούς των εγκύων, των νέων μητέρων αλλά και των οικογενειών τους.

**Λέξεις ευρετηρίου**: Θεωρία δεσμού, περιγεννητική περίοδος, εγκυμοσύνη, ψυχολογική προσαρμογή.

## References

1. World Health Organization. What is Quality of Care and why is it important? World Health Organization. 2017. Retrieved from http://www.who.int/maternal_child_adolescent/topics/quality-of-care/definition/en/
2. Bowlby J. *Attachment and Loss*. The Hogarth Press and The Institute of Psychoanalysis, London, 1969
3. Bowlby J. *Attachment and Loss*. Vol. 2. Seperation: Anxiety and anger. The Hogarth Press and The Institute of Psychoanalysis, London, 1973
4. Bowlby J. *Attachment and Loss*. Vol. 3: Loss, sadness and depression. The Hogarth Press and The Institute of Psychoanalysis, 1980
5. Bartholomew K. Avoidance of Intimacy: An Attachment Perspective. *J Soc Pers Relat* 1990, 7:147–178, doi: 10.1177/0265407590072001
6. Holmes J. *Attachment theory and psychoanalysis*. Search Secure Base. Routledge, 2018, doi: 10.4324/9781315783260-3
7. Bretherton I. The Origins of Attachment Theory: John Bowlby and Mary Ainsworth. *Dev Psychol* 1992, 28:759–775, doi: 10.1037/0012-1649.28.5.759
8. Tsachi ED, Mikulincer M, Doron G, Shaver PR. The attachment paradox: How can so many of us (the insecure ones) have no adaptive advantages? *Perspect Psychol Sci* 2010, 5:123–141, doi: 10.1177/1745691610362349
9. Ein-dor T, Mikulincer MП pd., Shaver PR. Attachment Insecurities and the Processing of Threat-Related Information: Studying the Schemas Involved in Insecure People ' s Coping Strategies. *J Per Social Psy* 2011, 101:78–93, doi: 10.1037/a0022503
10. Fraley RC. *A brief overview of adult attachment theory and research background: Bowlby 's theory of attachment individual differences in infant attachment patterns*. Univ Illinois 2010:1–8. Available from: http://internal.psychology.illinois.edu/˜rcfraley/attachment.htm
11. Fonagy P, Steele H, Steele M. Maternal Representations of Attachment during Pregnancy Predict the Organization of Infant-Mother Attachment at One Year of Age. *Child Dev* 1991, 62:891–905, doi: 10.1111/j.1467-8624.1991.tb01578.x
12. Bretherton I. Attachment Theory: Retrospect and Prospect Author (s): Inge Bretherton Reviewed work. *Monogr Soc Research Child Developm* 2011, 50:3–35, doi: 10.2307/3333824

