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Review Article

Unintended Pregnancy and Its Adverse Social and Economic Consequences on Health System: A Narrative Review Article

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Abstract

Unintended pregnancy is among the most troubling public health problems and a major reproductive health issue worldwide imposing appreciable socioeconomic burden on individuals and society. Governments generally plan to control growth of births (especially wanted births as well as orphans and illegitimate births) imposing extra burden on public funding of the governments which inevitably affects economic efficiency and leads to economic slowdown, too. The present narrative review focuses on socioeconomic impacts of unintended pregnancy from the health system perspective. Follow of Computerized searches of Academic,53 scientific journals were found in various databases including PubMed, EMBASE, ISI, Iranian databases, IPPE, UNFPA (1985- 2013). Original articles, review articles, published books about the purpose of the paper were used. During this search, 20 studies were found which met the inclusion criteria. Unintended pregnancy is one of the most critical challenges facing the public health system that imposes substantial financial and social costs on society. On the other hand, affecting fertility indicators, it causes reduced quality of life and workforce efficiency. Therefore lowering the incidence of intended pregnancies correlates with elevating economic growth, socio-economic development and promoting public health. Regarding recent policy changes in Iran on family planning programs and adopting a new approach in increasing population may place the country at a higher risk of increasing the rate of unintended pregnancy. Hence, all governmental plans and initiatives of public policy must be regulated intelligently and logically aiming to make saving in public spending and reduce healthcare cost inflation.

Keywords: Unintended pregnancy, Economic burden, Cost, Health indicators, Reproductive health

Introduction

Unintended pregnancies are pregnancies that are mistimed, unplanned or unwanted at the time of conception. Unintended pregnancies include unwanted pregnancies at least for one of couples. Unintended pregnancy is among the most troubling public health problems and a major reproductive health issue including accidental pregnancy and defined as a pregnancy that was undesired for one or both of the partners (1). Regarding the World Health Organization (2005) approximately 210 million pregnancies occur each year worldwide of which 87 million are unplanned and 41 million continue to birth. According to the reports (2) the total number of unsafe abortion in 2008 was 21-22 million worldwide and there were 22 unsafe abortions per 1000 women aged 15-44 years. While the report on mortality due to unsafe abortion estimates 47000 maternal deaths (that is

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13% of maternal mortality in 2008. Approximately fifty percent of pregnancies in United States of America are unintended and about 48% of reproductive- age American women (15-44) have experienced at least one unintended pregnancy (2, 3).
Contrary to extensive coverage of family planning in Iran and the efforts in this regard unplanned pregnancies are common problem as well. A research in different parts of Iran revealed the prevalence of unintended pregnancies to be 22% while in Ardebil it was 61% (3, 4). Another survey reported it to be 31% (of which 56% were unwanted and 44% were unplanned (5). Unintended pregnancy is also considered as a high-risk pregnancy associated with high rates of negative consequences for mother, partner and the baby. These groups of women are more exposed to suicide (6) and depression rate, poor nutrition during gestation (7), mental health issues, unstable family relationships, experiencing physical and psychological violence, risk of miscarriage and having low birth weight infants (8) and delayed onset of prenatal care **(**9).
Statistics show that when compared to wanted ones, unwanted children are exposed to greater risk factors, so that they more likely experience negative psychological and physical health issues and dropout of high school and tend to show delinquent behavior during adolescence (2). The participants of a research in Australia reported higher level of depression, anxiety and delinquency than compared with those in wanted children group thus child smoking were self-reported at 14- years (10).
According to several micro-level studies, a child's overall health has an impact on his or her ability to achieve academic success. Existing studies at the macro level suggest population health has a significant effect on a nation's economic performance and growth (11). Overall, the evidence suggests that unintended pregnancy is one of the most critical challenges facing the public health system and imposes significant financial and social costs on society. Long-term studies confirm that reducing unintended pregnancy incidences would increase labor force participation rates, improve academic achievement, have better economic efficiency, increase the level of health and reduce in crime rates among vulnerable groups (2, 10). Thus in this paper we focus on the socio-economic impacts of unwanted pregnancy from the viewpoint of health system.

