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- 1 Mental fitness during transition to fatherhood

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Mental fitness during transition to fatherhood

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Abstract

Transition into fatherhood is often marked by a period of adjustment, uncertainty and psychological distress and challenges for many men, along with social isolation and relationship problems. Risk factors for paternal mental health issues are maternal depression, marital distress, parenting stress, gender role stress, mismatched expectations for pregnancy and after childbirth, poor physical health, inadequate self-care behaviours, avoiding seeking help for mental health issues, and having a child with sleeping, feeding and temperament problems. Paternal depression, anxiety and post-traumatic stress disorder can have negative impacts on the social and emotional wellbeing of fathers, their partners and their children. Nevertheless, these issues are not widely acknowledged, recognised or treated. Men's mental health illness is a silent crisis. They often fail to seek help due to their feeling of shame, stigma for a lack of emotional control, distress or anxiety related to utilising mental health support services, and underrating the severity of their symptoms. These necessitate the need for timely attention, psychological support and proper education to minimise their risk of mental health issues. Although research has indicated fathers' inclination toward being included in practices such as the mental health assessment, perinatal education and postnatal educational approaches need to be inclusive of fathers and encourage them to seek support for their paternal mental health issues and parenting difficulties.

Key Words: Childbirth, Father; Mental health; Parenting

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Core Tip: Transition to fatherhood can have both positive and negative effects on the social and emotional wellbeing of fathers, their partners and their children. The importance of appropriate timely support and education during pregnancy and after childbirth along with the gaps in practice highlight the need for high-quality educational approaches for fathers that will help enhance their mental health and increase their confidence and practical parenting skills.

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INTRODUCTION

Before the 20th century, pregnancy and birth were considered women's business and the birthing room was not a man's place. In the mid-1960s, a model of family-centred perinatal care emerged in western countries, aiming to enhance the emotional bond between parents and their children. This model emphasised parent education and preparation for pregnancy and childbirth and encouraged both parents to actively take part in caregiving and decision-making. As a result, fathers became more involved in pregnancy and childbirth-related activities[1].

A father's attendance at birth can offer benefits such as enhanced maternal satisfaction, improved father-child attachment and development of essential life skills [2]. Events in the birthing room, however, can be unpredictable and reactions to these events can sometimes be distressing to expectant fathers, diminishing any positive feelings[3]. According to a qualitative study in the United Kingdom[4], fathers reported being traumatised after attending labour and birth without adequate prior education and preparation. Another online qualitative study in the United Kingdom[5] showed that witnessing birth procedures and being inadequately prepared for possible complications were traumatising experiences for the fathers. A meta-ethnographic synthesis of fathers' experiences of complicated births from the United Kingdom, Sweden, New Zealand and Japan has shown that fathers are deeply affected by the childbirth experience, feel helpless and develop depression and post-traumatic stress disorder (PTSD), which in turn cause negative effects on the couple's mental health, relationships and the parent-baby bond. They feel vulnerable in the birthing room and express their need to receive more attention and recognition as part of a unit with the mother during the perinatal period[6].

Transition into fatherhood is often marked by a period of adjustment, uncertainty and psychological distress and challenges for many men, along with social isolation and relationship problems. A systematic review has shown that the prevalence of fathers' anxiety disorders range between 4.1%–16.0% during pregnancy and 2.4%–18.0% during the postnatal period[7]. After the birth of their child, 11.2% and 12.0% of fathers experience symptoms of depression at one and 6 months postpartum, respectively[8]. Another meta-analysis has shown that one in ten Australian fathers suffer postnatal depression or anxiety due to fatherhood challenges, establishing their new parenting identity and other related fears and concerns[9]. Uncertainty about their parental role in a shared parenthood style, a lack of sexual intimacy and emotional closeness, feeling lonely and isolated, and the demands of external requirements, such as work commitments, family financial status and childcare restrictions – especially due to the coronavirus disease 2019 (COVID-19) pandemic – can inject a significant amount of stress into their everyday lives and affect their mental health. Poor paternal mental health increases the risk of maternal depression and exacerbates its subsequent negative impacts on a child's behavioural, emotional, cognitive and physical development later in life. For example, the study by Paulson *et al*[10] showed that in the United States depressed fathers were more likely to put their infants to bed awake and were less likely to sing songs, engage in enrichment activities or play outside with their children[10]. Rominov showed that paternal depression among fathers in Australia was associated with a lack of confidence at parenting,

