Working together
www.rcis.ro

Revista de Cercetare si Interventie Sociala

ISSN: 1583-3410 (print), ISSN: 1584-5397 (electronic)

HORMONAL CONTRACEPTION IN TEENAGER GIRLS. THE ROLE OF COUNSELING TO ENSURE EFFECTIVE CONTRACEPTIVE USE

Laura Mihaela TRANDAFIR, Mihaela GRIGORE, Cristina PREDA, Dumitru GAFITANU, Oana Raluca TEMNEANU, Antoneta Dacia PETROAIE, Sadiye-Ioana SCRIPCARIU, Maria Christina UNGUREANU

Revista de cercetare și intervenție socială, 2019, vol. 67, pp. 223-233

https://doi.org/10.33788/rcis.67.14

Published by:
Expert Projects Publishing House

On behalf of:
„Alexandru Ioan Cuza" University,
Department of Sociology and Social Work
and
HoltIS Association

REVISTA DE CERCETARE SI INTERVENTIE SOCIALA
is indexed by Clarivate Analytics (Web of Science) -
Social Sciences Citation Index
(Sociology and Social Work Domains)

Hormonal Contraception in Teenager Girls. The Role of Counseling to Ensure Effective Contraceptive Use

Laura Mihaela TRANDAFIR[1], Mihaela GRIGORE[2], Cristina PREDA[3], Dumitru GAFITANU[4], Oana Raluca TEMNEANU[5], Antoneta Dacia PETROAIE[6], Sadiye-Ioana SCRIPCARIU[7], Maria Christina UNGUREANU[8]

Abstract

Teenager girls represent a particular risk group for unwanted pregnancy and abortion with important consequences on their health, school and professional education and social life. In order to avoid this problem appropriate counseling during contraceptive process is of paramount importance. Apart confidentiality the contraceptive counselor must also demonstrate other important qualities like expertise, trustworthiness and availability. In hormonal contraception adolescents may be particularly bothered by side effects and it is important that they are counseled about these side effects prior to method initiation. Combined hormonal contraceptive methods with estrogens and progesterone are commonly used among adolescents, but the failure rate is higher compared to adult women, a possible

[1] Grigore T. Popa" University of Medicine and Pharmacy, Faculty of Medicine, Mother and child Care Department, Iasi, ROMANIA. E-mail: trandafirlaura@yahoo.com

[2] Grigore T. Popa" University of Medicine and Pharmacy, Faculty of Medicine, Mother and child Care Department, Iasi, ROMANIA. E-mail: mihaela.grigore@edr.ro (Corresponding author)

[3] "Grigore T. Popa" University of Medicine and Pharmacy, Faculty of Medicine, Endocrinolgy Department, Iasi, ROMANIA. E-mail: cpreda1@yahoo.com

[4] "Grigore T. Popa" University of Medicine and Pharmacy, Faculty of Medicine, Mother and child Care Department, Iasi, ROMANIA. E-mail: dgafit@yahoo.com

[5] "Grigore T. Popa" University of Medicine and Pharmacy, Faculty of Medicine, Mother and child Care Department, Iasi, ROMANIA. E-mail: ralucatemneanu@yahoo.com

[6] "Grigore T. Popa" University of Medicine and Pharmacy, Faculty of Medicine, Family Medicine Department, Iasi, ROMANIA. E-mail: pantoneta@yahoo.com

[7] "Grigore T. Popa" University of Medicine and Pharmacy, Faculty of Medicine, Mother and child Care Department, Iasi, ROMANIA. E-mail: isscripcariu@gmail.com

[8] "Grigore T. Popa" University of Medicine and Pharmacy, Faculty of Medicine, Endocrinolgy Department, Iasi, ROMANIA. E-mail: mariachristina11@yahoo.com

explanation being lower adherence and higher rates of discontinuation. Depot medroxyprogesterone acetat (DMPA) is a highly effective injectable contraceptive appealing for adolescents because of its dosing schedule of four times per year. When using DMPA they should be counseled for changes in menstrual pattern or amenorrhea and the possible decrease in the bone mineral density if it used longer than to years. Long-acting, reversible contraception may be particularly suitable for many adolescents and are considered very effective methods. Anyhow with intrauterine devices (IUDs) the risk of contracting sexually transmitted diseases is higher and dual protection is mandatory in cases where IUD is used. Adolescents should be advised on the use of backup contraception and also barrier contraception for sexually transmitted infections prevention.

