OT in Maternal Health

Introduction

In a general sense, maternal health refers to the mental, physical, and emotional needs that any woman experiences during the course of a pregnancy, the labor and delivery process, and in the postnatal/postpartum period. Each of these formative periods in a mother's life is often associated with concerns related to occupational engagement, the assumption of new roles, and occupational balance. New or expectant mothers may have difficulty accessing or enjoying once preferred activities, be overly consumed with difficult or unfamiliar occupations, or feel unable to perform new occupations due to a lack of resources. Evidence shows positive long-term impacts on both mother and child when maternal health needs are met. Many healthcare professionals may be involved in helping meet these needs for new or expectant mothers, and OTs are often a part of that interprofessional team. Many maternal health concerns can be addressed by OTs, who structure all treatment with a holistic and family-centered approach. Some maternal health aspects that OTs are equipped to manage include preconception practices, postnatal care, maternal mental health, family planning, prenatal care, and acclimating to the new role of parenting. This makes maternal health yet another area that OTs are qualified to practice in.

Section 1: Background

References: 1, 2, 3, 4, 5

Maternal health includes all aspects of well-being for women who are trying to conceive, are pregnant, and have recently given birth. Many people view the three trimesters of pregnancy as the main focus of maternal health services. However, providing care during the period after childbirth is equally as important for women. In fact, the weeks after a new mother has given birth are so much a part of maternal healthcare that this period is known as the fourth trimester. Medical professionals play a pivotal role in helping women transition through each of

these phases in a way that supports function and overall well-being. Due to the inclusive nature of this specialty, any discipline that addresses maternal health must focus on meeting the mental, social, physical, emotional, and spiritual needs of women in this time of life.

When working with certain populations or in some geographic areas, maternal health may overwhelmingly focus on eliminating or reducing maternal morbidity, maternal mortality, and newborn complications. However, the more nuanced aspects of maternal health should not be ignored in any of these cases. Maternal mortality is a major concern in the United States and its prevalence has risen over the past decade. Yearly maternal mortality rates (MMRs) in the U.S. stood at 754 in 2019, increased to 861 in 2020, and 1,205 deaths in 2021. This last figure amounts to 32.9 maternal deaths per 100,000 live births, which is a sharp increase from 20.1 deaths for every 100,000 births just 3 years prior. On top of this, it is estimated that at least half of these deaths are preventable. This is an especially harrowing statistic, since the United States not only spends more on maternal health care than any other country, but also has some of the most advanced medical procedures and healthcare technology in the world. Racial and ethnic disparities in the U.S. healthcare system have impacted access to quality medical care for all - especially mothers. These concerns undoubtedly contribute to the amount of pregnancy-related deaths that occur in this region. These disparities have had the biggest impact on Black and American Indian women, who are at a much higher risk of pregnancy-related complications and mortality compared to White and Latinx women. In particular, Black women have the highest pregnancy-related mortality rates regardless of any other social determinants such as age, place of residence, education level, and socioeconomic status. While certain populations are clearly at a higher risk of pregnancy complications and death compared to others, data also shows that pregnancy-related mortality rates as a whole are rising. Sadly, experts have yet to determine the exact reason for this widespread increase, but this makes maternal health even more critical for all women.

Section 1 Personal Reflection

What other healthcare professionals might an OT specializing in maternal care collaborate with?

Section 1 Key Words

Maternal morbidity - The occurrence of health concerns in pregnant women or women who have just given birth

Maternal mortality - The death of a woman while she is carrying a child, during the labor and delivery process, or within 42 days of giving birth; the death of a new or expectant mother is categorized as maternal mortality if it is related to a health issue that stemmed from pregnancy or was exacerbated by pregnancy

Section 2: Changes Related to Pregnancy

References: 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17

There are a variety of physiological, emotional, and cognitive changes that may result in a woman's life as a result of pregnancy. In some cases, these changes may develop into health concerns requiring medical monitoring and intervention. Other times, they are long-term adjustments. Either way, pregnancy-related health changes stand to impact a woman's occupational participation, motivation, performance, goals, and priorities. Therefore, OTs should be aware of the many changes pregnancy may bring, and also understand how to address them from a preventive and remediatory lens.

Typical Pregnancy-related Changes

There are many changes that are considered a normal part of pregnancy. These changes include:

- Weight gain, specifically in the breasts, uterus, and abdomen
    - Weight gain is partially attributed to the production of the fetus' blood supply and other bodily fluids, but is also due to increased fat and water storage in the mother as well as the growth of the baby itself.
- Greater blood production
    - More blood being created and pumped means there is a higher concentration of blood in certain areas, especially the airway linings and tubes that connect the sinuses in the ears and nose. This often leads to nasal congestion, blocked ears, and changes in the tone and quality of a woman's voice.
- Widening of the uterus
    - This can place pressure on adjacent organs such as the bladder (leading to urinary discomfort, changes in urinary frequency, urinary leakage, and greater urinary urgency) and lungs (resulting in quicker, more shallow breathing). As the uterus becomes larger, it also slightly compresses the vasculature running through the pelvis, which slows venous return from the legs to the heart. If the sciatic nerve is among the compressed vasculature, pregnant women may also experience shooting pain or numbness and tingling running from their back, down their leg, and into their knee or foot.
- Strain on the kidneys
    - This strain is partly due to decreased blood flow resulting from uterus enlargement. The kidneys also work harder during pregnancy since they are tasked with filtering the surplus of blood the body is producing.

    - It is normal for kidney activity to increase when any person is lying down compared to when they are standing or sitting up. However, this increase is more significant in pregnant women and can cause an uptick in nighttime urination.