13. Hesse E, Main M. Disorganized infant, child, and adult attachment: Collapse in behavioral and attentional strategies. *J Am Psychoanal Assoc* 2000, 48:1097–1127, doi: 10.1177/00030651000480041101
14. Main M, Kaplan N, Cassidy J. Security in Infancy, Childhood, and Adulthood: A Move to the Level of Representation. *Monogr Soc Res Child Dev* 1985, 50:66–76, doi: 10.2307/3333827
15. Hazan C, Shaver P. Romantic Love Conceptualized as an Attachment Process. *J Pers Soc Psychol* 1987, 52:511–524, doi: 10.1037/0022-3514.52.3.511
16. Bowlby J. *A secure base: Parent-Child Attachment and Healthy Human Development.* Basic Books, New York, 1988, doi: 10.1097/00005053-199001000-00017
17. Ainsworth MD. Object relations, dependency, and attachment: a theoretical review of the infant-mother relationship. *Child Dev* 1969, 40:969–1025, doi: 10.1111/j.1467-8624.1969.tb04561.x
18. Ainsworth MDS, Blehar MC, Waters E, Wall S. Patterns of attachment: A psychological study of the strange situation. Patterns of attachment: A psychological study of the strange situation. Lawrence Erlbaum, Oxford, England, 1978, doi: 10.4324/9780203758045
19. Simpson JA, Rholes WS. Adult Attachment Orientations, Stress, and Romantic Relationships. *Advanc Experiment Soc Psychol* 2012, 45:279–328, doi: 10.1016/j.copsyc.2016.04.006
20. Bartholomew K, Horowitz L. Attachment styles among young adults. *J Pers Soc Psychol* 1991, 61:226–244, doi: 10.1037/0022-3514.61.2.226
21. Levy KN, Ellison WD, Scott LN, Bernecker SL. Attachment style. *J Clin Psychol* 2011, 67:193–203, doi: 10.1002/jclp.20756
22. Chambers J. The neurobiology of attachment: From infancy to clinical outcomes. *Psychodyn Psychiatry* 2017, 45:542–563, doi: 10.1521/pdps.2017.45.4.542
23. Hayes LJ, Goodman SH, Carlson E. Maternal antenatal depression and infant disorganized attachment at 12 months. *Attach Hum Dev* 2013, 15:133–153, doi: 10.1080/14616734.2013.743256
24. Giesbrecht GF, Letourneau N, Campbell TS. Sexually dimorphic and interactive effects of prenatal maternal cortisol and psychological distress on infant cortisol reactivity. *Dev Psychopathol* 2017, 29:805–818, doi: 10.1017/S0954579416000493
25. Vela RM. The effect of severe stress on early brain development, attachment, and emotions: A psychoanatomical formulation. *Psychiatr Clin North Am* 2014, 37:519–534, doi: 10.1016/j.psc.2014.08.005
26. Heinrichs M, Baumgartner T, Kirschbaum C, Ehlert U. Social support and oxytocin interact to suppress cortisol and subjective responses to psychosocial stress. *Biol Psychiatry* 2003, 54:1389–1398, doi: 10.1016/S0006-3223(03)00465-7
27. Kidd T, Hamer M, Steptoe A. Examining the association between adult attachment style and cortisol responses to acute stress. *Psychoneuroendocrinology* 2011, 36:771–779, doi: 10.1016/j.psyneuen.2010.10.014
28. Quirin M, Pruessner JC, Kuhl J. HPA system regulation and adult attachment anxiety: Individual differences in reactive and awakening cortisol. *Psychoneuroendocrinology* 2008, 33:581–590, doi: 10.1016/j.psyneuen.2008.01.013