Keywords: hormonal contraception, oral contraceptive, teenager girls, counseling, social support.

Introduction

Unintended pregnancies remain an important reproductive health problem and represent about 30% of all known pregnancies despite increasing availability of contraceptive methods (Blumenthal, Voedisch, & Gemzell-Danielsson, 2011). Teenagers represent a particular risk group for unwanted pregnancy and abortion with important consequences on their health, school and professional education and social life (Dueñas *et al.,* 2013). In 2015, in the USA, a total of 229,715 babies were born to women aged 15–19 years, for a birth rate of 22.3 per 1,000 women in this age group. Birth rates fell 9% for women aged 15–17 years and 7% for women aged 18–19 years (Martin *et al.,* 2017). Data published by Eurostat (the Statistical Office of the European Union) on teenage mothers in the European Union are worrying, according to the latest data (2015), the highest shares of births of first children to teenage mothers were recorded in Romania (with 12.3% of total births of first children in 2015) and Bulgaria (11.9%). According to Eurostat data, Hungary (9.0%), Slovakia (8.4%), Latvia (5.5%), Lithuania and the United Kingdom (both 5.4%) and Poland (4.8%) show significant percentages (Eurostat, 2017). Complications during teenager pregnancy and childbirth are the main causes of death for 15 to 19 year - old girls globally (WHO, 2016).

On the other hand, adolescent mothers (ages 10 to 19 years) present higher risks of eclampsia, puerperal endometritis and systemic infections than women aged 20 to 24 years. Newborns born to adolescent mothers are also at greater risk of having low birth weight, with long-term potential effects. Furthermore, the emotional, psychological and social needs of pregnant adolescent girls can be greater than those of other women. Ultimately, unwanted pregnancy in adolescence does not only have a significant individual impact but also economic and social consequences on society in general (Ganchimeg *et al.,* 2014). Contraceptive education and accessibility to contraceptive methods are key elements for solving

this problem. Contraceptive counseling represents an important step in choosing the appropriate method of contraception.

Counseling about contraception

Many elements include safety, effectiveness, availability (i.e. accessibility and affordability) and acceptability need to be considered by adolescent girls when choosing the most appropriate contraceptive method. Voluntary informed choice of contraceptive methods is an essential guiding principle and contraceptive counseling, when applicable, might be an important contributor to the successful use of contraceptive methods (Centers for Disease Control and Prevention, 2016).

During the counseling process it is necessary to give adolescents autonomy over contraceptive decision-making after presenting all appropriate options for their age (Potter, & Santelli, 2015). The provider must avoid the 'information overload' during the process of counseling (Jaccard *et al*., 2013). At the same time, the provider must be sure that adolescent is capable of making informed decision free of coercion (Raidoo *et al*., 2015).

Contraception education programs should also take into account communication about contraception between adolescent with partners and with parents. Amialchuk showed that adolescents who discuss the contraceptive use or reproductive health problems with their parents are less likely to have unwanted pregnancy (Amialchuk, & Gerhardinger, 2015). Teenager girls are influenced by trusted people in their lives and their opinions regarding different methods of contraception can influence the final decision (Jaccard *et al*., 2013). It is important during the counseling to find out opinions of such friends and relatives and to include them in the conversation, if the adolescent desires so. Finding and understanding mothers' or partners' opinions for different contraceptive methods can be useful in understanding contraceptive choice and future adherence (Potter *et al*., 2015).

