View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by IntechOpen

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

5,000
Open access books available

125,000
International authors and editors

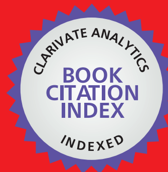
140M
Downloads

154
Countries delivered to

Our authors are among the

TOP 1%
most cited scientists

12.2%
Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index in Web of Science™ Core Collection (BKCI)

Interested in publishing with us? Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com

Chapter

Pregnancy in Adolescence: A Hallmark of Forthcoming Perinatal Depression?

Alexandra Matei and Cringu Antoniu Ionescu

IntechOpen

Abstract

Over the last decades, teenage sexual behavior has come to expand toward unknown grounds mostly under the constant change in sociopolitical and cultural background. Whether they culminate in unintended pregnancies or not, adolescent reproductive health issues reside basically in the lack of proper implementation of educational programs and/or difficulty in accessing contraceptive methods. Until now, retrospective studies succeeded to identify a few characteristics correlated with adolescent pregnancies and their outcomes, while in low-income countries, socioeconomical disadvantages play a significant role in the lives of pregnant teenagers, and mental health affections such as depression and anxiety as well as noxious behavior are typically the appanage of high-income countries. By establishing cultural- and geographical-related peculiarities of young patients with impact on their pregnancy, raising awareness toward the spread of this new trend in obstetrical medicine might prove to be effective in practice when counseling these patients.

Keywords: teenage pregnancy, depression, unintended pregnancy, sexual education, fetal outcome

IntechOpen

1. Introduction

Transition from childhood to adult life is known to be an experience engaging infinite possibilities with unpredictable outcomes. Adolescence or the time period between 10 and 19 years of age represents the nucleus of personal development from the primary inherited self toward building a complex self-identity. The response of individuals exposed to endless possibilities arising from surrounding events and phenomena is what builds up one's character and nature. Because of the absence of experience along with emotional immaturity—both contributing to a circle of weaknesses—it is considered that teenagers embody a vulnerable population. Therefore, investing in worldwide efforts destined to assure good healthcare for this specific part of the population is well justified.

Nowadays, the UNICEF states that 16% of the world population (1.2 billion people) is adolescents [1]. The youth's morbidity emerges from mental health issues, depressive disorders, anxiety, and behavioral problems, which are known to affect adolescent well-being [2]. Social norms have a different impact on young people, especially depending on gender. Specifically, female teenagers have increased

mortality and morbidity rates directly related to pregnancy in early stages of transition to adulthood; reports show that approximately 12 million girls aged 15–19 years and at least 777,000 girls under 15 years give birth each year in developing regions, and at the same time, unintended pregnancies affect almost 10 million girls aged 15–19 years old [3]. These concerning statistics and the subsidiary connections between pregnancy body transformation and adolescent psychological immature integrity raised awareness toward this cluster of issues and formed the basis for the sustainable development goal 3 addressed by the United Nations. Preliminary data published in 2019 show that adolescent fertility declined from 56 births per 1000 adolescent women in 2000 to 44 births in 2019; this is promising information regarding the target set to ensure universal access to sexual and reproductive healthcare services until 2030 [4].

It might come as a paradox the fact that in the era of globalization and ultramodern communication devices, teenage access to health guidance and education is still facing serious obstacles [1]. International organizations are starting to use tools as Google Trends in order to identify and respond to the unmet need for proper networking and health services. Moreover, an emerging area of interest called "infodemiology" has been implemented by Eysenbach after epidemiologists came to the conclusion that health-related information seeking affects each individual's demands for healthcare services and increases healthcare utilization [5, 6]. Assessing data in real time has become crucial under most aspects of our lives, but nevertheless, there are still low- and middle-income countries where information on an inhabitant's health status is not available. For example, evaluations for mental disorders in people aged 5–17 years are available for only 6–7% of countries reviewed in the Global Burden of Disease project, while suicide remains the second-highest cause of death among people aged 15 to 29 globally [2, 4].

2. Divergent societies: one common problem

Over the last decades, significant attention has been drawn toward adolescent health, especially since severe social and economic consequences are involved in this matter. In several societies depending on cultural values, pregnancy in young women is considered a vector of poverty transmission from one generation to another [7]. Tendency toward school dropout, reduced employment rates, and engagement in noxious behaviors are all social issues related to adolescent pregnancy [7, 8]. Furthermore, the severe impact of all the aforementioned factors on mental health integrity under the shape of stigma or rejection are all leading causes of increased associated morbidity [8]. Articles addressing a global perspective on teenage pregnancy acknowledged the role of the family structure, whether intact or dysfunctional, on young people's sexual behavior: it has been shown that a close relationship between parents and teenagers based on communication and support has an actual impact on diminishing teenage high-risk behaviors [8].

