



Mind the Gap: Knowledge of Diastasis Recti Abdominis in Postpartum Women

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Abstract

Diastasis recti abdominis (DRA) is a condition that involves a lasting separation of the abdominal muscles, found commonly in women after pregnancy. This condition leads to limitations in the physical and emotional well-being of women. The existing focus of research on DRA has been on diagnostic tools and treatment options. There is no evidence of investigation into the lived experience of women with this condition nor about the forms or topics of education provided by healthcare providers. The purpose of this study was to explore the lived experience of women who have been either self-identified or medically diagnosed with DRA. A deeper insight into the experience of women with DRA may serve to enhance the patient-provider interaction during this critical time. A qualitative methodology was utilized with a basic interpretive approach and convenience sampling. Each participant contributed her experience through a semi-structured, in-depth interview. Eight predominant themes emerged from the analysis of data: lack of patient knowledge, lack of education offered by providers, impact on self-image, desired education, sources of self-education, benefits of education, problems with available education, and patient recommendations for care. These themes help to create a picture of the experiences of each participant. The data collected identifies gaps in the patient-provider relationship and offers opportunities for improvements in available evidence-based knowledge.

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Mind the GAP: Knowledge of Diastasis Recti Abdominis in Postpartum Women

Diastasis rectus abdominis (DRA) is a phenomenon commonly found in females due to the separation of the rectus abdominis musculature during pregnancy (Stedman, 2006) and can be found in up to 68% of women immediately postpartum (Keshwani, Mathur, & McLean, 2018). Most cases will show a decrease in the distance between rectus abdominus muscles, or inter-recti distance (IRD), within 12 months postpartum (Sperstad, Tennfjord, Hilde, Ellström-Engh, & Bø, 2016). However, as many as 30% of instances may not resolve over time (Keeler et al., 2012). Factors that increase the risk of DRA include multiparity, cesarean sections (Spitznagle, Leong, & Van Dillen, 2007; Turan, Colluoglu, Turkyilmaz, & Korucuoglu, 2011), and history of abdominal surgeries (Spitznagle et al., 2007).

Current evidence surrounding DRA includes prevalence, associated symptoms diagnostic techniques, and treatment and management options. Physical impairments associated with DRA include urinary and fecal incontinence (Benjamin, Frawley, Shields, van de Water, & Taylor, 2019), pelvic organ prolapse (Bø, Hilde, Tennfjord, Sperstad, & Engh, 2017; Lawson & Sacks, 2018), and impaired abdominal muscle strength and low back pain (Benjamin et al., 2019; Lawson & Sacks, 2018). Women are also at a higher risk for poor body image and lower quality of life (Benjamin et al., 2019; Nayir et al., 2016). Conservative and surgical management options have been studied and reported to be effective in reducing pain (Belogolovsky, Katzman, Christopherson, Rivera, & Allen, 2015), reducing IRD, and improving function in postpartum women (Benjamin, van de Water, & Peiris, 2014; Kamel & Yousif, 2017; Litos, 2014).

Despite the association of significant physical symptoms and risk of lower quality of life with DRA, there are no studies that have explored the lived experiences with the condition. Investigating the lived experience associated with DRA can facilitate a deeper understanding of

the effectiveness of health education, direct better ethical care (Dierckx de Casterlé et al., 2011), and improve compliance and utilization of treatment options (Jin, Sklar, Oh, & Li, 2008; Naidu, 2009).

Problem Statement

Despite a growing interest and demand for medical support for women's health issues (Dall, Chakrabarti, Storm, Elwell, & Rayburn, 2013; Daniels, Erickson, & Bornstein, 2018; Stenberg et al., 2014), there has been no investigation into the lived experience for women who have been diagnosed with DRA. A continuation of research on diagnostic tools and viable treatment options does not ensure that women with DRA understand the associated health risks and treatment options available. The lack of emphasis on women's experiences fails to examine if women are aware of current treatment options and if treatments are perceived as practical, sustainable, or even acceptable to those experiencing this condition. As such, there is a need to investigate the perceptions and experiences of postpartum women with DRA, specifically surrounding the education received about the diagnosis, associated risk, and treatment options.

Purpose Statement

The purpose of this qualitative study was to understand the experience of postpartum women who have been either self-identified or medically diagnosed with DRA from diagnosis through management or treatment of the condition. This study provides a more in-depth insight into the care and education for postpartum women with DRA.

Research Question

This study addressed the following primary research question and associated sub-questions:

- What is the experience of postpartum women with Diastasis Recti Abdominis regarding diagnosis, management, and/or treatment of their condition?
 - How do pregnant and postpartum women perceive the information and education they receive regarding the condition?
 - How do women seek information and education on the condition?

Significance of the Study

Gaining an understanding of the experiences of women with DRA, including their path and process of education, will help healthcare providers to deliver more effective, targeted educational programming and treatment. An improved educational delivery would allow women with DRA to make informed decisions, weigh risk, and have a voice in the selection of appropriate treatment. Improving the insight of healthcare providers into the experiences of women with this condition could facilitate the delivery of more effective education, which could result in improved patient compliance and outcomes.

Definitions of Terms

Postpartum. The period immediately following giving birth that can last up to six months (Romano, Cacciatore, Giordano, & La Rosa, 2010).

Parity. A term to describe the number of times a woman has given birth to a fetus at a gestational age of 24 weeks or more (Tidy, 2019).

Gravidity. A term to describe the number of times a woman has been pregnant (Tidy 2019).

Multiparity. A term to describe a woman how has given birth more than once (Tidy, 2019).

Literature Review

Prevalence

DRA is a separation of the connective tissue between the rectus abdominus muscles, which occurs during pregnancy as the fetus grows. This connective tissue, also called the linea alba, softens as the abdominal wall distends, and the rectus abdominus muscles elongate and move laterally, causing a separation (da Mota, Pascoal, Carita, & Bø, 2014). DRA commonly affects 30 to 50% of women during the gestational period and in 60% of women six weeks postpartum (da Mota et al., 2014; Sperstad, Tennfjord, Hilde, Ellström-Engh, & Bø, 2016). While most cases will show a decrease in inter-recti distance (IRD) within 12 months postpartum (Sperstad et al., 2016), as many as 30% of instances may not resolve over time (da Mota et al., 2014). Ninety-six percent of all DRA cases occur at the level of the umbilicus, 68% occur above the umbilicus, and 40% occur below the umbilicus (Ponmathi, Jayalakshmi, & Sivakumar, 2016).

Number of parity and history of abdominal surgery have been identified as factors leading to the incidence of DRA. In a study of 95 women between the ages of 19-24, Turan, Colluoglu, Turkyilmaz, & Korucuoglu (2011) identified the presence of DRA in 59% of multiparous patients compared to 2% in primiparous. A retrospective study by Spitznagle, Leong, & Van Dillen (2007) identified 281 of 541 patients as having DRA. Of those patients, 28 (9.96%) were nulliparous, and 253 (90%) were multiparous. 65.13% of patients with a history of abdominal surgery were also identified as having DRA.

Diagnosis

There are several ways to evaluate and screen for DRA, but agreement on criteria that constitutes a diagnosis of DRA has not been achieved (Barbosa, de Sá, & Coca Velarde, 2013).