excessive infant crying and decreased physical contact and educational interactions between fathers and children[11]. The study by Davis *et al*[12] reported that the risk of American fathers spanking their one-year-old infants was four times greater in American fathers who were depressed[12]. In an Australian study, by following infants of fathers with symptoms of postnatal depression through to childhood, Fletcher *et al*[13] demonstrated that these children were 3 times more likely to show behavioural, development and wellbeing issues at 4-5 years of age[13].

RISK FACTORS OF MENTAL HEALTH ISSUES IN FATHERS

Risk factors for paternal mental health issues are maternal depression, marital distress, parenting stress, gender role stress, mismatched expectations for pregnancy and after childbirth[14], poor physical health, inadequate self-care behaviours, avoiding seeking help for mental health issues, and having a child with sleeping, feeding and temperament problems[15]. In addition to these, the recent impact of the COVID-19 pandemic has compounded the psychological burden of fatherhood on men, and compared to mothers, fathers report that this is a greater burden overall[16]. They have heightened anxiety and feel vulnerable due to the economic impact of COVID-19. Some men are stressed due to the inability to work from home, while others who have to work from home feel isolated and miss the social connections of their usual workplace. Physical distancing can make fathers feel emotionally disconnected, especially if they experience economic difficulties or disrupted work-family balance. A lack of emotional involvement can be followed by alcohol and drug abuse, antisocial and risky behaviours, interpersonal difficulties and domestic violence, and can also compromise children's safety, mental health, growth and development[17].

Over time, these progressively negative changes can diminish men's self-esteem and confidence, and under some circumstances may result in suicide. Suicide is the number one killer of men under 50 years of age and nearly 600000 men worldwide commit suicide every year[18]. Using initial modelling, the Brain and Mind Centre at the University of Sydney has suggested that the number of annual suicidal attempts following COVID-19 in Australia may increase by 750 additional cases in the next five years[19].

PERINATAL EDUCATION FOR FATHERS

A traumatic childbirth or a life-threatening complication during labour and birth can cause PTSD in couples, in particular fathers as the birth attendants[6,20]. According to a systematic review, men's mental health illness is a silent crisis. They often fail to seek help due to their feeling of shame, stigma for a lack of emotional control, distress or anxiety related to utilising mental health support services, and underrating the severity of their symptoms[21]. This necessitate the need for timely attention, psychological support and proper education to minimise their risk of mental health issues [22]. Supporting the mental health of fathers and including them in assessments, care pathways and care planning are activities/schemes that have been suggested to help them build realistic expectations and achieve far better outcomes for them and the whole family[17]. To this aim, preventative educational approaches have been recommended[19]. While the systematic review of literature shows the positive effects of social support and postnatal education on mothers' mental health[23], one out of three Australian fathers often miss this opportunity and do not receive proper social support and paternal education throughout the perinatal period[24]. According to Fletcher *et al*[25], many Australian fathers lack insight into the challenges that they are likely to face during pregnancy, in the birthing room and beyond, and mainly focus on acting as a support person for their partner. Some fathers feel challenged by the antenatal visits being focused on the expectant mothers, as well as the lack of attention shown to them during labour and birth. They also express their concerns of limited education and support due to a lack of understanding about what fathers can do and how they feel by healthcare professionals, or short visiting times during pregnancy and after birth. They report that their needs for early parenting skills are not met and feel excluded from targeted and accessible perinatal information, especially those who are from culturally and linguistically diverse backgrounds, socially disadvantaged groups, or those who live in areas where such education is not offered[26].

