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AN EVALUATION OF THE ADVANCED MATERNAL AGE EXPERIENCE AND HOW IT DIFFERS FROM OPTIMAL MATERNAL AGE

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AN EVALUATION OF THE ADVANCED MATERNAL AGE EXPERIENCE AND

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Abstract

Advanced maternal age pregnancy occurring at or above age 35, is a growing trend in the United States. Studies have been done to compare both risk factors and birth outcomes between optimal maternal age and advanced maternal age. However, little is known about how the pregnancy experience differs between the two age groups. Additionally, there is a lack of literature that studies the pregnancy experience from the woman's perspective. This study aims to fill these gaps, examining the pregnancy experience from the woman's perspective and finding where differences may lie, not only in pregnancy experience but also psychological well-being and coping ability, between optimal maternal age and advanced maternal age. I also examine the relationship between the pregnancy experience and psychological well-being along with the role coping ability plays in the relationship.

This cross-sectional study included 225 women age 20-45 (87% white non-Hispanic, 60% college educated, 83% household income above $50,000) who were pregnant or recalling a recent pregnancy. Non-random convenience sampling was utilized to recruit participants who were provided a web link to a Qualtrics survey. The questionnaire included five scales including the Pregnancy Experience Scale, Prenatal Distress Survey, Epidemiological Studies Depression Scale, Perceived Stress Scale and The Utrecht Coping List-19. Data analysis was completed using SPSS software.

According to the results of independent sample t-tests, no significant differences were found in pregnancy experience or coping abilities during pregnancy between optimal maternal age and advanced maternal age. For psychological health, the results show a significant difference in depressive symptoms with advanced maternal age reporting fewer depressive symptoms during pregnancy than optimal maternal age. A regression analysis showed fewer

pregnancy uplifts and greater pregnancy hassles were associated with higher levels of stress and depression. In addition, problem focused coping was associated with fewer depressive symptoms among women with high hassle levels during pregnancy but associated with higher depressive symptoms when the hassle level was low.

Based on results of this study, it is necessary to pay attention to the pregnancy experience at advanced maternal age, expanding to diverse demographics. Interventions for improving the pregnancy experience could be utilized to improve psychological well-being during pregnancy. Additionally, interventions to educate women with increased hassle levels how to utilize problem focused coping could help decrease depressive symptoms during pregnancy.

Chapter 1

Introduction

The average age of first-time mothers in the United States is on the rise. Across the span from 1970-2014 the CDC reports the average age of first pregnancies went from approximately 21 years of age to over 26 years of age (Matthews & Hamilton, 2016) with the most drastic rise occurring between 2009-2014 (Matthews, 2016). This trend transcends different demographics and was found to be true across all the United States and all ethnicities (Hamilton et al., 2015). Two explanations for this trend are a decrease in teen pregnancy rates and an increase in pregnancies occurring at or above the age of 30-35 (Bichell, 2016). Pregnancy that occurs at or above the age of 35 years is considered Advanced Maternal Age (AMA, Bayrampour et al., 2012). According to Hamilton et al. (2015), 15% of total births in the United States in 2014 occurred among women age 35 and older, which is a large climb from 8% in 1990. Although the aforementioned average age of first-time pregnancy in the U.S. does not qualify as an AMA, it is important to pay attention to this pattern. It is likely the trend will continue to move in the same direction and AMA will become the societal norm (Cooke et al., 2010).

Why is AMA on the Rise?

There are many factors that can lead to the occurrence of AMA including educational, social and economic (Bayrampour et al., 2012). Pursuing a college education, having an adequate support system and financial stability all play a role in delaying pregnancy (Bayramour et al., 2012). Women with a college degree have children on average seven years later than women without a college degree (Matthews & Hamilton, 2016). Closely related to education level is socioeconomic status (a measure of income amount and social status) that shows a positive relationship with AMA (Kenny et al., 2013). Those of higher socioeconomic status are more likely

to attend college and graduate school, followed by focusing on career goals before thinking about becoming pregnant (Kenny et al., 2013). Women of lower socioeconomic status are less likely to complete a four-year degree (e.g., bachelor's degree) which often leads to younger age at pregnancy.

In addition to education, fertility options, contraceptive options and cultural factors are playing a part in the rise of AMA. Fertility options, such as IVF, that were once considered taboo are now widely accepted, allowing more women of AMA to become pregnant (Dekker, 2016). Contraceptives have advanced and are more readily available, allowing women to delay pregnancy more effectively. Socially and culturally, many women are not feeling 'ready' to have children until a later age (Cooke et al., 2010). There are also more women in male-dominated professions (such as engineering and finance) that are not very supportive of motherhood (Mills et al., 2011). Research has shown that male dominated workplaces are less likely to have family-friendly ideologies that lead to offering amenities including quality and convenient daycare. Many of these careers also have steep earning profiles that cause women to postpone childbearing due to the time and effort spent to climb the earning scale (Mills et al., 2011).

Why Study AMA?

For women who decide to become pregnant at age 35 or older, there are potential risks that can affect both mother and baby. Women of AMA who become pregnant are at greater risk for a planned cesarean delivery than younger women (Kenny et al., 2013). Spontaneous abortion, ectopic pregnancy and stillbirth are more common with increasing pregnancy age (Anderson et al., 2000). AMA is also associated with gestational diabetes mellitus, gestational hypertension, preeclampsia, low birth weight, spontaneous late preterm delivery, and cesarean section with significant potential clinical implications (Kahveci et al., 2018). Excessive bleeding and

incompetent cervix are two more pregnancy risk factors associated with increasing maternal age (Luke et al, 2007). An infant is more likely to be admitted to the newborn intensive care unit (NICU) if the mother is AMA (De Jongh et al., 2012).

In addition to the physical risks, women of AMA who become pregnant also face risks to psychological health. The prevalence of pregnancy anxiety among AMA mothers ranges from 15% to 23% (Vameghi et al., 2018) and has been associated with negative birth outcomes such as reduced motor maturity (DiPietro et al., 2002). Muracal and Joseph (2015) also found women of AMA have significantly higher rates of depression than women below AMA. It is known that women of AMA are at particular higher risk of increased stress level during pregnancy (Cooke & Lavender 2019). This includes stress and depression induced by fears unique to pregnancy including those about the health of the baby, giving birth, medical experiences (including survival in pregnancy), postpartum health and the new maternal role (Dunkel Schetter et al., 2011, Lindsay 2006). Knowledge of potential risk factors of AMA could increase the amount of pregnancy-specific stress experienced by a mother of AMA. Pregnancy-specific stress is unique to general stress and has its own risk factors including early birth and low birth weight (Canella et al., 2008). Poor psychological health among mothers of AMA is particularly concerning because it is recognized as an essential factor to maternal health and fetal development (Khatri, Tran, & Fisher, 2019). This study will focus on two types of psychological health; stress and depression.

With more AMA occurrences in our country and the potentially adverse health outcomes, it is important to become familiar with the pregnancy experiences of AMA mothers and examine how these experiences associate with health outcomes in order to provide guidance on steps that can be made by society and health care providers to enhance the well-being of AMA mothers.

Pregnancy Experiences

The overall pregnancy experience can be positive or negative, depending on a gamut of factors. The World Health Organization defines a positive pregnancy experience as maintaining normal physical and sociocultural habits, treating and preventing risks, illness and death for mother and baby, positively transitioning to labor and birth as well as reaching positive motherhood (WHO, 2016). A negative pregnancy experience, on the other hand, involves increased stress levels caused by the inability to achieve the qualities of a positive pregnancy experience, because of outside factors and interactions or personal coping skills (WHO, 2016). It is important to note that the WHO definition of pregnancy experience not only includes the actual incidences during pregnancy but rather importantly, include a valence component to capture women's appraisal of these incidences. Indeed, when creating a widely adopted scale to assess pregnancy experiences, DiPietro et al. (2008) operationalized pregnancy experiences as the appraisal of pregnancy experiences including both pregnancy uplift and pregnancy hassle. Pregnancy uplifts include any incidence during pregnancy (e.g., feeling the baby move, discussing baby names or comments from others about being pregnant) that causes a pregnant woman to feel happy, positive or uplifted while pregnancy hassles focus on incidences (e.g., normal discomforts of pregnancy, physical intimacy or getting enough sleep) that cause the pregnant patient to feel unhappy, negative or upset (DiPietro et al., 2008). Another wide studied pregnancy experience is pregnancy-related distress, defined as recognizing the significance of and developing concerns about physical symptoms, appearance changes, changes in relationships, labor, delivery, parenting and the health of the baby (Alderdice et al., 2012). In the present study, pregnancy experience is operationalized as the feeling of uplift, hassle, or distress toward a range of incidences occurring during pregnancy, such as interactions with medical personnel, family, friends, and personal reactions to physical symptoms related to pregnancy. These pregnancy experiences, positive or negative, can have an impact on

the psychological health of pregnant women (DiPietro et al., 2002; Salehi et al., 2020), which in turn influence the health of both mother and child (Khatri, Tran, & Fisher, 2019).

Differences in pregnancy experience between a mother of younger age and a mother of advanced age begin with standard protocols. A mother of age lower than 35 is not typically scheduled for her first doctor's appointment until two weeks after her first positive at home pregnancy test. Doctor visits continue monthly through week 28 of gestation followed by visits every two weeks until week 36 when visits become weekly until the baby is delivered. Included with these visits with her regular OB/GYN are two ultrasounds, one during the first trimester and the final during the second trimester. Due to biological age alone, a mother of AMA is automatically considered a high-risk pregnancy and is scheduled for bloodwork immediately following her first positive at-home pregnancy test in order to confirm the pregnancy and ensure hormone levels are adequate for maintaining the pregnancy. The sense of urgency and desired results may contribute to greater stress experienced by AMA women. The first few weekly appointments with the physician involve a transvaginal ultra-sound to confirm the heartbeat and determine a viable pregnancy. The anticipation of hearing a strong heartbeat can induce more feelings of stress and anxiety. Transvaginal ultrasound is often used to determine gestational age and evaluate abnormalities of the fetus (Callen, 2008). Although transvaginal ultrasound is a frequently used diagnostic tool, women who undergo this test reportedly suffer common anxiety symptoms such as pain, fear and lack of control due to the invasiveness of this modality (Clement et al., 2003). Maternal age of 35 years and older is often used as a factor in determining prenatal screening protocols, such as amniocentesis testing (Rossen et al., 2018). Amniocentesis is an invasive test that holds its own risk factors, compounding the potential stress associated with AMA protocols.

A woman of AMA is also referred outside her usual OB/GYN office to a perinatal specialist where they perform a minimum of three ultrasounds as well as a maternal serum test to check for fetal abnormalities. Referral to a new physician can induce feelings of anxiety due to a lack of rapport. This is supported by research that has found pregnant women value quality relationships and sensitive communication with their healthcare professionals (Bayrampour et al., 2012). Additional testing is yet another source of stress as the new mother anticipates test results. Studies suggest that the development of more advanced obstetrical technologies commonly used by a specialist during high-risk pregnancy, such as AMA, has decreased the level of personal and psychological care of the patient (Behruzi et al., 2010).