Hormonal contraceptives are among the most popular reversible methods of birth control, being a safe and reliable way to prevent pregnancy for most women. Theoretically, the use of hormonal methods has high efficiency, but typical use has less favorable results. Millions of women around the world resort to this reversible, relatively comfortable and simple method of contraception. Hormonal contraceptives in general are characterized by both poor adherence and relatively high discontinuation rates, therefore, for a correct choice of the contraceptive method, the knowledge and awareness of the real risks and benefits as a whole is essential. Reasons include hormonal side effects, problems with access or confusion about pill-taking instructions (White, 2011, Westhoff et al., 2007, Halpern et al., 2013). An important problem is compliance with administration, "forgetting" the ingestion of a dose or two, thus increasing the risk of an unscheduled pregnancy; nearly half of oral contraceptive users miss one or more pills each month and more than a fifth miss two or more (Rosenberg, & Waugh, 1998). Oral contraceptive

compliance is influenced by a complex interplay of cognitive, behavioral, logistic, clinical, and social factors. Physicians who recommend the use of oral contraception should inform the patient about the risks, how to manage the "forgetting" of a pill administration and help in establishing the best strategy for the administration of the pills (eg timer, immediate initiation) (Choi, & Dempsey, 2014). The "ideal" contraceptive should be cheap, 100% reliable, comfortable and easy to use, with minimal side-effects. Very important factors in choosing the best contraceptive method are: age, sexual activity profile, medical history, the current relationship. Currently, a variety of contraceptives can be used, low dose pills and combined injectables, as well as new contraceptive delivery systems, but it is important to identify the patient's profile and recommend the most appropriate method.

In general, adolescents are eligible to use all the same methods of contraception as adults and must have access to a variety of contraceptive choices. Age alone does not constitute a medical reason for denying any of the mentioned methods to adolescents. While some concerns have been expressed about the use of certain contraceptive methods by adolescents (e.g. the use of progestogen-only injectables by those below 18 years), these concerns must be balanced against the advantages of preventing unintended pregnancy.

Documentation should include the patient's understanding of use, benefits, and risks, plus an individualized follow-up plan. The teach-back method, in which the patient is asked to repeat important points, may be helpful.

Confidentiality and consent

All adolescents, regardless of marital status, have a right to privacy and confidentiality in health matters, including reproductive health care. Appropriate sexual and reproductive health services, including contraception, should be available and accessible to all adolescents without necessarily requiring parental or guardian authorization by law, policy or practice.

Contraceptive counseling is the process in which a counselor presents several methods of contraception and helps women to select the appropriate method. Ideally, during this process along with contraception information, reproductive health education should be carried out. Because the needs of adolescents are more complex, their counseling will take additional time and requires special skills. Adolescents consider the health care providers a highly trusted source of sexual health and other confidential information (Raidoo, & Kaneshiro, 2015).

Contraceptive counseling is an important component of primary care for adolescents which implies that paying special attention to confidentiality is essential. Counseling should take place in a friendly environment in order to encourage the process to go on as a conversation. Best-practices guidelines require that the sexual history ought to be taken with the adolescent alone (Ott, Sucato, & committee on adolescence, 2014). Confidentiality and privacy are major concerns for adolescents who seek reproductive healthcare services. Ford at al. suggest that

some adolescents will not make an appointment to a family planning service unless they trust that their care is confidential (Ford, 2010). In one survey performed in USA, 59% of adolescents seeking contraception said they would not attend services if they had to inform a parent (Harper, 2004). Apart from confidentiality, the contraceptive counselor must also demonstrate other important qualities like expertise, trustworthiness and availability (Jaccard, & Levitz, 2013, Coble *et al.,* 1993). Madden et al. demonstrate that a structured contraceptive counseling can be effectively provided in a clinical research setting by staff without prior health care experience or clinical training (Madden *et al.,* 2013).