- Edema in the feet and ankles
    - Swelling in these areas is directly related to slowed venous return in the lower body.
- Changes in vasculature
    - Varicose veins may develop in the legs, feet, and vulva. In most cases, these are simply cosmetic, but they may cause some women discomfort.
    - Spider angiomas – small clusters of blood vessels that resemble spiderwebs – are another possible change. They are most often found above the waist.
    - Vascular changes and increases in blood production can both lead a pregnant woman to feel dizzy or lightheaded, which can lead to balance concerns or fainting if not properly managed.
    - Tissue swelling and narrowing of the carpal tunnel often happens during pregnancy, so women may experience edema, numbness, or tingling in the forearms, wrists, and fingers.
- Breast tenderness
    - This is typically the result of increased blood flow and fluid retention. Breast tenderness occurs most when hormone levels surge (which is why it's also associated with premenstrual syndrome, or PMS), so it may come and go during pregnancy.
- Muscle and joint pain affecting the back, abdomen, hips, pelvis, and groin

    - Joint pain is often related to weight gain during pregnancy. However, women who do not gain much weight during the gestational period may also experience this discomfort. Hormone changes lead the body's ligaments to loosen, which happens in preparation for childbirth. Ligament laxity prevents joints from being as stable as they once were, which can cause pain. This most often impacts the pelvic area, but may also happen to other joints.
    - Muscle cramps most often affect the legs and feet, and result from changes in the body's ability to process calcium.
- Difficulty sleeping
    - It is common for pregnant women to feel excess fatigue even when they get enough sleep. Some causes include joint pain, difficulty finding a comfortable position at night (especially during the later stages of pregnancy), fetal movement, frequent nighttime bathroom trips, cramps in the legs and other muscles, and increased metabolism during later hours.
- Increased heart rate, often between 10 and 20 beats per minute more at rest
- Increased cardiac output by 30 to 50%
    - Cardiac output and heart rate during exercise both increase more in pregnant women than they do in women who are not pregnant.
- Lower exercise tolerance
    - Pregnant women see an even greater increase in their breathing rate when physically active compared to non-pregnant women. This happens due to the fetus placing pressure on the lungs and the increased utilization of oxygen that pregnant women experience at rest and with activity.

- Potential heart irregularities such as murmurs and changes in heart rhythm
- Mild anemia
    - This typically resolves after pregnancy, as it evolves from a rapid increase in the volume of blood produced and a more steady increase in red blood cell production.
- An increase in carbon dioxide output during exhalation
    - This stems from an increase in the body's carbon dioxide production due to hormone changes.
- Slight increase in white blood cell production
    - Parts of the body's stress response are triggered by pregnancy, as the immune system attempts to protect both mother and baby during this time.
- Milky, yellow, often thin discharge from the breasts
    - This discharge is called colostrum and it is produced toward the end of the pregnancy as well as during the first few days after childbirth. Colostrum contains nutrients that are beneficial for the baby, especially its immune response.
- Shifting of the heart slightly upward in the ribcage
- Slowed digestion and morning sickness
    - This is most common in the first trimester of pregnancy and results from high hormone levels (specifically estrogen and human chorionic gonadotropic, or HcG). Some women who frequently experience morning sickness may also see an increase in saliva production
    - Some pregnant women may experience pica, which is typically harmless as long as it is properly managed.

    - Some outward indications of slowed digestion are acid reflux, bloating, and burping. Constipation, gallstones, and hemorrhoids are more common toward the end of pregnancy due to an increase in pressure from the growing uterus. Constipation occurs due to hormone production as well as overly relaxed muscles in the bowels.

- Skin changes
    - It is common for pregnant women to be more sensitive to the sun due to a rise in estrogen levels. Melasma, which appears as brownish splotches on the skin, may also result due to an increase in melanin production. Melanin production increases with sun exposure. Melasma most commonly occurs on the face (as this typically gets the most sun exposure), but can be found on other parts of the body.
    - Stretch marks often develop on the abdomen, thighs, and breasts due to weight gain and hormone changes. Stretch marks may be somewhat silver, light (usually pink), or dark (brown) depending on someone's skin tone. Other skin changes include darkened areolae, a dark line running vertically on the abdomen (called the linea nigra), and persistent itching on the abdomen, palms of the hands, and soles of the feet.
- Hair changes, specifically related to growth, color, and texture
- Increase in white or clear vaginal discharge
- Mood swings and variations in feelings throughout the pregnancy, often according to its progress and the health of the baby
    - Happiness, joy, and love
    - Anger or irritability, which is often due to hormone changes
    - Anxiety, fear, or concern

    - Sadness or disappointment, either specific to your pregnancy or the state of the world your baby will be brought into
    - Grief, especially in the event of miscarriages or stillbirths

Many pregnancy-related changes are the result of surges in **estrogen** and **progesterone**. In particular, these hormones increase quite a bit during the 10th week of pregnancy, which is why many changes occur around and after this time. These hormones are critical to maintain gestation and allow for proper development and nourishment of the fetus.

Estrogen and progesterone are not the only hormones active during pregnancy. **Thyroid hormone** production also increases, which happens due to the placenta stimulating the thyroid gland. The placenta also works closely with the adrenal glands to increase secretion of **cortisol** and **aldosterone**. These hormones play a role in the body's stress response, but they also help balance the kidneys' filtering abilities.

Warning Signs and Complications During Pregnancy

Women can expect many of the above changes during the course of their pregnancy. However, some women may experience atypical changes during pregnancy. These are often a sign of complications or medical emergencies that should immediately be addressed. Occupational therapists should be aware of both typical and atypical changes in order to best support their clients at any stage of pregnancy. Some potentially dangerous symptoms that may result during pregnancy include:

- Sudden and severe vision changes, including double vision, blurred vision, or the appearance of flashing objects, most often accompanied by a severe headache
    - This may be due to untreated gestational diabetes or preeclampsia.

- Sudden swelling in the hands, feet, or face
    - If this type of swelling affects all of the extremities and the face, it may be due to preeclampsia.
    - If the swelling is concentrated to one area of the body (specifically one arm or one leg), it may be due to a blood clot. Pregnant women are at risk of blood clots at any point during their pregnancy and within the 6 weeks after they give birth. Blood clots are often accompanied by pain and skin redness or warmth. Blood clots in the leg may lead to calf tenderness along with difficulty walking and flexing the foot. Similarly, someone with a blood clot in the arm may feel heaviness in that limb and difficulty moving the arm overhead or against gravity.
- Severe and sudden shortness of breath and chest pain
    - This may be due to preeclampsia, but can also point toward an underlying heart or lung condition that was brought about or made worse by pregnancy.
- Suicidal ideation toward oneself or one's baby
    - Suicidal thoughts during pregnancy are a sign of perinatal depression. When these same thoughts occur in the months after childbirth, they are known as postpartum depression. Other symptoms of perinatal and postpartum depression include trouble sleeping; persistent feelings of overwhelm, loss of control, hopelessness, and severe anxiety; appetite changes; low energy; isolation from others; and having difficulty bonding with your baby.
- Vaginal bleeding or spotting
    - Spotting is typical very early in the pregnancy (this is called implantation bleeding), but most spotting beyond the first 3 weeks is

a cause for concern. Vaginal bleeding accompanied by sharp abdominal or pelvic pain or loss of consciousness is considered a medical emergency. Some medical concerns that cause vaginal bleeding during pregnancy include ectopic pregnancy and placenta previa.