Ultrasound, generally considered the gold standard for diagnosis of DRA, has limited use in the clinical setting due to costs and required training (Barbosa et al., 2013; Keshwani, Mathur, & McLean, 2018). However, caliper and finger-width methods, which are commonly used, have acceptable retest, inter-, and intra-rater reliability (van de Water & Benjamin, 2016). The identification of women with DRA is often missed despite knowledge of the high prevalence and ability to use reliable diagnostic tools (Freeman, 2013). When left undiagnosed, DRA can significantly affect a woman's quality of life, with most women reporting difficulty with daily activities (Benjamin, van de Water, & Peiris, 2014; Benjamin, Frawley, Shields, van de Water, & Taylor, 2019).

Impairments

DRA is associated with a variety of physical impairments. The severity of low back pain, as well as abdominal muscle weakness, has a relationship to the severity of DRA (Benjamin et al., 2019). A significant relationship was found in the presence of DRA in women seeking medical treatment for abdominal or pelvic region pain compared to those not seeking treatment (Parker, Millar, & Dugan, 2008). Pelvic organ prolapse and urinary and fecal incontinence are also associated with the presence of DRA in postpartum women (Bø, Hilde, Tennfjord, Sperstad, & Engh, 2017; Lawson & Sacks, 2018). Though these impairments can exist in the presence of DRA, studies have been unable to definitively identify a higher prevalence than in postpartum women without DRA (Bø et al., 2017; Chiarello, 2017).

In addition to physical effects, DRA also leads to a higher risk for a lower quality of life (Benjamin et al., 2019) and poor body image in postpartum women (Keshwani et al., 2018). The increased IRD found in DRA contributes to lower body image and body satisfaction ratings (Keshwani et al., 2018). In a study using the Body Image Scale and the World Health

Organization (WHO) Quality of Life Scale Short Form, each sub-domain of quality of life was significantly affected by body image (Nayir et al., 2016). Despite these findings, a more in-depth look into the specific reasons for poor body image needs investigation. Identification of specific causes for poor body image and quality of life related to DRA could assist in a more comprehensive care plan for postpartum women.

Interventions

The associated symptoms with DRA have led to developments and improvements in treatment options. Surgical repair of DRA is the most common treatment offered to postpartum women diagnosed with the condition (Mommers et al., 2017). Unfortunately, surgical options are invasive and have a recurrence rate of DRA in up to 40% of cases (Hickey, Finch, & Khanna, 2011). More recently, advancements of conservative treatments offer women encouraging options.

Conservative management of DRA includes physical therapy, exercise, and education on the maintenance of the condition (Opala-Berdzik & Dąbrowski, 2009). Specific exercise treatments such as neuromuscular electrical stimulation and functional strengthening exercises have been found to reduce pain (Belogolovsky, Katzman, Christopherson, Rivera, & Allen, 2015) and reduce the inter-recti distance (Benjamin et al., 2014; Kamel & Yousif, 2017; Litos, 2014). The high prevalence, overwhelming symptoms, and a variety of diagnostic options for DRA should make identifying women with this condition and referring them to appropriate treatment a routine practice.

Areas for Improvement

Key components of maternal health include prevention, detection, and management of medical complications. Regrettably, interventions that promote health in postpartum women,

including referrals to appropriate management and treatment continues to be a missed opportunity among healthcare providers (Fahey & Shenassa, 2013). Reasons for the mismanagement of DRA may fall on both the treating medical providers as well as the patient. In a study by Gustavsson & Eriksson-Crommert (2020), the authors reported a lack of knowledge among physiotherapists and midwives on the relevance of increased IRD. The study also identified a need for clinical guidelines for the treatment of increased IRD along with better interprofessional collaboration on the management of the condition. In addition to the need for clinical guidelines, Gustavsson & Eriksson-Crommert (2020) reported an overall lack of evidence-based knowledge that is available to health care professionals. This lack of valid and reliable information pushes health care professionals to rely on the only accessible information, which has been from media and commercial based fitness coaches (Gustavsson & Eriksson-Crommert, 2020).

Since as early as 2010 there has been an increase in the use of internet-based resources among pregnant women (Lagan, Sinclair, & Kernohan, 2010; Lupton & Maslen, 2019). The information received is being used to help guide decisions during pregnancy, clear up confusion, and provide much-needed support (Lupton & Maslen, 2019). With a lack of evidence-based information on IRD and DRA available to health providers, it is not surprising that a greater percentage of Americans choose the internet as their first source of health information over any other source (Jacobs, Amuta & Jeon, 2017).

The greatest concern with the use of internet-based sources for health information is the quality of information available. Though not specific to DRA, a study by Burton et al. (2020) on strategies for prevention and treatment of urinary tract symptoms in women on social media, it was found that only one-third of the evidence found on social media lacked scientific evidence

and the majority did not include level 1 evidence. In the same study, it was found that the least mentioned treatments for many of the diagnoses were the options with the greatest successes. In addition to a lack of evidence behind the information provided on the internet, there is also a concern about the negative impact of internet-based sources such as online support groups. In the qualitative study by Lupton & Maslen (2019), participants mentioned the caution needed when joining online support groups due to the tendency of judgment and bullying.

In addition to patients using internet-based sources for their health education, many postpartum conditions experienced by women are seen as expected symptoms and they choose not to seek medical help due to embarrassment or “wasting the doctor’s time” (Geynisman-Tan, Taubel, & Asfaw, 2018; Rowlands, Loxton, Dobson, & Mishra, 2015). If appropriate education about these expected symptoms was provided, feelings of undue embarrassment could be mitigated. The early postpartum period has been termed the “fourth trimester” and it has been noted that this is a crucial time for much-needed education and medical help which can improve the health and wellbeing of women (Tully, Stuebe, Verbiest, 2017). Without appropriate care and intervention in that “fourth trimester”, many women are left with confusing symptoms, which may compound one another thereby necessitating timely multidisciplinary medical care (Tully et al., 2017).

Improving the identification of DRA and referrals to appropriate treatment providers begins with education. Patient education leads to patient empowerment (Yeh, Wu, & Tung, 2018). Patient empowerment is a concept that allows the patient to take an active role in their health by becoming part of the healthcare decision-making team (Castro, Van Ragenmortel, Vanhaecht, Sermeus, & Van Hecke, 2016). Patient empowerment requires a patient-centered approach to care and communication through focused patient education provided by the

healthcare worker (Funnell, 2016). Structuring patient education to emphasize the impact of the condition (Funnell, 2016), the risks associated with that condition, and the treatments available improve patient empowerment and result in better healthcare outcomes (Jin, Sklar, Oh, & Li, 2008; Yeh et al., 2018). Improving the provider-client interaction through education can promote a health care model that encourages individuals to live their life to its fullest potential (Fahey & Shenassa, 2013).

Developing an understanding of the experiences of patients cultivates insight into the knowledge they have gained through provider interaction and patient education (Dierckx de Casterlé et al., 2011). Qualitative research, a method of understanding how people experience their life (Creswell & Poth, 2018), has strengthened our understanding of patient noncompliance specific to urinary incontinence and explained limitations in the generalizability of outcomes (Doshani, Pitchforth, Mayne, & Tincello, 2009). Unfortunately, qualitative research specific to DRA is not currently available, but the value of qualitative research on urinary incontinence in women can translate to other urogynaecological diagnoses such as DRA. Qualitative research helps participants and researchers construct an understanding of participant expectations and priorities related to quality of life. Obtaining a detailed understanding of how participants interpret quality of life and functional limitations using qualitative research could better define improvements in outcomes (Doshani et al., 2009).

