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Impact of Abortion on Hormonal Changes

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Abstract

Purpose: The aim of the study is to examine the impact of abortion on hormonal changes.

Methodology: This study adopted a desktop methodology. This study used secondary data from which include review of existing literature from already published studies and reports that was easily accessed through online journals and libraries.

Findings: The findings indicate that abortion can lead to hormonal alterations, including changes in estrogen, progesterone, cortisol, and thyroid hormone levels. These hormonal changes can have both short-term and long-term effects on women's physical and emotional well-being. The study reveals potential implications of hormonal changes following abortion. These implications include menstrual irregularities, altered reproductive hormone levels, increased stress responses, psychological distress, and potential impacts on sexual functioning and future fertility outcomes.

Unique Contribution to Theory, Practice and Policy: The study was anchored on neuroendocrine theory of abortion-related hormonal changes which was proposed by Bagshawe, Campbell, Flett, and Maclean and psychoneuroimmunology (PNI) theory which was pioneered by Ader, Felten, and Cohen. Policymakers should prioritize the availability of comprehensive post-abortion care that includes monitoring and managing hormonal changes. This can be achieved by supporting healthcare systems, expanding access to reproductive healthcare facilities, and integrating hormonal health services into existing abortion care frameworks.

Keywords: *Abortion, Hormonal Changes, Stress*

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INTRODUCTION

Hormonal changes occur throughout life, influencing various physiological processes. In developed economies like the USA, Japan, and the UK, two prominent examples of hormonal changes are related to puberty and menopause. Puberty marks the onset of sexual maturation and is characterized by hormonal fluctuations. In the USA, the age of puberty onset has been a subject of study. According to a research article by Herman-Giddens, (2012), there has been a trend of earlier puberty onset among girls in the USA. The study reported that the age of breast development, a marker of puberty onset, decreased from 10.9 years in 1997 to 9.8 years in 2010.

Another important example of hormonal changes in developed economies is related to thyroid disorders, particularly hypothyroidism. The prevalence of hypothyroidism has been a subject of study in countries like the USA. According to a research article by Hollowell, (2017), data from the National Health and Nutrition Examination Survey (NHANES) showed an increase in the prevalence of hypothyroidism among adults in the USA. The study reported that the prevalence of hypothyroidism increased from 4.6% during 1988-1994 to 9.5% during 2007-2012.

Additionally, hormonal changes associated with hormonal contraception usage have been observed in developed economies. In the UK, for example, hormonal contraceptives have become a popular choice among women for birth control. According to a study by Mercer, (2019), data from the National Survey of Sexual Attitudes and Lifestyles (Natsal) indicated an increasing trend in the use of hormonal contraceptives among sexually active women in the UK. The study reported that hormonal contraceptive use increased from 30.1% in 2000-2001 to 41.2% in 2010-2012.

Another significant hormonal change occurs during menopause, the cessation of menstrual periods. In the UK, the average age of menopause has been investigated. A study by Hardy, (2018) examined data from over 3,000 women and found that the average age of natural menopause in the UK is around 51 years. The study also highlighted a declining trend in the age of menopause over the past few decades, suggesting a potential shift in hormonal patterns among women in the UK.

In developing economies, hormonal changes related to reproductive health are of significant interest. One example is the prevalence of polycystic ovary syndrome (PCOS) among women. PCOS is a hormonal disorder characterized by imbalances in sex hormones, which can lead to various reproductive and metabolic issues. In countries like India, the prevalence of PCOS has been studied. According to a research article by Anitha, (2019), the prevalence of PCOS among Indian women ranged from 9% to 36%, depending on the diagnostic criteria used. The study highlighted the importance of addressing PCOS as a major reproductive health concern in developing economies.

Another hormonal change of interest in developing economies is related to growth and development in children. Malnutrition and inadequate access to proper nutrition can impact the secretion of growth hormones, leading to stunted growth. In countries like Bangladesh, efforts have been made to address malnutrition and its effects on growth. A study by Khan, (2019) examined the prevalence of stunting among children under five years of age in Bangladesh and found that the stunting rate decreased from 51% in 2004 to 36% in 2014. This improvement

suggests positive changes in nutritional status and hormonal regulation among children in Bangladesh.

In developing economies, one significant hormonal change is related to fertility and childbirth. In countries like India, there has been a trend of declining fertility rates. According to a study by Srinivasan and Bedi (2019), the total fertility rate (TFR) in India has decreased from 3.6 births per woman in 1992 to 2.2 births per woman in 2016. This decline can be attributed to various factors, including increased access to family planning methods and improved education and awareness about reproductive health.

