

The Lived Experience of Seeking Pregnancy in a Woman with a History of Cancer

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Abstract

Myelodysplastic syndromes (MDS) are a rare form of cancer that affects the bone marrow's ability to produce mature blood cells. Several treatments are available, including chemotherapy using anticancer or cytotoxic drugs, blood or platelet transfusions, and stem cell transplants. In this study, a 33-year-old woman shares her experience of attempting to conceive while undergoing treatment for myelodysplastic syndromes. The study aimed to explore the psychosocial difficulties women with a history of cancer treatment may encounter when trying to get pregnant. Semi-structured qualitative interviews were undertaken, recorded, and transcribed verbatim. The transcript was analyzed by narrative analysis. Four themes were identified: 1) Support from loved ones, 2) Challenges in conceiving, 3) Emotional ups and downs during pregnancy, and 4) The joy of motherhood. A cancer diagnosis can devastate young women, primarily if the treatment affects their fertility. These women must have the support of their husbands. Fortunately, many methods are available to assist women in successfully conceiving, although the journey can be difficult and emotional. The ups and downs of the process are inevitable, but the desire to become a mother makes it all worth it in the end. Cancer treatment for myelodysplastic syndromes and related conditions can profoundly impact childbearing women. Such women may face significant challenges if they plan to have a child after treatment. Hence, further research with more women with the diagnosis of MDS is imperative in this critical area.

Keywords: cancer treatment, childbearing women, IVF-ET, ICSI, pregnancy

1. Introduction

1.1 Introduce the Problem

Myelodysplastic syndromes (MDS) are a rare form of cancer that affects the bone marrow's ability to produce mature blood cells (Tsai et al., 2014; Yang et al., 2015). This condition leads to insufficient healthy blood cells, which can cause symptoms such as fatigue, shortness of breath, easy bleeding, and frequent infections. Unfortunately, MDS is often not diagnosed or misdiagnosed (Zeidan et al., 2019). MDS can affect people of any age. It is more commonly diagnosed in those 65 or older but can also occur in younger people. The severity of the condition varies from person to person and depends on various factors, including the type of MDS. Some cases may be mild, while others can be more severe. Treatments depend on the type of MDS and its severity, including chemotherapy using anticancer or cytotoxic drugs, blood or platelet transfusions, and stem cell transplants (Greenberg et al., 2017).

1.2 Explore the Importance of the Problem

The number of MDS survivors is on the rise because of the effectiveness of its treatments (Peng et al., 2021). Many MDS survivors are diagnosed in their childbearing years and may desire to have biological children after treatment. However, cancer treatment can negatively affect gonadal function, significantly reducing fertility rates in cancer survivors (Armund et al., 2014; Kim et al., 2020). Female cancer survivors may experience amenorrhea, early menopause, and infertility due to such treatment (Labrosse et al., 2021). Female cancer survivors may also have a lower response to assisted reproductive technologies. The impact of cancer treatment on future fertility is a significant concern for young and childless survivors and medical professionals. According to Teng et al. (2017), some cancer survivors may use Chinese herbal medicine to aid in achieving pregnancy, in addition to Western medicine.

1.3 Describe Relevant Scholarship

Studies found that most participants who had difficulties achieving pregnancy after cancer treatment desired to have children, which was associated with mental health and infertility distress (Adams, 2016; American Cancer Society, 2024; Armuand et al., 2014). Cancer survivors who experience infertility may face significant issues such as lower physical well-being, reduced quality of life, difficulties in starting new relationships, rejection by partners, and less intimate relationships. To overcome infertility, survivors can choose to use their sperm, oocytes, or embryos to conceive (Dieci et al., 2019). Alternatively, they can opt for gamete donation or adoption, even though some adoption agencies may consider a cancer experience a contraindication to adopting (Shine Cancer Support, 2020; Quinn et al., 2015).