Improved patient compliance and satisfaction through effective patient education can be assessed through understanding the lived experience of the patient. The understanding of the experience through the patients' view may help direct effective care by healthcare providers (Dierckx de Casterlé et al., 2011).

Method

Study Design

A basic interpretive qualitative methodology was used to gain an understanding of how women, diagnosed with DRA, interpret their experience with this condition. A basic interpretive design allows researchers to focus on the personal interpretation of patients living with a diagnosis, such as DRA (Merriam, 2002). The purpose of this focus was to collect data on the uniqueness of individual experiences related to the diagnosis of DRA (Creswell & Poth, 2018).

Data collection took place from February 2020 to July 2020. Prior to participant recruitment, the study received approval from the PCOM Division of Research Internal Review Board (Protocol #H20-002x).

Participants

Convenience sampling was used to recruit adult female participants with a history of medically diagnosed DRA or self-reported symptoms consistent with DRA. For this study, a sample size was desired to reveal themes that illustrated depth and variation and reflected the experiences of the participants (Corbin & Strauss, 2008). As described by Morse (2000) sampling for qualitative studies does not have hard and fast rules. The sample size was determined with the consideration of a study's scope, subject matter, and quality of data. Due to the specifics of this population and the goal of the study, 13 participants were included.

All participants were at least eight weeks but no more than three years postpartum to ensure time for the natural healing of DRA (Coldron, Stokes, Newham, & Cook, 2006). The postpartum cut-off allowed recruitment of enough participants for an effective study and reduce the distortion of memory recall of the events during and after pregnancy over time (Lacy &

Stark, 2013). Exclusion criteria included current pregnancy for the participant to reflect on experiences before, during, and after giving birth and non-English speaking women.

Procedures

Recruitment. Recruitment took place in a variety of settings such as outpatient physical therapy practices with pelvic health therapists, pediatric physical therapy practices, online support groups for mothers/expecting mothers, and local colleges and universities. The primary investigator visited the physical settings or posted to the online forum and asked the practice manager to post a recruitment flyer (see Appendix A). The initial postings of the recruitment flyer elicited 22 responses from interested women. The primary investigator contacted all who expressed interest to explain more about the study and answer any questions from the potential participants. Ultimately, 13 participants were able to participate in the study, as nine women were currently pregnant and not included. Interviews were scheduled with each participant and information sheets were provided to give a written description of the study (see Appendix B).

Informed consent. To reduce the collection of identifiable information, the primary investigator received a waiver of written informed consent from the IRB. A participant list, including names, participant pseudonyms, and contact information, was kept in hard copy form in a locked file cabinet separate from all study data to facilitate member checking following transcription of the interviews.

At the start of the interview, each participant was given another copy of the information sheet (see Appendix B). This document explained in detail the purpose of the study as well as the procedures that would occur (Marshall & Rossman, 2011). Specifically, the document included the identification of the researcher, sponsoring institutions, the purpose of the study, and the risks and benefits of participation. The participants were also advised that they had the right to

withdraw from the study at any time and/or request that parts of the transcript not be used (Creswell, 2014). Verbal consent from each individual was obtained before the commencement of the interview, following the opportunity for each participant to ask any questions about the study.

Data collection process. Following verbal consent, each participant completed an intake form (see Appendix C) with the help of the primary investigator. The form did not include identifying information and was used to collect information about past medical history including a history of all pregnancies and births. An assigned pseudonym was used to match the intake form with the focused interview. The intake form was also used to gather demographic information to increase the trustworthiness and transferability of the study (Creswell & Poth, 2018; Henderson & Rheault, 2004). Following verbal consent and all questions being answered, semi-structured in-depth interviews were conducted either face-to-face or via a Zoom (Zoom Video Communications Inc., San Jose, CA) virtual meeting with each participant and the primary investigator. The purpose of the one-on-one, in-depth interview was to gain an understanding of the personal, lived experience of participants self-identified or medically diagnosed with DRA in their own words (Marshall & Rossman, 2011).

Face-to-face interviews were preferred due to the likelihood of a more controlled environment that allowed for the collection of both verbal and nonverbal communication (Creswell & Poth, 2018). Interviews via Zoom virtual meetings were used when participants could not engage in an in-person interview due to living in a different state and the social distancing mandate due to COVID-19. Outside distractions were minimized by completing interviews in a quiet, private location to preserve participant privacy.

Each interview was audio-recorded to ensure the accuracy of transcription and coding of data. To direct the interview, the primary investigator utilized a semi-structured interview guide (see Appendix D) containing general, open-ended questions designed to facilitate discussion around the participants' experiences with DRA. Probing and follow-up questions in response to information shared by the participant were also used to gather comprehensive information. The length of interviews ranged from 15 to 45 minutes when the participant did not reveal any new information. Following the interview, the participants were given the contact information for the primary investigator, should they have any additional questions or concerns.

Finally, the primary investigator informed each participant that a follow-up via email would be sent at a later date with the themes generated from their interview. The purpose of the email was to have participants review the themes as a form of member checking to ensure that an accurate representation of their experience had been captured. Steps to ensure confidentiality were reiterated to the participant in addition to how the information will be disposed of after 5 years following completion of the study. Throughout the interview, the researcher kept field notes, as this helped to identify researcher bias, document researcher interpretation, and note data on non-verbal communication (Creswell & Poth, 2018). The use of this type of documentation helped to ensure the trustworthiness of the study as well as increase rigor by reducing bias within the data (Henderson & Rheault, 2004).

Data Management & Analysis

Upon completion of each interview, the primary investigator along with three other investigators transcribed each audio recording using audio to text service followed by an extensive review to ensure accuracy of the transcription. Transcription of the interviews facilitated the investigators' immersion into the data (Halcomb & Davidson, 2006), which allows

the investigator to thoroughly explore and identify specific codes and themes that represent the experiences of the participant (Creswell, 2014). All transcripts and audio recordings were de-identified and assigned corresponding pseudonyms and stored on the participant list, which was stored separate from all other study documentation. The de-identification of data helps to ensure the privacy of the participants (Creswell, 2014).

The primary investigator then reviewed each transcript multiple times while reviewing field notes documented during and after the interviews to become more familiar with the data. This familiarization allows the investigator to become immersed in the data to prepare for coding (Marshall & Rossman, 2011).

The primary investigator utilized open coding to identify words and phrases that were notable (Creswell, 2014). The notable words and phrases were assigned a "code," representing essential information related to the research questions (Creswell, 2014). A crosscheck of the codes was completed by enlisting two additional researchers, one who is a board-certified specialist in women's health physical therapy, and another with an extensive background in qualitative research. These additional researchers read transcripts 0652 and 0569 respectively and coded the data independently to help build the foundation for a codebook. Crosschecking of the codes allowed for code agreement, increased trustworthiness of data, and development of a codebook (Creswell, 2014). Once both the primary investigator and additional researchers completed coding, a consensus was achieved about the codes.

Axial coding was performed by the primary investigator to eliminate redundancies and group the codes into broader categories (Saldana, 2016). The primary investigator developed a codebook to organize the codes and offer code definitions and sample quotations from the transcripts. From the codebook, commonalities among the code definitions and categories were

identified and used to develop overarching themes that best reflected the data (Saldana, 2016).