    - Heavy vaginal bleeding or discharge after childbirth is also cause for concern. Warning signs include a woman passing egg-sized or larger clots or bleeding through one or more sanitary pads per hour.

- Amniotic fluid leak
    - Amniotic fluid begins leaking just before a woman goes into labor and this is normal. However, leaks at any other time are atypical. Amniotic fluid leaks are characterized by a gushing or steady flow of clear, odorless fluid from the birth canal.
- Sudden abdominal cramping (specifically in the lower abdomen) and lower back pain that begin at the same time
    - These are signs of premature labor, which is when a woman gives birth between 20 and 37 weeks gestation. Premature labor is not necessarily life-threatening for the mother, but it can cause both short- and long-term health concerns for the baby. For this reason, a woman in premature labor requires medical monitoring and intervention.
- Burning or pain with urination
    - A pregnant woman who experiences urinary burning or discomfort may have a urinary tract infection (UTI), which may also cause blood in the urine. While they should be managed, UTIs are not medical emergencies for the average person. However, these infections can cause dangerous complications in pregnant women. Some UTI-

related complications pregnant women may experience include kidney infections, low birth weight for their baby, premature labor, and maternal sepsis.

- Unusual rashes
    - Many skin changes (some of which are rashes) occur during pregnancy. Most of these are not cause for concern and resolve after childbirth. However, rashes that cause yellowing skin, intense itching, pain, and a fever should be treated immediately. These symptoms point toward a condition called cholestasis of pregnancy, also known as ICP or intrahepatic cholestasis of pregnancy. ICP is a condition that causes interruptions in the flow of bile from the liver, which leads acid to build up in the blood. This condition is linked to preeclampsia and gestational diabetes. If it's not properly managed, ICP can lead to premature labor, infant death, and respiratory distress for the baby after its birth.
- Severe lightheadedness that comes and goes over the course of several days or leads to one or more episodes of fainting
    - On its own, fainting or feelings of being lightheaded may simply be due to hormone surges or quick position changes. However, when it happens more often and comes along with cognitive concerns such as periods of memory loss, it is more serious. This is a sign of severe hypoglycemia, which may be a precursor to gestational diabetes. Fainting during pregnancy can also be due to a drop in blood pressure, overheating, or low iron levels.
- Slowed or absent fetal movements after 20 weeks gestation
    - Fetal movements typically begin around 20 weeks gestation and continue at a steady rate beyond that point. While there is no "normal" amount of fetal movement, it is considered medically

significant if there is a sudden decrease in fetal movement compared to what a pregnant woman has been experiencing.

- Severe nausea and vomiting
    - If a pregnant woman is not able to drink anything for 8 hours or more and cannot eat anything for at least 24 hours, she is considered to have severe nausea and vomiting. People with this problem may vomit over and over with little interruptions, and typically also experience symptoms such as excessive salivation, constipation, dizziness, dry mouth, confusion, and headaches. This condition is known as hyperemesis gravidarum (HG).

Section 2 Personal Reflection

A new mother is experiencing an atypical physiological change after giving birth 10 days ago. The OT recognizes this particular concern is not within their scope of practice, so what is the best plan of action for them to help this patient?

Section 2 Key Words

Aldosterone - A hormone that helps regulate the balance between water and salt in the body to maintain a certain blood pressure; aldosterone is produced by the adrenal glands

Cardiac output - The rate of flow pumped out of one ventricle in the heart in a certain period of time

Cortisol - One of the body's chief stress hormones that helps with utilization of fat, protein, and glucose; cortisol is produced by the adrenal glands and regulated by the pituitary gland

Ectopic pregnancy - A life-threatening pregnancy complication that occurs when a fertilized egg is implanted in the fallopian tube or elsewhere outside of the uterus

Estrogen - A sex hormone responsible for the development of secondary sex characteristics and female reproductive anatomy as well as the regulation of the menstrual cycle; estrogen is mostly produced by the ovaries, but small amounts of estrogen come from the body's fat cells and adrenal glands

Gestational diabetes - A transient form of diabetes that causes a pregnant woman to experience high blood glucose levels; this usually resolves after pregnancy, but untreated gestational diabetes can lead to labor complications as well as babies who have a high birth weight, jaundice (yellow-tinted skin), respiratory distress, and hypoglycemia immediately after birth

Hyperemesis gravidarum - A condition that causes severe nausea and vomiting during pregnancy; hyperemesis places a woman at risk of liver damage, dehydration, low birth weight in their baby due to malnourishment, encephalopathy, and esophageal bleeding

Placenta - A temporary structure that connects the fetus to the uterine wall of its mother; the placenta not only provides the fetus with oxygen and nutrients, but also helps remove waste, produce hormones, and protect the fetus' blood supply apart from that of its mother

Placenta previa - A medical complication that occurs during pregnancy and involves the placenta attaching too low in the uterus so that it covers the cervix

Preeclampsia - A medical emergency that involves high blood pressure during pregnancy (usually around the 20-week mark); preeclampsia may also develop within a few days of giving birth, and this is called postpartum preeclampsia

Progesterone - A steroid hormone that is produced after ovulation each month and before a pregnant woman produces milk; this hormone also helps with the

accuracy of discerning emotions and storing emotional memories; progesterone is produced by the adrenal glands and and parts of the ovary

Section 3: OT Assessment Tools for Maternal Health

References: 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

An OT evaluation focused on maternal health varies depending on practice setting. For example, an occupational therapy evaluation on a woman who just gave birth in the hospital may focus on aspects such as safety, child positioning and feeding, community resources, and function in activities of daily living (ADL). An OT evaluation of a newborn in the neonatal intensive care unit (NICU) has a somewhat different focus. Maternal health certainly may be addressed, but it typically comes secondary to the motor, sensory, socioemotional, and cognitive development of the baby. A NICU evaluation (and treatment plan) must incorporate parent training and education specific to sensory regulation and caring for the child's specific health needs. Bonding with and learning from parents is a big part of helping a baby regulate themselves, so maternal health is an important part of NICU OT evaluation. An OT completing an outpatient evaluation on a woman with a 2-month-old baby may explore and address instrumental activities of daily living (IADL) function, social support, infant attachment, basic parenting skills, and emotional self-care.