The counseling should include a confidential sexual history of the adolescent. It is important that this discussion takes place in a safe, honest and unprejudiced environment with assurances of confidentiality. It is necessary to openly discuss such a matter by using the "5 Ps" tool: partners, prevention of pregnancy, protection from sexually transmitted infections (STIs), sexual practices, and past history of STIs and pregnancy (Centers for Disease Control and Prevention, 2005). Others major concerns of the adolescents regarding family planning services are anxiety regarding pelvic examinations and cost of the contraceptive methods.

Combined hormonal contraception

Combined hormonal contraceptive methods with estrogens and progesterone are commonly used among all women, including adolescents. They can be used as pills, patches and vaginal rings. The Pearl index for combined oral contraceptives (i.e. the number of failures per 100 woman-years of exposure) is estimated at 0.3–4.0, depending on the consistency of use (Apter, 2012). Chosen an appropriate contraception pill has become somewhat easier recently. Estrogen component is usually ethinyl estradiol (EE2), in reduced dose 30 μg, 20 μg and in some cases lowering it further to 15μg. Bleeding control and bone mass density may be better with 30 μg ethinyl estradiol formulas. New drugs are using natural estrogen-like estradiol valerate or estradiol hemihydrate. Regarding the progestatine component the lowest venous thromboembolism is associated with second-generation progestogen like as levonorgestrel and norgestimate (Martin, Anderson, Chang, Ehrmann, Lobo, Murad, & Rosenfield, 2018). There is no evidence of real benefits for the multiphasic formulations in comparison with formulations (Steyn, & Goldstuck, 2014).

An appropriate history and basic clinical examination should be taken: (1) personal medical conditions (migraine), previous contraceptive use, sexual activity; (2) a family history of venous thromboembolism in a first-degree relative under the age of 45 years, family breast cancer; (3) clinical examination: weight and BMI (body mass index) recording, arterial pressure; (4) breast, pelvic and genital examination is not routinely recommended (fear of the pelvic examination might reduce young adolescents to seek medical advice for contraception); (5)

laboratory tests: cervical cytology screening and routine laboratory tests also are not recommended routinely as they do not contribute substantially to combine oral contraception safety.

Concerning these points, a personal history of venous thromboembolism or a known thrombogenic mutation, systolic BP ≥160 mmHg or diastolic BP ≥95 mmHg, migraine with aura presents an unacceptable health risk for combined oral contraception recommendation and use; BMI ≥ 35kg/m2 usually outweighs the benefits (Apter, 2018). Epilepsy medication (valproate and lamotrigine, less the new secondand third-generation antiepileptic drugs) and other liver enzyme-inducing drugs may reduce the efficacy of hormonal contraception (Landmark, & Patsalos, 2010).

The side effects and disadvantages associated with the use of oral combined hormonal contraceptives should also be specifically discussed. It is very important that the adolescents who take birth control pills should be able to recognize and report these problems. Adverse effects of oral combined hormonal contraception include nausea, breast tenderness, headaches and breakthrough bleeding. The adolescents should be counseled for changes in bleeding patterns at the time of contraceptive initiation because these changes represent a common cause for stopping the pill continuation.

Oral combined hormonal contraceptives do not offer protection against sexually transmitted diseases. Such information must be given before the initiation of the hormonal contraception. Estro-progestative contraceptives will also simultaneously improve several specific conditions for this age (dysmenorrhea, irregularities of the menstrual cycle, heavy period bleeding or acne) and such an advantage should be emphasized by the counselor.

Recently, an extended-cycle oral contraceptive consisting of 84 tablets, each containing 0.15 mg of levonorgestrel, and 0.03 mg of ethinyl estradiol, and 7 tablets containing 0.01 mg of ethinyl estradiol was introduced on the market. This type of oral pill could be preferred in cases which involve medical conditions such as anemia, severe dysmenorrhea, endometriosis, dysfunctional uterine bleeding, or Von Willebrand and other bleeding diatheses as well as adolescents who prefer amenorrhea. There are no particular health risks with this procedure (Apter, 2018).