According to a study by Barton et al. (2013) that used a comparison group of siblings, cancer survivors who received uterine radiation and alkylating agent chemotherapy had a higher risk of clinical infertility than their siblings. The study also found that cancer survivors took longer to achieve a pregnancy than their siblings. Corney et al. (2014) discovered that women diagnosed with cancer while pregnant are more vulnerable due to the uncertainty of their prognosis and worries about their ability to have more children after treatment. Although it is safe for women to become pregnant after cancer treatment (Niels, 2019), retrieving an egg through fertility treatments can be a demanding, time-consuming, and expensive process that requires invasive methods and hormone stimulation (Armuand et al., 2014; Ministry of Health and Welfare, 2021).

Finding comprehensive information on women's perspectives and worries regarding pregnancy after cancer treatment is complex. On one hand, it can represent a return to normalcy, happiness, and fulfillment. However, it can also bring about anxiety related to the possibility of cancer recurrence (Vanstone et al., 2021). To provide better psychosocial support services, healthcare providers must thoroughly understand young cancer survivors' pregnancy plans, fertility knowledge, and concerns. Therefore, this study aimed to explore the psychosocial experience of women who have had cancer and are seeking pregnancy.

2. Method

2.1 Design and Participants

Semi-structured qualitative interviews were used. After obtaining ethics approval, we began our recruitment process in 2020. We aimed to include young female cancer survivors between the ages of 20 and 40 who are proficient in either English or Mandarin and have given birth to at least one child after their cancer diagnosis.

Although we initially intended to recruit more participants, only one individual met the inclusion criteria during the study period due to the rarity of the disease. As a result, we conducted a case study instead. We emphasized that all participant's information would be confidential, and their privacy protected. The interview, which took place at the participant's home, lasted 60 to 90 minutes and was transcribed verbatim.

2.2 Data Collection and Analysis

During the interview, a broad question was asked at the beginning, "What did you know about fertility options before your cancer treatment?" Follow-up questions, like "Can you tell me more?" and "What do you mean?" were used to gather more information. Field notes were taken to assist in the analysis process. Data analysis started after transcribing the interview. Analyzing the transcript involved using Colaizzi's phenomenological method (Morrow et al., 2015). Firstly, the author carefully read the interview to understand the participant's experience comprehensively. Next, significant statements were identified and subsequently coded. Coded data were then grouped and transformed into themes, which provided the essential structure of the description.

2.3 Participant Characteristics

In December 2020, an interview was conducted with Mary, a 38-year-old woman from Taiwan diagnosed with myelodysplastic syndrome (MDS). Mary was diagnosed with MDS in February 2006 and got married in 2011, five years after undergoing cancer treatment. Her treatment included immunosuppressive therapy (steroid), a bone marrow transplant, and chemotherapy, all of which were effective. Mary used hormone replacement therapy to maintain her menstrual cycles following cancer treatment (Tsai et al., 2014). Before undergoing treatment, Mary preserved her oocytes by oocyte cryopreservation. In 2013, seven years after treatment, Mary decided to thaw her frozen oocytes to prepare for pregnancy. She was given oral estradiol valerate and intravaginal progesterone gel to prepare her endometrium. An In Vitro Fertilization and Embryo Transfer (IVF-ET) procedure was conducted. Thirteen mature oocytes were inseminated through intracytoplasmic sperm injection (ICSI), and one embryo was transferred into Mary's uterus to increase the chances of a successful pregnancy. She was given exogenous estrogen and progesterone supplements until the twelfth week of gestation. Fetal growth was monitored through prenatal ultrasound assessments in each trimester. Finally, Mary gave birth

to a baby girl in 2014.

3. Results

Four themes have emerged from the transcription. 1) Support from loved ones, 2) Challenges in conceiving, 3) Emotional ups and downs during pregnancy, and 4) The joy of motherhood.