In the attempt to draw the limits of this international concern, populational studies have estimated that the proportion of adolescent population reached a peak around 1980, from then on being predicted with a decreasing tendency until 2050; at that point, a new prominent increase is foreseen [7]. This demographic representation is, however, subject to change taking into account the alarming fluctuations in traveling populations and pandemics affecting health and life expectancy.

However, literature proves that adolescents engage in age-related risk behaviors irrespective of cultural and sociopolitical backgrounds: in Latin America and the Caribbean, adolescents play a significant role in the society since they account for almost 30% of the population; this way, it is relevant to mention a 2012 Mexican

report that identified that 23% of 12–19-year-old adolescents already initiated their sexual life; however, 14.7% of the boys and 33.4% of the girls did not use contraceptive measures, and this conclusion had determined authorities to apply preventive strategies on this matter [7].

While most countries around the world struggle with reducing pregnancy and birth rates in adolescent populations, the United States of America managed to achieve a general decline in the rates mentioned above: in 2016 the birth rate of youths aged 15–19 years reached a historic low of 20.3 births per 1000 adolescents [9]; however, there are conflicting results regarding some vulnerable groups, including those teenagers who are homeless or incarcerated and those from rural areas or from small ethnic communities [10]. Here, adapting interventions and precision-focused strategies are still to be developed. In the attempt of breaking this harmful habit cycle, the United States have committed to invest more than 200 million dollars each year in abstinence programs [8]. By using a new perspective on an old problem, multiple interventions developed under legal criteria are destined to empower youths by helping them improve their decision-making abilities as well as preparing them for adulthood [9].

There are studies that describe teenage pregnancy as a positive experience as well [11]; the adolescent perspective on the matter is the main indicator in this theory. Themes from the literature include the search for autonomy, peer recognition, and a place in society. In this research pregnancy is marked as a life project to provide the unfulfilled needs of youngsters. Most of the time, young women who assume motherhood are still operating at different levels—emotional, financial, and cognitive—dependent on other persons; however, there are widespread small communities that are known to recognize early marriage as a tradition, bound by religious and not civil rules.

It is, therefore, a demanding challenge to solve the teenage birth problem using a single solution. Distinctive nations require distinctive measures which fit more or less depending on the surrounding macroenvironment. Taking a step back and learning from the past could help notice that over time the rates in adolescent fertility have remained high in sub-Saharan Africa at around 101 births per 1000 adolescent women [4]. At the opposite side is France with the lowest rates, marking 7 pregnancies per 1000 teenagers aged 15–19 years [11]. The pursuit of the etiology can sometimes reveal a potential connection between geographic area of residence, climate, and health issues. Nevertheless, a closer look on the cultural background of the teenage pregnancy debate is considered more appropriate in this chapter.

In 2013 15.6% of first children in Romania were born to teenage mothers, this being the highest proportion in the European Union according to Eurostat [12]. A social investigation carried in 2017 in this state showed that 6 out of 10 underage mothers never had access to sexual education and reproduction health counseling [13]. The magnitude of teenage pregnancy concern has been more allegiantly expressed by statistics in 2018 when data demonstrated that with respect to women under 19 years old, 12,906 were at their first birth, 3657 at their second, 673 at their third, 63 at their forth, 7 at their fifth, and 1 at her sixth birth [14]. The current situation in this Eastern European country might result from the direct consequences of its political history, i.e., the change from communist ideology into a democracy manifesto has left traces inside the community nucleus. Years before 1989, knowledge on teenage pregnancies was scarce, but the hardship of women with unintended pregnancies who lived under Decree 770, which outlawed abortion for women under 40 with fewer than four children, went beyond imagination. When fertility became an instrument of state control, a woman's right to decide what is best for her was no longer an option. As well as in other former Soviet countries, statistics in Romania are incomplete, but an increase in

adolescent pregnancy has come to be known during the mid-1990s, and since then it reached the limits of a public health issue [1].