All coding and codebook development was stored and managed using a password-protected Microsoft Excel spreadsheet.

Following theme generation, member checking was performed. Two participants sought clarification on the theme generation process. Once themes were reviewed and quotation examples were sent to them via email all were in agreeance. Member checking ensured an accurate representation of the participants' experience and increased the trustworthiness of data (Marshall & Rossman, 2011).

Throughout the data analysis process, an audit trail was also be maintained in the Microsoft Excel spreadsheet. The audit trail included details of the decision-making process as well as all steps performed. This process increased the trustworthiness of the study by clearly outlining all steps completed within the study and documenting the researcher's thoughts and potential biases throughout (Creswell & Poth, 2018). Due to the researcher's background with the topic of DRA, a reflexive journal was maintained to reduce additional bias. Reflexive journaling can assist in accounting for how a researcher's background may have affected the study (Creswell, 2014).

Rigor/Trustworthiness

The utilization of current research processes and logic strengthen the arguments made by research findings and increase the rigor and trustworthiness of qualitative studies (Ryan-Nicholls & Will, 2009). Rigor and trustworthiness were addressed in this study by strategically influencing the credibility, transferability, dependability, and confirmability (Henderson & Rheault, 2004).

Consistent with recommendations by Henderson and Rheault (2004), reflexive journaling and use of an audit trail enhance credibility, dependability, and confirmability in the study. The use of reflexive journaling and audit trails allows the researcher to document personal feelings, perceptions, biases, and steps taken throughout the study and data collection (Creswell & Poth, 2018; Henderson & Rheault, 2004). Credibility is also influenced by member checking to ensure the accuracy of transcripts and the use of a second researcher to triangulate the data analysis process (Creswell, 2014; Morse, Barrett, Mayan, Olson, & Spiers, 2002). Finally, transferability is strengthened by collecting a detailed history of each participant, which allows for future comparisons to a larger population of postpartum women experiencing DRA (Henderson & Rheault, 2004).

Results

Thirteen participants were interviewed for this study. Demographic information is described in detail in Table 1. Participant names were removed and replaced with pseudonyms to protect confidentiality. Eight participants had a medical diagnosis of DRA, and five were self-diagnosed by matching the symptoms associated with DRA as outlined on the recruitment flyer and study information sheet. Recruited participants had a mean age of 31.3 (± 3.65) with an average gravida 2.3 (± 0.5) and para 2 (± 0.3). Of the 26 total births among participants, 16 were of natural delivery and 10 were cesarean, with only one multiparous birth. Three interviews were conducted face-to-face, and due to social distancing mandates, ten interviews were conducted using the Zoom video conferencing system. The duration of interviews ranged from 15-45 minutes.

Eight major themes emerged from the interviews: lack of patient knowledge, lack of education offered by providers, impact on self-image, desired education, sources of self-

education, benefits of education, problems with available education, and patient recommendations for care. These themes help to create a picture of the experiences each participant had regarding living with DRA.

Theme 1: Lack of Patient Knowledge

The participants' expressed their frustration throughout the interviews about not understanding what they were experiencing. These frustrations became a commonality across all participants. The inability of many participants to explain their understanding of DRA made it a predominant theme. For the participants who were medically diagnosed with DRA, it meant they were participating in life with a diagnosis but without an understanding of what that diagnosis meant. Across all participants, there was a severe lack of knowledge behind associated symptoms of DRA, understanding of the cause of DRA, the prognosis of the diagnosis, and viable treatment options.

Brit commented regarding the symptoms she was experiencing, "Um, I just kept wondering like, what is going on? This doesn't seem right." Rebecca stated:

What's my, you know [body], doing? What is my, you know, just this constant fear gripped in the back of your head and you are like, okay, am I feeling this because I am feeling it or am I feeling this because I'm making it up.

Of the five participants that were self-identified as having DRA, the lack of knowledge of DRA limited their ability to recognize symptoms and accept the need for help. "Because I didn't know anything about it" was the reason Jamie gave for accepting the symptoms she was experiencing as normal. Tara commented, "Well, as far as my health goes, I just kind of, I kind of rolled with it. I feel like it is what it is."

Five of the participants work in the health care field, either as a nurse or physical therapist and all felt that though they were more comfortable with their knowledge of the body they never expected or suspected DRA. Jennifer commented, “I think, I guess I just know being a PT, I could probably figure it out but I didn’t know”. Rheema stated:

I thought I would know that that’s one thing to bring up at your doctor’s appointment after you have the baby. If I didn’t have the background I do, and the coworkers I had, I would have never known to do something about it. I wouldn’t have even thought to bring it to a doctor. I just passed it off as part of having a baby.

When asked about knowledge of prognosis and available treatments for DRA, none of the participants were able to verbalize their understanding of a prognosis for DRA. Five simply reported, “I have none.” Most reported that DRA was not a topic of discussion with healthcare practitioners, friends, or most other sources. As for treatment options, two were able to identify surgery, but details about the surgical option were not understood.

Jamie: I feel like if I had known immediately that’s what it was. I could have gone, you know, to physical therapy and, you know, gotten the problem fixed a lot earlier, um, than waiting so long to even know what it is and more about it.

From the discussion on existing knowledge of DRA, conversations lead the emergence of another theme that expanded on what information is provided by healthcare practitioners in prenatal and postnatal appointments.

Theme 2: Lack of Education Offered by Providers

Participants reported that the education topics and focus of conversation during pre- and postnatal appointments included birth control following birth, preeclampsia, breast-feeding, and

postpartum depression. When specifically asked about the education received about DRA, all thirteen participants stated there was no education before the patient questioning their symptoms.

Along with education topics, provider response to patient concerns was discussed. Many of the participants felt that the provider's response to their expressed concerns was dismissive. "I think he wrote me off because he knows I'm a PT" Sarah stated. Similarly, Tara stated about her physician,

Um, no [investigation of symptoms]. But this one, I think they chalked it up to me already having two [kids] and they said, "Oh, well, you're a pro at this, so you know, whatever you need, whatever questions you need, um, you know, you kind of already understand."

Sharon stated, "My doctor told me it [my protruding belly] was just excess, you know, body fat". Annalise said, "Um, which again, looking back and like, man, I can't believe my doctor didn't mention this while I was pregnant. And I literally said, it feels like my muscles are ripping apart.

In response to voiced concerns, many participants stated their providers qualified symptoms as "part of having a baby." Myrna stated, "... they don't, they don't discuss the actual stuff that happens with it [DRA]."

Brit: So, I would probably, I would really probably argue with them and say, you know, you all really should start, you know, learning about this and just be more aware of it and instead of just dismissing it and saying that it's just a part of motherhood or having kids because it shouldn't be like I should have to give up. Like I said, I all but got laughed at when I would bring it up in the doctor's office and physical therapist, She was just like, are you seriously wasting my time with this? I mean, she didn't say that, but that, that was the vibe that I got.

Theme 3: Impact on Self Image

The lack of existing knowledge and provided education as described by the participants impacted the lives of each woman in different ways. The symptoms, whether identified as associated with DRA or not, also left an impact on body image, self-confidence, and self-doubt.

Connie: ... *The way your stomach looks. Um, I look pregnant still, even when I diet and lose weight, it's still protruding and sometimes even worse to the point where I look better heavier.*

Sharon stated, "You've got like your stomach sticking out because you have excess weight or this problem, and that's where I was trying to figure out is this really a thing or do I really just have excess weight?"