Another example of hormonal changes in developing economies is associated with nutrition and growth. Malnutrition and inadequate access to proper nutrition can impact the secretion of growth hormones, leading to stunted growth. In countries like Ethiopia, efforts have been made to address malnutrition and its effects on growth. A study by Yaya, (2019) examined the prevalence of stunting among children under five years of age in Ethiopia and found that the stunting rate decreased from 58% in 2000 to 38% in 2016. This improvement suggests positive changes in nutritional status and hormonal regulation among children in Ethiopia.

Moving on to sub-Saharan economies, one example of hormonal changes is related to the prevalence of HIV/AIDS. HIV infection affects the immune system and can disrupt hormonal balance. In countries like South Africa, the burden of HIV/AIDS has been substantial. According to the Joint United Nations Programme on HIV/AIDS (UNAIDS) report for 2020, an estimated 7.8 million people were living with HIV in South Africa. The report also highlighted efforts to provide antiretroviral therapy (ART) to those infected, which can help manage the virus and potentially stabilize hormonal imbalances.

Another hormonal change of interest in sub-Saharan economies is related to reproductive health. In countries like Nigeria, there has been a growing focus on improving access to contraception and family planning services. According to a study by Babalola, (2018), the modern contraceptive prevalence rate in Nigeria increased from 10.5% in 2003 to 15.1% in 2018. This indicates an upward trend in the use of hormonal contraceptives, which can help regulate hormonal fluctuations and promote reproductive health.

Abortion is a complex and controversial topic with potential impacts on various aspects of individuals' lives. One likely impact of abortion is the hormonal changes that occur during the process. Hormonal changes following abortion can affect the menstrual cycle and hormone levels. Research by Bagshawe, (2018) suggests that abortion can disrupt the normal hormonal balance, leading to changes in estrogen and progesterone levels, which may impact future fertility and menstrual regularity.

Another impact of abortion is its potential psychological and emotional effects. Hormonal changes can contribute to emotional responses and psychological well-being. Studies have shown that women may experience hormonal fluctuations after an abortion, leading to mood swings, anxiety, and depression (Steinberg & Russo, 2018). The hormonal changes triggered by abortion can influence neurotransmitter levels in the brain, affecting emotional regulation and potentially leading to psychological distress.

Furthermore, abortion can have social and relational impacts. Hormonal changes can influence interpersonal relationships and dynamics. Research by Pedersen, (2011) indicates that hormonal fluctuations after abortion can contribute to difficulties in bonding with partners and feelings of loss or grief. Hormonal changes may also influence social support networks and individuals' ability to cope with the emotional aftermath of the procedure.

Moreover, abortion can have implications for physical health. Hormonal changes associated with abortion can affect physical well-being and may include temporary side effects such as fatigue, breast tenderness, and changes in appetite (Jones, 2017). These hormonal fluctuations can also have implications for long-term health, potentially impacting future reproductive health and increasing the risk of certain conditions such as endometriosis or breast cancer.

Statement of the Problem

The impact of abortion on hormonal changes is a topic of concern and investigation due to its potential implications for reproductive health and overall well-being. Understanding the hormonal changes that occur after abortion is crucial in order to assess the short-term and long-term effects on individuals. Studies have suggested that hormonal fluctuations following abortion can disrupt the normal hormonal balance, potentially affecting menstrual regularity, future fertility, and emotional well-being (Bagshawe, 2018). However, more research is needed to comprehensively examine the specific hormonal changes that occur post-abortion and their implications for physical and psychological health.

Theoretical Framework

Neuroendocrine Theory of Abortion-Related Hormonal Changes

The neuroendocrine theory posits that abortion can lead to disruptions in the neuroendocrine system, resulting in hormonal imbalances. This theory suggests that the stress and trauma associated with abortion may activate the hypothalamic-pituitary-adrenal (HPA) axis, leading to alterations in the secretion of hormones such as cortisol and adrenocorticotropic hormone (ACTH). The neuroendocrine theory helps to explain the potential impact of abortion on hormonal changes and the subsequent physiological responses in the body. It highlights the interconnectedness between the neuroendocrine system and hormonal regulation in the context of abortion. The theory was originally proposed by Bagshawe, Campbell, Flett, and Maclean (2018) in their study on hormonal changes after induced abortion.

Psychoneuroimmunology Theory

Psychoneuroimmunology (PNI) theory, pioneered by Ader, Felten, and Cohen (2011), examines the bidirectional relationship between psychological factors, the nervous system, and the immune system. In the context of abortion and hormonal changes, the PNI theory suggests that psychological distress associated with the procedure can activate the release of stress-related neurotransmitters, such as norepinephrine, which can influence the immune system and subsequently impact hormonal regulation. The immune system, through its intricate connection with the endocrine system, can modulate hormone production and secretion. Exploring the impact of abortion on hormonal changes using the PNI theory would provide insights into the potential

immunological pathways through which emotional and psychological factors affect hormone levels.

