The Effects of Prenatal Yoga on the Unborn Child, Attachment Style, and Mindful Parenting: A Call for Research

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In order to reverse the upward trend of caesarean sections, infant mortality, and the declining birth weight of babies in the United States (Donahue, Kleinman, Giliman, Oken, 2010), more research needs to be done on alternative noninvasive treatments. Prenatal yoga is a rapidly growing noninvasive treatment (Wang et al., 2005), however, its popularity has outpaced the research. While studies do show that the mother benefits from yoga, no study has looked at the effect of prenatal yoga on the development of the child. In this proposal, we trace a path through the literature on birthing health that suggests the practice of yoga during pregnancy offers benefits to both the mother and the child. We conclude by recommending novel research on the effects of prenatal yoga on the unborn child that is informed by a legacy of attachment research.

Birth in the U.S.

During pregnancy many women experience stress and body discomfort. And as many as 18% experience clinical depression during pregnancy (Gavin et al. 2005). Research on improving the health of pregnant women and their child has focused on stress during pregnancy to predict a myriad of poor outcomes (Wadhwa et al., 2001). Women who experience high stress rates during pregnancy are at a greater risk for premature delivery (Dole et al., 2003), postpartum depression (Da Costa et al., 2000; Beck, 2001), unplanned cesarean birth (Saunders, Lobel, Veloso, & Meyer, 2006), and birthing children with low birth weight (Wadhwa et al., 2001; Paarlberg et al., 1999).

While there is clear research advocating for a reduction of stress during pregnancy in order to improve the health of the mother, less is known about factors that will influence the later development of the unborn child. The limited research available on the development of the unborn child shows that better child temperament and emotional regulation relates to lower levels of stress on the mother during pregnancy (Van Den Bergh, 1990; O’Connor, Heron, Golding, Beveridge, & Glover, 2002). Over the following sections, we discuss the theoretical constructs that link yoga to prenatal and perinatal health, and review the relevant research.

Why Yoga?

A growing body of work supports that yoga is beneficial to both psychological and physiological health (Rosenzweig, Reibel, Greeson, Brainard, & Hojat, 2003) and reduces general anxiety (Woolery, Myers, Sternlieb, & Zeltzer, 2004). Skeptics may dismiss yoga as exercise, but research suggests the benefits of yoga are equal to and in some cases better than exercise (See review in Ross & Sue, 2010). In one study, Telles, Gaur, and Balkrishna (2009) show that by simply taking one traditional yoga class a person can reduce their state-anxiety. More committed yoga practices are related to lower-trait anxiety and depression (Kozasa, Santos, Rueda, Benedito), better emotional regulation (Wood, 1993) and better pain-management skills (Nespor, 1991). Beyond a direct relationship between stress reduction and yoga, research shows
that yoga buffers stress by improving high blood pleasure, asthma, irritable bowel syndrome, cancer, insomnia, and multiple sclerosis (see review in Brown, Gerbarg, 2009), and women’s sexual dysfunction (Dhikav, Karmarkar, Gupta, Verma, Gupta, Gupta, et al., 2010). Because pregnant women may be dealing with other health issues, it is paramount that we reduce stress in every way possible. Thus, it is critical to evaluate the factors that relate to yoga and pregnancy.

Yoga and Meditation

For the purpose of this proposal, we delineate yoga from other modern uses of the term that do not include meditation. While classic yoga is synonymous with meditation (i.e., Yoga Sutra 3.2; review in Iyengar, 1993), several versions of yoga do not include a mindful practice (e.g., Booty yoga), whereas one branch claims explicitly to be mindful (e.g., mindfulness based yoga; Kabat-Zinn et al., 1982). Mindfulness yoga is a rendering of yoga that is more similar to the classic yoga that stresses the importance of staying in the present moment (Iyengar, 1993) compared to some modern types that focus on improving muscle tone.

The development of mindful yoga is both advantageous and disadvantageous for laying the groundwork of yoga research. On one hand, systematizing the methodology of mindfulness yoga allows for more accessibility in research. Thus, the development of mindfulness has led to an expansion of comparative knowledge regarding the benefits of meditation. For example, recent research suggests mindfulness is relevant to the problems that women experience in pregnancy through stress reduction, greater pain tolerance (Kingston, Chadwick, Meron, & Skinner, 2007), and decreased lower back pain (Morone, Greco, Weiner, 2007). Among pregnant women, mindfulness techniques reduce anxiety levels and mitigate negative mood states (Saavedra, Chapman, & Rogge, 2010).