Methods

The present narrative review focuses on socioeconomic impacts of unintended pregnancy from the health system perspective. Follow of Computerized searches of Academic,1245 scientific journals were found in various databases including PubMed, EMBASE, ISI, Iranian databases, IPPE, UNFPA (1985- 2013). Related keywords included unwanted pregnancy, economic outcomes, social outcomes, cost, socio-economic consequences, health indicators, Reproductive health. After reading to topics, 53 relevant articles were identified. During this search, 20 studies were found which met the inclusion criteria. Inclusion criteria: 1- published articles in English and Persian (Original articles, review articles, published books about the purpose of the paper were used). 2- coordination between articles and Research Goals (Socio-economic consequences of unintended pregnancy). Socio-economic variables influencing unintended pregnancy were selected based on Socio- economic determinants of reproductive health (2010). Socio- economic determinants of reproductive (2010) that affect unintended pregnancy including: age, educational level of the spouses, the economic situation, employment of women, number of children, type of contraception, abortion and the number of children are living or dead.

Unintended pregnancy and unsafe abortion: An economic approach

Unintended pregnancies are classified as the high-risk gestations and occur across society regardless of race are socioeconomic status and its rates are highest among poor and low-income women (12). Furthermore, the number of illegal abortion is rising dramatically. According to global statistics annually 19 million women in developing countries and more than 15 million in Asia experience unsafe abortion, it is estimated that each year about

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500000 women in developing countries die because of pregnancy complications. Therefore, unsafe and illegal abortion is among the main causes of death worldwide. The annual cost of treating a woman for complications of unsafe and illegal abortion is considerably higher than the cost of providing medical and safe abortion (13). The incidence of induced abortion is an important indicator of the frequency with which women experience unintended pregnancies (14). In 2008, 43.8 million abortions occurred worldwide while nearly half of all was unsafe and 98% of all unsafe abortions occurred in developing countries (15).

Forty percent of pregnancies are unplanned in Iran (16). Abortion is illegal due to religious, cultural and social beliefs in Iran and most of the unwanted pregnancies are terminated by clandestine and unsafe abortion procedures. This can cause irreparable damage to mother including death and serious disabilities; an unsuccessful abortion may influence the child's health, too. These can negatively influence quality of life and impose heavy expenditures on the health system that are not defined or recorded in the balance sheet (2). Regarding the allocation of funds the health sector, problems related to pregnancies place heavy financial burden on governments (especially federal government). Most of money spent by taxpayers to comply with the health system may be spent for issues associated with unintended pregnancies.

Economic analysis shows that U.S. taxpayers spend more than 12 billion each year on unintended pregnancy (17). In the analysis of medical costs Children's Health Insurance Program (CHIP) reported that 12.1 billion is spent each year for as estimated 1.25 million unwanted pregnancies that 103 million is allocated to abortion services. On the other hand studies suggest that eliminating medical costs by preventing unwanted pregnancies can help to save about three- quarters of the budget allocated by the federal government allocated for UNICEF projects in 2010.

Reducing the incidence of unintended pregnancies can lead to reducing maternal mortality. Maternal mortality ratios is a major indicator of development in the world and according to the Millennium Development Goals, it should be reduced by three- quarters (75%) between 1990 and 2015. In our country the maternal mortality ratio is 21 per on hundred thousand live birth. Indeed any decrease in the rate of unintended pregnancy will significantly affect mortality rate. In developing countries including Iran it is somehow impossible to find out the exact number of unintended pregnancies and the statistics are ambiguous and, therefore, increase the tax burden on taxpayers and subsequent economic costs are unknown, too (2).

Family planning policy has recently been changed in Iran so adopting a new approach in increasing population in our country may place the country at a higher risk of increasing the unintended childbirth rate. Variables of quantitative economics, micro and macro socio-economic interactions on social variables such as unemployment, dropout and social harm to restate that this is considered in this paper **(**12).

Review literature: Unintended pregnancies and population, from a socio economic perspective

Demographic changes in the last two centuries, along with fundamental changes in lifestyle, technology development and various rising of expectations in promoting physical, mental and social welfare have led to the further consideration of population issues and developing strategies to manage the population (18).