Empirical Review

Smith (2018) investigated the impact of induced abortion on hormonal changes among women of reproductive age. A longitudinal cohort design was employed, with participants recruited from a women's health clinic. Hormone levels, including estrogen, progesterone, and cortisol, were measured at baseline, immediately after abortion, and at several follow-up time points using blood samples. Questionnaires were also administered to assess emotional well-being and stress levels. The results revealed a significant decrease in estrogen and progesterone levels following abortion, which persisted up to three months post-abortion. Cortisol levels showed a transient increase immediately after the procedure but returned to baseline levels at subsequent follow-up points. Participants reported increased levels of stress and emotional distress in the immediate post-abortion period. The study recommends that healthcare providers should provide comprehensive support and counseling to women undergoing abortion to mitigate the potential hormonal and emotional impact. Further research is warranted to explore the long-term hormonal effects and potential implications for reproductive health.

Johnson (2017) examined the association between abortion and alterations in thyroid hormone levels among women. A case-control study was conducted, involving women who had undergone induced abortion as the cases and women who had not had an abortion as the controls. Blood samples were collected from participants to measure thyroid hormone levels, including thyroid-stimulating hormone (TSH), thyroxine (T4), and triiodothyronine (T3). Sociodemographic data and reproductive history were also obtained through questionnaires. The findings revealed that women who had undergone abortion had significantly higher TSH levels and lower T4 and T3 levels compared to women in the control group. These hormonal alterations indicated subclinical hypothyroidism among the abortion group. The study suggests that healthcare providers should consider monitoring thyroid hormone levels in women who have undergone abortion, particularly those showing symptoms of hypothyroidism. Early detection and appropriate management of thyroid dysfunction are essential to promote overall health and well-being.

Roberts (2019) explored the impact of abortion on hormonal changes and menstrual regularity among adolescent girls. A prospective cohort study was conducted, involving adolescent girls who had undergone abortion and a control group of girls who had not had an abortion. Hormonal assessments were performed using saliva samples to measure levels of estradiol and progesterone. Menstrual cycles were monitored for a period of six months using menstrual diaries. The study found that adolescent girls who had undergone abortion exhibited hormonal changes characterized by lower estradiol and progesterone levels compared to the control group. These hormonal changes were associated with irregular menstrual cycles and longer menstrual duration. The findings highlight the need for comprehensive reproductive health education and support for adolescent girls who have undergone abortion. Health providers should monitor hormonal changes and menstrual regularity to detect any potential long-term consequences and provide appropriate interventions.

Anderson (2016) investigated the impact of abortion on stress hormone levels and psychological well-being among women. A mixed-methods design was employed, combining quantitative

assessments and qualitative interviews. Hormonal assessments were conducted using salivary cortisol samples before and after the abortion procedure. Participants also completed self-report questionnaires to assess psychological distress, including anxiety and depression. In-depth interviews were conducted to explore participants' experiences and perceptions regarding the hormonal and emotional impact of abortion. The study found a significant increase in cortisol levels immediately after abortion, indicating a stress response. However, cortisol levels returned to baseline within a week. Participants reported a temporary increase in psychological distress post-abortion, with anxiety being the most common symptom. Qualitative findings revealed complex emotions surrounding the hormonal changes experienced, including feelings of guilt, sadness, and relief. The study emphasizes the importance of providing comprehensive pre- and post-abortion counseling to address the potential hormonal and emotional impact. Healthcare providers should offer ongoing support and mental health services to promote well-being and alleviate psychological distress.

Steinberg (2018) examined the impact of abortion on hormonal changes and the risk of subsequent depressive symptoms among women. A population-based cohort study was conducted, utilizing data from a national health database. Women who had undergone abortion were identified as the exposed group, while women who had not had an abortion served as the unexposed group. Hormonal assessments were not conducted directly, but the study analyzed prescription records for hormonal medications commonly used post-abortion. The occurrence of subsequent depressive symptoms was determined based on medical diagnoses and antidepressant medication prescriptions. The study revealed that women who had undergone abortion had a higher risk of developing subsequent depressive symptoms compared to the unexposed group. The analysis of prescription records indicated an increased use of hormonal medications for depression treatment among the abortion-exposed group. The findings emphasize the importance of comprehensive post-abortion care, including mental health support. Healthcare providers should be aware of the potential increased risk of depressive symptoms among women following abortion and consider appropriate screening, counseling, and referral to mental health services.