One factor that can be overlooked regarding AMA that transcends both medical and social settings is social silencing. Social silencing is described as social attitudes that can lead to a nonexistent social script for how to discuss and behave in some situations (Carolan & Wright, 2017). Issues resulting from social silencing include women being sensitive to the term AMA as a label (Nottingham-Jones et al., 2019) and women feeling as though they are judged negatively when pregnant at an older age (Cooke & Lavender, 2019). Social silencing happens in both medical society and in smaller social groups such as friends, family and co-workers (Carolan & Wright, 2017). One example of social silencing can be found when AMA patients are greeted by doctors and nurses with an abundance of reminders about age and risk factors. Bombarding patients with this information causes them to be more frightened and anxious (Behruzi et al., 2010). Social silencing among friends, family members and work-place relationships is experienced when personal opinions are given about age during pregnancy or the mother-to-be is asked probing questions. It is not unlikely for some to show extra care and concern for a mother of AMA. Although this is a kind gesture, it could cause the new mother more anxiety as a constant reminder

of her age, additional risk factors and social awareness of her status. With the described stressors above, unsurprisingly, first time mothers of an AMA reported a low level of satisfaction with life (Aasheim et al., 2014), high appraisal of daily stressors, low frequency of pregnancy uplifts, and high intensity of pregnancy hassles (DePietro et al., 2002).

However, AMA does not always result in negative experiences. Alternatively, advanced age could have a positive effect on how older mothers cope with the stress during pregnancy. Older mothers tend to go to sleep earlier, work more hours, and experience less stress compared with younger mothers (McQuillan et al., 2019). Although working more hours is not individually a positive factor for AMA, the combination of working more hours yet experiencing less stress than younger mothers supports the idea that older mothers are able to manage stress more effectively. Indeed, older mothers are found to benefit from psychological maturity, adapting favorably to pregnancy and postnatal adjustment (Camberis et al., 2014).

Pregnancy is an incredibly special time in a woman's life, regardless of age. Each woman deserves to have the most pleasant experience as possible with minimal causes of stress and anxiety. Many changes could be made in the communication between health care providers and mothers of AMA, including techniques to relieve the stress often caused by AMA protocols. Becoming pregnant at an older age can have both attributes and drawbacks and more research is needed to compare pregnancy experiences at AMA and pregnancy at optimal maternal age.

Purpose

Previous studies on pregnancy (Pinheiro et al., 2019, Ediris et al., 2018, Rodon-Pokracks et al., 2019) have mainly focused on physiological outcomes (e.g., birth outcome) and risk factor (e.g., gestational diabetes, scheduled cesarean) differences between younger and older mothers. Thus far, studies seldom have compared the pregnancy experience between the two age groups.

However, research that focuses on AMA alone or high-risk pregnancies, have found that AMA mothers experience a lack of emotional support from physicians (Behruzi et al., 2010). Given this finding, we would anticipate women of AMA to have worse pregnancy experiences and consequently, poorer psychological health than younger women. Other research found AMA mothers are more psychologically mature and better at adaptation (Camberis et al., 2014) which allows us to anticipate AMA mothers to have better pregnancy experiences and psychological health than women not of AMA. This study will investigate how mothers of both age groups differ in experiencing pregnancy, especially, their experiences of pregnancy hassles, pregnancy uplifts and pregnancy related distress.

Most importantly, this study examines how mothers' pregnancy experiences relate to psychological health and the possible moderating role of coping abilities, in an effort to find areas that could help improve the wellbeing of pregnant women. Previous studies have focused on the effects of psychological health of pregnant women (Alderdice & Lynn, 2009; Staneva et al., 2015). When psychological health is examined, the research often focuses on the effects of psychological health on birth outcomes (DePietro et al., 2002) and poor psychological health is known to lead to poor physical health of both the mother and infant (Khatri, Tran, & Fisher, 2019). Little is known what contributes to psychological health among pregnant women. Pregnancy experience is one factor that can play a big role and this study aims to examine how pregnancy experiences may associate with psychological wellbeing of pregnant women. Additionally, coping ability is a factor that is known to mitigate stressful situations (Turner et a., 2012) and can have positive effects on psychological health (Huizink et al., 2002.) Recent studies found a relationship between adequate coping and improvement in psychological health disorders during pregnancy (Huizink et al., 2002). However, coping strategies are highly determined by the event being dealt with and the

individual's personal style (Turner et al., 2012). Emotion focused coping was found to be beneficial during pregnancy, leading to lower stress while problem focused coping was associated with higher stress during pregnancy (Huizink et al., 2002). This study aims to explore the role coping plays in influencing how pregnancy experience associates with psychological health.

Research Questions

RQ1: Is there a difference in the overall pregnancy experience between mothers younger than 35 and mothers 35 and older?

RQ2: Is there a difference in psychological health during pregnancy between younger and older mothers?

RQ3: Is there a difference in coping abilities during pregnancy between younger and older mothers?

RQ4: Is there an association between pregnancy experiences and psychological health during pregnancy and how does coping ability impact the relationship?

RQ5: Does the pregnancy experience differ by demographic characteristics?

Null Hypotheses

H_{01}: There is no difference in overall pregnancy experience between younger and older mothers.

H_{02}: There is no difference in psychological health experienced during pregnancy between younger and older mothers.

H_{03}: There is no difference in coping abilities during pregnancy between younger and older mothers.

H_{04}: There is no association between coping abilities and psychological health during pregnancy and coping ability does not impact the relationship.

H_{05}: Pregnancy experience does not differ by demographic characteristics.

Alternative Hypotheses

H_{a1}: There is a difference in overall pregnancy experiences between younger and older mothers.

H_{a2}: There is a difference in psychological health during pregnancy between younger and older mothers.

H_{a3}: There is a difference in coping abilities during pregnancy between younger and older mothers.

H_{a4}: There is an association between coping abilities and psychological health during pregnancy and coping ability does impact the relationship.

H_{a5}: Pregnancy experience differs by demographic characteristics.

Significance

Pregnancy is a very short period in a woman's life, but it is a very impressionable one. This study is significant because it would reveal how the pregnancy experience differs between younger women and women of an AMA. Examining the pregnancy experience during AMA will bring forth a better understanding of a population that, over the past 30 years, is consistently increasing in the United States (Matthews, 2016). The current study will shed new light on what types of experiences occur for all pregnant women and how they differ for women above the age of 35 compared to women below AMA. Previous literature has found women who undergo a high-risk pregnancy, such as AMA, experience more hardship and negative emotions related to the pregnancy (Gupton et al., 2001). Furthermore, there is a lack of support provided to women during high risk pregnancy that causes concern (Behruzi et al., 2010). Readers of this study will learn

about the pregnancy experience and how it may differ between the age groups of pregnant women. The pregnancy experience includes interactions within social and professional settings that could involve friends, family members, strangers, co-workers and health care professionals. The spouse along with friends and family of a pregnant woman can provide beneficial psychological support, especially when health care providers offer more attention to medical protocols of high risk pregnancy (Behruzi et al., 2010). Having a better understanding of the differing pregnancy experiences will help determine where changes can be made to help improve AMA pregnancy experience. Psychological distress experienced during pregnancy due to negative pregnancy experiences can cause harm to both mother and child, during pregnancy and later in life (Schetter, 2015). This study will provide insights on the associations between pregnancy experiences, psychological health and the role of coping abilities. Such information will help inform effective intervention development.

Delimitations

- The participants were all women of childbearing age.
- The qualification to participate in this study was determined by pregnancy status. Participants were limited to women who were either currently pregnant or recently pregnant. The recent pregnancy must have ended with a live birth and occurred within the last 4 years.
- Recruitment took place via social media sites such as Facebook and Instagram. Participants were allowed to share the opportunity with other women who qualified.
- Data collection was done using an online questionnaire and took place during the fall of 2020 and spring of 2021 (September-March), following an IRB approval.

Limitations

- For the data collected with self-administered surveys, there is a possibility for misinterpretation of questions, unanswered questions and self-reporting bias.
- The participants were asked to recall personal experiences, if they were unable to provide an accurate account, it would have affected the results of this study.
- Participants may experience emotional trauma in response to the questions. A list of helpful resources was given at the conclusion of the survey.
- Due to the Covid-19 pandemic, in person data collection was omitted from this study in order to keep the vulnerable population of interest safe and healthy.
- The Covid-19 pandemic could have affected the results for this study because of the additional stress of a global pandemic that would only have been experienced by a portion of the participants.

Operational Definitions

- Advanced Maternal Age – pregnancy occurring at the age of 35 or older (Bayrampour et al., 2012)
- Pregnancy uplift - any incidences during pregnancy that causes a pregnant woman to feel happy, positive or uplifted (DiPietro et al., 2008).
- Pregnancy hassle – any incidences during pregnancy that cause the pregnant patient to feel unhappy, negative or upset (DiPietro et al., 2008).
- Pregnancy-related distress – an aspect of the pregnancy experience that involves recognizing the significance of and developing concerns about physical symptoms, appearance changes, changes in relationships, labor, delivery, parenting and the health of the baby (Alderdice et al., 2012).

- Coping abilities - the behavioral and psychological strategies people employ to master, tolerate or reduce stress (Turner et al., 2012).
- Emotion focused coping – regulating the effects of stressful encounters by using expression of feelings to others and positive appraisal of the situation (Huizink et al., 2002)
- Problem focused coping- alleviating the circumstances that cause stress by planning, seeking information and finding solutions (Huizink et al., 2002)

Chapter 2

Literature Review

Pregnancy Experience

Pregnancy is a unique life experience that has been defined as a crisis, a transition and a transformation of a woman into motherhood (Lundgren and Wahlberg, 1999). Pregnancy experiences consistent of a wide array of aspects, including medical protocols, the health of the mother, previous pregnancy experiences, spiritual beliefs, and personal relationships, all playing a role in the quality of life of a pregnant woman. Additionally, the physiological stresses of being pregnant, including changes in physical abilities, weight gain, labor and delivery, and the level of concern regarding these stressors are an important aspect of pregnancy experience. All of these present a large array of concerns that require specific instruments to analyze the experience of pregnancy (DiPierto et al., 2008). The quality of pregnancy experience is crucial in achieving optimal birth outcomes and is dependent on a wide array of factors including feelings of happiness, hassles endured and distress experienced specific to being pregnant.

Pregnancy Experience and Psychological Health

During pregnancy, women can experience a wide array of adverse psychological health issues that can have implication on the health of the mother and the baby. Stress is an important indication of pregnancy outcomes. There is substantial evidence that stress during pregnancy can lead to shorter gestation and adverse effects on fetal neurodevelopment (Schetter et al., 2015). Increased stress levels lead to increases in blood pressure, also known as preeclampsia, during pregnancy which can be a serious condition that leads to impaired liver and kidney function, low birth weight and premature birth (Preeclampsia Foundation). Additionally, depression during pregnancy has recently come to the forefront as an area of interest for researchers, partly because

there has been an increase of depressed pregnant patients being referred to psychiatry programs (Ryan et al., 2005). Depression has been linked to adverse birth outcomes including preterm delivery and low birth weight (Ryan et al., 2005).