Based on practice setting variations and patient-identified goals, an OT may use a variety of assessment tools – some focused on the mother and some targeting the baby. In many cases, an OT working in maternal health will use a combination of both to get a comprehensive view of the mother's (and her child's) needs. Some assessments specific to mothers' health include:

- Barkin Index of Maternal Functioning (BIMF)
    - The BIMF is self-report and focuses on general function in the realm of parenting.

- Edinburg Postnatal Depression Scale (EPDS)
    - Postpartum Support International recommends the EPDS as an effective way to screen mothers for mood and anxiety disorders.
- Parenting Stress Index (PSI)
    - The PSI is used to determine problem areas between children and their parents, and can be used on parents of children between 1 month and 12 years of age.
- Parent Assessment Manual Software (PAMS)
    - PAMS is a comprehensive assessment designed to measure risk areas for vulnerable parents. This tool can be used with many parent populations, but is intended for parents with learning disabilities. The PAMS is commonly used by social workers who need to determine if children are at risk of harm due to parents being unable to meet their needs.
- "How I feel about my baby now" Scale (FAB)
    - A short screening questionnaire used to gauge a parent's attachment to their baby.
- Parenting Sense of Competence Scale (PCOS)
- Mother's Autonomy in Decision Making Scale (MADM)
    - The MADM is used to assess a mother's perspective on her childbirth experience(s).
- Mothers on Respect Index (MORI)
    - This looks at how parents feel about their relationships and interactions with healthcare professionals during the birthing process.

- Mother-Infant Communication Screening (MICS)
    - The MICS measures the quality of both verbal and non-verbal exchanges between a mother and her infant.
- Infant-Parent Social Interaction Code (IPSIC)
- Bethlem Mother-Infant Interaction Scale (BMIS)
    - This is intended for use in a psychiatric setting and helps determine if there are any harmful parent behaviors that place a parent's infant at risk.
- Family Alliance Assessment Scales for Diaper Change Play
    - This looks at the quality of interactions between any family member and a young child during diaper changes.
- Index of Mother-Infant Separation
- National Institute of Mental Health and Neurosciences Maternal Behavior Scale (NIMBUS)
- Patient Health Questionnaire (PHQ-9)
    - While this outcome measure can benefit many populations, Postpartum Support International recommends the PHQ-9 as an effective way to screen mothers for mood and anxiety disorders.
- Observational Assessment of Mother-Baby Interaction
- Postpartum Bonding Questionnaire
- Acute Care OB Rehab Implicity Bias Self-Reflection Tool

In the realm of newborn outcome measures, occupational therapists can utilize some well-known standardized assessments that address aspects of maternal health alongside other infant skill areas. For example, the Bayley Scales of Infant &

Toddler Development addresses five skill domains: language, motor, cognition, socioemotional, and adaptive behaviors. Questions in the socioemotional and adaptive sections cover many areas, including attachment, bonding, and communication. This not only offers insight into the newborn's development, but also allows a therapist to gain perspective on the adjustment techniques and overall health of their mother. Newborn-focused standardized assessments that can be used in tandem to assess maternal health include:

- The Bayley Scales of Infant & Toddler Development (appropriate for children between 1 and 42 months)
- Infant & Toddler Sensory Profile (intended for children from birth to 6 months of age)
- Vineland Adaptive Behavior Scales (VABS) (used with children from birth to age 90)
- Peabody Developmental Motor Scales (PDMS) (intended for children from ages 0 to 5)
- Hawaii Early Learning Profile (HELP) (appropriate for children between birth and 6 years of age)
- Developmental Assessment of Young Children (DAYC) (ideal for children from birth to 5 years old)
- Neonatal Oral Motor Assessment Scale (NOMAS) (suitable for children between 0 and 8 weeks of age)
- Neonatal Eating Outcome (NEO) (intended for use with children from birth to 6 weeks old)
- Early Feeding Skills (EFS) (appropriate for children from birth to 6 months old)

- The Developmental Profile (used with children from birth to 21 years of age)
- Transdisciplinary Play-Based Assessment (ideal for children from birth to 6 years old)
- Ainsworth Strange Situation Experiment (suited for children between 9 and 18 months old)
- Ainsworth Maternal Sensitivity Scale (AMSS) (intended for children between 9 and 18 months old)
- Denver Developmental Screening Test (used with children between 0 and 6 years of age)
- Neurobehavioral Scale of the Network of Neonatal Intensive Care Units (designed for children between 33 and 48 weeks post-conceptional age, however, this outcome measure can be used in premature infants as long as some adjustments are made)

As with evaluations for any population, a combination of outcome measures may be the best way to get a comprehensive OT maternal health evaluation. It is up to the therapist to learn about a woman's priorities and potential goal areas in order to choose the most suitable standardized assessments.

Section 3 Personal Reflection

If a mother reports not feeling attached to their baby and feeling dissatisfied with her experience in the hospital, what standardized assessments might be appropriate for her?

Section 3 Key Words

Socioemotional skills - A classification of skills that help someone regulate their emotions, behaviors, and thoughts; specific socioemotional skills include resilience, impulse control, problem-solving, empathy, and the ability to build and maintain relationships

Section 4: Intervention Areas to Address Maternal Health

References: 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77

Many occupational therapy interventions can benefit women who are pregnant, want to become pregnant, have just given birth, or are in the fourth trimester. General research from Cavalcante et al. (2023) supports the value of occupational therapy services being provided to women during the postpartum period, specifically at a family health support center. This study showed that, despite some difficulties integrating with other members of the interprofessional team and conveying their distinct value, OT providers were able to provide many comprehensive and beneficial interventions to postpartum women. This shows there are several main categories that OT maternal health interventions may focus on.