In regards to the participant's body image with DRA related symptoms, Jamie stated, "I don't really care for it [her body]." While Myrna said:

I still look pregnant. After pregnancy, I've struggled extremely. It makes you conscious about yourself, and I don't even, like makes you feel ugly, not like yourself. And like looking at myself in the mirror, especially when you have two girls, puts more self-doubt on the body and self-image. I don't want them [daughters] to have a negative body image.

The lack of knowledge and understanding of DRA also caused confusion as to what the participants should physically do. Jamie:

Like it was almost scary I guess, cause I was like, am I going to make, I don't know if I can make this worse, is this going to make it better? So I've kind of erred more on the side of caution.

Theme 4: Desired Education

The impact that the lack of knowledge and understanding of DRA had on each participant was very clear throughout the interviews. Within the accounts, each woman identified the type of information and education they desired. Reports of desired education included the acknowledgment that DRA could occur, the prognosis of the diagnosis, treatment options, and referrals to other providers who could help with the management of the diagnosis. Jamie stated, “I think healthcare providers should inform women on what it is and you know, how to look for it. Cause, um, I mean, we’re not told anything.” “I think I have a lifelong fear about that [DRA] happening again” (Linda).

Rheema: Yeah, I think that, I think healthcare providers should inform women on what it is, how it happens and you know, how to look for it. Signs of it, like to know what it is. Also, what can be done for it. And if they [physicians] don’t know, then they need to refer to a really good pelvic health therapist or orthopedic therapist that treats postpartum issues.

Rebecca: Um, just giving the basics. This is what it is. There is treatment. If you notice, you know, these kinds of things, go see someone, kind of like we do for back pain...I don’t subscribe to like a blanket prescription for everyone, but if you have this, you know, see someone, maybe you shouldn’t be doing crunches at 25 weeks pregnant.

Brit: I say that they should have maybe like brochures or something. I mean, they have brochures for everything at the doctor’s offices. Do something about this and make a brochure, of some sort to give women some type of knowledge of what is going on.

Along with education on the possibility of DRA occurring during pregnancy some women wanted specific information. “I would have like to have heard that [exercise options] versus the only way to fix it, a surgery” (Connie). She also added, “I guess knowing what

exercises not to do that could aggravate it because I was doing those and it did make it worse.”

Another suggestion for providers was, “Whatever the diagnosis is, seeing people postpartum and then getting them to the right person” (Rebecca). Finally, Rheema suggested, “So, I guess the other thing would be to get a support group.”

Connie highlighted the problems that can arise when proper education is not given and women are left searching for knowledge:

I think the exercise, knowing the exercises, um knowing I guess the prognosis. Um, what if it can be treated and what you can do because there is a lot of information out there and not all of them are on the same page, so to speak. Um, some say there is nothing you can do. Some others say you can correct it with certain exercises and diet and programs. Um, so I guess just letting them [women] know some good information as to what they can do or if they can do anything about it.

Theme 5: Sources of Self-Education

Within eight of the interviews, the women described that their need for education on DRA led them to investigate sources outside of the primary medical provider caring for them during and soon after birth. All cited use of the internet led by Google searches. “I was Googling what kind of doctor do you see for diastasis” Sharon stated. Myrna said, “I started doing more research recently to try to figure out what kind of doctor I should even see for this.”

In addition to Google searches, some of the participants looked into blogs, Pinterest, and specific videos for treatment ideas. “I found blogs and different websites and like Pinteresting exercises for diastasis recti...” (Sharon). Jennifer spoke about other women who have experienced DRA becoming sources of information for them.

But one [coworker], um, does have a friend that has it, a lot of kids, um and then she became pregnant, so. And she was more fresh out of [Physical Therapy] school, so she graduated three years ago. I'm like, hey, what's, what are you learning nowadays in school? Um so seeking out her and then I have an old classmate that, um, I knew she had one [DRA] and so just kind of asked her about hers and what she's doing and basically she just still has one [DRA].

Rebecca, a participant with a background in physical therapy, turned to research journals and Facebook support groups.

I dove into the Journal of Physical Therapy, and other scholarly journals, mainly physical therapy based. I spoke with a mentor who does a lot with women's health. I used ol' Google. I joined Facebook support groups but quickly realized all the bad information on those forums.

Theme 6: Problems with Available Education

For participants, arming themselves with information on DRA was important. This self-education came with reports of contradictory information and problems with access to resources. Jennifer stated:

I just kind of started looking at YouTube videos and so I kinda, I would look at the credibility of the person doing it, and then I just started looking at all kinds of different videos and saw what they had in common. Cause some things like, you know, they would say do a crunch. I'm like, okay, well she just lost her credibility, but you know, she had some other activities she was doing and I'm like, okay, that one is good.

Rheema stated her concerns about online support groups. “I joined Facebook support groups but quickly realized all the bad information on those forums. Way too many people who are not specialized in the area giving bad advice”. Similarly, Rebecca reported:

I would probably honestly caution people against the online support groups because they're, if you don't have a good confidence level and understanding, there's a lot of negativity, there is some good things, but there's a lot of, “don't do this, you know, Oh you're doing that? Don't. That's terrible, you are going to hurt yourself.”

In addition to concerns with the credibility of information and contradictory advice, some of the women expressed the challenges they had with accessing proper care. “...but trying to find someone that understands it and can treat it in, in a way that's not just to do some contractions and it will get better” (Rebecca).

Sharon: I wanted to talk to somebody about it to understand exactly what did I need to do and for how long. When I called, they no longer were doing that. So, from that point I'm just like, well, I can't, I don't, it's probably not going to be covered by insurance. So that's what going to probably be \$100 a visit. And then where do I need to travel? And then with my time for kids and family and I've worked full time, it was just kinda like, okay, well never mind, we'll have to figure something out on my own or do more research and just make, make myself do the stuff at home.

Lisa: With my insurance, I think that actually made it a challenge. So I had to find a physical therapist in my network and, um, right. I had to get a referral to basically one of the major hospitals in the area. Um, but finding, and appointment was like a month down the line.

Brit recalled a friend who had surgery to repair her DRA:

I have a friend who she, hers was really so bad that she ended up having the, having to have this surgery and her, I mean, she had to pay completely out of pocket. And you know, I mean, it, it did affect her. I mean it affected everything or like, I mean, she was having issues because of it and a lot more debilitating than my issues. Um, and so, but no one, they know that like her insurance wouldn't cover the surgery. So it was all out of pocket.

While many of the participants cited access to quality care and education, Brit was particularly discouraged at the need to fight for her care.

I mean, I know this sounds mean, but it's like if I want to have a fit body or if I want to feel good like I should be, I shouldn't have to fight for something, you know like there is something wrong, there's something different. My stomach is different.

Theme 7: Benefits of Becoming Informed

Despite the reports of barriers to improving their knowledge of DRA, four of the women were able to describe the benefits of the education they did receive.

Rebecca: I think honestly, having the diagnosis and how, like how many fingers and all that was helpful to know...So again, you're not making people fearful cause I think that's, there's enough fear around pregnancy. We don't need to add to it.

Benefits of knowledge were reported by those that were able to find education either early in their postpartum journey or before their next pregnancy. Jennifer shared about having some DRA knowledge, “like I think it's just like that talking point in that connection that you can talk to other people about it.”