Pregnancy experiences and psychological health can be closely related. Medical protocols become more stringent at AMA and more frequent doctor visits often increase the amount of stress experienced by the mother. Doctor's opinion about AMA, be it negative or positive, will have a correlating effect on the mother's perception of risk and stress experienced. Healthcare professionals play a key role in reassuring mothers of AMA (Nottingham-Jones et al., 2019). Studies show that being labeled high risk can cause pregnant women to become more psychologically fragile, physically vulnerable and generally powerless (Lindsay 2006). Negative messages about age by emphasizing pregnancy risks due to AMA have been described as destructive and challenging (Bayrampoor et al., 2012). Inflated perception of risk in pregnancy causes increased stress and adverse effects to psychological health, both of which can cause negative impacts on the development of the child and the child's response to stress (Robinson et al., 2015). If stress level is too high, the fear of receiving bad news may cause a pregnant woman to avoid appointments with her doctor and disengagement from the healthcare provider can lead to decreased quality of prenatal care while prenatal care is a vital part of a healthy pregnancy, regardless of age (Gregory et al., 2019).

However, to date, not much research has examined how pregnancy experiences associate with psychological health, with one exception (Salehi et al., 2020). This study analyzed the pregnancy experience and psychological health as it related to fear related to the Covid-19 pandemic and found that happiness during pregnancy had a negative correlation with mental health disorder. However, the study examined mental health as a composite measure of stress,

anxiety, and depression, how pregnancy experience may associate with different types of psychological health outcomes remain unknown. This study explored the relationships between pregnancy experiences and psychological health, specifically, stress and depressive symptoms.

Additional Factors Influencing Psychological Health

The definition of risk for AMA is a much broader scope than medical risks and physical challenges, yet age alone is considered a risk factor for women age 35 and older. However, pregnancy at age 35 and older among healthy women with no other risk factors is perceived as low risk (Bayrampour et al., 2012). When AMA is combined with pregnancy complications, a history of negative reproductive experience, or anxiety, the perception of risk due to age alone was highlighted (Bayrampour et al., 2012). Pregnancy complications and previous negative experiences exacerbate stress levels. Examples of pregnancy complications include gestational diabetes and vaginal bleeding. A previous miscarriage or difficulty conceiving are examples of negative reproductive experiences. Fear of how pregnancy complications may affect the baby and reoccurrence of previous negative experiences elevate stress levels.

A workplace culture that is male-dominated and does not hold family friendly ideologies often do not offer stress-relieving amenities such as quality and convenient day care (Mills et al., 2011). Such workplaces are common among the AMA population and can have a negative effect on the pregnancy experience due to added stress of hiring proper childcare. On the contrary, these workplaces are also more likely to provide quality health insurance which alleviates stress regarding care for mother and baby. Overall, medical experiences, the health of the mother, spiritual beliefs and personal relationships together make up a pregnant woman's experiences and can have further impact on her psychological health during pregnancy. Therefore, it is important

to account for these factors when examining the relationships between pregnancy experience and psychological health.

The Importance of Coping During Pregnancy

Coping, defined as the use of cognitive and behavioral efforts to manage specific internal or external demands that are perceived as difficult or beyond a person's resources (Levy-Shiff et al., 2002), is an important skill that can help improve pregnancy experiences and hence alleviate stress during pregnancy. There are many different reasons women are delaying childbearing that leads to stronger support systems during pregnancy and these support systems can aid in the types of coping utilized by pregnant women.

A woman's desire for children can be inhibited due to concerns about success in her career (Wiseman & Goldberg, 2005). This reinforces other literature that finds college graduates to have an average age seven years older than non-college graduates at which they start a family (Dekker, 2015). Choosing to focus on career success prior to having children can allow mothers to feel both financially stable and more supported by employers. Jou et al. (2017) found that women in the highest income bracket were offered partially paid or fully paid maternity leave while women with low income received unpaid maternity leave. It is likely that the women in the high-income group are also college graduates who utilize childcare while achieving career success. AMA women who utilize childcare have reported feeling significantly more support than women who do not have a childcare provider (Kim et al, 2017). Feeling such support while also having the ability to rely on paid leave as well as quality child-care can serve as resources for pregnant women to cope and can alleviate some stresses that potential risks of AMA can cause. Having paid maternity leave led to a decrease in infant mortality and improved maternal vitality and life satisfaction (Jou et al., 2017). Women who were given paid maternity leave

were more likely to engage in exercise and stress management than women with unpaid maternity leave (Jou et al., 2017). These positive health behaviors are considered emotion-focused coping and are enabled by employer and additional supports. Quality health behaviors can potentially alleviate the stress and anxiety that can accompany AMA due to elevated risks. These findings support the idea that feeling supported is especially important for the AMA population because of the positive effect support has on coping abilities.

Coping strategies during pregnancy have been studied and research has found that two types of strategies are utilized consistently among pregnant women: emotion-focused coping and problem-focused coping (Huizink et al., 2002, Levy-Shiff et al., 2002). Having a social network to confide in contributes to emotion-focused coping (Huizink et al., 2002). This is supported by research that found social support to serve as a buffer against stress felt by mothers (Miller-Loncar et al., 1998). It allows mothers to feel they are part of a social network, increasing feelings of reassurance, being cared for and having assistance if needed (Kim et al., 2017). Feeling reassured and cared for contributes to the positive outlook aspect of emotion-focused coping (Huzinek et al., 2002). In the same way social support fosters adequate coping ability, social deprivation can have a confounding effect. A lack of social interaction for mothers of AMA leads to negative pregnancy experiences that affect birth outcomes (Kenny et al., 2013). Fears of loneliness during delivery and having a lack of support from immediate or extended family causes negative experiences for women of AMA (Aldrighi et al., 2018). The stress related effects of the genetic testing done for AMA patients can have a negative effect on the use of social support resources (Burns, 1999) while utilizing resources is a healthy coping strategy. The importance of social support and the role it plays for adequate coping can also be seen in

women's dislike of birthing alone and the recommendation of the World Health Organization for birthing institutions to provide birth companions when necessary (Culhane-Pera et al., 2016).

Studies on coping among pregnant women have focused on high risk populations such as in vitro patients and women who experienced an antenatal fetal death (Huizink et al., 2002, Levy-Shiff et al., 2002), AMA is not well represented in this research. Emotion-focused coping focuses on sharing feelings with others and having a positive outlook on a situation. This type of coping has shown to be more effective for pregnant women because the circumstance is partly uncontrollable (Huizink et al., 2002). Problem-focused coping, while considered more effective and mature, involves planning and problem solving that is more worthwhile when dealing with a controllable situation (Huizink et al., 2002). Obtaining adequate coping strategies and resources leads to an improved prediction of developmental outcomes among pregnant women in a high-risk diabetic population (Levy-Shiff et al., 2002). Like social support, coping likely will serve a buffering role against stress experienced by mothers. This study will examine if coping influences the relationship between pregnancy experience and psychological health.

AMA Compared to Optimal Maternal Age

Very few pregnancies are free of any difficulties and adequate behavior management to reduce risk is about 50/50 (Athan et al., 2015). Pregnant women of an older age were found to seek information from valid resources such as health care professionals (Nottingham-Jones et al., 2019), have better sleeping habits and experience less stress compared to pregnant women of a younger age (MaQuilla et al., 2019), giving reason to believe women of AMA are more inclined to achieve a higher quality of pregnancy experience than younger mothers. The increased psychological maturity of older mothers allows women of AMA to adapt more favorably to pregnancy (Camberis et al., 2014), making the pregnancy experience potentially more desirable.

In the meantime, women of AMA can be more susceptible to medical complications including gestational diabetes (Kahveci et al., 2018) and risks to psychological health including increased depression rates (Muracal & Joseph, 2015) and increased stress due to risk perception. Literature shows an inadequate perceived risk during pregnancy contributes to pregnancy specific stress (Robinson et al., 2015). While both depression and stress may occur at AMA, the age itself may not be the cause. Studies show that biological age may hinder pregnancy which causes a fear in women of AMA; however, this fear does not prevent her from experiencing happiness during pregnancy (Aldrighi et al., 2018).

Indeed, despite research suggesting AMA mothers may face a large number of stressors, such as invasive medical protocols (Rossen et al., 2018) and negative social attitudes (Cooke and Lavender, 2019), studies have found minimal association between AMA and adverse fetal outcomes (Shan et al., 2018). Yet psychological health, including stress and depression, is an important factor to the pregnancy experience because it has been connected to birth outcomes (Staneva et al., 2015, Alderdice & Lynn, 2009). Higher stress level was associated with more difficult labor and delivery (DaCosta et al., 1999) as well as unplanned caesarean delivery (Saunders et al., 2006) while depression is associated with low birth weight and preterm delivery (Ryan et al., 2005). Literature has found that unique aspects to AMA pregnancy contribute to perceived stress (Robinson et al., 2015) and depressive symptoms (Lindsay, 2006) during pregnancy yet there is little research comparing the differences in psychological health between older and younger mothers.

Adequate coping during pregnancy allows women to make necessary adjustments to the life changing circumstance of having a child as well as the daily stress-provoking factors that occur during pregnancy (Huizink et al., 2002). Problem focused coping and emotion focused

coping have been identified as the two types of coping most utilized by pregnant women (Salehi et al., 2020). Although research has been conducted on coping and high-risk pregnancy (Huizink et al., 2002), there is little research on coping differences between mothers of AMA and mothers not of AMA.

It appears that whether pregnancy experience at AMA is better or worse than women not of AMA is undetermined. This study aims to look at the differences in pregnancy experience, psychological health during pregnancy and coping abilities between mothers of AMA and optimal maternal age.

Demographics and the Pregnancy Experience

The demographics of a pregnant woman can play a role in how she experiences pregnancy. Age, race, education level, socioeconomic status and religious beliefs should all be considered when evaluating the pregnancy experience.

Age, particularly AMA, is frequently used to determine prenatal screening protocols (Rossen et al., 2018) and is the most important determining factor when deciding to undergo amniocentesis (Burns, 1999). The additional testing required during a pregnancy at an older age can serve as a tool to alleviate stress. Genetic testing can empower health care providers and pregnant patients, allowing them to create a plan involving behavioral strategies that have the greatest impact on reducing certain risk factors (Lerman et al., 2002).

Women of different races are likely to have vastly different pregnancy experiences. Women who are not white are more likely to encounter stress-inducing situations that are discriminatory because of their skin color or culture. Research shows that personally experiencing discrimination can contribute to increased stress levels and lower emotional well-

being (Rosenthal & Lobel, 2011). This could play a critical role in the pregnancy experience for women of differing races.

Education level and socioeconomic status are closely related and both have been shown to contribute to the age at which a woman becomes pregnant (Kenny et al., 2013); leading to different pregnancy experiences. The average age at which a college graduate starts a family is 7 years older than a non-college graduate (Dekkar, 2015). College graduates are also more likely to have careers that offer increased annual income levels that elevate socioeconomic status. A women of higher socioeconomic is more likely to have paid maternity leave (Jou et al., 2017) and adequate health insurance; amenities that can alleviate some stress of an expecting mother.