3.1 Support from Loved Ones

Mary was not married when she was diagnosed with MDS. However, she had been in a long-term relationship with her boyfriend (Mike, a pseudonym), who was considering marriage. Mary was hesitant to bring up her medical condition with him since he was the eldest son in his family, and his father was also the eldest son. In Chinese culture, continuing the family's lineage is an essential duty. Mary was worried about how Mike and his family would react to the news. Two weeks later, she finally told Mike about her condition. To her surprise, he was sad but insisted they should marry immediately. However, Mary's future father-in-law was concerned about her potential survival and fertility. Mike convinced his father that there were other ways to expand the family. Mike's eight uncles and aunts join him to persuade his father of the marriage. They suggested either adopting a child from an orphanage or adopting a child from their relatives. Eventually, the father agreed to the marriage but suggested they wait until after cancer treatment due to some uncertainties.

"I have a good relationship with my father-in-law and his relatives, but as the eldest son in his family, he has concerns about my recovery and whether I will be able to have children and continue his family's lineage, which is understandable. Therefore, my boyfriend and I married after I completed my treatment."

"Mike's grandfather, an orphan, instilled the value of a large family in his children, resulting in Mike's father having eight siblings. My uncertain health status has been hard on his father. Despite this, his uncles and aunts have many children, so carrying on the family name is not a major concern for them."

3.2 Challenges in Conceiving

Mary began her pregnancy treatments in 2013, seven years after undergoing oocyte cryopreservation and two years after marriage. She explained that she and her husband waited so long to be pregnant because they hoped her health and marriage were stable. For her body to get ready for pregnancy, she implemented alternative medications, dietary modifications, and daily exercise for six months before pregnancy treatment. "While I trust Western medicine, I believe in the benefits of traditional Chinese medicine for fertility. I extensively research books and websites to prepare for conception."

Although health insurance did not cover the expenses, Mary and her husband were willing to pay for the IVF-ET procedure. "The cost of the treatment is high, but my husband and I are determined to have a biological child. The doctor has assured us that conceiving is safe, so we have decided to undergo the treatment three times. If we are unsuccessful, we will consider alternative options for becoming parents."

Mary learned from her doctor that the chance of each frozen oocyte leading to a live birth is between 2 and 12 percent. Fortunately, they were able to conceive after two rounds of IVF-ET attempts. Mary underwent the ovulation-stimulating process in the past. Unlike other infertile women who must take medication to stimulate ovulation and may experience side effects, Mary used thawed frozen oocytes. However, the IVF-ET treatment was still challenging for Mary. To prepare her uterus for embryo transfer, she needed to use hormones such as progesterone to thicken the endometrium lining. Mary was concerned about the quality of her frozen eggs and the potential impact of progesterone on her future baby's health.

During the interview, Mary shared her feelings while waiting for the results.

"Even after so many years, the agony of waiting for the result is still fresh in my mind. Following the implant (of the embryo), I had to revisit the hospital to have my Beta human chorionic gonadotropin (B-HCG) levels in my blood measured daily. I prayed for good news every morning, hoping for a positive outcome."

3.3 Emotional Ups and Downs during Pregnancy

Experiencing successful implantation is just one step in the journey of getting pregnant and can be challenging for many women trying to have a healthy baby. During her pregnancy, Mary paid close attention to small changes in her body. While she was happy to experience typical symptoms like nausea and vomiting, she also worried about other signs such as bloating, heartburn, and fatigue. During her second month of pregnancy, she experienced immense joy when she heard the fetal heartbeats for the first time through an ultrasound. This moment was extraordinary, indicating that the baby was alive and thriving.

"Not only did I hear the baby's heartbeat, but I also saw the head, butt, and umbilical cord. I was filled with

excitement and tears.”

Mary monitored the baby's heartbeat every morning to alleviate her concerns about the baby's well-being. During week 21 of her pregnancy, she experienced sacroiliitis, which caused back pain and morning stiffness. In week 32, she developed a rash all over her body, which resulted in constant itching. By week 35, she had swollen glands, a cold, and a fever. During the final week of her pregnancy, she struggled to get a good night's sleep due to the pressure of her enlarged abdomen and frequent urination. Despite facing numerous challenging changes that a typical pregnant woman would not experience; she was ecstatic upon discovering the gender of the baby. A baby girl weighing 2704 grams was born in April 2014.