Cambodia, home to the largest adolescent and young adult population in the Southeast Asian region [15], went also through some major political changes during recent decades. The health infrastructure suffered severe damage after the genocide in 1970, and its recovery had been extremely difficult since then. Women in this region confront themselves with limited autonomy, low literacy, and poor wealth status. Consequently, unintended pregnancies mark a universal issue in this country even nowadays as Rizvi et al. concluded in their study following the use of Bronfenbrenner's social ecological model. This model was the theoretical basis for identifying factors influencing unintended pregnancies. It was in 2008 that Cambodia adopted a formal adolescent reproductive health policy, and later in 2016, the first sexual reproductive health literacy program was launched [15].

3. Selected pregnancy-related aspects linked to perinatal depression

When observing adolescents in their environment, it is important to notice the fact that experiences are what characterize people the most and not their values and beliefs [1]. Beyond religion, faith, and general convictions, personal response to events surrounding oneself is what builds characters and shape personalities [1]. As mentioned above, the sensitive topic of teenage pregnancy in some perceptions has a positive side as well even if there is still an existing global health issue.

Factors that were described by Rizvi et al. as predisposing to unintended pregnancies could as well take part in the outbreak of teenage pregnancy, whether they are related to the microenvironment, in the interpersonal, institutional, and community levels, including partners and peers, or to the macroenvironment, in the policy or relevant legislation level [15].

A different picture of "young motherhood" is described by Bas et al. in a study performed in Turkey: beside a lower prevalence of adolescent pregnancies compared to World Health Organization global data, 7.9% (3.5–12%) versus 11%, there was a higher likelihood of pregnancies in late adolescent years (18–19 years); plus, the majority of women were married, and pregnancies were desired in the study population. The authors also reported early marriage as a common practice in Turkey. At the same time, the study concluded that there was a specific need for adolescent mothers to prolong hospitalization stays in order to assure proper care and nutrition support for the newborn; 25.3% of the study group subjects were readmitted in the hospital 1 month postpartum due to infant inadequate weight in 34.4% of the cases [16].

An unfavorable fetal outcome following a teenage pregnancy—whether related to preterm delivery with low birth weight or a low Apgar score at 5 minutes or to a possible stillbirth—could provide stressful situations for any woman, especially an adolescent. Literature presents controversial information regarding adverse birth outcomes, and some studies conclude that once results are adjusted for other factors correlated with adverse birth events, early motherhood is not correlated with poorer neonatal status [17].

A large cohort study performed between 2009 and 2014 in Canada on 25,263 women concluded that teenage mothers had higher rates of depression during pregnancy (9.8%) compared to mothers aged 20–34 years (5.8%) and ≥ 35 years (6.8%) ($p < 0.001$) [17]. A possible explanation of these results might reside in the fact that more than 70% of adolescent pregnancies in Canada are unintended. How is it then, possible, that even in high-income countries where access to all kinds of

informational materials is freely available that teenagers still engage in disruptive practices? The response to this question seems to be more complex than it looks.

On the matter of teenage mental health, the clash between civilizations is eloquent and understanding of what people grew up to value as their cultural legacy can prove to be an enriching and enlightening experience in the search of socially distinguishable factors involved in human behaviors.

The repercussions of an active reproductive teenage life on the psychological level usually manifests before giving birth, when women experience blame, critics, and social exclusion [7]. After delivery, motherhood responsibilities that sometimes are not shared by male partners can provide feelings of overwhelm, fear, anxiety, guilt, and shame [7]. In time, teenagers get to experiment depressive disorders originating in feelings of failure due to reduced employment opportunities and an inability to reintegrate in the social activities from before or due to denial of current situation [7, 8]. This is consistent with a study performed by Sanchez et al. where 41.7% of pregnant teenagers had emotional alterations due to financial factors, while in 7.8% of the study group, problems related to partners and family support were the main identified stressors [18].

Giving birth in adolescence implies peculiar events strictly dependable on the ability of the growing body to support the mechanism of labor. While in some states cesarean section is a compulsory medical management of birth in adolescents, studies performed in other countries recorded high rates of cephalopelvic disproportion (18.5%) or prolonged labor (16%) leading to emergency cesarean section delivery [7, 16]. Adding the increasing trend in practicing defensive medicine especially defensive cesarean sections, it comes as no surprise the report coming from a tertiary care unit from Bucharest revealing 71.6% rate of cesarean section in the adolescent study population [19].

4. Mind over matter is the goal but how do we get there?

In the search of best methods to be used in order to reduce the psychological vulnerabilities of teenagers, screening interventions play a significant role [19]. Nevertheless, therapeutic management is compulsory for every diagnosed patient.