Having strong religious beliefs has contributed to the growing number of AMA patients (Ndiaye et al., 2017). It has been well documented that strong religious beliefs provide a positive contribution to a person's health and well-being, especially when coping with stress (Athan et al., 2015). Women with religious ties often justify advanced maternal age as part of God's will (Aldrighi et al., 2018). Welcoming the miracle of divine intervention can reduce an otherwise inflated level of stress. Women who believe in a loving and all-knowing God have decreased anxiety, depression, perceived stress and increased social support (Athan et al., 2015). This study will analyze if the pregnancy experience differs by demographic characteristics, including age, race, religious beliefs, education level, and income.

Chapter 3

Methods

Participants

This study used a non-random convenience sample design. Participants were 225 women aged 20 years or above who were currently pregnant or had given birth in the past 4 years. The average age was 32 years (SD = 6.01), 137 (60.1%) were below age 35 and 88 (39.1%) were of AMA. Demographics varied among women including race, religion, education, income, and other pregnancy related circumstances. A detailed description of participant characteristics can be found in Table 1.

Initially 311 women were recruited to complete this survey and 279 passed inclusion criteria. Due to the purpose of this research to compare AMA and non-AMA women, it was necessary to obtain age during pregnancy. Of those who passed inclusion criteria, 225 answered questions regarding age during pregnancy. Only these 225 cases were included in data analysis.

Including an adequate number of women below age 35 and above age 35 was crucial in optimizing the validity of the study. The target sample size was based on a power analysis using G Power software (Version 3.1) for independent sample *t* tests using designated parameters (effect size = .5, Power = .95, $\alpha = .05$). The power analysis calculated sample sizes of 88 for each age group, AMA and non-AMA. The final sample of 137 for non-AMA women exceeded the required sample size while the final sample of AMA women, 88, precisely met the requirement.

Table 1: Participant Characteristics

Demographics (Total *N* = 225)	**M (SD) or N (%)**

Age during pregnancy, in years	32 (6.01)
Non-AMA (<35)	137 (60.1%)
AMA (>35)	88 (39.1%)
Race	
White, Non-Hispanic	153 (87.4%)
Hispanic, Latina or of Spanish Origin	13 (7.4%)
African American	5 (2.9%)
American Indian or Alaska Native	1 (.6%)
Asian	2 (1.1%)
Other	14 (8.0%)
Religion	
Yes	68 (39.3%)
No	105 (60.7%)
Education	
High School, No Diploma	1 (.6%)
High School Diploma or Equivalent	6 (3.4%)
Some College, No Degree	40 (22.9%)
Associate's Degree	21 (12.0%)
Bachelor's Degree	59 (33.7%)
Master's Degree	48 (27.4%)
Annual Income	
$1-$10,000	1 (.6%)
$10,001-$25,000	9 (5.2%)
$25,001-$50,000	18 (10.3%)
$50,001-$100,000	75 (43.1%)
$100,001-250,000	68 (39.1%)
More than $250,000	3 (1.7%)
Previous miscarriage	
Yes	49 (28.2%)
No	125 (72.8%)
Previous Health Condition	
Type I Diabetes	1 (.6%)
Type 2 Diabetes	3 (1.7%)
High Blood Pressure	5 (2.9%)
High Cholesterol	3 (1.%7)
Clinical Depression	12 (6.9%)
Other	19 (10.9%)
Use of ART	
Yes	12 (6.9%)
No	161 (93.1%)
Pregnant During Covid	
Yes	75 (42.9%)
No	100 (57.1%)
Recall Years	
Currently pregnant	39 (22.4%)
1	68 (39.1%)

2	36 (20.7%)
3	21 (12.1%)
4	8 (4.6%)

Note. M = mean, SD = standard deviation.

Recruitment

Sampling methods for this study included convenient, snowball and purposeful sampling. Recruitment was conducted via posting study information on-line and participants were asked to share the study information with those they knew who met the criteria for this research. In order to qualify for this study, participants needed to be female, 20 years of age or older. Participants could be currently pregnant or have been pregnant within the past 4 years. A time limit of 4 years since the recalled pregnancy was set. Doing this allowed for an adequate number of women to participate while also asking within a time frame that enabled accurate recollection of their pregnancy experiences. Conception could have occurred naturally or with the use of assisted reproductive therapies.

Online Recruitment. Online participation recruitment took place on social media websites including Facebook and Instagram. Facebook groups that specifically included mothers and mothers of AMA were contacted through a public post made by the researcher, advertising the opportunity to participate and providing the survey link. A public post was made on the researcher's Instagram profile describing the research and promoting participation in the survey as well as sharing the link. Social Media sites are inexpensive resources that reach many users and offer targeted posting for shared information (Kosinski et al., 2015). Social media sites were also utilized for purposeful sampling by sending private messages describing the research and providing the survey link to women who made public posts about experiencing AMA.

Email and text message recruitment was utilized through the public health program Parent Promise. Parent Promise gives new mothers an opportunity to have a child-care professional help them monitor and foster proper development of their child. An email and text message that included information about the research as well as a link to the survey was sent to the child-care professionals employed by Parent Promise. The child-care professionals forwarded the email or the text message to participants of the Parent Promise program.

Snowball Sampling. Women who took part in this study were invited to recommend anyone they knew who might qualify for this research to also participate in this study. The use of social media played an important role in snowball sampling because users directly shared the link with those who qualified or publicly posted it for their entire network to see. All social media posts were shareable and included the link to the survey, allowing for effective snowball sampling.

Data Collection Procedures

This was a cross-sectional survey study. The survey included 65 questions and took approximately 15 minutes to complete. Data collection was done using Qualtrics. Participants who were interested in taking part in the study clicked on the study link provided in the recruitment message to be taken to the online survey. After reading the consent form, participants who were interested in continuing with participation clicked on the "agree" button to proceed to the rest of the survey. Those who responded yes to the screen questions "Are you a woman?," "Were you born in the year 2000 or before?" and yes to one of the two questions "Are you currently pregnant?" or "have you been pregnant in the past 4 years?" were eligible for participation, those who did not meet the inclusion criteria were taken to a thank you page to end their participation. After survey completion, participants were provided a resource list to assist

with psychological health or family related trauma. Data collection took place from September 2020-March 2021 in order to acquire adequate sample size for the target population.

Measures

Pregnancy Experiences. Three types of pregnancy experiences were measured, appraisal of hassles, uplifts, and pregnancy-related distress. Pregnancy Experience Scale (PES) was used to measure maternal appraisal of ongoing hassles and uplifts that are specific to pregnancy (DePietro et al., 2002). For hassles, participants indicated the level they felt "unhappy, negative, or upset" about 10 items (e.g., "getting enough sleep") during pregnancy. For uplifts, participants indicated the level they felt "happy, positive or uplifted" about another 10 items (e.g., "how much the baby is moving") during pregnancy. These were measured using a 4-point Likert scale, with scores ranging from 0 (not at all) to 3 (a great deal). Based on scale instruction (DePietro et al., 2002), hassle frequency and uplift frequency were calculated for analysis. This was done by first dichotomize all responses ("not at all" as "0" and the rest as "1") and then calculating the means for the ten hassle items and the ten uplift items. This scale had a Cronbach's Alpha of .77 for uplift and .81 for hassle.

This study used the *Prenatal Distress Survey* (PDS) to measure pregnancy-specific stress. The PDS scale consists of 12 items that acquire information about conditions during pregnancy. These conditions include bodily changes, gestation symptoms and changing relationships (Yali & Lobel, 1999). Example items included "Do you feel bothered, upset or worried during pregnancy about changes in your weight?" and "Do you feel bothered, upset or worried during pregnancy about taking care of a newborn baby?" The responses for each condition were recorded on a 3-point Likert scale (1 = not at all, 2= sometimes, 3 = very much). Scale sum was calculated for analysis according to scale scoring instruction (Yali & Lobel, 1999). The PDS has

previously been used to effectively and accurately measure the stress of pregnant patients (Lobel et al., 2008) and has shown to have a high internal consistency (Yali and Lobel, 1999). This scale had a Cronbach's Alpha of .74 in this study.

Coping During Pregnancy. The Utrecht Coping List-19 (UCL-19) was used to assess the coping style of the participants. The original UCL was developed in Dutch and consisted of 41 items. Turner et al. (2012) translated the original UCL from Dutch to English. Huizink et al. (2002) condensed UCL to 19 items and the UCL-19 focuses on emotion focused coping, problem focused coping and avoidance. The present study used items from the English version of UCL-19 that measured emotion focused coping (7 items) and problem focused coping (6 items). The questions on this list were answered on a 4-point Likert scale with 0 meaning 'never' and 3 meaning 'very often'. Example items include "Do you show your frustration?" for emotion focused coping and "Do you ask for someone's help?" for problem focused coping. Research has shown the translated version of UCL is a reliable and valid tool to measure coping in women (Turner et al., 2012). Scale means were calculated for analysis (Levy-Shiff et al,.2002). This scale had a Cronbach's Alpha of .64 for problem focused coping and .69 for emotion focused coping.

Psychological Health During Pregnancy. To examine psychological health this study analyzed both depressive symptoms and perceived stress during pregnancy. The short Center for Epidemiological Studies Depression Scale (CES-D) was used to measure depressive symptoms. The CES-D was derived from depression scales that were previously validated to represent major symptom components of clinical depression (Kahout et al., 1993). Multiple studies have found CES-D to be an adequate screening tool and the short CES-D has shown to reduce stress response to questions and clarify response options (Kahout et al., 1993). The short CES-D

consists of 10 items that briefly describe feelings or behaviors such as “I felt everything I did was an effort” and “I could not get going”. The participant was asked to indicate how often she felt this way during her pregnancy on a Likert scale with 1 meaning “rarely or none of the time” and 4 meaning “most or all of the time.” After reverse coding two positively worded items, scale mean was calculated for the analysis. This scale had a Cronbach’s Alpha of .86 in this study.

The Perceived Stress Scale (PSS) was used to measure stress during pregnancy (Cohen, 1988). As the most widely used stress perception instrument (Cohen 1994), the PSS is a 4-item scale that has been found to be valid and useful in assessing maternal stress during pregnancy (Karam et al., 2012). The 4 items include ‘During your pregnancy, how often did you feel that you were unable to control the important things in your life?’ and ‘During your pregnancy, how often did you feel confident about your ability to handle your personal problems?’ Responses were recorded on a 5 point Likert scale with 1 meaning “never” and 5 meaning “very often.” Scale mean was used for analysis after reverse coding the positively stated items. This scale had a Cronbach’s Alpha of .87 in this study.

Demographic Information. Demographic information including age, race, religion, education and income were collected. Additional questions on this survey included information on spousal support, health insurance, pregnancy during the covid pandemic, previous health conditions and the use of reproductive therapies. For women who were pregnant in the past, they indicated how many years ago they were pregnant. Since pregnancy during the COVID-19 pandemic can be an additional stressor for pregnant women, participants also indicated whether they were pregnant during the Covid-19 pandemic.