Pelvic Health

When people think of OT and maternal health (or just maternal health on its own), pelvic health is usually the first area that comes to mind. This is because it's quite common for pregnant women and new mothers to experience pelvic floor dysfunction. Signs and symptoms of pelvic floor dysfunction include lower back

pain, needing to reposition when on the toilet, difficulties with sex, pain in the pelvic girdle or genitals (specifically during sex), spasms in the pelvic muscles, and a grinding or clicking sensation in the pelvic girdle. In the realm of excretion, pelvic floor dysfunction may also cause any of the following: urinary urgency, increased urinary frequency, pain or burning with urination, urinary leakage, urinary incontinence, constipation, pain or straining during bowel movements, and anal leakage.

OTs can use several modalities to address pelvic health. One of these interventions is biofeedback, which utilizes auditory or visual stimuli (feedback) to help someone regain control over their pelvic floor muscles. OT addressing pelvic floor dysfunction during or after pregnancy may also involve manual therapy, therapeutic exercises (specifically kegel exercises and core strengthening/ stabilization), behavior modifications, environmental changes, and education. Based on the patient's presenting concerns, any combination of these interventions may be indicated to address pelvic floor dysfunction in pregnant women.

Research shows the most benefit from biofeedback (specifically with an electrical stimulation component) when it is combined with health education. Yung et al. (2024) found that a combination of both interventions yielded greater improvements in pain during intercourse, sexual arousal, sexual satisfaction, orgasm, vaginal lubrication, and sexual desire than biofeedback alone. Other outcomes that were more significant in the intervention group included greater pelvic floor muscle strength and increased confidence.

In terms of therapeutic exercises, Kale & Pathan (2019) found that pelvic floor dysfunction stemming from lumbopelvic instability responded well to core stabilization exercises. This 4-week program with 30 postpartum women showed a reduction in lumbopelvic pain as well as an increase in the strength of core muscles. There is also evidence to support the use of behavior modification for pelvic floor dysfunction, as long as it is used in conjunction with hands-on

approaches. Woodley et al. (2020) looked at the impact of behavioral interventions on pelvic floor dysfunction in prenatal women and women who have just given birth. Results showed that awareness-based pelvic floor muscle training combined with behavior therapy led prenatal women to experience a slightly lower risk of urinary incontinence in the later stages of their pregnancy. However, these same interventions did not help manage pelvic floor dysfunction in pregnant women who were already experiencing urinary incontinence. Pregnant women with fecal incontinence, on the other hand, did see a lower risk of incontinence after participating in this intervention.

When offering women education about pelvic floor dysfunction and home programs to address these concerns, research shows therapists must take health literacy and usability into account. One study conducted by Jaffar et al. (2022) explored the feasibility of a mobile app to improve pregnant women's adherence to pelvic floor muscle training programs. Around 40% of the women in this large sample reported urinary incontinence as their chief concern. Just under 50% of the sample reported good knowledge of their pelvic floor training program, but low compliance. The majority of the women in this group found a straightforward app design to be the most suitable for them. This information can not only inform the development of future apps for the same purpose, but also helps with designing patient education materials of all varieties.

Breastfeeding

OTs can offer a lot of value in the realm of breastfeeding. Firstly, therapists can offer ergonomics education to assist mothers and their babies in assuming proper postures to support breastfeeding. Other areas of breastfeeding intervention include latch techniques for the baby; addressing muscle tone, tongue tie, and other physical concerns that may impact the baby's ability to feed; emotional support and other coping strategies to help manage a mother's physical discomfort during breastfeeding; creating routines, habits, and rituals to establish

breastfeeding in both mother and baby's life; skin-to-skin contact both during and outside of breastfeeding to improve the quality of the process; olfactory and oral motor stimulation to assist with latching; managing work schedules, household obligations, and leisure routines alongside those of breastfeeding; devising sensory strategies to help mothers with breastfeeding pain and/or sensory overresponsiveness; and recommending environmental modifications or adaptive equipment to make the process more comfortable and efficient.

In order to effectively offer any of these interventions, occupational therapists must also recognize the correlation between maternal quality of life, physical health, and breastfeeding. Mazor-Karsenty (2020) found that mothers with high quality of life ratings breastfed longer compared to mothers who reported low quality of life. Mothers who breastfed also tended to have lower physical health scores regardless of their age compared to the general population. Results also showed that older mothers who breastfed had lower psychological health scores compared to younger breastfeeding mothers. This data should be used to inform mental health screening practices for breastfeeding mothers as well as to address physical health in mothers who participate in this occupation.

Occupational therapists can also offer education about breastfeeding, including benefits for mother and child, frequency, a healthy diet when breastfeeding, and caffeine and alcohol consumption during this period. Breastfeeding education has generally been proven beneficial. A study by Sponseller et al. (2021) found that 10 weekly 1-hour group OT sessions focused on breastfeeding were helpful for mothers who took part in this occupation. Positive outcomes included improved motivation for breastfeeding, increased confidence in the mothers' parenting roles and styles, and a greater sense of value for relationships with their babies. Sutton et al. (2024) conducted qualitative research that yielded similar findings. This study found that OT strategies can benefit all parts of the breastfeeding dyad due to the profession's focus on co-occupation. Breastfeeding's place as one of the initial co-occupations in motherhood also paves the way for OTs to help mothers transition into a parenting role. In particular, Sutton et al. emphasized OT's ability

to offer mental health support, patient education, and direct intervention in this area. Furthermore, McAninch (2024) found that a five-week postpartum breastfeeding course led by OTs was effective for mothers who engaged in breastfeeding. Mothers who were part of the course experienced a greater sense of importance and satisfaction from breastfeeding along with more self-efficacy from the occupation. One limitation was that many participants needed more one-on-one support than the group format offered, so OTs should consider direct services as the potentially more effective route for this population.