The failure rate of oral contraceptives is higher among adolescents compared to adult women, a possible explanation being lower adherence and higher rates of discontinuation (Raine, Foster-Rosales, Upadhyay, Boyer, Brown, & Harper, 2011). The adolescents have problems and miss the pills for several reasons: forgetfulness, attempts to hide contraception from parents and inconsistency of sexual relations. Appropriate counseling and education may enhance adolescent compliance with oral contraceptive pills use. In addition, when possible, involving the patient's mother can greatly enhance compliance with pill taking (Grimes, 1995). In order to not forget the pills several technology-based reminders such as messaging services, alarms, and smart phone applications can be used (Smith, Gold, Ngo, Sumpter, &

Free, 2015). Especially nowadays adolescents are very keen to use such methods for a correct administration. New routes for combined hormonal contraception are preferred by teenagers who have difficulty in taking tablets daily (Apter, 2018). These are: (1) the vaginal ring - it is inserted intravaginal and remains three weeks in place, followed by one week of ring-free and menstrual bleeding; (2) the dermal patch - three consecutive patches, 7 days every patch (21 days) followed by 1 patch free week per cycle; (3) transdermal delivery results in less peaks of estrogen but a higher total estrogen exposure compared with combined oral contraceptives with higher risk of developing venous thromboembolism (about twice as with combined oral contraceptives) (Galzote, Rafie, Teal, & Mody, 2017).

Progestin-Only Contraception

The progestin-only pill needs to be taken every day at the same hour and is sometimes associated with irregular's menses. It is mainly taken into account when there are contraindications for other methods: obesity or arterial hypertension. In case of a migraine with aura progestin-only, pill use generally outweighs the theoretical or proven risks. Low bone mineral density acquisition may be a problem in case of teenager users.

Depot medroxyprogesterone acetate

Depot medroxyprogesterone acetate (DMPA) is a highly effective injectable contraceptive appealing for adolescents because of its dosing schedule of four times per year. The effectiveness of this method is superior to that of estro-progestatives contraceptives. This outcome is made possible due to the way of administration (Winner *et al.,* 2012).

There are two issues that should be discussed with the adolescents regarding the use of DMPA. The first one is represented by the common side-effect: amenorrhea. They should be informed about this aspect. The second issue is that DMPA can decrease the bone mineral density. Although this effect is reversible, DMPA should not be used longer than 2 years and adolescents should be counseled not to use this type of contraception for longer than the time period mentioned prior (American College of Obstetricians and Gynecologists ACOG, 2014).

These methods are the first choices for adolescents who have difficulty taking their pills regularly or for teenagers with developmental disabilities.

Hormonal intrauterine devices

Long-acting, reversible contraception may be particularly suitable for many adolescents and are considered to be very effective (Centers for Disease Control and Prevention, 2005). Because many adolescents are concerned that intrauterine devices (IUDs) reduce fertility, they need to know that nulliparity is not a

contraindication to using an intrauterine device and fertility is preserved after discontinuing its use (Davtyan, 2000). Anyhow, with IUD, the risk of contracting sexually transmitted diseases is higher and dual protection is mandatory in cases where IUD is used. IUDs are safe and effective for post-menarcheal adolescents and some guidelines recommend them as first-line options regardless of parity. Of 1,099 patients 14 to 19 years of age in the Contraceptive CHOICE Project, a large prospective contraception study, more than 80% of long-acting reversible contraceptive users continued their method over 12 months in comparison with only one-half of those using short-acting methods (Klein, Arnold, & Reese, 2015; Rosenstock *et al.,* 2012). In the case of hormonal IUDs, the adolescent should be advised about the changes in menstrual patterns induced by the low levels of levonorgestrel daily release.

Emergency contraception

Emergency contraception with high-dose combined contraceptive pills or progestin- only pills are effective up to 72 hours after unprotected coitus with effectiveness highest if used as soon as possible after intercourse. The provider should counsel the adolescent to have a follow-up visit in two weeks after using emergency contraception in order to ensure that they did not get pregnant, to consider testing for sexually transmitted infections and to discuss an effective method of contraception (Gold, Sucato, Conard, & Hillard, 2004).