Research Design

This study was cross-sectional, therefore it collected data from participants during a single point in time. This design was appropriate to measure the hypothesized pregnancy experience differences by age and examine relationships between pregnancy experience (DePietro et al., 2002), psychological health (Kahout et al., 1993) and coping (Turner et al., 2012). This study used self-report data regarding the personal experience of pregnancy and psychological health, which can be sensitive topics. The nature of these topics may have led to errors within internal validity. Self-report questionnaires were utilized to aid in comfort and privacy. In addition, participants did not provide any identifiable information and a waiver of informed consent was used to ensure confidentiality and privacy. The retrospective nature of reporting past pregnancy may have threatened internal validity because it may be subject to recall bias. A maximum of 4 years since the recalled pregnancy was set in an effort to minimize the effect on internal validity.

Analysis

Data from Qualtrics was exported as a SPSS data file. All data analysis was completed using SPSS software. First, the means and standard deviations for pregnancy hassle, pregnancy uplift, pregnancy-related distress, problem focused coping, emotion focused coping, perceived stress and depression symptoms were examined. A series of independent sample *t* tests were conducted to compare the overall pregnancy experience, including pregnancy uplifts, pregnancy hassles, and pregnancy-related distress (RQ1), psychological health while pregnant, including perceived stress and depressive symptoms (RQ2) and the difference in coping abilities during pregnancy, including problem focused coping and emotion focused coping (RQ3) between optimal maternal age and AMA women. To answer RQ4, Pearson correlation tests were conducted first to examine the bivariate relationships among pregnancy experiences,

psychological health and coping abilities. Next, two multiple linear regression tests were performed. One with perceived stress being the dependent variable and the other with depressive symptoms being the dependent variable. Both regression tests included pregnancy experiences (i.e., pregnancy uplifts, pregnancy hassles, and pregnancy-related distress) as the independent variables, coping abilities (i.e., problem focused coping, emotion focused coping) as the moderating variables, and six interaction terms (i.e., uplifts with problem focused coping, hassles with problem focused coping, uplifts with emotion focused coping, hassles with emotion focused coping, pregnancy related distress with emotion focused coping and pregnancy related distress with problem focused coping), controlling for age, race, socioeconomic status and other pregnancy related conditions, including spousal support, health insurance, pregnancy during the Covid pandemic, previous health conditions and the use of reproductive therapies. To find out how the pregnancy experience differs by demographics (RQ5), a series of independent sample *t* tests were conducted to examine if pregnancy uplifts, pregnancy hassles, and pregnancy-related distress differed by religion, race, education, income, spousal support and the use of reproductive therapies.

Chapter 4

Results

RQ1: Differences in Pregnancy Experience Between Younger and Older Mothers

As shown in Table 1, independent sample *t* tests found no statistically significant difference in the pregnancy experience between age groups. Pregnancy uplifts among those in advanced maternal age (AMA) (*M* = 8.67, *SD* = 1.64) were similar compared to those who were not AMA (*M* = 8.94, *SD* = 1.32), *t* (223, equal variances assumed) = 1.37, *p* = .172. AMA women (M = 7.27, SD = 2.17) also reported similar level of hassles experiences compared to non-AMA women (M = 7.69, SD = 2.14), *t* (223, equal variances assumed) = 1.43, *p* = .154. Finally, mothers of AMA (M = 23.59, SD = 4.84) also reported similar scores for pregnancy related distress compared to younger mothers (M = 24.61, SD = 4.50), *t* (175.60, equality of variance not assumed) = 1.58, *p* = .117. These findings reject H_1, as there was no statistically significant difference in pregnancy experience between mothers of AMA and non-AMA mothers. We accept the null hypothesis that there is no difference in pregnancy experience between age groups.

TABLE 1. Experience, Psychological Health and Coping During Pregnancy Between AMA and Non-AMA Mothers

	AMA Mothers		Non-AMA Mothers		*t* test	*p*
	Mean	SD	Mean	SD		
Pregnancy Uplift	8.67	1.64	8.94	1.32	1.37	.172
Pregnancy Hassle	7.27	2.17	7.69	2.14	1.43	.154
Pregnancy-related distress	23.59	4.84	24.61	4.50	1.58	.117
Perceived Stress	2.49	.84	2.54	.85	.49	.624
Depressive symptoms	1.76	.49	1.90	.53	2.08*	.039
Problem Focused Coping	2.74	.48	2.70	.55	-.51	.608
Emotion Focused Coping	2.55	.49	2.65	.46	1.52	.130

Notes. SD = standard deviation. * $p < .05$, ** $p < .01$, *** $p < .001$

RQ2: Differences in Psychological Health During Pregnancy Between Younger and Older Mothers.

Mothers of AMA (M = 1.76, SD = .49) reported significantly lower scores of depressive symptoms during pregnancy compared to mothers who were not AMA (M = 1.90, SD = .53), *t* (195.60, equal variances not assumed) = 2.08, p < .05, according to independent sample *t* tests (see Table 1). AMA women (M = 2.49, SD = .84) also reported slightly lower scores for perceived stress during pregnancy compared to non-AMA women (M = 2.54, SD = .85), although the difference was not statistically significant at the .05 level, *t* (187.33, equal variances not assumed) = .49, *p* = .62. These findings partially support H_2, that there is a difference in psychological health during pregnancy between women of AMA and those who are not AMA. Therefore, we reject the null hypothesis that there is no difference in psychological health experienced during pregnancy between age groups.

RQ3: Difference in Coping Abilities During Pregnancy Between Younger and Older Mothers

Table 1 also shows coping differences by age. According to independent sample *t* tests, women of AMA (M = 2.55, SD = .49) reported using emotion focused coping similarly compared to their younger counterparts (M = 2.65, SD = .46), *t* (177.5, equal variances not assumed) = 1.52, *p* = .130. Similarly, problem focused coping between AMA women and non-AMA women did not significantly differ, *t* (201.20, equal variances not assumed) = -.51, *p* = .61. These findings did not support H_3 that there is a difference in coping abilities between mothers of AMA and mothers not of AMA. We can accept the null hypothesis that there is no difference in coping abilities during pregnancy between the two age groups.

RQ4: Associations Between Pregnancy Experiences and Psychological Health During Pregnancy and the Role of Coping Ability

A Pearson correlation was conducted to assess bivariate associations between variables, shown in Table 2. Uplifts experienced during pregnancy were significantly associated with perceived stress (r = -.19, p < .01), depressive symptoms (r = -.21, p < .01), emotion focused coping (r = .12, p < .05), and problem focused coping (r = .14, p < .05) during pregnancy. Hassles experienced during pregnancy were significantly associated with pregnancy related distress (r = .57, p < .01), perceived stress (r = .36, p < .01), and depressive symptoms (r = .45, p < .01) during pregnancy. Pregnancy related distress was significantly associated with perceived stress (r = .54, p < .01) and depressive symptoms (r = .55, p < .01) during pregnancy. Perceived stress during pregnancy was significantly associated with emotion focused coping (r = .14, p < .05), problem focused coping (r = -.13, p < .05), and depressive symptoms (r = .76, p < .01) during pregnancy.

Table 2: Bivariate Correlations Among Variables

	Mean	SD	Range	Uplifts	Hassles	Pregnancy Distress	Problem Focused Coping	Emotion Focused Coping	Perceived Stress	Depressive symptoms
Uplifts	8.89	1.39	0-10	1	.045	-.096	.136*	.121*	-.190**	-.211**
Hassles	7.52	2.20	0-10	.045	1	.568**	-.039	.044	.358**	.447**
Pregnancy Distress	24.13	4.65	14-42	-.096	.568**	1	.026	.094	.542**	.548**
Problem Focused Coping	2.71	.519	1-4	.136	-.039	.026	1	.123*	-.134*	.067
Emotion Focused Coping	2.60	.468	1-4	.121**	044	.094	.123*	1	.136*	.210**
Perceived Stress	2.48	.821	1-5	-.190**	.358**	.542**	-.134*	.136*	1	.761**
Depressive symptoms	1.81	.504	1-4	-.211**	.447**	.548**	-.067	.210**	.761**	1

Notes. * p < .05, ** p < .01

Multiple linear regression analysis, as shown in table 3, found significant association between perceived stress level during pregnancy and pregnancy uplifts (β = -.14, p < .05), pregnancy related distress (β = .40, p < .001), problem focused coping (β = -.15, p < .05), and emotion focused coping (β = .14, p < .05), after controlling for demographic factors, other pregnancy related conditions, and interactions between pregnancy experiences and coping.

TABLE 3. Multiple Linear Regression with Perceived Stress During Pregnancy

	Unstandardized Coefficients B	**Standardized Coefficients Beta**	***t***	***p* value**
Pregnancy Uplifts	-.08	-.14	-2.29*	.023
Pregnancy Hassles	.02	.06	.79	.429
Pregnancy related Distress	.07	.40	5.25***	.000
Problem Focused Coping	-.24	-.15	-2.45*	.014
Emotion Focused Coping	.25	.14	2.50*	.013
Uplift*Problem Coping	-.07	-.06	-1.08	.283
Hassles*Problem Coping	-.09	-.12	-1.62	.106
Uplift*Emotion Coping	.03	.02	.30	.763
Hassles*Emotion Coping	.05	.06	.82	.412
Pregnancy Distress*Emotion Coping	-.03	-.08	-1.15	.251
Pregnancy Distress*Problem Coping	.03	.09	1.27	.206
AMA	.00	.00	.00	.998
Religion	.09	.05	.89	.373
Race	.07	.03	.58	.566
Education	-.15	-.09	-1.43	.155
Income	-.05	-.02	-.383	.702
Spousal Support	-.57	-.22	-3.72***	.000
Health Insurance	-.36	-.07	-1.16	.250
Pregnancy During Covid Pandemic	.15	.09	1.62	.108
Previous Health Condition	.03	.10	1.64	.104
Use of Assisted Reproductive Therapies	-.13	-.04	-.74	.462

Notes. * p < .05, ** p < .01, *** p < .001 Uplift*Problem Coping = interaction between uplift and problem focused coping, Hassles*Problem Coping = interaction between hassles and problem focused coping, Uplift*Emotion Coping = interaction between uplift and emotion focused coping, Hassles*Emotion Coping – interaction between hassles and emotion focused

coping, Pregnancy Related Distress*Emotion Coping = interaction between pregnancy related distress and emotion focused coping, Pregnancy Related Distress*Problem Coping = interaction between pregnancy related distress and problem focused coping.

Similarly, multiple linear regression analysis (Table 4) found significant association between depressive symptoms during pregnancy and pregnancy uplifts 1 (β = -.19, p < .01), pregnancy hassles (β = .21, p < .01), pregnancy related distress (β = .30, p < .001), and emotion focused coping (β = .19, p < .001), after controlling for demographic factors, other pregnancy related conditions, and interactions between pregnancy experiences and coping.