Myrna stated that understanding DRA allowed her to, “better assess the situation and start early prevention.” Sharon similarly stated, “I feel like I'm more aware, a conscious thing for me

to always be thinking about. So, I had a very, I had a better understanding about it and what I needed to do.” Additionally, Rebecca reported that her understanding of DRA helped her outlook on the diagnosis.

Uh, um, I would say that it is not the end of your life. Right. So many people think I'll never do “X” again. Or, you know, I'm never going to have that. I'm always going to have that like pregnant belly look. But, my ultimate, you know, is finding someone who is addressing your concerns. If they're not addressing your concerns, I don't care what their title is, find someone else. And so then that being said, you have to tease out what's your goal.

Theme 8: Patient Recommendations for Care

Each participant described their experience with healthcare providers as well as how the education they received has played a role in their outlook on the diagnosis of DRA. In addition to their own experiences, each woman was very particular in what they would recommend for the future of DRA care. Sharon:

I think it definitely needs to be that it needs to be a part of the education when you're pregnant and after. And I've talked to women about it, but it's even, it's funny because talking with to women about it, most of them don't know what I'm talking about it'd be nice if more people knew about it and it was something that was actively, um, treated because I'm sure more people actually do have it than they realize. I'd be curious if there would be anything that you can do during pregnancy that could help prevent, or is this just something that is going to happen no matter what? If there is something that you could do during, I would like to tell them that, but if this is something that is just going to happen no matter what, how to seek treatment and what to do immediately so that they're

not three years down the line like I am and going, okay, this really is a problem. Just know that this is a possibility and what to do when you're done. Even just to go get checked. Don't just assume you're fine like that.

Two participants touched on the need for women to become their own advocates and continue to ask for help until it is received.

Rheema: I would say that you should never be ok with “well you had a baby, you should feel this way”. That is never ok. Pain is never normal. Even if it is an expected effect of pregnancy it doesn't mean you shouldn't have care for it. There are so many wonderful resources out there that are extremely knowledgeable and helpful and there needs to be more referrals to them. Also, unfortunately, never rely on a health care practitioner to give you all the information. So do not hesitate to ask about every little thing. And don't let anyone make you feel bad for asking for help. If one person will not help you, ask another until you get the help you deserve.

Myrna: Be a normal, um, a normal procedure for your post follow-ups or something like that. Talk about it and ask questions (with provider). And then after pregnancy, after you know, the typical six weeks, seek out a PT person. Or, when they go in for the postpartum check ask their provider if they can check for it. Yeah, you got to advocate for yourself. If you feel like somethings up, like you really have to sometimes push the doctors to listen to you. Because they just brush it off. I will definitely tell other people advocate for your own selves and if they feel like somethings wrong speak about it. Don't feel negative.

Another participant stated the need for education to be a regular part of postnatal care:

So, if I had known about it before, I would now tell them, make sure you follow up with your provider and ask them specific questions in regards to that. I think that it should be,

at the very least, they give it as much attention as birth control after having a baby before you leave the hospital. I think a, just getting the word out that it's something that happens, but putting it maybe in a list of things (Tara).

There was a significant amount of consistency among all of the participants' interviews. They each described similarities in their interactions with healthcare providers as well as concerns with the available information and education provided. All participants spent a large amount of time during the interview outlining the particular recommendations they have to improve future experiences of women living with DRA. The themes identified through the coding process paint a very specific picture of the experiences these women had.

Discussion

During pregnancy, a woman's body will undergo many changes that they may not understand. Women lean on respected sources to deliver information and education about pregnancy, labor, birth, and postpartum periods (Lagan, Sinclair, & Kernohan, 2010; Verbiest, Tully, Simpson, & Stuebe, 2018). Many times, the information a woman receives can help to direct decisions made about her and her child's care (Lagan, Sinclair, & Kernohan, 2010). If a woman experiences something during this time that is unexpected or unfamiliar, the outcome can affect each woman differently with possible long-term effects on her life (Verbiest, Tully, Simpson, & Stuebe, 2018). The investigation into the lived experience of a woman with DRA exposed themes of lack of patient knowledge, lack of education offered by providers, impact on self-image, desired education, sources of self-education, benefits of education, problems with available education, and patient recommendations for care. These findings may help healthcare providers develop better education and intervention strategies to assist women with this condition.

The perceived lack of existing patient knowledge about DRA limited the participants' ability to identify symptoms, understand changes to their body, and limited their ability to acknowledge the need to seek medical advice. Similarly, a study investigating women's knowledge of basic pelvic floor disorders revealed that less than 50 percent of pregnant women had proficient knowledge of such disorders (Geynisman-Tan et al., 2018). A study by Verbiest, Tully, Simpson, & Stuebe (2018) also found that many women feel the presence of large gaps in clear directives on postpartum life. It was reported that women in the study felt providers sparked questions but further information was not provided (Verbiest et al., 2018).

The lack of education offered by providers identified in this study aligns with a recent study by Gustavsson & Eriksson-Crommert (2020) that reports a lack of available evidence-based information, a lack of interprofessional collaboration for the management of increased IRD, and a lack of existing knowledge base on the condition by health care professionals. The possible insufficient knowledge base among the health providers left the participants feeling dismissed and as though their symptoms were a normal outcome of pregnancy that should be accepted. Similar findings were reported by Geynisman-Tan et al. (2018) among postpartum women experiencing incontinence. Women in the study by Verbiest et al. (2018) also reported that rather than receiving information and advice they received judgment.

The results of this knowledge deficit resulted in reports of poor body image, low self-confidence, and confusion. In a similar study, reports of a lack of knowledge caused women to be reluctant to seek care and resulted in women experiencing very isolating and distressing postpartum experiences (Geynisman-Tan et al., 2018). Body image and emotional well-being are areas affected by the postpartum time that many women feel could be improved with timely

education (Verbiest, Tully, Simposon, Stuebe, 2018). Unfortunately, these are topics of conversation that either never happens or happens too late (Verbiest et al., 2018).

Uncertainty, confusion, and concern from the lack of knowledge and education left all participants in this study searching for information. That search was for specific answers on symptoms, prognosis, and treatment options for the condition. Every participant reported their search for information led them to internet-based sources due to the limited or lack of information provided by medical professionals. Sources that were cited included Google, Facebook, Pinterest, research articles, and online support groups. Though every participant reported, utilizing online sources many expressed their concerns with the quality of information available as well as the negative impact online support groups had.

Consistent with the participants in this study, less than one-fifth of the women in a study by Lagan et al. (2010) reported trusting eighty percent of the information found on the online. The respondents also reported a concern that the information was wrong or misleading but despite the distrust, 100 percent of women surveyed continued to search the internet for health information. In another study, by Rowlands et al. (2015), a population of Australian women reported that women's health information found on social media came with hesitation toward the credibility and wiliness to accept the value of information. This perceived hesitation did not stop the frequency of women access internet-based information. The concern with online support groups identified in this study is a shared finding from a past qualitative study that investigated how women use digital technologies for health (Lupton & Maslen, 2019). Lupton & Maslen (2019) illustrated a limiting contribution of these groups as being a potential for bullying and negative judgment.