A study by Franco-Antonio et al. (2022) found that motivational interviewing was beneficial for mothers with postpartum depression who breastfed. Results showed that mothers who received motivational interviewing not only had a higher breastfeeding duration compared to the control group, but also scored lower on postpartum depression screening tools such as the EPDS. This shows that motivational interviewing for breastfeeding can help the mental well-being of mothers, especially those at risk of postpartum depression. Since OTs are also able to assist with social and emotional concerns related to maternal health, this intervention can help address two client factors that may apply to many new mothers.

Somewhat dated research discusses the use of a health promotion approach for breastfeeding to solidify its place as a component of societal health. This literature suggests that OTs (and other clinicians) firstly must advocate for the modification of terminology. By instead viewing breastfeeding as a health management and maintenance occupation associated with parenting, this would allow OTs to help women across more settings. For example, OTs can use a health and wellness lens when working with community-dwelling women who breastfeed rather than simply offering treatment based on the medical model in hospitals and other institutions. This shift not only aligns more effectively with the Centers for Disease Control & Prevention's Healthy People objectives, but such a change also allows OTs the opportunity to widen the maternal health research base. Other dated literature offers a similar viewpoint. This research mentions how client-centered

thinking should not only be used to address breastfeeding, but should also be included as a social determinant of health looked at during the evaluation of breastfeeding mothers. Gaps in client-centered thinking can easily lead to occupational injustices just as with other social determinants of health. Client-centered thinking to support breastfeeding should be expanded to include respect, understanding, and awareness of the co-occupation itself as well as outcomes and how it relates to the occupational therapy process. This mode of thinking also has higher applications - such as an impact on societal health - as it can alleviate societal stigma that may prevent many mothers from attempting or continuing to breastfeed, especially in public settings.

Social and Emotional Health

Emotional and social changes are a normal part of pregnancy. However, as typical as they may be, they can still cause mothers to experience occupational stress, difficulty engaging in required and desired activities, trouble maintaining relationships, and more. There are also abnormal mood changes women may experience during and after pregnancy, with postpartum depression being perhaps the most well-known mental health concern in this population. OTs have a wide set of interventions to address social and emotional health for these women. These include talk therapy modalities such as Cognitive Behavioral Therapy (CBT) and Interpersonal Therapy (IPT); building or becoming acquainted with a social support system; couples therapy or family-based therapy focused on involvement, communication training, and emotional support; psychoeducation for the mother as well as her significant other, family, and friends who may be closely involved in her life; supported leisure exploration and engagement; finding and becoming part of support groups for postpartum depression; relaxation techniques, including but not limited to mindfulness strategies, progressive muscle relaxation (PMR), and guided imagery; learning about or re-exploring meaningful occupations to establish a sense of purpose; development or strengthening of self-care skills in exercise, healthy diet, sleep hygiene, and

relaxation; activity modification to allow for small, measurable changes in the areas of social engagement and emotional well-being; and values clarification and strength recognition, specifically to help treatment remain client-centered. When addressing social and emotional health in women with postpartum depression, OTs should also be mindful of the broader interprofessional team that may (or should) be involved. Collaborating with mental health professionals such as LPCs, LMHCs, MDs, and spiritual care workers is indicated for comprehensive treatment in this area.

There is evidence supporting OT's work with social and emotional health in the maternal health arena. Preliminary OT research from Barbic et al. (2021) found that mothers with postpartum depression experienced occupational disruptions and difficulty with occupational transitions as a result of their condition. They also felt that fully engaging in the experience of motherhood was more trying because of PPD. This lends support to the value of OT in addressing postpartum depression in women who have recently given birth.

Narrative medicine also proves promising for mothers in the postpartum period. This modality can especially be beneficial for mothers of children with disabilities. Whitney (2023) found that journaling and other forms of narrative medicine can help mothers work through a variety of unique stressors, specifically related to role support and the fulfillment of responsibilities related to their roles. While this study focused on mothers of young children with social conduct disorders, there are other applications for this intervention. Narrative medicine can be used with mothers who are experiencing emotional concerns of their own while raising typically developing children, or youth who have their own set of special needs.

Coo et al. (2020) found that a variety of interpersonal emotion regulation strategies had a positive effect on maternal mental health. Women in the late stages of their pregnancy who reported depression and anxiety took part in this study. The intervention involved work with attentional deployment, cognitive change, situation modification, and emotional response. Use of these strategies

was found to not only improve mothers' awareness of their emotion regulation concerns but also increase their management of them.

Sleep

Sleep is an occupation that is critical for all people, but especially for pregnant women and mothers. More than half of all pregnant women experience sleep disturbances during this period of their lives, and these concerns are likely to worsen as their pregnancy progresses. In particular, pregnant women are likely to experience restless legs syndrome, insomnia, and obstructive sleep apnea. Unfortunately, diagnosis of these concerns during pregnancy may be delayed or inaccurate due to biases and lack of proper knowledge about typical pregnancy-related changes.

McQuillan et al. (2023) conducted a longitudinal study that showed mothers' stress levels and sleep quality were closely correlated from immediately postpartum through the toddler phase of their children. In addition, this scoping study found that poorer sleep was linked to fewer observations of positive parenting techniques regardless of stress and other parenting factors. This shows a distinct need for sleep- (and stress-) related interventions for this population.

Sleep is closely intertwined with toileting, feeding, and eating, as these are co-occupations that require joint engagement from mother and child. Therapists who address sleep in mothers should also provide assistance with the formation of schedules, habits, routines, and rituals related to these occupational areas. A systematic review by Gronski & Doherty (2020) found that behavior modification, contextual intervention, and parent/caregiver education are common and effective approaches in the area of sleep.

Therapists should also focus on the development of a safe sleep environment for all infants, with special focus on newborns returning from the NICU. Sensory

modifications are important to assist with this transition as well as the development of new, healthier routines.

Miller & Willier (2021) explored the efficacy of nonpharmcological treatments for newborns with sleep difficulties. As part of this study, the Eat, Sleep, Console model of care was provided to newborns undergoing opioid withdrawals during extended NICU stays. This approach decreased the average newborn length of stay from 17.7 days to 5.9 days. After taking part in the program, the amount of newborns receiving narcotics during their stay fell from 20 to 1. There was also an increase in breastfeeding rates. Ullas et al. (2021) explored another nonpharmacological treatment for mothers of children with intellectual disabilities. This study focused on the effect of a 1-month yoga program on depression, anxiety, stress levels, and sleep quality. The program involved yoga focused on breathing techniques, relaxation strategies, meditation, and physical postures called asanas, which was provided every other day for 1.5 hours at a time. Intervention results were compared to those of a group discussion that served as the control group. At the end of the program, the intervention group saw significant improvements in sleep and anxiety levels with slightly less but still notable improvements in perceived stress levels and depression.