3.4 *The Joy of Motherhood*

It had been eight years since Mary was diagnosed with MDS when she had given birth to her baby girl. Despite facing several challenges during her pregnancy, Mary was proud of herself. She was the first successful case to have a healthy baby after receiving MDS treatment in her country. It was a significant achievement for her, and the joy of having a healthy baby girl outweighed all the physical, emotional, and financial struggles she had to endure.

“All the hard work disappeared when I saw my baby's face and heard her cry. In that moment, I realized the selflessness of my parents in giving me their love and devotion.”

Mary used to take care of the babies of her relatives and friends. After the birth of her baby girl, she exclaimed, "No more giving back babies to their parents. I can hold my baby."

Like many new mothers, Mary was striving to adapt to her new role. She woke up at midnight to feed her baby, felt worried and upset when her baby cried because of diaper rash or intestinal colic pain and felt happy and relieved when everything was okay with the baby.

4. Discussion

During the interview, Mary's child, who was six years old, was healthy and performing well in preschool. It is essential to consider this information when analyzing the data.

Mary was fortunate enough to receive support from her loved ones, particularly from her husband's family, to get married after undergoing cancer treatment. Her father-in-law has eight siblings, and they all share a close relationship. Her husband's grandparents are fond of having a large family. Therefore, accepting someone who may be infertile into their family is beyond their imagination. To carry on a family lineage holds great significance in Chinese traditions, particularly for the firstborn son. Mike's father initially disagreed with his marriage to Mary, but Mike's persistence eventually convinced him, and they were able to get married.

A study in Sweden found that individuals diagnosed with cancer strongly desired biological children, and unfulfilled desires were linked to worse mental health (Armuaud et al., 2014). Individuals with cancer often face difficulty adopting, and their interest in gamete donations is low (Armuaud et al., 2014). It is understandable why Mary's father-in-law felt hesitant when he learned about Mary's cancer diagnosis. Many female cancer survivors are afraid of intimate relationships after treatment, primarily if the cancer affects a female organ, such as the breasts. Some women have even been rejected by their partners (Armuaud et al., 2014). Traditionally and culturally, motherhood has been viewed as a woman's role and an essential element of a healthy marriage. This belief has been deeply ingrained in both men and women, leading to a strong preference for having biological children (Adams, 2016). This is why Mary and Mike prioritized having their biological child over adopting their siblings' children.

Waiting 2-5 years before pregnancy is recommended for cancer survivors due to the higher risk of recurrence and complicated treatment during pregnancy (American Cancer Society, 2024). Mary waited about seven years after completing cancer treatment, which aligned with healthcare provider recommendations.

Mary considers traditional Chinese medicine to be a crucial aspect of her pregnancy. For over two thousand years, Chinese medicinal herbs have been used to treat various gynecological disorders, including infertility. Teng et al. (2017) reported a successful pregnancy case study using Chinese herbal medicine. A 43-year-old woman suffering from diminished ovarian reserve and multiple uterine fibroids was treated with herbal formulae. The prescribed formulae aimed to improve age-related ovarian insufficiency and control the growth of fibroids. Although this case differed from Mary's, Chinese medicine is known to assist with pregnancy and is widely accepted by the clinic and the public.

Oocyte cryopreservation is a costly procedure not covered by most insurance plans. In Taiwan, a single IVF cycle can cost up to \$USD 10,000, and several rounds of fertility treatment may be necessary before a baby is

successfully conceived. The cost of oocyte cryopreservation itself is around \$USD 4,000, and an additional \$300 per year is charged for storing the oocytes. Before 2021, only low-income infertile couples were covered by the health insurance plan. As a result, Mary and her husband had to pay for the procedure themselves (Ministry of Health and Welfare, 2021). Understandably, Mary and her husband limited their fertility treatment to three times.