In some health settings, antenatal education and preparations are offered to both parents to address their needs and smooth this major transition. A qualitative study by Alio *et al*[27] in the United States has shown that African American fathers' attendance at antenatal educational classes and their involvement during pregnancy care decrease maternal stress levels and encourage positive maternal behaviours, which may in turn enhance the health of the newborn. Despite these benefits, evidence indicates that, with the main focus being on labour and birth preparation, mothers remain the target audience of the majority of parents childbirth education programs. Also, these programs generally fail to prepare the fathers for changes in their self-identity and relationship with their partner, their future role as a father and emotional and psychological aspects of parenthood, as reported in a qualitative study from Australia[28]. A survey of fathers attending antenatal classes at John Hunter Hospital, King George V Memorial Hospital and Royal Hospital for Women in New South Wales, Australia [29], has shown that although the classes better inform some fathers about the changes happening during pregnancy and increase their confidence about childbirth, they express their needs for education on more practical skills.

MOBILE TECHNOLOGY AND HEALTH EDUCATION: TARGETING NEW FATHERS

In Australia, 91% of adults older than 18 years use smartphones, and the majority of them prefer to access the internet from their smartphones than from a desktop computer[30]. Widespread access to mobile technology and the multifaceted and fast-expanding features of smartphones, along with their wide geographic and demographic coverage, have enabled health promotion professionals to use them for developing and providing evidence-based health information and interventions to individuals directly[31].

A growing number of parents use mobile apps and social media for health information and education. There are thousands of pregnancy and parenting apps on the two major app stores (Google Play Store and Apple App Store) that are used as the first source of information by many pregnant and postnatal women to fill their knowledge gaps, even before they visit a health professional for their condition[32]. Nevertheless, the evolution in perinatal educational mobile apps has not stretched proportionately. The majority of apps are designed to target mothers and, despite an expression of interest from fathers demanding more targeted education and support during the perinatal period, the mobile apps for fathers are scarce. A systematic review in 2018 showed that there are 1806 pregnancy-related apps for mothers, but only 13 are available for new or expecting fathers and just 9 offer general parenting advice to fathers[33].

The worldwide release of a number of father-focused apps in recent years, which have taken an idiomatic, peer-like approach, has shown that fathers are inclined to use online sources to communicate and connect with others and enhance their parenting experiences and skills[33]. Also, fathers who feel left out of traditional programs for antenatal education attempt to look for information elsewhere, often using mobile technology to overcome these barriers. For example, a social work app from the United States, mDad, has been used by fathers to learn about ways of engaging with their infants[34]. Milk Man[35] was the first Australian breastfeeding app for fathers that aimed to enhance the role of men as supportive breastfeeding partners and provided a conversation forum for them to engage with other fathers for support seeking and knowledge sharing. A later Australian text message-based mobile intervention by Fletcher *et al*[36], the SMS4dads, provided mental health support to the expecting or new fathers with infants younger than three months, addressing three areas: father-infant care, father-partner support and fathers' self-care. Findings from the studies on these father-focused apps have demonstrated that mobile technology can be highly effective in facilitating education and support for fathers, and can be successful in achieving health promotion goals. Nevertheless, there is a shortage of evidence-based apps for fathers and a real-life need for comprehensive, highly targeted paternal-focused educational apps. Although some commercial apps try to fill the gap, the quality and validity of the provided information are questionable and unknown. There is an enormous opportunity for public health organisations to build upon what is known about reaching fathers using mobile apps in order to impact positively on the health of all members of the community[35].

CONCLUSION

Gaps in clinical practice

Despite the negative impact of paternal depression, anxiety and PTSD on the social and emotional wellbeing of fathers, their partners and their children, these issues are not widely acknowledged, recognised or treated. Although fathers have inclination toward being included in practices such as the mental health assessment, perinatal education and postnatal educational approaches are not inclusive of fathers.

Even though there are some face-to-face educational classes for fathers in some countries and regions, there is usually an issue of access due to timing, location or socio-economic factors. According to one Australian study, pregnant women often have to reduce their work hours, take additional breaks or stop working altogether – some might even lose their job[37]. This requires the fathers to maximise their contribution to the family's income by working longer hours, resulting in limited availability for face-to-face perinatal educational classes. Furthermore, fathers are a population that is generally difficult to involve in public participation due to a variety of reasons, such as gender role expectations, attitudes on parenting practices, lack of paternity support from employers and their own expectations of men's involvement during the perinatal period[25,38]. These barriers can be surpassed by offering family-related approaches that take men's educational needs into account, such as after-hours educational classes that better match with men's availability, employing male educators, displaying posters that exhibit fathers' images and providing educational material to men when they are waiting in the clinic for antenatal appointments[39].