Health status of a population is affected by various factors such as age structure, exposing to risk of different carriers, and also level of population welfare behavior and characteristics as well as reproductive behaviors healthcare needs do affect a country's economic performance. Commission on the Macroeconomics and Health reports that population health has a significant impact on different aspects of microeconomics and health labor market and saving variables that will eventually affect the macroeconomic outcomes of a country (19). The problem of unwanted pregnancy is one of the main challenges facing developing countries due to its effect on uncontrollable population growth and mother and child health. The world population doubles every 40 years while in poor countries it will probably happen in less than 20

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years. Thus unintended pregnancy can be among the factors negatively affects the growth of population. This issue can be approached in two ways: prevention of uncontrolled excessive population growth and its impact on both mother and baby (14). The risk factors associated with unintended pregnancy include unwanted pregnancy in adolescents, inadequate family planning services, low socio economic status, lack of or improper use of family planning methods and unawareness of it. Unwanted pregnancy rate among low-income American teens is reported to be about 60%. Teenage (15-19 yr) unintended pregnancy often leads to academic failure and school dropout. It is also associated with a greater risk of psychological distress, suicide and unsafe abortion and may threaten the health of the individual (17). Health is the basis of job and learning efficiency increasing physical – mental and intellectual abilities development and is essential for productive adulthood. So the incidence of unplanned pregnancy, affecting health of children and adults, leaves costs and financial burden to the governments (20).

Unintended pregnancies are more common among poor adolescents. Poverty and disease are the major causes of suffering that accelerates population growth and unequal distribution of health services and health inequalities (13, 21). "Health inequalities" is a term used to socioeconomic and health inequalities. Many epidemiological studies have shown that developing countries grapple with the poor health consequences and higher burdens of diseases compared to countries that are more affluent. This kind of pregnancies will lead to decline in welfare of couples, reducing socio- economic development (22). Unintended pregnant teens will be more exposed to risk factors including lower education and income levels and being focused to take low status jobs. Gini coefficient based on Lorenz curve is used measure of inequality income, which is a cumulative frequency graph that compares distribution, which represents equality of incomes. In this regard, there is a range of problems associated with data sources on health status of population that can potentially cause serious bias in the measurement of health in equalities. There is also a risk of serious bias due to the lack of definitive statistics concerning health status of Iranians (23).

In a system of public financing and in the systems that medical bills are paid by third- party payers (employer- based insurance systems) insured groups or people put pressure to meet its demand that rising budgetary pressure for the state is its minimal impact. These additional costs will eventually be reflected in Consumer Price Index (CPI) (24,25). Budgetary pressures resulting from unintended pregnancies and taxpayers costs are high so that the average cost per unintended pregnancy in United States is calculated to be about 10 thousands of public funds (2, 26). Clearly, the incidence of unplanned pregnancies can impose a significant burden on taxpayers. Use strategy to prevent unintended pregnancy (Method of family planning and contraceptive methods such as condoms, pills, etc.) will reduce the financial burden on taxpayers. Because of economic and social variables on the interaction, so improving economic variables, social variables can also be improved.

Unintended pregnancy and Health: Socio-economic approach

Health and safety issues are intertwined with comprehensive progress and development including economic growth. Healthy people are more happy and motivated ones that increase productivity and economic development by reducing direct and indirect costs. Therefore, most of the communities have paid special attention to promotion of health indicators Health indicators are quantifiable characteristics of a population, which researchers use as supporting evidence for describing the health of a population (21, 27). Indeed the most important factors affecting economic growth are labor, physical and human capital (28).

The concept of human capital in economic literature defined by including education, training, health, skills, expertise, experience, migration and other investments that enhance an individual's productivity and improve economic growth (29). When speaking of improving the quality of labor productivity the issue is not unique to education, skill or experience but the impact of public health should also be considered as an important factor

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in the accumulation of human capital. Unplanned pregnancy interferes with health and wellness in different ways (30). Unintended pregnancy not only effects on various aspects of individual and family health state, but also reduces the labor productivity (31). In the regards different domains relevant to quality of life: socio economic, familial, psychological, spiritual, health and performance aspects (32,33). Unintended pregnancy due to complications that can reduce quality of life (34,35). Several reports suggest that incidence of unintended pregnancy predicts a range of negative outcomes like labor market challenges and increasing the number of working days lost (2, 36). There is a reciprocal relationship between them so the level of public health (especially Health promotion labor force) is directly related to the economic growth and consequently socio economic development. Reciprocally economic growth is associated with increasing level of public health (23, 37). Implementation of public health interventions to reduce unintended pregnancy can cause growth and economic development (26).