TABLE 4. Multiple Linear Regression with Depressive Symptoms during Pregnancy

	Unstandardized Coefficients B	Standardized Coefficients Beta	*t*	*p* value
Pregnancy Uplifts	-.07	-.19	-3.34**	.001
Pregnancy Hassles	.05	.21	3.29**	.001
Pregnancy related Distress	.03	.30	4.18***	.000
Problem Focused Coping	-.04	-.04	-.67	.503
Emotion Focused Coping	.21	.19	3.60***	.000
Uplift*Problem Coping	-.01	.02	-.33	.739
Hassles*Problem Coping	-.07	-.15	-2.30*	.023
Uplift*Emotion Coping	.01	.01	.12	.905
Hassles*Emotion Coping	.07	.13	2.12*	.035
Pregnancy Distress*Emotion Coping	-.03	-.10	-1.60	.112
Pregnancy Distress*Problem Coping	.03	.12	1.89	.060
AMA	-.09	-.09	-1.61	.110
Religion	-.01	-.01	-.19	.848
Race	-.02	-.01	-.24	.814
Education	-.12	-.12	-2.10*	.037
Income	-.04	-.03	-.50	.617
Spousal Support	-.31	-.20	-3.53**	.001
Health Insurance	-.18	-.05	-1.01	.312
Pregnancy During Covid Pandemic	.10	.10	1.92	.056
Previous Health Condition	.03	.11	2.05*	.042
Use of Assisted Reproductive Therapies	.18	-.10	-1.81	.072

Notes. * $p < .05$, ** $p < .01$, *** $p < .001$. Uplift*Problem Coping = interaction between uplift and problem focused coping, Hassles*Problem Coping = interaction between hassles and problem focused coping, Uplift*Emotion Coping = interaction between uplift and emotion focused coping, Hassles*Emotion Coping – interaction between hassles and emotion focused coping, Pregnancy Related Distress*Emotion Coping = interaction between pregnancy related distress and emotion focused coping, Pregnancy Related Distress*Problem Coping = interaction between pregnancy related distress and problem focused coping.

Significant interaction effect was identified for hassles and problem focused coping influencing depressive symptoms ($\beta = -.15$, $p < .05$). As seen in figure 1, when hassle level is low, more frequent problem focused coping was associated with higher level of depressive symptoms compared to when problem focused coping was used less frequently. When hassle level is high, more frequent problem focused coping was associated with lower level of depressive symptoms compared to using less frequent problem focused coping.

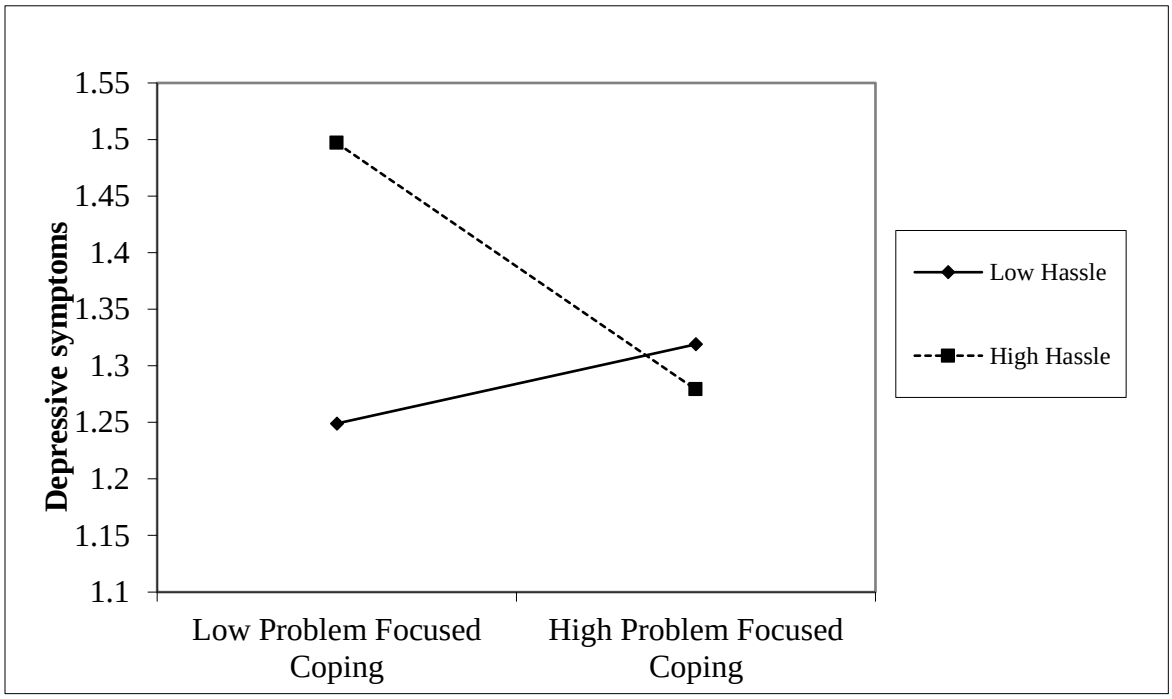

Figure 1. Interaction between Hassles and Problem Focused Coping Influencing Depressive symptoms

Significant interaction effect was identified for hassles and emotion focused coping influencing depressive symptoms ($\beta = .13$, $p < .05$). As seen in figure 2, when hassle level was low, more frequent emotion focused coping was associated with higher depressive symptom level. The same is true for when hassle level was high but a steeper increase of depressive symptoms associated with emotion focused coping was observed when hassle level was high compared to when hassle level was low. No significant interaction effect was identified for other pregnancy experiences nor for perceived stress. H_4 was partially supported by these findings.

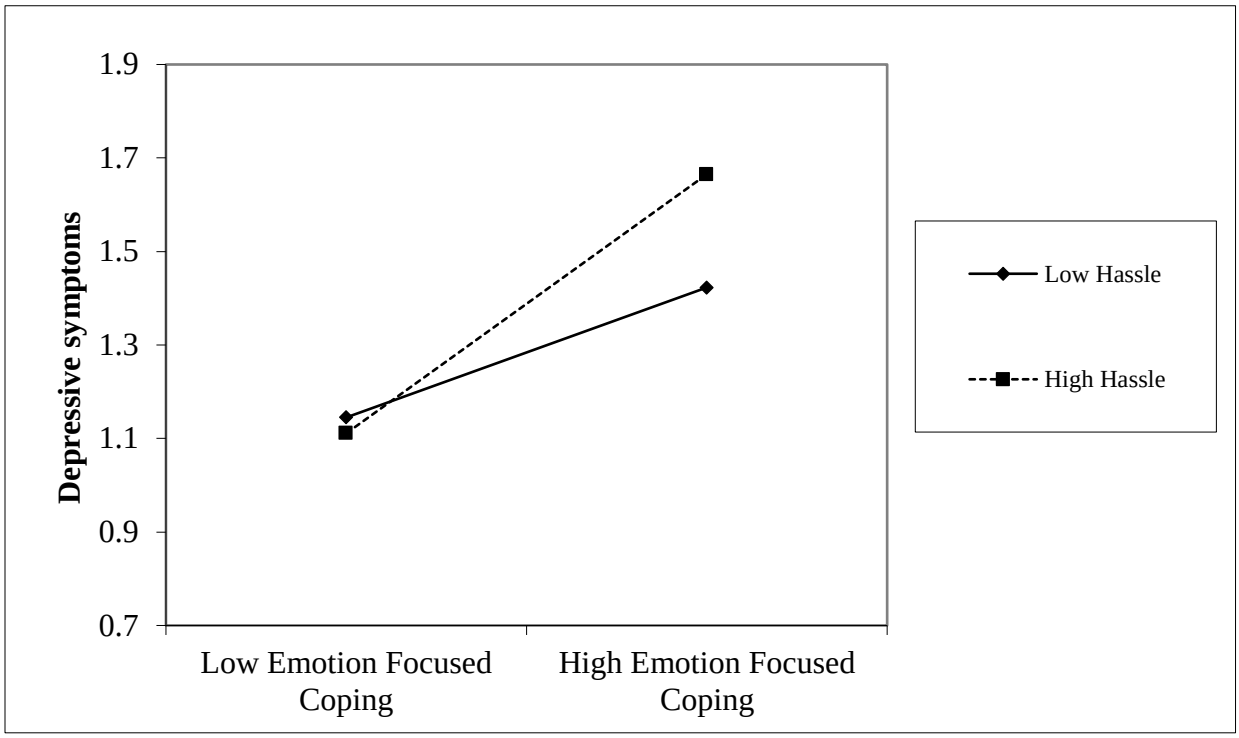

Figure 2. Interaction between Hassles and Emotion Focused Coping Influencing Depressive symptoms

RQ5: Pregnancy Experience Difference by Demographic Characteristics

Using independent sample *t* tests to analyze the pregnancy experience by demographics, religion was found to have a significant difference in the pregnancy uplift score between women

who held strong religious beliefs (M = 9.19, SD = 1.27) and women who did not hold strong religious beliefs (M = 8.65, SD = 1.44), *t* (267.94, equal variances not assumed) = -3.34, $p < .01$. Pregnancy hassle, however, did not show significant difference by religion, *t* (271.82, equal variances not assumed) = -.53, $p = .596$). Neither pregnancy uplift or hassle were found to differ by race, education, income, support, or assisted reproductive therapies (ART). This is shown in Table 5.

Significant differences were found in pregnancy related distress among the categories of religion, education, income, spousal support and ART. Women who held strong religious beliefs (M= 23.39, SD = 4.17) reported lower scores of pregnancy related distress compared to women who did not hold strong religious beliefs (M = 24.67, SD = 4.95), *t* (273, equal variances assumed) = 2.27, $p < .05$. College graduates (M = 23.49, SD = 4.38) reported lower scores of pregnancy related distress than non-college graduates (M = 25.14, SD = 4.86), *t* (253, equal variances assumed) = 2.74, $p < .01$. Women with a household income above $50,000 (M = 23.90, SD = 4.39) scored lower on the pregnancy related distress scale compared to women with a household income of less than $50,000 (M = 25.70, SD = 5.28), *t* (247, equal variances assumed) = 2.03, $p < .05$. Those who felt supported by their spouse during pregnancy (M = 23.79, SD = 4.52) reported lower scores of pregnancy related distress in comparison to those who did not feel supported by their spouse (M = 26.83, SD = 4.93), *t* (274, equal variances assumed) = -3.22, $p < .01$). Women who utilized ART (M = 22.00, SD = 3.31) were found to have lower pregnancy related distress scores when compared to women who did not utilize ART (M = 24.3, SD = 4.72), *t* (273, equal variances assumed) = 3.02, $p < .01$. There was no significant difference in pregnancy related distress scores by race/ethnicity. These findings

partially support H_5 that the pregnancy experience does differ by demographics. We reject the null hypothesis that there is no difference in pregnancy experience by demographics.