Across the globe, Thailand has the highest rate of adolescent births in Southeast Asia and second-highest in the world [20]. It was the appropriate context to certify the usefulness of a questionnaire-based strategy implemented by a John Hopkins work team in order to assess birth preparedness and complication readiness (BPCR) in young mothers. Results obtained were encouraging, showing that a good BPCR score was present in 78.4% of cases, and further correlated mostly with pregnant women undergoing ≥4 antenatal consultations (odds ratio 3.2, 95% CI 1.13–9.05, $p = 0.023$) [20]. In other words, it is reassuring to find that with correct prenatal monitoring, not only good perinatal obstetrical and neonatal outcomes can be foreseen but also prevention of psychological disturbances can be achieved as well.

One of the best organized healthcare systems around the world is certainly the one from Sweden [21]. Oddly, this state has the highest abortion rate in Western Europe, while 23% of parous women never used any contraception method [21]. New patient-centered instruments were rapidly assessed in order to be implemented in primary care, and since nowadays 5% of all Internet searches are health-related, researchers considered that a reproductive life planning tool using a website could best benefit patients. Follow-up conclusions showed this strategy to be positively received by midwifes who in this country are licensed to prescribe contraceptives [21] and are in the frontline of promoting medical care. Accepting and exploring online networking as a supportive engine to promote healthy habits

and access to medical guidance can actually make a difference. This is important especially in developed countries where education and access to information are no longer restricted areas of lifestyle.

Resuming the facts on perinatal depression, it is safe to say that patients suffering from this medical condition would best benefit from a multidisciplinary approach at the time of delivery or even earlier [21]. Birth-related psychological changes and further psychiatric ramifications represent a less explored field by obstetrician and midwives; this could explain why in many areas around the globe physicians tend to underestimate or even fail to recognize signs and symptoms leading to proper early diagnosis. Repercussions gravitate not only around the mother but also around the well-being of the fetus and of the entire family. Involvement of mothers of young age transforms this subject into a more confounding one.

Although information on the subject is still scarce, there are two recent trials presenting relevant and promising insights. The first one [22] was based on the screening for perinatal depression; a number of 8580 adults and 772 adolescents were assessed during pregnancy and 6 months after birth. Results showed that the incidence of depression in the teenage group was almost three times higher than the one in the adult group (17.7 and 6.9%, $p < 0.001$). Furthermore, despite the fact that there were no observed differences between the severity of depression, examination of patients diagnosed with perinatal depression revealed that adolescents had significantly different attitudes to pregnancy, motherhood, and parenting skills than adults. This trial draws equal conclusions with other similar assessments that support the body of evidence that younger maternal age is a strong predictor of adverse pregnancy outcomes [22]. This fact is also suggested by the outcome following remission of depression symptoms in the study groups: no improvement on parenting skills or motherhood adjustment was noted.

The second trial [23] is an ongoing cluster randomized trial based on a hybrid “effectiveness-implementation” plan specifically destined to assess a particular intervention package designed for teenagers with perinatal depression. The objectives of this study are directed toward improving maternal depression symptoms, and by achieving that, enhancing parental skills at 6 months postpartum assessment is also anticipated. Postnatal follow-up on the subjects is expected to end August 2020, and the results will be of interest given that it is considered to be the first trial to address the particular and unique needs of depressive pregnant adolescents.

Adhering to noxious behavior related to smoking, alcohol, and drug consumption, later favoring uncontrolled sexual practices culminating in unintended pregnancies can point out the preamble of depressive or anxiety disorders in adolescents [8]. Further interruption of education with associated guilt, absence of family support, and social rejection all contribute to predispose teenagers to misconduct [7].

There is strong evidence that girls are at a higher risk of developing depressive symptoms than their male counterparts, possible explanations being drawn after investigation of cognitive vulnerability deduced from negative ruminating style and negative cognitions [24]. There are also pregnancy and birth related events like premature delivery or giving birth to a low birth weight baby requiring additional neonatal support, which once added to the moment and mode of delivery itself – vaginal or by cesarean section – provide disturbances that may affect the psychic in a negative manner.

Facing unpredictable life situations like maternity sometimes interferes with other preexistent teenager struggles like body image concerns and eating or learning disorders [24].

Screening tools for early detection of depression have long been studied and improved, but it is a reality that beside being laborious, most of them can only be

applied in practice by properly trained medical personnel—in truth, by psychologists and/or psychiatrists. In spite of efforts made to raise awareness on the subject of perinatal adolescent depression during the last decade, interestingly, only half of depressive adolescents are diagnosed before reaching adulthood [25], and this reality undeniably requires for clinical monitoring on any minor clinical sign of mood change.