Sexually transmitted infections prevention and dual use

Protection from sexually transmitted infections (STIs) represents a pivotal part of a healthy sexual development. Adolescents should be advised on an additional use of barrier contraception for STIs prevention. The combination of condom uses for STIs and another method for a more effective contraception is called dual method. This dual method use should be emphasized during counseling, at the time of initiation of a contraceptive method (Raidoo *et al*., 2015). Condom use should always be sustained and adolescents must be warned that, for some STIs, condoms are not totally protective.

Follow-up visit

At the end of the counseling visit, after the method is chosen, it is important to establish a follow-up appointment. Usually this follow-up should be scheduled 3–6 weeks after method initiation. During this visit it is recommend to repeat the pregnancy test if a method was quick-started, to discuss and solve problems, sideeffects that arise with the method used or to change the method if it is problematic for the adolescent. Sometimes, this follow-up can be done by phone,

although some studies shown that this method, although comfortable for both the provider and the adolescent, does not improve adherence (Berenson, & Rahman, 2012).

The reproductive health care is an essential part of adolescent health care. A multidisciplinary team including the general practitioner, the pediatrician and the gynecologist should ideally provide the education. All of them can have an active role in encouraging their adolescent patients to use contraception in order to reduce unwanted pregnancies and to prevent sexually transmitted diseases at the same time.

Conclusion

Thorough contraceptive counseling is an important component of overall adolescent healthcare. Hormonal contraception represents one of the most used methods among adolescents and in order to be successful, it requires a proper explanation regarding administration and possible side-effects. Special attention should be paid to help the adolescents to correctly and continuously use the method. The multidisciplinary team is an important provider of sexual health and contraception education. There is an urgent need to implement programs which meet the contraceptive needs of adolescents.

Acknowledgements

All authors contributed equally to this paper. The authors report no conflicts of interest.

References

American College of Obstetricians and Gynecologists ACOG (2014). Committee Opinion No. 602: Depot medroxyprogesterone acetate and bone effects. *Obstet Gynecol*, *123*(6), 398–1402.

Amialchuk, A., Gerhardinger, L. (2015) Contraceptive use and pregnancies in adolescents' romantic relationships: role of relationship activities and parental attitudes and communication, *J Dev Behav Pediatr*, *36*, 86-97.

Apter, D. (2012). Adolescent contraception. *Endocrine Development*, *22*, 287-301.

Apter, D. (2018). Contraception options: Aspects unique to adolescent and young adult. *Best Pract Res Clin Obstet Gynaecol*, *48*, 115-127.

Berenson, A.B., & Rahman, M. (2012). A randomized controlled study of two educational intervention on adherence with oral contraceptives and condoms. *Contraception*, 86, 716–724.

Blumenthal, P.D., Voedisch,A., & Gemzell-Danielsson, K. (2011). Strategies to prevent unintended pregnancy: increasing use of long-acting reversible contraception. *Human Reproduction Update*, *17*(1), 121-137.

Centers for Disease Control and Prevention, (2005). *A Guide to Taking a Sexual History*. Atlanta, GA.

Centers for Disease Control and Prevention, (2016). U.S. Medical Eligibility Criteria for Contraceptive Use, *Recommendations and Reports*, *65*(3), 1-104.

Choi, A., & Dempsey, A. (2014) Strategies to improve compliance among oral contraceptive pill users: a review of the literature, *Journal of Contraception*, *5*, 17-22.

Coble, Y. D., Estes Jr, E. H, Head, AC, Karlan, M.S, Kennedy, W.R., Numann, P., J., & Gans, J.E. (1993). Confidential Health Services for Adolescents, *JAMA*, *269*(11), 1420–1424.

Davtyan, C. (2000). Contraception for adolescents. *West J Med*, *172*(3), 166-171.