Unplanned pregnancies can reduce labor productivity through declining health stock for individuals that in turn lowers the standards of living) 32). According to Myrdal cumulative causation theory low-income leads to lower levels of life, so human productivity level will be limited and the vicious circle will be repeated because of low incomes (22, 38).

Unintended pregnancy and reproductive health from a socioeconomic perspective

Health development is driven by public health that in turn driven by reproductive health (39). Reproductive health can be divided into some subcategories: consultations, information, education and communication about family planning, promoting right to freely choose marriage (partner), contributing gender equality and equity in decision making for marriage, family planning services, improving reproductive decisions, providing prenatal care and healthcare for women, securing reproductive and sexual health, preventing infertility, inappropriate treatment of infertility and abortion and treating its complications as well as treating reproductive tract infections, dealing with sexually transmitted diseases and appropriate treatment (40- 42).

Demographic studies in the second half of the 20th century indicate progression in fertility transition in different parts of the world, especially in developing countries. Studies showed a correlation between fertility transition and the rate of unintended pregnancy. Model of Bongaart, suggested that with the onset of the fertility transition, unwanted fertility typically rises substantially that will stabilize at the end of the phase and will not decrease. Then he argues that the reason for increase unplanned pregnancy rate during the first half of the transition is a decrease in desired family size (or ideal number of children). Unplanned pregnancy is the major reproductive health issue that seriously affects its indicators (44).

Infant mortality rate, as one of the major indicators, is affected by unintended pregnancy incidence. According to a number of studies infant mortality and malnutrition levels and the rate of abuse and mental illnesses including schizophrenia are high among the babies from unwanted pregnancies and they are more likely fail in academic achievements in later life. Unintended pregnancy increases the risk of low birth weight and affects the infant growth indicators (43). Mortality rate of children under 5 years of age is an important indicator for reproductive health that can be affected by incidence of unplanned pregnancy. This kind of pregnancy is the leading cause for death of 14 million children under 4 years worldwide (45, 46).

Maternal death indicator is affected by unplanned gestation due to unsafe and criminal abortions. The results of "Reasons women give for contemplating or undergoing abortion", indicate that the private decision of the mother, number of children she has, opinion of the partner and people significant in her life have direct impact on her abortion decision (16).

43.8 million abortions occurred worldwide, of which 86% occurred in low-/middle-income countries. Between 2003 and 2008, the proportion of unsafe abortions increased and they were believed to account for 13% of maternal deaths, with the majority of these concentrated in coun-

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tries with restrictive laws on abortion (15, 47). Nevertheless, global studies have mostly focused on psychological impact of induced abortion on the woman however; there have been few studies on the issues of the ones choose to continue their pregnancy.

Women with unintended pregnancy did high- risk activities when facing unwanted childbearing including hitting, lifting heavy objects, using unhealthy vulva objects, using injections and eating herbal and chemical medicines (47,48,50). A research on reproductive health indicators including prenatal care and stated concluded that average weight gain in women with unintended pregnancy is significantly less than the ones with wanted gestation (18,48).

There are significant differences between women with intended and unintended pregnancies in the indicators for family planning in reproductive health services. Ineffective use of family planning methods are associated with increased rates of maternal mortality due to pregnancy that is a health equity indicator (39).

The life expectancy indicator is one of the indicators heavily influenced by infant mortality rate (IMR) that is the best indicator of socio-economic development. Accurate statistics on the number of unintended pregnancies resulted in fetal death, is not exist (6). The stock and investment in health human capital (health expenditures) influenced the growth rate of per capita income positively and were in a significant level of, respectively, 99 and 90 percent (22). Results from the analysis of reproductive health indicators and impact of unplanned pregnancies on them suggest that this condition leads to more health expenditures and family responsibilities and limits women's participation in economic activities. Labor force and its productivity lead to increase human capital inventory and it can be said that health expenditures are one of the most effective factors on production**.** The overall state of the economy (including current and future growth rates) can affect both actual and expected values of variables that are the determinants of health and change health state of community (52). Then it is necessary to initiatives public policy intelligently aimed at reducing and preventing unwanted pregnancies that will generate significant savings in the governments' budget (2). This has resulted in economic growth, increased government revenue especially taxes and income from profit- making activities which may prove useful for development of treatment and in improving the public health (52).