On the general topic of child and teenage major depressive condition, numerous studies and interventional trials have been conducted. Comprehensive modern strategies integrate psychoeducation as part of patient understanding of disease. Providing information about the associated risks and the importance of treatment has shown to improve patient adherence to the treatment course [24].

Psychotherapy and medication are available options of the therapeutic plan: cognitive behavioral therapy—face to face or using online platforms—and interpersonal therapy for adolescents explore the etiology of the disorder, many studies having already confirmed their effectiveness [24]; their applicability in perinatal depression is timidly starting to be fused in current medical practice.

On the other hand, antidepressant medication is far from reaching conclusive recommendations as many clinicians are still resistant in using it since results are sometimes suspicious with some studies even suggesting a possible association with emergent suicidality [24]. The argument in relation to medication was brought into attention with the sole purpose of underlying therapeutic limitations when facing perinatal teenage depression and further intricacy of the disorder.

With restricted use of therapeutic options, complementary medicine has gained space in medical practice. There are an enormous number of products available on the market which are said to equivalate or even outreach the potential of recognized medical treatments. Only few studies actually compared the efficacy of these natural products, but what's more, evidence regarding their safety and side effects is scant. Adolescents and their parents who are reluctant to medication use sometimes opt for dietary and herbal supplements which they consider "safer," but little to no data are available on the actual effects they have on psychiatric adolescent disorders [26, 27].

In many areas around the globe, in particular in low-income countries, tradition and human connection with the environment are bound to influence medicine and the response to illness. People there consider it legitimate to refer to mother nature whenever necessary. Most interestingly, their dietary habits have come to influence clinicians around the world: having the potential to interact with other medication, physicians struggle to identify concomitant use of natural remedies when questioning patients. For instance, some authors managed to identify complementary medicine supplements most commonly used in the treatment of depression, anxiety, and attention deficit/hyperactivity disorder (ADHD). These include omega 3 fatty acids for depression and ADHD, St. John's wort, and S-adenosyl-L-methionine for depression only, while kava root, valerian root, and passionflower root were identified for generalized anxiety disorder [27, 28]. In the absence of regulatory oversight, there is a risk for all aforementioned supplements to induce serious adverse health effects.

Traditionally treated or using up-to-date medical guidelines, teenage perinatal depression is a field still waiting to be explored and conquered. The journey to recovery is usually challenging; therefore assertive parent and peer support have long shown their value in facilitating the process [24].

5. Comprehensive school reform: a possible solution?

The importance of health and sexual education in the life of teenagers has already been mentioned above, but what are the available resources we can

dispose of? This matter is far more complex than it might seem at first sight. Religion, for example, has long been influencing human perception on sexuality aspects; in Ireland, Catholic "morally appropriate" sexuality education had existed for decades before the official implementation of "relationships and sexuality education" curriculum back in 1994 [29]. As Hakansson observed in his study on social judgments over abortion and contraceptive use, where there is a knowledge gap, people tend to find explanations in common beliefs in the society—these ideas being many times based on religious and cultural values [30]. This explains why current sexual education in Kenya is still focused on abstinence even though it has not been proven to reduce unintended teenage pregnancy rates [30].

In other parts of the world, accurate information on this topic is provided: the Swedish National Agency for Education has introduced biology classes in the school curriculum in which methods for preventing unwanted pregnancy are discussed starting with 7–9 school years; further in upper secondary school, topics about body changes during pregnancy are also approached [31]. With a long history of compulsory sex education starting in 1955, Swedish system has managed to adapt not only its classes to the evolving sociopolitical norms but also its teaching methods: from integration of specific subjects in generally known scientific background to individual lessons [31].

Solutions in educational system that work in one country cannot always be applied in other countries as well; differing cultural, political, and historical climates have been cited to influence this process even though scientific fundamentals of human sexual response are universal [29, 32].

There is clear evidence that proper sexuality education has a positive impact in preventing unintended adolescent pregnancies [33]. However, beside fundamental school curriculum, there are other factors to consider: the role of teachers in providing knowledge, support, and counseling as well as the involvement of physicians, parents, and outside facilitators in this process.

Although Sweden's sexuality education remains open, with no formal curriculum, teachers struggle to provide conventional information, with no specialized training taking place at the university level [29]. Society's influence on teachers often determines them to adopt stigmatizing attitudes and feel uncomfortable teaching comprehensive sexual education [30].