Pregnancy after cancer treatment is generally safe for both the mother and the baby. A study conducted in Korea investigated the outcomes of pregnancy after the receipt of radioactive iodine treatment (RAIT) following thyroidectomy for differentiated thyroid carcinoma. The study found that receiving RAIT before pregnancy does not seem to increase the risk of adverse pregnancy outcomes when conception occurs six months or more after the treatment (Kim et al., 2020).

It has been observed that young women with early endometrial cancer who have a history of subfertility or infertility can have favorable pregnancy outcomes using assisted reproductive technology. The use of fertility drugs was found to not increase the risk of cancer recurrence after successful fertility-sparing management in this population, according to a study by Park et al. (2013). A recent study conducted by Labrosse et al. (2021) also suggests that pregnancy outcomes after cancer treatment do not adversely impact obstetrical or neonatal outcomes.

However, some cancer treatments may increase the risk of pregnancy complications, such as miscarriage, early birth, and low birth weight, causing uncertainty about the outcome (Yang et al., 2015). Yang et al. (2015) conducted a study on 25 pregnant patients with myelodysplastic syndrome (MDS) to understand their clinical characteristics, management, and maternal and fetal outcomes. The study found that five patients experienced premature birth, five had postpartum hemorrhage, one developed postpartum acute cardiac failure, and one had postpartum cerebral infarction. The regression analysis revealed that anemia and gestational hypertension were the primary risk factors for poor maternal and fetal outcomes. The authors recommended close monitoring of blood routine, maternal complications, and active supportive treatment. Except for monitoring her blood, Mary measured the heartbeat of her fetus to ensure the health of her unborn. Ultrasound images also helped her alleviate worries and concerns.

According to a study conducted by Armuand et al. (2014), most cancer survivors who had a desire to have children before their treatment still wished to have kids 3-7 years after their treatment. This was particularly true for women who were young and childless at the time of their diagnosis. Children are highly valued in most societies, playing an essential role in the lives of women, families, and society. Successful procreation is thus greatly celebrated, not only at a personal level but also at a socio-cultural level. This is why the desire to become a mother is so strong in many women (Adams, 2016). According to a study conducted on Chinese women residing in Hong Kong, having a child is an important milestone that brings completeness to one's family. It is believed to provide happiness, fun, and enjoyment while bringing care and companionship in old age. The study participants described children as lovely and cute (Adams, 2016). Mary shares similar sentiments, believing that having a biological child would enable her to pass on the love her parents gave her. She considers having a child a means of completing her family and bringing joy and happiness into their lives.

5. Implications and Recommendations

Cancer treatment affects the ability to conceive and carry a pregnancy to term. It is important to note that some therapies and medications may have negative effects on fertility. Age is also a crucial factor. Women should consult healthcare professionals to make informed decisions based on their health status and treatment history. Women who have had cancer treatment may face emotional and psychological difficulties when pregnant due to worries about their health, the health of the baby, and the potential risk of cancer returning. Access to psychological support and counseling services is essential to address the emotional aspects of pregnancy after cancer.

Women seeking pregnancy after cancer treatment should have a comprehensive consultation with an oncologist, fertility specialist, and obstetrician. They should discuss potential options such as egg or embryo freezing before undergoing cancer treatment. Regular check-ups and surveillance are essential for early detection of cancer recurrence. Women should ensure that they are in good overall health before attempting to conceive and address any lingering health issues related to cancer treatment. Emotional and psychological support is essential. Each woman's experience with cancer is unique, so it is recommended to work closely with a healthcare team who specializes in oncology and reproductive health.

6. Conclusion

A cancer diagnosis can be devastating for young women, mainly if the treatment affects their fertility. These women must have the support of their husbands during this challenging time. Although there are various methods available to help women conceive successfully, the journey can be difficult and emotional. The process will have its ups and downs, but the desire to become a mother makes it all worth it. Women who have undergone cancer treatment for myelodysplastic syndromes and related conditions may face significant challenges if they plan to conceive after treatment. Mary's successful pregnancy and motherhood can inspire other women with MDS. Further research is crucial in this area.

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