Table 5. Pregnancy Experiences by Demographics

		Pregnancy Uplift			Pregnancy Hassle			Pregnancy Related Distress		
		Mean (SD)	*t* test	*p* value	Mean (SD)	*t* test	*p* value	Mean (SD)	*t* test	*p* value
Religion	Yes	9.19 (1.27)	-3.34**	.001	7.61 (1.98)	-.53	.596	23.39 (4.17)	2.27*	.023
	No	8.65 (1.44)			7.47 (2.36)			24.67 (4.95)		
Race	White	7.54 (2.13	-.53	.615	7.54 (2.13)	1.78	.076	23.90 (4.56)	1.70	.096
	Non-white	7.35 (2.25)			7.35 (2.24)			25.33 (4.89)		
Education	College	8.81 (1.53)	.43	.670	7.47 (2.10)	.36	.717	23.49 (4.38)	2.74**	.007
	Non-college	8.89 (1.25)			7.58 (2.21)			25.14 (4.86)		
Income	<$50,000	8.84 (1.21)	-.04	.972	7.44 (2.45)	-.35	.727	25.70 (5.28)	2.03*	.047
	>$50,000	8.84 (1.45			7.58 (2.07)			23.9 (4.39)		
Support	Yes	8.93 (1.38)	-1.59	.121	7.47 (2.21	1.29	.204	23.79 (4.52)	-3.22**	.003
	No	8.50 (1.41)			8.00 (2.12)			26.83 (4.93)		
ART	Yes	9.22 (.902)	-1.74	.091	7.04 (2.46)	1.02	.319	22.0 (3.31)	3.02**	.005
	No	8.85 (1.43)			7.58 (2.17)			24.3 (4.72)		

Notes. * $p < .05$, ** $p < .01$.

Chapter 5

Discussion

Pregnancy Experience Between Younger and Older Mothers

This study found no significant difference in the pregnancy experience between women of AMA and women not of AMA. This finding was contradicting prior research that has found many reasons the pregnancy experience may differ between a woman of AMA and a woman not of AMA (Behruzi et al., 2010, Bayrampoor et al., 2012). Some studies have shown that women of AMA are more likely to encounter circumstances that can negatively impact their pregnancy experience, such as poor interactions and lack of emotional support from medical professionals (Behruzi et al., 2010). Negative messages from health care providers about age by emphasizing pregnancy risks due to AMA have been described as destructive and challenging (Bayrampoor et al., 2012). By emphasizing the risks due to AMA, a woman can acquire an inflated perception of risk which creates more hassles during pregnancy including increased stress and anxiety (Robinson et al., 2015). On the contrary, other literature supports the idea that women of AMA hold attributes such as psychological maturity (Camberis et al., 2014) and better sleeping habits (Athan et al., 2015) that would allow her to have a more favorable pregnancy experience than a woman not of AMA. Despite the existing literature, surprisingly, no significant difference of pregnancy experiences emerged between AMA and non-AMA mothers in this study. One possible reason is sample characteristics. Research has shown women of higher education and socioeconomic status are more likely to have paid maternity leave (Jou et al., 2017), the support of quality childcare (Kim et al., 2017) and adequate health insurance. The majority of the participants were white, highly educated and had a high household income. Future research should recruit AMA women of lower education level and income to further verify the findings. It

is important to note that, although no difference by age was identified, women of all ages reported high levels of pregnancy hassles, mean score of 7.5 out of 10, and improvable levels of pregnancy related distress, mean score 24 out of 42. These findings highlight a need to help pregnant women of all ages. Given the high risk associated with pregnancy during AMA, AMA women, in particular, can benefit from interventions focused on decreasing pregnancy hassles and pregnancy related distress.

Psychological Health During Pregnancy Between Younger and Older Mothers.

Literature shows that certain aspects that are unique to pregnancy at AMA contribute to perceived stress (Robinson et al., 2015) and depressive symptoms (Lindsay, 2006) during pregnancy. However, there is a lack of research analyzing differences in psychological health during pregnancy between older and younger women. This study found women of AMA experienced less depressive symptoms than younger mothers. This is supported by studies that have found women of AMA do not let fears associated with AMA prevent them from feeling happy during their pregnancy (Aldrighi et al., 2018). Where depressive symptoms would be likely, women of AMA are able to overcome. However, perceived stress level did not differ between AMA and non-AMA mothers. Overall, this study found women of AMA have comparable or even better psychological health during pregnancy than women not of AMA. One possible reason for this is that mothers of AMA are more likely to possess qualities and habits such as more psychological maturity (Camberis et al., 2014) and better sleeping habits (Maquillan et al., 2019) that can positively affect psychological health. Additionally, women of AMA seek information from valid resources (Nottingham-Jones et al., 2019), which may contribute to better mental health which could allow them easier psychological adjustment to pregnancy. However, it should be noted that for both age groups the level of depression and

stress were on the lower end. Again, the study sample was mostly highly educated and high-income women. Whether this finding is generalizable to low education, low-income groups requires further research.

Coping Abilities During Pregnancy Between Younger and Older Mothers

This study analyzed emotion focused coping and problem focused coping used by AMA and non-AMA women. Previous literature has found these two types of coping strategies to be utilized consistently among pregnant women (Huizink et al., 2002; Levy-Shiff et al., 2002). Consistent with the literature, our study found both AMA and non-AMA mothers reported relatively frequent use of both problem focused (AMA Mean = 2.74, non-AMA Mean = 2.70, indicating they used these coping strategies "sometimes" to "often") and emotion focused coping (AMA Mean = 2.55, non-AMA Mean = 2.65). Emotion focused coping involves sharing feelings with others and having a positive outlook while problem focused coping involves planning and problem solving. While problem focused coping is considered more effective and mature (Turner et al., 2012), emotion focused coping has shown to be more effective for pregnant women because the circumstance is partly uncontrollable (Huizink et al., 2002). However, this study did not find women of AMA to differ in their coping abilities from non-AMA mothers. While no prior research has compared coping abilities during pregnancy by age group, Compas et al. (1999) found coping skills to be independent of age when studying breast cancer patients. Breast cancer, like pregnancy, is an experience specific to women that is out of their control, and it is possible their finding is true for coping during pregnancy as well. More research is needed to verify these findings.

Associations Between Pregnancy Experiences and Psychological Health During Pregnancy

This study found that perceived stress was negatively associated with pregnancy uplifts and positively associated with pregnancy related distress, even after controlling for coping, demographic characteristics and other pregnancy related factors. This is supported by research that found increased perceived stress correlated with decreased optimism (Ibrahim et al., 2020) and pregnancy specific stress may be a more potent form of stress having greater adverse effects than general stress (Alderdice et al., 2013). These findings suggest having fewer positive feelings during pregnancy and increased distress related specifically to pregnancy could contribute to pregnant women having higher stress levels. It was interesting that no significant association was identified for pregnancy hassle with perceived stress in the multiple regression analysis while significant bivariate correlation was identified ($r = .36$, $p < .01$). It is possible that the effect of hassle was accounted for by other factors included in the regression model, for example, pregnancy related distress. Indeed, research has found that hassle experienced in pregnancy is likely highly related with pregnancy related distress (Dipietro et al., 2004).

Depressive symptoms, on the other hand, negatively associated with pregnancy uplifts and positively associated with pregnancy hassles and pregnancy related distress, even after controlling for coping, demographic characteristics and other pregnancy related factors. This is supported by literature that found depression is associated with more negative feelings during pregnancy (DiPietro et al., 2008). This finding is also consistent with research that finds happiness caused by pregnancy is linked to reducing problems of mental health disorders such as depression (Salehi et al., 2020). It could be suggested that the presence of clinical depression or depressive symptoms prior to pregnancy could play a role and further research is needed. Literature finding the happiness caused by pregnancy can reduce problems of mental health disorders such as depression (Salehi et al., 2020) supports this. The findings of this study suggest

that interventions that address pregnancy experiences should be implemented in order to improve psychological wellbeing.

The Role of Coping

Problem focused coping was associated with lower stress levels while emotional focused coping was associated with increased stress during pregnancy. For depressive symptoms, emotion focused coping was significantly associated with increased depressive symptoms while problem focused coping did not show any significant relationship. This finding contradicts previous literature that found the use of problem-focused coping among women during high-risk pregnancy caused an increase in stress during pregnancy while emotion focused coping resulted in improved well-being and less stress (Huizink et al., 2002). The study findings suggest problem focused coping could play a positive role during pregnancy in helping reduce depressive symptoms, but not with stress. Studies show that problem focused coping is beneficial when the situation at hand is controllable (Lazarus, 1999, Huizink et al., 2002). It is possible that participants in this study perceived pregnancy experiences as controllable and that is why problem focused coping was effective. It was surprising emotion focused coping did not seem to help with stress nor depressive symptoms for pregnant women, but rather had an adverse effect. However, due to cross-sectional data it is unknown if stress precedes emotion focused coping or if emotion focused coping increases stress level. Additionally, coping abilities were measured as frequencies and specific stressors were unknown. It could have been that certain stressors were at levels too high for coping to be effective. Interestingly, significant interaction effect was identified for hassles and problem focused coping influencing depressive symptoms. Specifically, when hassle level is low, problem focused coping was associated with higher depressive symptoms yet when hassle level is high, problem focused coping was associated with

lower depressive symptoms. These findings suggest problem focused coping is only beneficial when needed (i.e., hassle level is high) and when the hassle level is low, problem focused coping may have adverse effects on psychological health. Targeted interventions could lead to more effective coping skills by educating those with high hassles to use problem focused coping while incorporating a different intervention for those without high hassles.

Significant interaction effect was also identified for hassles and emotion focused coping influencing depressive symptoms such that emotion focused coping had adverse effects on depressive symptoms in general and this effect was even worse for these with high hassle levels compared to with low hassle levels. This result was counterintuitive and inconsistent with previous literature that found emotion focused coping led to better psychological health in pregnant women (Huizink et al., 2002). This is probably due to data being cross-sectional. Like discussed above, the cross-sectional data in this study prevented us to examine if maybe women engaged more emotion focused coping due to greater depressive symptoms.

Pregnancy Experience Differences by Demographic Characteristics

Demographics can play a significant role in how a woman experiences pregnancy. This study found that having strong religious beliefs, higher education level, higher income and adequate spousal support all have a positive effect on the pregnancy experience. These findings are consistent with literature that suggests relationship stability and financial stability play a significant role in the pregnancy experience (Cooke & Lavender, 2019). Pregnant women of lower socioeconomic status tend to report higher pregnancy related distress than pregnant women of higher socioeconomic status (Cooke & Lavender, 2019), possibly due to the financial burdens of pregnancy and parenthood. Healthy pregnant women have been found to use prayer most frequently as a coping style (Alderdice & Lynn, 2009) as well as reading prayer books and

participating in religious rituals (Lobel, 2008). In addition, supportive relationships benefit pregnant women by offering care and understanding (Yali & Lobel, 2002). This study also found women who utilized reproductive therapies reported less pregnancy related distress. One possible explanation is the sense of euphoria that may occur when women who have struggled to become pregnant are finally able to bear a child. These findings highlight the needs of targeted interventions for those of lower education and income levels, offering resources to help improve the pregnancy experience. Universal interventions could also be initiated to improve spousal support for pregnant women.