Despite the concerns with the accuracy and trustworthiness of the information from internet-based sources, women in this study perceived that receiving the information benefited them by either reducing anxiety, helping to clear confusion, confirmed suspicions, and even empowered them to seek additional help from health providers. Similarly in a qualitative study by Lupton & Maslen (2019), the participants reported information gained from online sources “filled gaps in information or explanations of illnesses...” and that the readily available information gave them a sense of empowerment to decide if their concerns were valid or not.

The reports of empowerment by some of the participants in the study were expressed as an outcome of gaining knowledge about their situation despite the source it was retrieved from. Though some participants did not report gaining this same sense of empowerment, all participants did report recommendations for women to become empowered to receive the needed education and care for DRA. The recommendations included encouraging women to push for answers about the symptoms they are experiencing, seek many health providers until appropriate care is found, and investigate available resources including the internet to encourage open communication between patients and health providers. Communication between patients and health providers is a key concept of patient-centered care (Verbiest et al., 2018). Doctor-patient communication specifically has been identified as having a direct effect on patient empowerment (Oh & Lee, 2012). The same study by Oh & Lee (2012) reported that a patient’s sense of empowerment strongly and positively relates to their intention to communicate with a doctor. Patient-centered care has been proven to increase patient empowerment by including the patient in decision making and results in better health outcomes (Castro et al., 2016; Funnell, 2016; Jin et al., 2008; Yeh et al., 2018).

Limitations

Limitations in research play a role in any study conducted. In this study, researcher bias played a role due to the primary researcher experiencing DRA as well as being a physical therapist. Strategies such as reflexive journaling, audit trail, and triangulation were taken to reduce bias during data collection and analysis. Using convenience sampling the goal was to recruit a wide variety of participants that could contribute information from very different experiences. Ultimately, the sample did not produce a large variety of geographic locations within the United States or from other countries, which may offer different insights into other approaches to the education and care of women with DRA.

Implications for Practice and Future Research

Despite the stated limitations, this study's results drew much-needed attention to the education and knowledge women receive on the topic of DRA. The insight gained can be useful to health care providers and women who are or may become pregnant. Health care providers realize the need for a wider breadth of pre- and postnatal education and take steps to better educate themselves as well as their patients on the conditions and possible support available. Women may be empowered to become their own advocate when it comes to approaching providers about symptoms they are experiencing and questions they have previously been too scared to ask. The insight on the positive outcomes that education had on the mental health, body image, and overall comfort level with the condition of DRA may push health care providers to improve their communication with patients. Providers may also see the importance of including education about DRA as a standard component of the information provided to pregnant and postpartum women.

Future research into the experience women have surrounding the diagnosis of DRA is needed to expand on the themes identified in this study. A mixed-method study could investigate

the experiences of women in a broader geographic area and compare the education received to the demographics of patients. This could give insight into health disparities among different populations. This type of study could also identify best practices that may be in place not only in the United States but also in other countries.

A quantitative study could help to identify the effects modes of education in the prenatal period has on a woman's knowledge of DRA and their pursuance of treatment if diagnosed. Perhaps a simple brochure about DRA provided to a patient during a prenatal appointment gives just enough information for a woman to identify her DRA symptoms and seek medical help. This would open communication between the patient and her provider to discuss possible options and result in an appropriate referral. An additional qualitative investigation into how the mode of education influenced the patient's self-perception after DRA diagnosis could give providers an even deeper insight into providing better care.

Additionally, another study to identify how access to services such as pelvic health physical therapy or other types of physical therapy may limit the amount of education on DRA provided during pre- and postnatal appointments. Perhaps obstetric-gynecologists are not educated on the services other providers offer for this condition or the lack of providers in the area impact the amount of education that is provided about treatment options.

The concept of patient empowerment was evident across all participants in this study. The most common recommendation from each of the women was to express to other women how important it is to become their own advocate when it comes to their health. Each participant expressed that women should not wait for the information to come to them and they should push for the knowledge and understanding they need about all symptoms experienced. A future study

that investigates the perceptions patients have on empowerment and self-advocacy as it relates to health could help evolve the patient-caregiver relationship.

Conclusion

A woman navigating her way through pregnancy and birth experiences many changes within her body. Those changes could be short-lived or could live with a woman for the rest of her life. Education not only serves as a conduit of knowledge, but it also serves to provide comfort and understanding of a new normal. This study provides the insight that for women experiencing DRA the amount and type of education they receive is important. It can develop self-advocacy, affect self-perception of health status, and provide direction for possible treatment options that were otherwise unknown. It is not only the responsibility of health care providers to deliver that education but it is also the responsibility of patients to take an active role in their care and seek help. This study identifies potential gaps in the patient-provider relationship as well as opportunities for improvements in available evidence-based knowledge for patients and providers alike. Ultimately, steps taken to empower patients to seek and gain knowledge about their personal health can have a positive impact on health outcomes.

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Participant Characteristics

Table 1

Participant Characteristics

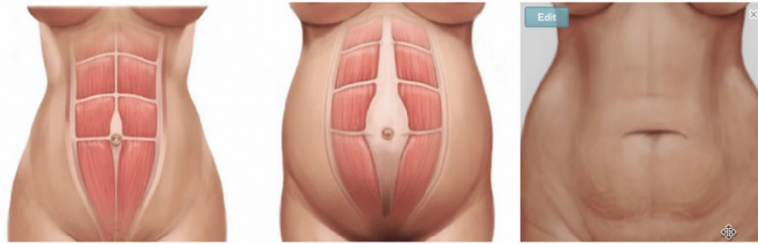
Pseudonym	MD/Self	Age	Occupation	Gravida	Para	Total #	# of	Type of
	DRA Dx					of	children/birth	delivery
						children		
Sarah	MD	30	Physical Therapist	2	2	2	Singles	Natural x2
Myrna	Self	30	Administration	3	2	2	Singles	Cesarean x2
Linda	MD	34	Engineer	1	1	1	Single	Cesarean
Brit	MD	30	Stay at Home Mom	2	2	3	1- Single 1- Twins	1- Natural 1- Cesarean
Sharon	MD	31	Design	2	2	2	Singles	1- Natural 1- Cesarean
Jamie	Self	27	Photographer	3	2	2	Singles	Natural x2
Rebecca	MD	34	Physical Therapist	2	1	1	Single	Natural
Connie	MD	32	Pediatric Nurse	2	2	2	Singles	Natural x2
Annalise	MD	28	Orthodontic Assistant	2	2	2	Singles	Natural x2
Tara	Self	26	Stay at Home Mom	3	3	3	Singles	Natural x3
Jennifer	MD	38	Physical Therapist	4	3	3	Singles	Cesarean x3
Rheema	Self	38	Physical Therapist	2	2	2	Singles	Cesarean x2
Lisa	Self	29	Teacher	2	2	2	Singles	Natural x2

Appendix A

Recruitment Flyer

Mind the GAP: Knowledge of Diastasis Recti Abdominis in Postpartum Women

The purpose of this study is to understand the experience women have with separation of the stomach muscles during pregnancy. This separation may not heal after childbirth. This condition is known as Diastasis Recti Abdominis (DRA).



Participants needed:

- Female
- Given birth 8 weeks to 3 years ago
- Willing to take part in an interview
- Speak and understand English
- Diagnosis of DRA or have symptoms of DRA that can include:
 - separation along the middle of the stomach muscles
 - weakness of the stomach muscles
 - low back pain
 - unable to control bladder or bowels
 - pelvic pain or organ prolapse

Risks and Benefits of the study:

This study has little to no risk to the participant. Participation could help improve medical care for women with DRA by providing information about their experiences. Information collected from this study could improve education about DRA and access to treatment options for women.