While in some cultures it is the mother's full responsibility to look after children[40-42], regardless of their geographical area fathers can still be better equipped for transition to parenthood by receiving information on fundamental matters such as managing their own distress and anxiety, learning practical skills in dealing with role and relationship changes, as well as understanding their newborn's crying, settling behaviours, growth and development[37]. They also need to be encouraged to seek support for their paternal mental health issues and experience a smooth transition to fatherhood.

REFERENCES

- 1 **Draper J.** Whose welfare in the labour room? *Midwifery* 1997; **13**: 132-138 [PMID: 9362853 DOI: 10.1016/s0266-6138(97)90003-6]
- 2 **Ledenfors A, Berterö C.** First-time fathers' experiences of normal childbirth. *Midwifery* 2016; **40**: 26-31 [PMID: 27428095 DOI: 10.1016/j.midw.2016.05.013]
- 3 **Fenwick J, Bayes S, Johansson M.** A qualitative investigation into the pregnancy experiences and childbirth expectations of Australian fathers-to-be. *Sex Reprod Healthc* 2012; **3**: 3-9 [PMID: 22325796 DOI: 10.1016/j.srhc.2011.11.001]
- 4 **Etheridge J, Slade P.** "Nothing's actually happened to me.": the experiences of fathers who found childbirth traumatic. *BMC Pregnancy Childbirth* 2017; **17**: 80 [PMID: 28270116 DOI: 10.1186/s12884-017-1259-y]
- 5 **Daniels E, Arden-Close E, Mayers A.** Be quiet and man up: a qualitative questionnaire study into fathers who witnessed their Partner's birth trauma. *BMC Pregnancy Childbirth* 2020; **20**: 236 [PMID: 32321470 DOI: 10.1186/s12884-020-02902-2]
- 6 **Elmir R, Schmied V.** A meta-ethnographic synthesis of fathers' experiences of complicated births that are potentially traumatic. *Midwifery* 2016; **32**: 66-74 [PMID: 26456407 DOI: 10.1016/j.midw.2015.09.008]
- 7 **Leach LS, Poyser C, Cooklin AR, Giallo R.** Prevalence and course of anxiety disorders (and symptom levels) in men across the perinatal period: A systematic review. *J Affect Disord* 2016; **190**: 675-686 [PMID: 26590515 DOI: 10.1016/j.jad.2015.09.063]
- 8 **Nishigori H, Obara T, Nishigori T, Metoki H, Mizuno S, Ishikuro M, Sakurai K, Hamada H, Watanabe Z, Hoshiai T, Arima T, Nakai K, Kuriyama S, Yaegashi N; Miyagi Regional Center of Japan Environment & Children's Study Group.** The prevalence and risk factors for postpartum depression symptoms of fathers at one and 6 months postpartum: an adjunct study of the Japan Environment & Children's Study. *J Matern Fetal Neonatal Med* 2020; **33**: 2797-2804 [PMID: 30563402 DOI: 10.1080/14767058.2018.1560415]
- 9 **Paulson JF, Bazemore SD.** Prenatal and postpartum depression in fathers and its association with maternal depression: a meta-analysis. *JAMA* 2010; **303**: 1961-1969 [PMID: 20483973 DOI: 10.1001/jama.2010.605]
- 10 **Paulson JF, Dauber S, Leiferman JA.** Individual and combined effects of postpartum depression in mothers and fathers on parenting behavior. *Pediatrics* 2006; **118**: 659-668 [PMID: 16882821 DOI: 10.1542/peds.2005-2948]
- 11 **Rominov H.** Fathers' perinatal mental health: Impacts, interventions and supports (Doctoral