Kangaroo care is another evidence-based sensory intervention that can benefit sleep in mothers. Chen et al. (2022) found that a 4-week round of kangaroo care yielded improvements in total sleep time, night waking, total sleep quality, daytime mood, and daytime body function compared to a control group. In addition, this intervention helped improve interpersonal relationships, anxiety, depression, hostility, and coercion compared to no improvements in these areas from the control group.

Concerns Related to Occupational Performance

Mothers and pregnant women alike are susceptible to occupational performance changes and deficits. The exact occupational areas that are impacted will vary

from woman to woman, but most commonly span newborn care/parenting skills, work, IADL function, and self-care. However, before addressing any aspect of occupational performance, therapists must explore the roles that are most important to individual pregnant women and mothers. For example, let's say a woman is having difficulty with some IADLs during the late stages of her pregnancy. She reports not finding any value in roles such as homemaker, main driver in the family, or primary family grocery shopper. She has several people who serve as social support and recently expressed willingness and ability to perform grocery shopping, house cleaning, and community errands for her. The woman has accepted this assistance and does not wish to address these areas as OT deficits. Therefore, this woman has no demonstrated need for OT intervention in IADL function. This is something all therapists must consider, as it can be harmful, inefficient, and culturally insensitive to make assumptions about patient roles.

When done properly, though, OT services stand to be of benefit to women with maternal health concerns. Evidence tends to support this finding. In particular, Khan (2023) notes that OTs offer distinct value in the maternal health specialty area, specifically related to occupational performance. This involves a thorough understanding of each woman's motivations, interests, support systems, preferred activities, meaningful occupations, routines, and other aspects of her identity. This allows OTs to craft individualized, comprehensive plans at all points during the maternal health continuum of care.

In further support of OT's effectiveness with this population, research from Merkel et al. (2023) found that OTs were the most proficient in addressing all occupations with mothers. They conducted a systematic review, which found that most healthcare professions (not inclusive of OT) tended to focus on socialization and leisure as the primary occupations for new mothers. This same study found that OT interventions consisted of group interventions, supported training, virtual interventions, supported advocacy, and supported education for the purpose of a range of occupational areas. This lends support for the versatility of OT, not only in

addressing a range of occupational concerns, but also by being able to focus on mothers' priorities.

There are many approaches that allow OTs to adeptly address occupational concerns. For example, Harris et al. (2022) looked at the efficacy of the Healthy Mothers Healthy Families activity coaching and health promotion program. This program yielded improvements in energy, mood, leisure engagement, and self-awareness along with lower levels of stress and anxiety. Mothers were also able to set goals for themselves in a variety of areas, including diet, sleep quality and duration, mindfulness, community engagement, and activity participation. As a result of the program, the mothers also reported their feelings of vulnerability shifted to those of empowerment and they had an improved sense of recognition as a mother as well as more competence in setting goals.

Occupational balance is another maternal health concern that Sykes et al. (2024) has found is common in mothers of young children. These researchers found that occupational balance can affect time management, mental wellness, social support, and structural support for mothers. OT intervention is poised to target these areas relative to maternal role development and occupational identity. Sykes et al. also emphasized the exploration of performance patterns, personal factors, and environmental factors during this process, which is crucial in connecting the intervention to the roots of the OT profession.

Another scoping problem related to occupational performance for mothers is competence and participation frequency, which both may vary based on a child's specific health needs. Doskalovich et al. (2024) found that mothers of children between the ages of 3 and 8 with sensory concerns had low confidence in their health supportive activity participation as well as their overall parenting abilities compared to parents of children without sensory concerns. All mothers in this particular study reported a strong correlation between their sense of parenting competence, how often they engaged in health-supportive activities, and their quality of life.

Barriers to Care

The unfortunate reality is that occupational therapists (and physical therapists) may have difficulty providing proper treatment at the acute level of care due to insurance restrictions and similar regulations. Unlike people who receive elective procedures, women who give birth in a hospital setting are far less likely to be offered rehabilitation services. Women receiving obstetric care in any setting still struggle with improving access to care, despite evidence that shows high maternal morbidity, maternal mortality, and postpartum readmission rates. Advocacy, education to maternal healthcare professionals, and similar indirect therapy approaches can be of assistance to therapists wanting to expand access for this population.

Section 4 Personal Reflection

What are some other approaches OTs can use to address barriers to maternal health care?

Section 4 Key Words

Breastfeeding dyad - The unit that consists of a mother and her infant while breastfeeding; this unit is inclusive of the biological process of breastfeeding along with the psychological and social factors that play into this occupation

Co-occupation - Any occupation that includes two or more people, which leads it to be a dynamic and interactive process involving shared intentions, emotions, and physicality; some examples of co-occupations include changing an infant's diaper, caregiving, or working on a household chore with a spouse or family member

Pelvic girdle - The pelvic bones that connect the lower spinal column to the legs; these form a ring shape and may also be called the hip girdle

Section 5: Case Study #1

A 39-year-old mother who gave birth 1 month ago is referred to outpatient OT through her community health clinic. Her presenting concerns are related to feelings of overwhelm, little social support (despite having many people she cites as willing friends and family), joint pain, low exercise tolerance, and difficulty getting activities started. The OT read this patient's medical records and also learned from the patient that she was given a clean bill of health from her obstetrician at her most recent follow-up last week. This mother notes she does feel fortunate that her baby was born healthy. The OT offers some education on what the postpartum period typically looks like for new mothers and provides encouragement and validation to the mother. She responds well to this and states she is looking forward to participating in OT to help these concerns.

1. What approaches might the OT use to help this new mother?
2. What occupational areas appear to be of most concern for this patient?
3. Based on her initial presentation, does it appear this mother has postpartum depression?

Section 6: Case Study #1 Review

This section will review the case studies that were previously presented in each section. Responses will guide the clinician through a discussion of potential answers as well as encourage reflection.