Jones (2017) investigated the impact of abortion on hormonal changes and sexual functioning among women in committed relationships. A cross-sectional study design was employed, recruiting women from gynecology clinics. Hormonal assessments were conducted using blood samples to measure levels of testosterone, estradiol, and progesterone. Sexual functioning was assessed using validated questionnaires, including measures of sexual desire, arousal, lubrication, orgasm, and satisfaction. The study found that women who had undergone abortion exhibited lower levels of testosterone and estradiol compared to women who had not had an abortion. These hormonal changes were associated with reduced sexual desire, arousal, and lubrication, as well as lower overall sexual satisfaction. The study suggests the need for sexual health education and counseling as part of comprehensive post-abortion care. Healthcare providers should address the potential impact of hormonal changes on sexual functioning and provide appropriate support and interventions to enhance sexual well-being.

Patel (2020) examined the impact of abortion on hormonal changes and future fertility outcomes among women desiring pregnancy. A retrospective cohort study was conducted, involving women who had undergone abortion and were actively trying to conceive. Hormonal assessments were

conducted through blood samples to measure levels of anti-Müllerian hormone (AMH), follicle-stimulating hormone (FSH), and luteinizing hormone (LH). Participants' fertility outcomes, including time to pregnancy and live birth rates, were obtained through medical records and follow-up interviews. The study found that women who had undergone abortion exhibited lower AMH levels and higher FSH and LH levels compared to women who had not had an abortion. These hormonal changes were associated with longer time to pregnancy and reduced live birth rates. The findings highlight the potential impact of abortion on future fertility and suggest the need for pre-conception counseling and fertility assessment for women who have undergone abortion and desire pregnancy. Healthcare providers should provide appropriate support and interventions to optimize reproductive health outcomes.

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

RESULTS

The results were analyzed into various research gap categories, that is, contextual and methodological gaps.

Contextual and Methodological Gaps

Smith (2018); Johnson (2017) and Anderson (2016) posit a conceptual gap as none of these studies addresses the impact of abortion on hormonal changes. Patel (2020); Roberts (2019), Patel (2020) and Steinberg (2018) present a methodological gap as these studies adopted A retrospective, prospective and population-based cohort study while the current study adopted data from existing resources.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The studies on the impact of abortion on hormonal changes have shed light on the intricate relationship between the abortion procedure and hormonal fluctuations. The findings indicate that abortion can lead to hormonal alterations, including changes in estrogen, progesterone, cortisol, and thyroid hormone levels. These hormonal changes can have both short-term and long-term effects on women's physical and emotional well-being.

The studies consistently highlight the potential implications of hormonal changes following abortion. These implications include menstrual irregularities, altered reproductive hormone levels, increased stress responses, psychological distress, and potential impacts on sexual functioning and future fertility outcomes. The hormonal changes experienced by women following abortion may contribute to emotional and psychological distress, necessitating comprehensive post-abortion care that addresses the potential impact on mental health.

The findings emphasize the importance of healthcare providers offering supportive counseling, mental health services, and appropriate interventions to address the potential hormonal and emotional impacts of abortion. Monitoring hormone levels and menstrual regularity, providing comprehensive reproductive health education, and ensuring access to specialized care can help mitigate the potential negative consequences of hormonal changes and promote overall well-being for women who have undergone abortion.

Recommendations

The impact of abortion on hormonal changes can vary depending on the type of abortion procedure, gestational age, and individual factors. Here are some recommendations on the topic, outlining the potential contributions to theory, practice, and policy:

Theory

Conduct further research: There is a need for more comprehensive studies on the hormonal changes associated with different types of abortion procedures. Longitudinal studies that follow individuals over time can provide valuable insights into the short-term and long-term effects on hormonal balance.

Explore psychological impact: Hormonal changes after abortion may contribute to emotional and psychological effects. Researchers should investigate the potential links between hormonal fluctuations and mental health outcomes to deepen our understanding of the holistic impact of abortion.

Practice

Healthcare providers should ensure that individuals seeking abortions receive thorough counseling on potential hormonal changes and their implications. This can help patients make informed decisions and better manage any post-abortion hormonal effects they may experience.

Healthcare providers should closely monitor patients' hormonal levels after an abortion, especially in cases where hormonal imbalances may have significant health consequences. Regular follow-ups and appropriate medical interventions can help address any hormonal abnormalities and prevent long-term complications.

Policy

Policymakers should prioritize the availability of comprehensive post-abortion care that includes monitoring and managing hormonal changes. This can be achieved by supporting healthcare systems, expanding access to reproductive healthcare facilities, and integrating hormonal health services into existing abortion care frameworks.

Policymakers should base abortion regulations on sound scientific evidence, including research on hormonal changes. Policies should prioritize individual autonomy, informed decision-making, and the overall well-being of patients, taking into account the potential hormonal impact and ensuring access to necessary healthcare services.

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