29. Beebe B, Lachmann FM, Markese S, Buck KA, Bahrick LE, Chen H, et al. On the origins of disorganized attachment and internal working models: Paper II. An empirical microanalysis of 4-month mother-infant interaction. *Psychoanal Dialogues* 2012, 22:352–374, doi: 10.1080/14616730903338985
30. Huot RL, Plotsky PM, Lenox RH, McNamara RK. Neonatal maternal separation reduces hippocampal mossy fiber density in adult Long Evans rats. *Brain Res* 2002, 950:52–63, doi: 10.1016/S0006-8993(02)02985-2
31. Hsu FC, Zhang GJ, Raol YSH, Valentino RJ, Coulter DA, Brooks-Kayal AR. Repeated neonatal handling with maternal separation permanently alters hippocampal GABAA receptors and behavioral stress responses. *Proc Natl Acad Sci USA* 2003, 100:12213–12218, doi: 10.1073/pnas.2131679100
32. Qiu A, Anh TT, Li Y, Chen H, Rifkin-Graboi A, Broekman BFP, et al. Prenatal maternal depression alters amygdala functional connectivity in 6-month-old infants. *Transl Psychiatry* 2015, 5:e508, doi: 10.1038/tp.2015.3
33. Levine A, Zagoory-Sharon O, Feldman R, Weller A. Oxytocin during pregnancy and early postpartum: Individual patterns and maternal-fetal attachment. *Peptides* 2007, 28:1162–1169, doi: 10.1016/j.peptides.2007.04.016
34. Pierrehumbert B, Torrisi R, Ansermet F, Borghini A, Halfon O. Adult attachment representations predict cortisol and oxytocin responses to stress. *Attach Hum Dev* 2012, 14:453–476, doi: 10.1080/14616734.2012.706394
35. Heim C, Young LJ, Newport DJ, Mletzko T, Miller AH, Nemeroff CB. Lower CSF oxytocin concentrations in women with a history of childhood abuse. *Mol Psychiatry* 2009, 14:954–958, doi: 10.1038/mp.2008.112
36. Strathearn L, Fonagy P, Amico J, Montague PR. Adult attachment predicts maternal brain and oxytocin response to infant Cues. *Neuropsychopharmacology* 2009, 34:2655–2666, doi: 10.1038/npp.2009.103
37. Mikulincer M, Gillath O, Shaver PR. Activation of the attachment system in adulthood: Threat-related primes increase the accessibility of mental representations of attachment figures. *J Pers Soc Psychol* 2002, 83:881–895, doi: 10.1037/0022-3514.83.4.881
38. Mikulincer M, Shaver PR, Pereg D. Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motiv Emot* 2003, 27:77–102, doi: 10.1023/A:1024515519160
39. Mikulincer M, Florian V. Appraisal of and Coping with a Real-Life Stressful Situation: The Contribution of Attachment Styles. *Personal Soc Psychol Bull* 2007, 21:406–414, doi: 10.1177/0146167295214011
40. Avila M, Brandγo T, Teixeira J, Coimbra JL, Matos PM. Attachment, emotion regulation, and adaptation to breast cancer: Assessment of a mediational hypothesis. *Psychooncology* 2015, 24:1514–1520, doi: 10.1002/pon.3817
41. Chris Fraley R. Attachment Stability From Infancy to Adulthood: Meta-Analysis and Dynamic Modeling of Developmental Mechanisms. *Personal Soc Psychol Rev* 2004, 6:123–151, doi: 10.1207/S15327957PSPR0602_03