Limitations

When interpreting the results of this study, some limitations should be considered. First, this study focused on pregnancy experiences among women age 20-45, therefore results from this study should not be generalized for other populations. Second, although study instruction suggested only women residing in the United States during pregnancy could participate, given the online nature of the study, it was difficult to control. The survey did include a question to ask participants to report where they resided during pregnancy, but the majority of people did not answer this question, so it was unclear if they were residing in the U.S. Different countries may have varied qualities of health care, types of health insurance and cultural norms regarding pregnancy and not being able to account for this should be noted as a limitation when interpreting the findings. Third, this study was cross-sectional, focusing on a certain period of time, therefore causal relationships between variables cannot be assumed. Fourth, this research was conducted during the Covid-19 pandemic which limited recruitment to online resources including social media sites and email. Due to limited recruitment avenues, the representativeness of the study population is a possible limitation. Relatedly, this research could

be affected by pandemic bias, meaning participants were currently living through a traumatic, stressful event that may have altered responses. Fifth, data was collected using an online survey and is subject to recall bias because 88% of the participants reported experiences of a previous pregnancy. In order to reduce occurrence of recall bias, participants were required to answer the questions regarding a pregnancy that occurred no more than four years ago. Sixth, the online survey was self-administered and participants were not monitored which was possibly the reason many participants completed the survey partially or dropped out. Incomplete surveys were omitted in data analysis and the length of time to complete the survey was taken into consideration for data retention. Lastly, since the survey asked about appraisal during pregnancy and psychological experiences, participants may have experienced emotional turbulence in response to the questions if they had negative pregnancy experiences. A list of helpful resources was provided at the conclusion of the survey.

Implications and Recommendations for Future Research

This study focused on differences in pregnancy between mothers of AMA (i.e., 35 and above) and mothers below age 35. Most current research lacks comparison of the age groups as it relates to the pregnancy experience. There is an abundance of research that studies AMA risk factors and birth outcomes however, there is a lack of understanding about the pregnancy experience during AMA from the perspective of the woman (Cooke & Lavender, 2019). This study fills a gap in current research by representing the pregnancy experience from the views of pregnant women themselves. Although this study did not find significant difference in the pregnancy experience, it did collect data from the women's perspectives, creating a blueprint for future research. By giving pregnant women a voice in sharing their experiences, future studies

can provide adequate insight that will aid in initiating changes and interventions that enable improving the pregnancy experience at AMA.

The findings of this study are interesting to note because, in spite of the many factors that should cause a difference in pregnancy experiences between AMA and non AMA women, we did not find a significant difference in pregnancy experiences nor with their coping abilities. Additionally, where a significant difference was found, in psychological health, it was in the opposite direction than expected with women of AMA being more psychologically healthy than the younger age group. The importance of these findings resides in the unexpected and non-significant results. In spite of AMA being considered a high-risk event that has previously been less accepted by society, it is a growing trend becoming more normalized (Cooke et al., 2010) which may lead to a lack of differences in the pregnancy experience between younger and older women. The normalization of AMA may also attribute to a lack of negative effects it plays on psychological health. The findings of this study bring about empowerment for women who want to have children after age 35, offering indications that age does not determine how pregnancy is experienced.

This study found that psychological health is associated with how a woman experiences pregnancy. While future research is needed to recruit a sample of pregnant women of more diverse demographic characteristics, these findings suggest interventions can benefit from helping pregnant women to have more positive pregnancy experience. Targeted interventions that begin with a screening of pregnancy experience could be utilized. Screenings could help determine who should be referred to interventions that help improve pregnancy experience. While only some would receive referral, all pregnant women should have the opportunity to participate. The intervention should focus on improving communication and relationships

between pregnant women and their health care providers. These interventions could also involve individual sessions or support groups led by a mental health professional or health and exercise classes specifically for pregnant women.

Conclusions

Using a cross-sectional survey design, the study examined data from a sample of 225 currently or previous pregnancy women. Despite not finding significant difference of pregnancy experience and coping abilities between AMA and non-AMA women and identifying slightly better psychological health during pregnancy among AMA women, this research found both pregnancy experience and coping ability play important roles in psychological health. To the best of the researcher's knowledge, no other study to date has compared pregnancy experience between AMA and non-AMA women and this study serves as a pathway to future research, including the inclusion of more diverse demographics. More importantly, previous research has emphasized the importance of acknowledging the risk factors associated with AMA and how they can medically affect both mother and child. The findings of this study suggest that women of all ages could benefit from interventions focusing on improving the pregnancy experience. However, given the high risk associated with AMA, the benefit for this population would be exponential. Prior research on AMA focuses on medical provisions and birth outcomes. This study expanded the understanding of AMA to how a woman experiences pregnancy while at an older age, giving women of this population a voice and allowing researchers beneficial insight into psychological health and coping during pregnancy from the woman's perspective.

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Appendix: Survey

Revised Prenatal Distress Scale

The statements below are about distress experienced during pregnancy, please select the option (Not at all, Somewhat or Very Much) that best describes your pregnancy experience. Please think about your most recent successful pregnancy when responding to the questions below.

Do/did you feel bothered, upset or worried during pregnancy:

1. About the effect of ongoing health problems like high blood pressure or diabetes on your pregnancy?
2. About feeling tired and having low energy during pregnancy?
3. About paying for your medical care during pregnancy?
4. About changes in your weight during pregnancy?
5. About whether you might have an unhealthy baby?
6. About physical symptoms of pregnancy such as vomiting, swollen feet or backaches?
7. About the quality of your medical care during pregnancy?
8. About working or caring for your family during pregnancy?
9. About whether the baby might be affected by alcohol, cigarettes or drugs you have t taken?
10. About whether the baby might come too early?
11. About changes in your relationships with others due to having a baby?
12. About paying for baby's clothes, food or medical care?
13. About taking care of a newborn baby?
14. About pain during labor and delivery?

15. About working at a job after the baby comes?

16. About getting day care, babysitters or other help to watch the baby?

Pregnancy Experience Scale

This questionnaire includes 20 items. Ten items may be considered an uplifting part of your pregnancy while the other 10 items may be hassles. Answer the questions using 0 = Not at all, 1 = Somewhat, 2 = Quite a bit, 3 = A great deal.

How much have each of the following made you feel happy, positive or uplifted?

1. How much the baby is moving
2. Discussions with spouse about baby names
3. Comments from others about your pregnancy/appearance
4. Making or thinking about nursery arrangements
5. Feelings about being pregnant
6. Visits to obstetrician or midwife
7. Spiritual feelings about being pregnant
8. Courtesy/assistance from others because you are pregnant
9. Thinking about the baby's appearance
10. Discussions with spouse about pregnancy/childbirth issues

How much have each of the following made you feel unhappy, negative or upset?

1. Getting enough sleep
2. Physical intimacy
3. Normal discomforts of pregnancy (heartburn, incontinence)
4. Your weight

5. Body changes due to pregnancy
6. Thoughts about whether the baby is normal
7. Thinking about your labor and delivery
8. Ability to do physical tasks/chores
9. Concerns about physical symptoms (pain, spotting, etc.)
10. Clothes/shoes don't fit

Utrecht Coping List - 19

Answer the following questions using the following number scale

Answers: 1 = never, 2 = sometimes, 3 = often, 4 = very often

1. Do you show your frustration?
2. Do you show your anger with someone who you hold responsible for a problem?
3. Do you comply to avoid problematic situations?
4. Do you put up with the course of things?
5. Do you share your worries with someone?
6. Do you take action directly in case of trouble?
7. Do you expel the worries form you mind by going on short leave?
8. Do you look for distraction?
9. Do you turn the problem over in your mind?
10. Do you avoid difficult situations as much as possible?
11. Do you think of different possibilities to solve a problem?
12. Do you work goal-directed to solve a problem?
13. Do you ask for someone's help?
14. Do you line up the matter first?

15. Do you think of other affairs that are not involved with the problem?
16. Do you try to feel better one way or another?
17. Do you show your emotions?
18. Do you seek comfort and sympathy?
19. Do you show others that something bothers you?

Center of Epidemeoloic Studies Depression Scale (CES-D)

Please think of your most recent successful pregnancy when answering the questions below. Indicate how often during your pregnancy did you feel the following using 1= rarely or none of the time, 2= some of the time, 3= much of the time, 4= most or all of the time.

1. I felt everything I did was an effort.
2. I felt depressed
3. My sleep was restless
4. I was happy
5. I felt lonely.
6. People were unfriendly.
7. I enjoyed lift.
8. I felt sad.
9. I felt that people disliked me.
10. I could not get ‘going’.

Perceived Stress Scale

Please think of your most recent successful pregnancy when answering the following questions. The items below ask about your feelings and thoughts during your pregnancy. Please indicate how often you felt or thought in the ways described using 1= Never, 2= Almost never, 3= sometimes, 4= fairly often, 5= very often.

Demographic Information

1. What year were you born? _____
2. What was your age when you found out you were pregnant?
    a. 20-24 years
    b. 25-29 years
    c. 30-34 years
    d. 35-39 years
    e. 40+ years
3. Are you Hispanic, Latino/a/x, or of Spanish Origin?
    a. Yes
    b. No
4. What is your race?
    a. African American
    b. White
    c. American Indian or Alaska Native
    d. Asian
    e. Native Hawaiian or other Pacific Islander
    f. Other _____

5. What is the highest grade of school or highest degree you have completed?
    a. High School (grades 9-12, no diploma)
    b. High school graduate (or equivalent)
    c. Some college (1-4 years, no degree)
    d. Associate's degree (including occupational or academic degrees)
    e. Bachelor's degree (BA, BS, AB, ect.)
    f. Master's degree (MA, MS, MENG, MSW, etc.)
6. What is your household annual income before tax?
    a. $1-$5,000
    b. $5,001-$10,000
    c. $10,001-$25,000
    d. $25,001-$50,000
    e. $50,001-$100,000
    f. $100,001-$250,000
    g. More than $250,000
7. Did you have a preexisting health condition when you found out you were pregnant?
    a. No
    b. Yes. Diabetes, Type 1
    c. Yes. Diabetes, Type 2
    d. Yes. High blood pressure
    e. Yes. High cholesterol
    f. Yes. Other (Please specify) _____
8. Did you attend all of your prenatal physician appointments?

a. Yes

b. No

9. Did you participate in all recommended prenatal screenings?

a. Yes

b. No

10. Did you see a specialist if it was recommended by your OBGYN?

a. Yes

b. No

11. Were you pregnant during the Covid-19 pandemic?

a. Yes

b. No

12. What year did you find out you were pregnant? _____

13. Did you utilize any assisted reproductive therapies to become pregnant?

a. Yes

b. No

14. Have you had a previous miscarriage?

a. Yes

b. No

15. Did you feel adequately supported by your partner/spouse during your pregnancy?

a. Yes

b. No

16. Did you hold strong spiritual beliefs during your pregnancy?

a. yes (please specify_____)

b. No

17. Did you have health insurance during your pregnancy?

18. Where were you residing during your pregnancy (state, country)

19. How many times have you given birth before this pregnancy?