1. What approaches might the OT use to help this new mother?

   This mother is a good candidate for a health promotion/health coaching approach, as it is likely she can make lifestyle changes that may help her situation. Based on her initial response to encouragement from the therapist, motivational interviewing would also be a good fit. The mother

independently reported feeling grateful that her child was born healthy, so it appears she has the ability to look at the positive side of things. Therefore, a strengths-based approach with a focus on values clarification may also be helpful for this patient.

2. What occupational areas appear to be of most concern for this patient?

   Since this patient reports having a range of close social support but struggling to get things done, she may benefit from interpersonal skills to improve her ability to ask for help when she needs it the most. She also appears to have concerns related to task initiation and time management, and intervention in these areas can help with feelings of overwhelm and difficulty getting things started. As for joint pain and low exercise tolerance, the patient was given a clean bill of health so this may simply be residual from typical pregnancy-related concerns. The patient would likely also benefit from aspects of lifestyle redesign to assist with creating an exercise program targeting joint flexibility and pain along with building tolerance for activity. This can not only help the patient's physical concerns, but can also be used to aid her task initiation in a range of areas. The therapist could also address her emotional health further by offering education on relaxation strategies and building a positive self-care routine that will serve multiple purposes.

3. Based on her initial presentation, does it appear this mother has postpartum depression?

   While this mother got a clean bill of health from her obstetrician recently, this doesn't necessarily mean that the provider cleared her of postpartum depression. There is the possibility she didn't mention the emotional difficulties and focused more on the other presenting concerns, which is what led to her OT referral. In addition, this patient expressed the ability to look on the bright side of her situation several times during the evaluation. She also responded positively to simple encouragement, validation, and

motivation from the therapist. All of these are indicators of positive emotional health. While she may benefit from some OT intervention in the realm of postpartum emotional health (and other areas), it does not appear that she has postpartum depression.

Section 7: Case Study #2

A 28-year-old mother is seen in outpatient therapy for a wrist injury. She slipped on ice outside and fractured her right wrist. It was a small break that did not require surgery, but will be casted for 6 weeks while it heals. The cast was just put on 2 days ago. This patient doesn't have any medical conditions, but she did give birth 2 months ago. During the evaluation, she appears disheveled, malodorous, and is despondent. She becomes tearful at many points during the evaluation in response to benign questions. After doing this several times, she finally tells the therapist that she can't take it anymore. She relays that she is having a lot of difficulty at home and doesn't know how she can continue. The therapist asks if this is related to her wrist injury or the events leading up to it and the patient explains that she was having a lot of trouble managing life with a new baby as a single mother. She is especially concerned how she will handle things with this injury, as she is the only one available to take care of her baby.

1. What outcome measures would this patient benefit from the most?
2. Should the OT get other healthcare professionals involved? If so, which ones?
3. Is this clinic equipped to continue treating the patient?
4. What sort of approach should an OT who is treating this patient use?

Section 8: Case Study #2 Review

This section will review the case studies that were previously presented in each section. Responses will guide the clinician through a discussion of potential answers as well as encourage reflection.

1. What outcome measures would this patient benefit from the most?

   The therapist should use a standardized assessment that measures the patient's ADL abilities from an orthopedic sense, due to her presenting concern. Some examples include the Modified Barthel Index (MBI) or the Disabilities of the Arm, Shoulder, and Hand (DASH), as those are common for an outpatient setting. However, the therapist should also use a measure that takes a closer look into the patient's apparent mental health concerns, such as the Edinburg Postnatal Depression Scale (EPDS) or How I Feel About My Baby Now (FAB). These results can inform the therapist's next steps.

2. Should the OT get other healthcare professionals involved? If so, which ones?

   It is likely this patient would benefit from referral to a mental health professional (psychiatrist, licensed mental health counselor, etc.) who specializes in maternal health. Even apart from the results of the EPDS and FAB, this patient could use further assessment based on her current presentation. The OT should have a discussion with her about this and explain what other professionals can help.

3. Is this clinic equipped to continue treating the patient?

   There is no reason why this clinic should not be able to continue treating the patient. While her needs are more complex than if they were only related to a simple non-surgical wrist fracture, she is still in need of care. The therapist should be sure to use a gentler approach when continuing to treat this patient.

4. What sort of approach should an OT who is treating this patient use?

   This therapist should use their therapeutic use to ensure the patient is receiving enough support during therapy. It may also be good to weave aspects of Cognitive Behavioral Therapy (CBT) into sessions, if the patient continues with negative self-talk as she did during the evaluation. The therapist can also integrate coping strategies and community resources into treatment to help build the patient's independence. The OT is not necessarily offering treatment for postpartum depression (since this is still unconfirmed), but they can further assist the patient in this transition by clarifying and improving her role function.

Section 9: Case Study #3

A 4-month-old child with Down syndrome has been referred to early intervention services due to feeding concerns and poor sleep. This child also has an atrioventricular septal defect and is scheduled to undergo surgery for this within the next two months. The mother reports difficulty adjusting to parenting a child with special needs. She has two other adolescent children and they assist with care for their younger sibling quite often. The child's father works two jobs and is not home often, while the child's mother decided to become a stay-at-home mom shortly after her youngest baby was born.

1. What principles of early intervention services are especially important here?
2. What skill areas might the OT work on with this child?
3. What type of home program would this child benefit from?

Section 10: Case Study #3 Review

This section will review the case studies that were previously presented in each section. Responses will guide the clinician through a discussion of potential answers as well as encourage reflection.

1. What principles of early intervention services are especially important here?

   As with most early intervention patients, working with a family-centered approach is crucial. It is even more important for this family, as there appear to be some attachment concerns and occupational stressors present.

2. What skill areas might the OT work on with this child?

   The therapist should focus on building attachment between the child and his mother. Other areas of treatment can include ergonomics and adaptive equipment when feeding along with routine building and sleep hygiene to help with effective rest for both parties. The therapist should also address play skills from a family-focused lens so that siblings and parents are equally involved in facilitating this child's growth and development.

3. What type of home program would this child benefit from?

   A home program focused on play skills would be beneficial for this family along with feeding activities they can all practice together.

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