42. Hooper LM, Tomek S, Newman CR. Using attachment theory in medical settings: Implications for primary care physicians. *J Ment Heal* 2012, 21:23–37, doi: 10.3109/09638237.2011.613955
43. Tani F, Castagna V, Ponti L. Women who had positive relationships with their own mothers reported good attachments to their first child before and after birth. *Acta Paediatr Int J Paediatr* 2018, 107:633–637, doi: 10.1111/apa.14162
44. Siddiqui A, Hägglöf B, Eisemann M. Own memories of upbringing as a determinant of prenatal attachment in expectant women. *J Reprod Infant Psychol* 2000, 18:67–74, doi: 10.1080/02646830050001690
45. Laxton-Kane M, Slade P. The role of maternal prenatal attachment in a woman's experience of pregnancy and implications for the process of care. *J Reprod Infant Psychol* 2002, 20:253–266, doi: 10.1080/0264683021000033174
46. Siddiqui A, Hägglöf B, Eisemann M. An exploration of prenatal attachment in Swedish expectant women. *J Reprod Infant Psychol* 1999, 17:369–380, doi: 10.1080/02646839908404602
47. Brandon AR, Pitts S, Denton WH, Stringer CA, Evans HM. a History of the Theory of Prenatal Attachment. *J Prenat Perinat Psychol Heal* 2009, 23:201–222, PMID: 21533008
48. Behringer J, Reiner I, Spangler G. Maternal representations of past and current attachment relationships. *J Fam Psychol* 2011, 25:210–219, doi: 10.1037/a0023083
49. Raphael-Leff J, Trevarthen C, Klaus M. *Psychological Processes of Childbearing*. Psychological Processes of Childbearing. Routledge, 2018. doi: 10.4324/9780429482922
50. Mikulincer M, Florian V. Maternal-fetal bonding, coping strategies, and mental health during pregnancy - The contribution of attachment style. *J Soc Clin Psychol* 1999, 18:255–276, doi: 10.1521/jscp.1999.18.3.255
51. Trillingsgaard T, Elklit A, Shevlin M, Maimburg RD. Adult attachment at the transition to motherhood: Predicting worry, health care utility and relationship functioning. *J Reprod Infant Psychol* 2011, 29:354–363, doi: 10.1080/02646838.2011.611937
52. Zachariah R. Mother-Daughter and Husband-Wife Attachment as Predictors of Psychological Well-Being during Pregnancy. *Clin Nurs Res* 199, 3:371–392, doi: 10.1177/105477389400300407
53. Marshall NL, Mercer R. First-time Motherhood: Experiences from Teens to Forties. *Contemp Sociol* 1987, 16:884–900, doi: 10.2307/2071619
54. Berryman JC, Windridge KC. Pregnancy after 35: A preliminary report on maternal-fetal attachment. *J Reprod Infant Psychol* 1993, 11:169–173, doi: 10.1080/02646839308403213
55. Móller ME. Prenatal and postnatal attachment: a modest correlation. *J Obstet Gynecol Neonatal Nurs* 1996, 25:161–166, doi: 10.1111/j.1552-6909.1996.tb02420.x
56. Sabuncuoglu O, Basgul A. Pregnancy health problems and low birth weight associated with maternal insecure attachment style. *J Health Psychol* 2016, 21:934–943, doi: 10.1177/1359105314542819
57. Fraiberg S, Adelson E, Shapiro V. Ghosts in the Nursery: A Psychoanalytic Approach to the Problems of Impaired Infant-Mother Relationships. *J Am Acad Child Psychiatry* 1975, 40:87–117, doi: 10.4324/9780429478154-10
58. Schwerdtfeger KL, Nelson Goff BS. Intergenerational transmission of trauma: Exploring mother-infant prenatal attachment. *J Trauma Stress* 2007, 20:39–51, doi: 10.1002/jts.20179
59. Felsen I. Transgenerational Transmission of Effects of the Holocaust. In: *International Handbook of Multigenerational Legacies of Trauma*. Springer US. 1998, doi:10.1007/978-1-4757-5567-1_3
60. Hesse E, Main M. Second-Generation Effects of Unresolved Trauma in Nonmaltreating Parents: Dissociated, Frightened, and Threatening Parental Behavior. *Psychoanal Inq* 1999, 4:481–540, doi: 10.1080/07351699909534265
61. Feeney J, Alexander R, Noller P, Hohaus L. Attachment insecurity, depression, and the transition to parenthood. *Pers Relatsh* 2003, 10:475–493, doi: 10.1046/j.1475-6811.2003.00061.x
62. Meredith P, Noller P. Attachment and infant difficultness in postnatal depression. *J Fam Issues* 2003, 24:668–686, doi: 10.1177/0192513X03024005005
63. Simpson JA, Rholes WS, Campbell L, Tran S, Wilson CL. Adult Attachment, the Transition to Parenthood, and Depressive Symptoms. *J Pers Soc Psychol* 2003, 84:1172–1187, doi: 10.1037/0022-3514.84.6.1172
64. Monk C, Leight KL, Fang Y. The relationship between women's attachment style and perinatal mood disturbance: Implications for screening and treatment. *Arch Womens Ment Health* 2008, 11:117–129, doi: 10.1007/s00737-008-0005-x
65. Bifulco A, Figueiredo B, Guedeney N, Gorman LL, Hayes S, Muzik M, et al. Maternal attachment style and depression associated with childbirth: Preliminary results from a European and US cross-cultural study. *Br J Psychiatry* 2004, 184:31–37, doi: 10.1192/bjp.184.46.s31
66. Daneshmaram M, Behzadipour S. The Relationship of Attachment Styles with Childbirth Selfefficacy in Nulliparous Pregnant Women: The Mediating Role of Alexithymia. *J Midwifery Reprod Heal* 2017, 5:1008–1017, doi: 10.22038/jmrh.2017.8944
67. Quinn K, Spiby H, Slade P. A longitudinal study exploring the role of adult attachment in relation to perceptions of pain in labour, childbirth memory and acute traumatic stress responses. *J Reprod Infant Psychol* 2015, 33:256–267, doi: 10.1080/02646838.2015.1030733
68. Lowe NK. Self-efficacy for labor and childbirth fears in nulliparous pregnant women. *J Psychosom Obstet Gynecol* 2000, 21:219–224, doi: 10.3109/01674820009085591
69. Wijma K, Wijma B. A woman afraid to deliver: How to manage childbirth anxiety. In: *Bio-Psycho-Social Obstetrics and Gynecology: A Competency-Oriented Approach*. Springer International Publishing 2017, doi: 10.1007/978-3-319-40404-2_1
70. Wilson CL, Simpson JA. Childbirth pain, attachment orientations, and romantic partner support during labor and delivery. *Pers Relatsh* 2016, 23:622–644. doi: 10.1111/pere.12157
71. Wilson CL, Rholes WS, Simpson JA, Tran S. Labor, delivery, and early parenthood: An attachment theory perspective. *Personal Soc Psychol Bull* 2007, 33:505–518, doi: 10.1177/0146167206296952