- dissertation). Faculty of Health Sciences. Australian Catholic University. 2017
- 12 **Davis RN**, Davis MM, Freed GL, Clark SJ. Fathers' depression related to positive and negative parenting behaviors with 1-year-old children. *Pediatrics* 2011; **127**: 612-618 [PMID: [21402627](#) DOI: [10.1542/peds.2010-1779](#)]
- 13 **Fletcher RJ**, Feeman E, Garfield C, Vimpani G. The effects of early paternal depression on children's development. *Med J Aust* 2011; **195**: 685-689 [PMID: [22171866](#) DOI: [10.5694/mja11.10192](#)]
- 14 **Chhabra J**, McDermott B, Li, W Risk factors for paternal perinatal depression and anxiety: A systematic review and meta-analysis. *Psych Men Masculinities* 2020; **21**: 593-611 [DOI: [10.1037/men0000259](#)]
- 15 **Austin M**, Highet N. Mental Health Care in the Perinatal Period: Australian Clinical Practice Guideline. 2017, Centre of Perinatal Excellence: Melbourne
- 16 **Russell BS**, Hutchison M, Tambling R, Tomkunas AJ, Horton AL. Initial Challenges of Caregiving During COVID-19: Caregiver Burden, Mental Health, and the Parent-Child Relationship. *Child Psychiatry Hum Dev* 2020; **51**: 671-682 [PMID: [32749568](#) DOI: [10.1007/s10578-020-01037-x](#)]
- 17 **Hanley J**, Williams M. Fathers' perinatal mental health. *British J Midwifery* 2020; **28**: 84-85 [DOI: [10.12968/bjom.2020.28.2.84](#)]
- 18 **World Health Organization**, World Health Organisation Mental Health. Suicide statistics. 2016, World Health Organization: Geneva
- 19 **Human Resources Director**. How has COVID-19 impacted men's mental health? 2020
- 20 **Delicate A**, Ayers S, Easter A, McMullen S. The impact of childbirth-related post-traumatic stress on a couple's relationship: a systematic review and meta-synthesis. *J Reprod Infant Psychol* 2018; **36**: 102-115 [PMID: [29517303](#) DOI: [10.1080/02646838.2017.1397270](#)]
- 21 **Affleck W**, Carmichael V, Whitley R. Men's Mental Health: Social Determinants and Implications for Services. *Can J Psychiatry* 2018; **63**: 581-589 [PMID: [29673270](#) DOI: [10.1177/0706743718762388](#)]
- 22 **Simkin P**. Pain, suffering, and trauma in labor and prevention of subsequent posttraumatic stress disorder. *J Perinat Educ* 2011; **20**: 166-176 [PMID: [22654466](#) DOI: [10.1891/1058-1243.20.3.166](#)]
- 23 **Schumacher M**, Zubaran C, White G. Bringing birth-related paternal depression to the fore. *Women Birth* 2008; **21**: 65-70 [PMID: [18479990](#) DOI: [10.1016/j.wombi.2008.03.008](#)]
- 24 **Halle C**, Dowd T, Fowler C, Rissel K, Hennessy K, MacNevin R, Nelson MA. Supporting fathers in the transition to parenthood. *Contemp Nurse* 2008; **31**: 57-70 [PMID: [19117501](#) DOI: [10.5172/conu.673.31.1.57](#)]
- 25 **Fletcher R**, Silberberg S, Galloway D. New fathers' postbirth views of antenatal classes: satisfaction, benefits, and knowledge of family services. *J Perinat Educ* 2004; **13**: 18-26 [PMID: [17273396](#) DOI: [10.1624/105812404X1734](#)]
- 26 **Lau R**, Hutchinson A. A narrative review of parental education in preparing expectant and new fathers for early parental skills. *Midwifery* 2020; **84**: 102644 [PMID: [32062186](#) DOI: [10.1016/j.midw.2020.102644](#)]
- 27 **Alio AP**, Lewis CA, Scarborough K, Harris K, Fiscella K. A community perspective on the role of fathers during pregnancy: a qualitative study. *BMC Pregnancy Childbirth* 2013; **13**: 60 [PMID: [23497131](#) DOI: [10.1186/1471-2393-13-60](#)]