The absence of training is notable in medical schools as well; a worldwide survey found that up to 30% of medical schools globally have no sexual health curriculum [32]. Sexuality being a critical topic for physicians who deal with issues pertaining to reproduction and mental health, specialty education on this subject should be mandatory for aspiring clinicians [32]. To support this matter, research shows that 85% of adult patients from a US survey claimed that they would want to talk to their physician if they had a sexual problem, while 71% felt that their doctor would dismiss their concerns [34].

In the light of these disadvantageous aspects, parents are the primary source of sexuality information for their children in the United States; studies showed that transmission of information and values from parent to child can make results be more generalizable to the real world than if knowledge was taught in clinic-based sessions [35]. The Greek society, however, does not share the same beliefs: 80% of parents included in a survey considered that school is not an appropriate setting for sexual education, entrusting this task to psychologists and specialized organizations [36].

Supplementing or even replacing school lessons on sexuality, health organizations and groups often manage to implement educational initiatives to support and counsel adolescents [29].

Home education is not a tradition in Japan either; with human sexuality education introduced in 1970, school courses focus on pregnancy-related topics starting on the first year of middle school at ages 12–13 and later on the third year of middle school at ages 14–15 [36, 37].

Although health education is not the same around the world, its vital role in the future of adolescents is not to be doubted. Good understanding of sexual health promotes informed decision-making and might prevent misconceptions, fear, and unsupported cultural beliefs which are mentioned in literature as key contributors to the increase in cesarean section rates [38].

In other words, there are numerous variables which interfere with free access to education, especially health education. Along with school and any other institutions which provide knowledge on this issue, the authors, as clinicians, consider that it is also the responsibility of each physician to advise their teenage patients as well as their parents with respect to sexuality matters.

Poor acceptability of perinatal depression as a serious pathology involving life-threatening risks both on the mother and child remains a striking concern even in 2020. With 8–47% self-reported depression in perinatal teenagers [39], raising awareness among healthcare providers is legitimate. Boundaries between specialties should be seen less stringent, and as an obstetrician, monitoring of women during pregnancy and puerperium should aim to objectify both physical and mental well-being of the patient. Reaching a patient in a holistic manner can only improve the road to best medical outcomes.

6. Conclusions

Perinatal depression, although an affliction itself, should be seen as a hallmark of psychologic instability in particular when adolescent women are targeted. Dissolution of heterogeneity on the matter of access to medical care is the most powerful obstacle to overcome by physicians in the fight for health and good quality of life.

Young women having children are twice exposed to unfavorable health outcomes: first by acquiring obstetrical morbidity and mortality risks and second by having a gender-associated higher risk of developing depression during adolescence. Therefore, it is compulsory for teenage pregnant girls to become a priority on the axis of health organizations' millennial goals.

Questioning what remains to be done in this framework is an exceeding perspective in 2020; identifying and acting on key points like family authority and education environment with great impact on adolescent growth and transformation are reasonable steps to be taken in preventing teenage pregnancies. Investing in adolescents not only under economic aspects but also spiritually by providing time, receptivity, and concomitant understanding to their needs is an action that must be involved in the process.

We live in the time when artificial intelligence marked convincing results in replacing humans in various fields of activities; medicine does not make an exception, and with further comprehension that people worldwide are more connected than ever before, good practice of expert solutions has only one option: to thrive in the battle of matter over mind.

Conflict of interest

The authors declare no conflict of interest.

Author details

Alexandra Matei* and Cringu Antoniu Ionescu
Obstetrics and Gynecology Department at "St. Pantelimon" Emergency Hospital, Doctoral School "Carol Davila" University of Medicine and Pharmacy Bucharest, Bucharest, Romania

*Address all correspondence to: ale.matei@gmail.com

IntechOpen

© 2020 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/3.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

References

[1] Adolescents overview: Investing in a safe, healthy and productive transition from childhood to adulthood is critical [Internet]. 2019. Available from: https://data.unicef.org/topic/adolescents/overview/ [Accessed: 03 March 2020]

[2] Kapungu C, Petroni S, Allen NB, et al. Gendered influences on adolescent mental health in low-income and middle-income countries: Recommendations from an expert convening. The Lancet Child & Adolescent Health. 2018;**2**(2):85-86. DOI: 10.1016/S2352-4642(17)30152-9

[3] Adolescent pregnancy [Internet]. 2020. Available from: https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy [Accessed: 05 March 2020]