72. Enkin M, Keirse M, Neilson J, Crowther C, Duley L, Hodnett E et al. Social and professional support in childbirth. In: *Guide to Effective Care in Pregnancy and Childbirth*. Oxford University Press, 2013:247–254, doi: 10.1093/med/ 9780192631732.003.0028

73. Meredith PJ, Strong J, Feeney JA. The relationship of adult attachment to emotion, catastrophizing, control, threshold and tolerance, in experimentally-induced pain. *Pain* 2006, 20:44–52, doi: 10.1016/j.pain.2005.10.008

74. Hawkins AJ, Cowan CP, Cowan PA. When Partners Become Parents: The Big Life Change for Couples. *J Marriage Fam* 1992, 54:713–722, doi: 10.2307/353262

75. Knauth DG. Marital change during the transition to parenthood. *Pediatr Nurs* 2001, 22:41–50, PMID: 12962253

76. Belsky J, Spanier GB, Rovine M. Stability and Change in Marriage across the Transition to Parenthood. *J Marriage Fam* 1983, 45:567–577, doi: 10.2307/351661

77. Belsky J, Pensky E. Marital change across the transition to parenthood. *Marriage Fam Rev* 1988, 12:133–156, doi: 10.2307/352833

78. Belsky J, Lang ME, Rovine M. Stability and Change in Marriage across the Transition to Parenthood: A Second Study. *J Marriage Fam* 1985, 47:467–479, doi: 10.2307/352329

79. Rholes WS, Simpson JA, Campbell L, Grich J. Adult attachment and the transition to parenthood. *J Pers Soc Psychol* 2001, 81:421–435, doi: 10.1037/0022-3514.81.3.421

80. Priel B, Besser A. Adult attachment styles, early relationships, antenatal attachment, and perceptions of infant temperament: A study of first-time mothers. *Pers Relatsh* 2000, 7:291–310, doi: 10.1111/j.1475-6811.2000.tb00018.x

81. Ammaniti M, Baumgartner E, Candelori C, Perucchini P, Pola M, Tambelli R, et al. Representations and narratives during pregnancy. *Infant Ment Health J* 1992, 13:167–182, doi: 10.1002/1097-0355(199223)13:2<167::AID-IMHJ2280130207>3.0.CO;2-M

82. Gavin NI, Gaynes BN, Lohr KN, Meltzer-Brody S, Gartlehner G, Swinson T. Perinatal depression: A systematic review of prevalence and incidence. *Obstetr Gynecol* 2005, 106:1071–1083, doi: 10.1097/01.AOG.0000183597.31630.db

83. Blackmore ER, Carroll J, Reid A, Biringer A, Glazier RH, Midmer D, et al. The Use of the Antenatal Psychosocial Health Assessment (ALPHA) Tool in the Detection of Psychosocial Risk Factors for Postpartum Depression: A Randomized Controlled Trial. *J Obstet Gynaecol Canada* 2006, 28:873–878, doi: 10.1016/S1701-2163(16)32268-X

84. Ikeda M, Hayashi M, Kamibeppu K. The relationship between attachment style and postpartum depression. *Attach Hum Dev* 2014, 16:557–572, doi: 10.1080/14616734.2014.941884

85. Sabuncuoğlu O, Berkem M. The relationship between attachment style and depressive symptoms in postpartum women: Findings from Turkey. *Turk Psikiyatr Derg* 2006, 17:1–7, PMID: 17183441

86. Söderquist J, Wijma K, Wijma B. Traumatic stress after childbirth: The role of obstetric variables. *J Psychosom Obstet Gynecol* 2002, 23:31–39, doi: 10.3109/01674820209093413

87. Iles J, Slade P, Spiby H. Posttraumatic stress symptoms and postpartum depression in couples after childbirth: The role of partner support and attachment. *J Anxiety Disord* 2011, 25:520–530, doi: 10.1016/j.janxdis.2010.12.006

88. Ramchandani P, Psychogiou L. Paternal psychiatric disorders and children's psychosocial development. *Lancet* 2009, 374:646–653, doi: 10.1016/S0140-6736(09)60238-5

89. Ramchandani P, Stein A, Evans J, O'Connor TG. Paternal depression in the postnatal period and child development: A prospective population study. *Lancet* 2005, 365:2201–2205, doi: 10.1016/S0140-6736(05)66778-5

90. Lemola S, Stadlmayr W, Grob A. Maternal adjustment five months after birth: The impact of the subjective experience of childbirth and emotional support from the partner. *J Reprod Infant Psychol* 2007, 5:190–202, doi: 10.1080/02646830701467231

91. Ayers S, Jessop D, Pike A, Parfitt Y, Ford E. The role of adult attachment style, birth intervention and support in posttraumatic stress after childbirth: A prospective study. *J Affect Disord* 2014, 155:295–298, doi: 10.1016/j.jad.2013.10.022

92. Goecke TW, Voigt F, Faschingbauer F, Spangler G, Beckmann MW, Beetz A. The association of prenatal attachment and perinatal factors with pre- and postpartum depression in first-time mothers. *Arch Gynecol Obstet* 2012, 2:309–216, doi: 10.1007/s00404-012-2286-6

93. Daneshmaram M, Behzadipour S. The Relationship of Attachment Styles with Childbirth Self-efficacy in Nulliparous Pregnant Women: The Mediating R .... The Relationship of Attachment Styles with Childbirth Self- efficacy in Nulliparous Pregnant Women: The Mediating Role of Alexithymia. *J Midwifery Reproduct Health* 2017, 5:1008–1017, doi: 10.22038/jmrh.2017.8944.

94. Bowlby J. *A secure base: Clinical applications of attachment theory*. Routledge, London, 1988

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