What will you need to do?

This study will involve an audio-recorded interview between the researcher and each person lasting up to 60 minutes. Questions during the interview will ask about your experience with symptoms, diagnosis, education, management and treatment of DRA. Interviews will be in-person but can be over the phone or computer if needed. Participants will review collected information to make sure it represent their experiences, which could take up to 60 minutes.

If you have questions or would like to join this study, please contact Jennifer Wiley PT, DPT wileyjj@uindy.edu or 770-540-4321

This study is a Doctoral Project for the completion of the Doctor of Health Sciences degree at the University of Indianapolis

This study has been approved by the Philadelphia College of Osteopathic Medicine Institutional Review Board (Protocol #H20-002X). For further information on the rights of research subjects, please contact the Research Compliance Specialist at 215-871-6782.

Appendix B

Study Information Sheet

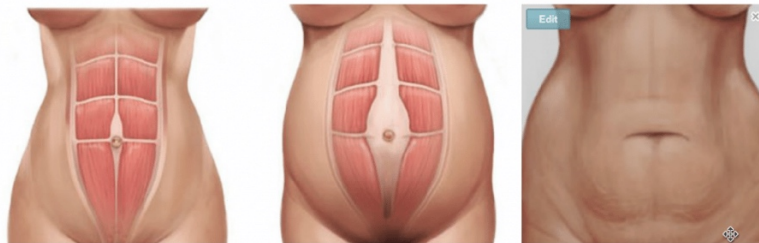
Mind the GAP: Knowledge of Diastasis Recti Abdominis in Postpartum Women

I would like to invite you to take part in a research study. Please take time to read the following information carefully. Ask questions if anything you read is not clear or if you would like more information. Take time to decide if you want to join this study.

WHO I AM AND WHAT THIS STUDY IS ABOUT

My name is Jennifer Wiley; I am a student in the Doctor of Health Sciences (DHSc) program at the University of Indianapolis. I am also a physical therapist and assistant professor in the DPT program at PCOM Georgia. This study will serve as my doctoral project for my DHSc degree.

The purpose of this study is to understand the experience women have with separation of the abdominal musculature during pregnancy. This separation may not heal following childbirth. This condition is known as Diastasis Recti Abdominis (DRA).

**WHAT WILL TAKING PART INVOLVE?**

This study will involve an audio-recorded interview between the primary investigator and each person. Questions during the interview will ask about your experience with symptoms, diagnosis, education, management and treatment of DRA. Interviews will be in-person but can be over the phone or computer if needed.

Recordings of each interview will be turned into written text for review. Specific words and quotes from the interviews will be picked out. Each participant will review those words and quotes to make sure they represent their experiences.

WHY HAVE YOU BEEN INVITED TO TAKE PART?

To participate in this study you must be an English speaking female who gave birth 8 weeks to 3 years ago. You must have experienced symptoms of or medically diagnosed with DRA and willing to speak about your experiences.

DO YOU HAVE TO TAKE PART?

Participation is completely voluntary. Each person has the right to stop participation at any point and leave the study with no consequence. Participants may also ask that parts of the interview not be used.

WHAT ARE THE POSSIBLE RISKS AND BENEFITS OF TAKING PART?

This study poses little to no risk to the participant. Participation could help improve medical care for women with DRA by providing information about their experiences. Information collected from this study could improve education about DRA and access to treatment options for women.

WILL YOUR INFORMATION BE SAFE?

In order to keep all information private, each person will be assigned a random (ID) number. Information collected will be kept on a password-protected computer or in a locked storage cabinet. Names, email addresses, and phone numbers will be kept separate in a locked cabinet.

After the study, the recorded interviews will be destroyed and all written paperwork will be kept for five years. All participants can ask to access their information at any time.

WHAT WILL HAPPEN TO THE RESULTS OF THE STUDY?

The results of this study will be used to complete the DHSc degree at the University of Indianapolis. Results may also be used for future presentations that could include conferences, publications, and use in teaching by the primary investigator.

WHO SHOULD YOU CONTACT FOR FURTHER INFORMATION?

Primary Investigator: Jennifer Wiley PT, DPT
PCOM Georgia
University of Indianapolis DHSc Student
wileyjj@uindy.edu
770-540-4321

Co-Investigators: Laura Santurri PhD, MPH, CPH
Project Chair Committee
Assistant Professor
University of Indianapolis

Ruth Maher PT, PhD, DPT
Project Content Expert
Professor
PCOM Georgia

Lisa Borrero PhD
Doctoral Project Analysis Expert
Assistant Professor
University of Indianapolis

This study has been approved by the Philadelphia College of Osteopathic Medicine Institutional Review Board (Protocol #H20-002X). For further information on the rights of research subjects, please contact the Research Compliance Specialist at 215-871-6782.

Appendix C

Mind the GAP: Knowledge of Diastasis Recti Abdominis in Postpartum Women
Demographic Sheet

ID # _____ Date _____

Age _____ Identified Gender _____ Ethnicity _____

Education Level _____ Occupation _____

Past Medical History

Medical Conditions _____

Surgical History _____

Medications _____

Pregnancy History

Number of Pregnancies _____ Number of Births _____

Number of Children _____

Dates of Pregnancies and Births _____

Medical Complications During Pregnancies and During or After Births _____

Functional Limitations or Concerns During or After Pregnancies _____

Appendix D

Semi-Structured Interview Guide

1. Tell me about yourself and your pregnancy history.
 - a. Can you tell me more about the symptoms you were experiencing following pregnancy?
2. I know you have been diagnosed with or have had symptoms of diastasis recti abdominis; can you tell me what that experience has been like for you?
 - a. Can you tell me more about that experience and how it has made you feel?
3. Can you tell me what your experience was like during your interactions with health care providers regarding your symptoms or diagnosis of DRA?
 - a. To what extent did you seek medical advice about symptoms you were having?
 - b. How would you change your role or the interaction with health care providers in your experience with DRA?
4. Describe for me the sources of education you sought regarding DRA.
 - a. Can you tell me what was most helpful? Least helpful?
5. Can you describe the education that you received regarding DRA before you experienced symptoms or were diagnosed?
 - a. What was the source of the education?
 - b. How much information were you provided?
 - c. How do you feel about the quality of the education that you received?
 - d. How well did this information prepare you for the diagnosis?
 - e. What would you have changed?
6. Can you describe the education that you received regarding DRA after you experienced symptoms or were diagnosed?

- a. What was the source of the education?
 - b. How much information were you provided?
 - c. How do you feel about the quality of the education that you received?
 - d. How well did this information prepare you for the diagnosis?
 - e. What would you have changed?
7. Can you explain your experience following having symptoms of or being diagnosed with DRA?
 - a. How has this diagnosis affected your outlook on your life?
8. Can you tell me your experience with any the treatment or management options for DRA?
 - a. Can you discuss the forms of support you are currently receiving or have received?
 - b. What types of challenges or barriers have you encountered regarding your DRA diagnosis?
9. If you could speak to a pregnant woman what advice would you give them regarding DRA?
 - a. What information would you like each pregnant woman to receive about DRA?
10. Is there anything else you would like to tell me about your experience with DRA?