[4] Sustainable development goal 3: Ensure healthy lives and promote well-being for all at all ages: progress of goal 3 in 2019 [Internet]. Available from: https://sustainabledevelopment.un.org/sdg3 [Accessed: 26 February 2020]

[5] Mimura W, Akazawa M. The association between internet searches and moisturizer prescription in Japan: Retrospective observational study. JMIR Public Health and Surveillance. 2019;**5**(4):e13212. DOI: 10.2196/13212

[6] Eysenbach G. Infodemiology and infoveillance tracking online health information and cyberbehavior for public health. American Journal of Preventive Medicine. 2011;**40**(5 Suppl 2):S154-S158. DOI: 10.1016/j.amepre.2011.02.006

[7] Flores-Valencia ME, Nava-Chapa G, Arenas-Monreal L. Adolescent pregnancy in Mexico: A public health issue. Revista de Salud Pública (Bogotá, Colombia). 2017;**19**(3):374-378. DOI: 10.15446/rsap.v19n3.43903

[8] Holness N. A global perspective on adolescent pregnancy. International Journal of Nursing Practice. 2015;**21**(5):677-681. DOI: 10.1111/ijn.12278

[9] White L. A holistic approach to adolescent pregnancy prevention. American Journal of Public Health. 2018;**108**(Suppl 1):S4. DOI: 10.2105/AJPH.2018.304322

[10] Burrus BB. Decline in adolescent pregnancy in the United States: A success not shared by all. American Journal of Public Health. 2018;**108**(Suppl 1):S5-S6. DOI: 10.2105/AJPH.2017.304273

[11] Monteiro DLM, Martins JAFDS, Rodrigues NCP, et al. Adolescent pregnancy trends in the last decade. Revista da Associação Médica Brasileira. 2019;**65**(9):1209-1215. DOI: 10.1590/1806-9282.65.9.1209

[12] Romania has highest proportion of teenage pregnancy in EU [Internet]. 2016. Available from: https://www.neweurope.eu/article/romania-highest-proportion-teenage-pregnancy-eu/ [Accessed: 05 March 2020]

[13] Analiză privind condițiile de viață, locuire și stare de sănătate a copiilor și mamelor cu copii sub 5 ani, din mediul rural [Internet]. Available from: https://www.salvaticopiii.ro/sci-ro/files/2d/2de11e1f-1d13-469b-909d-d9eb35962229.pdf [Accessed: 26 February 2020]

[14] Semnal de alarmă: Mamele minore și copiii lor: 12.906 adolescente sub 19 ani sunt la prima naștere, 3.657 la a doua și 673 la a treia [Internet]. Available from: https://www.salvaticopiii.ro/sci-ro/files/58/58962336-d536-4fe8-a372-105bb5d96029.pdf [Accessed: 26 February 2020]

[15] Rizvi F, Williams F, Hoban E. Factors influencing unintended pregnancies amongst adolescent girls and young women in Cambodia. International Journal of Environmental Research and Public Health. 2019;**16**(20):4006. DOI: 10.3390/ijerph16204006

[16] Bas EK, Bulbul A, Uslu S, et al. Maternal characteristics and obstetric and neonatal outcomes of singleton pregnancies among adolescents. Medical Science Monitor. 2020;**26**:e919922. DOI: 10.12659/MSM.919922

[17] Wong SPW, Twynstra J, Gilliland JA, et al. Risk factors and birth outcomes associated with teenage pregnancy: A Canadian sample. Journal of Pediatric and Adolescent Gynecology. 2019;8-12. DOI: 10.1016/j.jpag.2019.10.006

[18] Sánchez Á. Embarazo en las adolescentes. Caso del Hospital Obstétrico de Pachuca, Hgo. 2005. Available from: http://dgsa.uaeh.edu.mx:8080/bibliotecadigital/handle/231104/608

[19] Dimitriu M, Ionescu CA, Matei A, et al. The problems associated with adolescent pregnancy in Romania: A cross-sectional study. Journal of Evaluation in Clinical Practice. 2019;**25**(1):117-124. DOI: 10.1111/jep.13036

[20] Teekhasaenee T, Kaewkiattikun K. Birth preparedness and complication readiness practices among pregnant adolescents in Bangkok, Thailand. Adolescent Health, Medicine and Therapeutics. 2020;**11**:1-8. DOI: 10.2147/AHMT.S236703