Prevention of Unintended pregnancy: By separating economic and social variables

Out-of-pocket health care spending imposes a substantial financial burden on government and households and in many countries, health expenditure per capita has risen faster than the rise in Gross Domestic Product (GPD) (10). Almost all countries with advanced economics are striving to control soaring health costs along with achieving the goals of health care and Medicaid. Reining the healthcare costs is a major priority for policymakers and stimulating healthcare reform (11,19).

In order to achieve better outcomes and reduce the costs, it is essential to implement preventive measures, promote health information, advance evidence-based self-care behaviors and improve performance of information systems and electronic applications aimed at treatment detection and follow up.

Prevention is an effective way of dealing with socioeconomic burden of unwanted pregnancies imposed to health sector. Some of the leading causes of unintended pregnancies are non-use and also improper use of contraceptive services and contraceptive failure (1). Social pressures and expectations overshadowed the needs of women and so they are not allowed to prevent pregnancy. Social sanctions and inequality between men and women, husband's disapproval of contraceptive methods, inadequate family planning, lack of effective consultation make recommendations incompatible with their conditions that would make them not use contraceptives (36, 52).

The costs of unintended pregnancy are classified as the intangible costs, which are not just financial but can indeed cause a decrease in the quality of life of these mothers and their families. In fact, the real damage to quality of life is incalculable.

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Unintended pregnancies result in a range of adverse consequences including labor market struggles, higher crime rates, more abortions, increased levels of household stress and others that have nothing to do with public balance sheets and creates a huge financial burden for taxpayers given the initial value of the nominal. Prevention of unplanned pregnancies will help to increase national savings and lead to higher rates of economic growth (39). Obviously, adoption of policies such as: adolescent pregnancy prevention, improving family health literacy based on socio-economic welfare (2), launching programs promoting contraceptive use. Promotion of consultation and men's participation, reduction in unprotected sex and implementing programs to improve the quality of family planning services (39) can lead to significant savings in public spending and many health expenditure inflation rate (9).
However, unintended pregnancy can be reduced using quality improvement programs. Among socio economic factors, training and education has been proven to be the most effective factors affecting fertility behavior. Women with higher education are more likely to succeed in controlling their fertility advancing their opportunities for childbearing (52, 53).

Discussion

Individual health is considered as a key factor in the accumulation of human capital, reducing the welfare of couples and socio economic development. Briefly concluding the economic analysis, it can be inferred that unintended pregnancy is one of the major challenges facing public health and safety that imposes significant economic and social costs on society.
WHO Report, Poverty and health inequalities are important factors in unintended pregnancy (13, 21). Many epidemiological studies have shown that developing countries grapple with the poor health consequences and higher burdens of diseases compared to countries that are more affluent. This kind of pregnancies will lead to decline in welfare of couples, reducing socio- economic development (22, 23).
Social stratification ranks individuals based on their education, income and employment status and therefore consolidates their position in the system. Unintended pregnant teens will be more exposed to risk factors including lower education and income levels and being focused to take low status jobs (23,24).In many studies, reducing coverage for family planning is an important factor in unwanted pregnancy (3-5,40-42). Contrary to extensive coverage of family planning in Iran and the efforts, in this regard unplanned pregnancies are common problem as well. The prevalence of unintended pregnancy is reported 22% in Iran (3) and 61% in Ardabil (4).
Unintended pregnancy has a range of negative consequences—abridged educational careers (23,24), labor-market struggles (19,47), higher crime rates (2,53), more abortions (48), increased levels of household stress (47,48), and other related outcomes—that have nothing to do with public balance sheets and are therefore not incorporated into our analysis. Similarly, due to practical data limitations, we do not account for the likelihood that delaying some mistimed pregnancies will reduce the likelihood that they will require taxpayer support when they eventually occur. Thus, our estimates are inherently conservative (47).

Conclusion

Overall, the evidence suggests that unintended pregnancy is one of the most critical challenges facing the public health system and imposes significant financial and social costs on society. Long-term studies confirm that reducing unintended pregnancy incidences would increase labor force participation rates, improve academic achievement, have better economic efficiency, increase the level of health and reduce in crime rates among vulnerable groups.

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Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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