- 28 **Barclay L**, Donovan J, Genovese A. Men's experiences during their partner's first pregnancy: a grounded theory analysis. *Aust J Adv Nurs* 1996; **13**: 12-24 [PMID: [8717683](#)]
- 29 **Galloway D**, Svensson J, Clune L. What do men think of antenatal classes? *Intern J Childbirth Edu* 1997; **12**: 38-41 [DOI: [10.1057/9781137014740.0003](#)]
- 30 **Deloitte Technology**, M. T. Mobile Consumer Survey 2019. 2020 [DOI: [10.1109/ecti-ncon.2019.8692291](#)]
- 31 **Yardley L**, Spring BJ, Riper H, Morrison LG, Crane DH, Curtis K, Merchant GC, Naughton F, Blandford A. Understanding and Promoting Effective Engagement With Digital Behavior Change Interventions. *Am J Prev Med* 2016; **51**: 833-842 [PMID: [27745683](#) DOI: [10.1016/j.amepre.2016.06.015](#)]
- 32 **Kraschnewski JL**, Chuang CH, Poole ES, Peyton T, Blubaugh I, Pauli J, Feher A, Reddy M. Paging "Dr. Google": does technology fill the gap created by the prenatal care visit structure? *J Med Internet Res* 2014; **16**: e147 [PMID: [24892583](#) DOI: [10.2196/jmir.3385](#)]
- 33 **Thomas G**, Lupton D, Pedersen S. 'The appy for a happy pappy': expectant fatherhood and pregnancy apps. *J Gender Studies* 2018; **27**: 759-770 [DOI: [10.1080/09589236.2017.1301813](#)]
- 34 **Lee S**, Walsh T. Using technology in social work practice: The mDad (Mobile Device Assisted Dad) case study. *Advanc Social Work* 2015; **16**: 107-124 [DOI: [10.18060/18134](#)]
- 35 **White BK**, Martin A, White JA, Burns SK, Maycock BR, Giglia RC, Scott JA. Theory-Based Design and Development of a Socially Connected, Gamified Mobile App for Men About Breastfeeding (Milk Man). *JMIR Mhealth Uhealth* 2016; **4**: e81 [PMID: [27349756](#) DOI: [10.2196/mhealth.5652](#)]
- 36 **Fletcher R**. SMS4dads: Providing information and support to new fathers through mobile phones—a pilot study. *Advances Mental Health* 2017; **15**: 121-131 [DOI: [10.1080/18387357.2016.1245586](#)]
- 37 **Charlesworth S**, Macdonald F. Women, work and industrial relations in Australia in 2014. *J Industrial Relations* 2015; **57**: 366-382 [DOI: [10.1177/0022185615571979](#)]
- 38 **Crabb A**. The Wife Drought. 2015, Sydney: Random House Australia [DOI: [10.1017/qre.2016.11](#)]
- 39 **Panter-Brick C**, Burgess A, Eggerman M, McAllister F, Pruett K, Leckman JF. Practitioner review: Engaging fathers--recommendations for a game change in parenting interventions based on a systematic review of the global evidence. *J Child Psychol Psychiatry* 2014; **55**: 1187-1212 [PMID: [24980187](#) DOI: [10.1111/jcpp.12280](#)]

- 40 **Tuli M.** Beliefs on parenting and childhood in India. *J Comparative Family Studies* 2012; **43**: 81-91 [DOI: [10.3138/jcfs.43.1.81](https://doi.org/10.3138/jcfs.43.1.81)]
- 41 **Manimekalai K,** Sivakumar I, Geetha S. Working mothers and parenting: health status in India. *IJAR* 2019; **5**: 168-173 [DOI: [10.37200/ijpr/v24i1/pr200128](https://doi.org/10.37200/ijpr/v24i1/pr200128)]
- 42 **Bell P.** 'I'm a good mother really!' gendered parenting roles and responses to the disclosure of incest. *Children Society* 2003; **17**: 126-136 [DOI: [10.1002/chi.744](https://doi.org/10.1002/chi.744)]



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