[21] Koo Andersson M, Tyden T. Implementation of reproductive life planning (RLP) in primary health care supported by an evidence-based website. The European Journal of Contraception & Reproductive Health Care. 2020;**25**(1):1-7. DOI: 10.1080/13625187.2019.1695117

[22] Oladeji BD, Bello T, Kola L, et al. Exploring differences between adolescents and adults with perinatal depression—Data from the expanding care for perinatal women with depression trial in Nigeria. Frontiers in Psychiatry. 2019;**10**:761. DOI: 10.3389/fpsyt.2019.00761

[23] Gureje O, Kola L, Oladeji BD, et al. Responding to the challenge of adolescent perinatal depression (RAPiD): Protocol for a cluster randomized hybrid trial of psychosocial intervention in primary maternal care. Trials. 2020;**21**:231. DOI: 10.1186/s13063-020-4086-9

[24] McIntyre R, Rong C, Subramaniapillai M, Lee Y. Major Depressive Disorder. 1st ed. St. Louis, Missouri: Elsevier; 2020. pp. 175-184

[25] Kessler RC, Avenevoli S, Ries Merikangas K. Mood disorders in children and adolescents: An epidemiologic perspective. Biological Psychiatry. 2001;**49**:1002-1014. DOI: 10.1016/S0006-3223(01)01129-5

[26] Deborah S. Complementary and integrative medicine in child and adolescent psychiatric disorders: Fact, fiction, and challenges in clinical education and residency training. Journal of the American Academy of Child and Adolescent Psychiatry. 2017;**56**(10):S116. DOI: 10.1016/j.jaac.2017.07.455

[27] Morelli V. Adolescent Health Screening: An Update in the Age of Big Data. 1st ed. St. Louis, Missouri: Elsevier; 2019. pp. 7-19

[28] Rey JM, Walter G, Soh N. Complementary and alternative medicine (CAM) treatments and pediatric psychopharmacology. Journal of the American Academy of Child and Adolescent Psychiatry. 2008;**47**(4):364-368. DOI: 10.1097/CHI.0b013e31816520e5

[29] Sherlock L. Sociopolitical influences on sexuality education in Sweden and Ireland. Sex Education. 2012;**12**(4):383-396. DOI: 10.1080/14681811.2012.686882

[30] Håkansson M, Super S, Oguttu M, et al. Social judgements on abortion and contraceptive use: A mixed methods study among secondary school teachers and student peer-counsellors in western Kenya. BMC Public Health. 2020;**20**:493. DOI: 10.1186/s12889-020-08578-9

[31] Swedish National Agency for Education. Sex Education. Gender equality, sexuality and human relationships in the Swedish Curricula: 5-13. Available from: www.skolverket.se [Accessed: 21 April 2020]

[32] Shindel AW, Baazeem A, Eardley I, et al. Sexual health in undergraduate medical education: Existing and future needs and platforms. The Journal of Sexual Medicine. 2016;**13**:1013-1026. DOI: 10.1016/j.jsxm.2016.04.069

[33] Oringanje C, Meremikwu MM, Eko H, et al. Interventions for preventing unintended pregnancies among adolescents. Cochrane Database of Systematic Reviews. 2016;**2**:CD005215

[34] Seaborne LA, Prince RJ, Kushner DM. Sexual health education in U.S. physician assistant programs. The Journal of Sexual Medicine. 2015;**12**:1158-1164. DOI: 10.1111/jsm.12879

[35] Pugliese CE, Ratto AB, Granader Y, et al. Feasibility and preliminary efficacy of a parent-mediated sexual education curriculum for youth with autism spectrum disorders. Autism. 2020;**24**(1):64-79. DOI: 10.1177/1362361319842978

[36] Hashimoto N, Shinohara H, Tashiro M, et al. Sexuality education in junior high schools in Japan. Sex Education. 2012;**12**(1):25-46. DOI: 10.1080/14681811.2011.601154

[37] Ishiwata C. Sexual health education for school children in Japan: The timing and contents. Japan Medical Association Journal. 2011;**54**(3):155-160

[38] Torloni MR, Brizuela V, Betran AP. Mass media campaigns to reduce unnecessary caesarean sections: A systematic review. BMJ Global Health. 2020;**5**:e001935. DOI: 10.1136/bmjgh-2019-001935

[39] Siegel RS, Brandon AR. Adolescents, pregnancy and mental health. Journal of Pediatric and Adolescent Gynecology. 2014;**27**:138-150. DOI: 10.1016/j.jpag.2013.09.008