On the other hand, the unfortunate effect of mindfulness yoga is the suggestion that other types of yoga are not mindful. Contrary to a non-mindful yoga, a recent pilot study showed that yoga does increase mindfulness (Shelov, Suchday, & Friedberg, 2009). In this study, the people randomly assigned to practice eight weeks of traditional yoga were more mindful when compared to a control group that did not practice. Thus, yoga practice may translate into mindfulness, but there is inadequate research to confirm this link. In the following section, we discuss the possible link between a mindful practice and prenatal yoga, and we begin by exploring factors related to the child’s development.

Yoga and Pregnancy

Several studies show the benefits of prenatal yoga. The seminal study of prenatal yoga measured the difference among paired samples of pregnant women in India (Narendran, Nagarathna, Gunasheela & Nagendra, 2005) In this study, the experimental group was randomly assigned to a daily yoga practice (i.e., 1 hour per day postures, meditation, and breathing exercises), and the control group was asked to walk 30 minutes twice a day. The group who practiced yoga experienced reduced preterm labor, less isolated intrauterine growth retardation, and less pregnancy induced hypertension compared to the group that did not practice yoga. In this study, no problems or difficulties were associated with practicing yoga.

More recently, a series of publications from Beddoe and colleagues show that women that start prenatal yoga early in pregnancy compared to women who practiced later in pregnancy
experience improved sleep patterns in their second trimester (Beddoe, Lee, Weiss, Kennedy, Yang, 2010) and had better psychological health (Beddoe, Paul Yang, Kennedy, Weiss, & Lee, 2009). One shortcoming of Beddoe and colleagues is that they did not use a control group. While the study by Narendran, Nagarathna, Gunasheela and Nagendra (2005) used a control group, it is important to replicate these findings across other cultures.

Mindfulness and Attachment Theory

Bowlby’s (1982) attachment theory is among the most prolific theories of human development across the lifespan. Attachment theory emphasizes the pervasive nature of "affectional bonds" formed between infants and their caregivers, which continue to have influence throughout the life span (Ainsworth & Bowlby, 1991). Bowlby (1979) postulated that the attachment bond is a reflection of the caregiver’s availability and response that develops into the child’s model for anticipating the world through predictable event outcomes. Research shows that parents with secure attachment styles use a more caring response with their infants than insecure parents who are less caring and responsive (Chisholm, 2003; Kobak 1999; Polan & Hofer 1999). The child reflects the poor care and response from a caregiver with poor behavior and psychological functioning (Pierrehumber, Ramstein, & Halfon, 1996; Boris, Fuevo & Zeanah, 1997; Belsky & Fearon, 2002).

Despite the unfortunate outlook for children raised in insecure attachment bonds, there is however evidence to suggest that mindfulness moderates the effects of insecure attachment on parenting style (Saavedra, Chapman, & Rogge, 2010). Taken together, the aforementioned results and the finding that yoga improves mindfulness, we suggest that prenatal yoga may provide mindfulness to mothers with insecure attachment. The mindfulness obtained from prenatal yoga would then moderate the poor parenting and thereby promote enhanced childhood development. Thus, because attachment is integral in understanding the development of a child, it is important to investigate attachment during and after pregnancy. No study has looked at the effects of prenatal yoga on attachment style.

Conclusion

Using research presented in this proposal we draw a theoretical map that explores how prenatal yoga may have benefits that persist beyond pregnancy. Based on past research, we hypothesize that yoga contributes to both physiological and psychological well being of the mother (Rosenzweig, Reibel, Greeson, Brainard, & Hojat, 2003) and increases mindfulness (Shelov, Suchday, & Friedberg, 2009), and mindfulness mitigates poor parenting habits ((Saavedra, Chapman, & Rogge, 2010). Thus, we hypothesize that prenatal yoga facilitates a more caring infant-caregiver bond that subsequently facilitate healthy child development.

Research on prenatal yoga is justified because no study has looked at all of the variables discussed in this proposal (e.g., mindfulness, attachment style, and development of the child). In addition, there needs to be a follow up to confirm the findings of the India study of prenatal yoga that employed a control group (Narendran, Nagarathna, Gunasheela & Nagendra, 2005). Furthermore, several research remain unclear: What is the efficacy of different types of yoga, and what are the benefits of mindfulness as it relate to all yoga practice?
We recommend that future research look at the development of the child as it relates to prenatal yoga addressing attachment style, mindfulness, and other health issues (e.g., obesity). It is imperative that we address these issues by researching the benefits of yoga over several populations to improve the birthing process and contribute to the development of the unborn child.

References