Dueñas, J.L., Lete, I., Arbat, A., Bermejo, R., Coll, C., Doval, J. L., Serrano, I. (2013). Trends in contraception use in Spanish adolescents and young adults (15 to 24 years) between 2002 and 2008. *Eur. J. Contracept. Reprod. Health Care*, *18*, 191–198.

Eurostat, (2017). *Teenage and older mothers in the EU*. http://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20170808-1

Ford, C.A. (2010). Which adolescents have opportunities to talk to doctors alone?. *J. Adolesc. Health*, *46*(4), 307–308.

Galzote, R.M., Rafie, S., Teal, R., & Mody, S. K. (2017). Transdermal delivery of combined hormonal contraception: a review of the current literature. *Int J Womens Health*, *9*, 315–321.

Ganchimeg T., Ota E., Morisaki N., Laopaiboon M., Lumbiganon P., Zhang J. & Mori R. (2014). Pregnancy and childbirth outcomes among adolescent mothers: a World Health Organization multicountry study. *Bjog: An International Journal of Obstetrics & Gynaecolgy*, *121*(1), 40-48.

Gold, M.A., Sucato, G., Conard, L.A., Hillard, P.J.A. (2004). Provision of emergency contraception to adolescents. *Journal of Adolescent Health*, *35*(1), 66-70.

Grimes, D.A. (1995). Contraception and adolescents: highlights from the NASPAG Conference. *Contracept Rep*, *6*(3) 4-11.

Halpern, V., Lopez, L.M., Grimes DA, Stockton LL, Gallo MF. (2013) Strategies to improve adherence and acceptability of hormonal methods of contraception, *Cochrane Database of Systematic Reviews*, *26*(10), CD004317.

Harper, C., Callegari, L., Raine, T., Blumm M., Darney P. (2004). Adolescent clinic visits for contraception: Support for mothers, male partners and friends. *Perspect Sex Reprod Health*, *36*, 20-26.

Harper, C.C. (2011). One-year contraceptive continuation and pregnancy in adolescent girls and women initiating hormonal contraceptives. *Obstetrics and gynecology*, *117*(2 Pt 1), 363-371.

Jaccard, J. & Levitz, N. (2013). Counseling adolescents about contraception: towards the development of an evidencebased protocol for contraceptive counselors. *J. Adolesc. Health*, *52*(4), 6–13.

Klein, D.A., Arnold, J.J., Reese, E.S. (2015) Provision of Contraception: Key Recommendations from the CDC. *Am Fam Physician*, *91*(9), 625- 633.

Landmark, C. J., & Patsalos, P.N. (2010). Drug interactions involving the new second-and third-generation antiepileptic drugs. *Expert Rev Neurother*, *10*(1), 119-140.

Madden, T., Mullersman, J. L., Omvig, K. J., Secura, G. M., Peipert, J. F. (2013). Structured contraceptive counseling provided by the Contraceptive CHOICE Project, *Contraception*, *88*(2), 243–249.

Martin, J.A., Hamilton, B.E. Osterman, M.J.K., Driscoll A.K., Mathews, T.J. (2017). Births: Final data for 2015. National vital statistics report. *National Center for Health Statistics*, *66*(1), 1.

Martin, K.A., Anderson, R.R., Chang, R.J., Ehrmann, D.A., Lobo, R.A., Murad, M.H., & Rosenfield, R.L., (2018). Evaluation and Treatment of Hirsutism in Premenopausal Women: An Endocrine Society Clinical Practice Guideline. *J Clin Endocrinol Metab*, *103*(4), 1233-1257.

Ott, M.A., Sucato, G.S. & committee on adolescence. (2014). Contraception for Adolescents. *Pediatrics*, *134*(4), 1257-1281.

Potter, J., & Santelli, J.S. (2015). Contraceptive counseling for adolescents. *Womens Health*, *11*(6), 737-741.

Raidoo, S. & Kaneshiro, K. (2015). Providing Contraception to Adolescents. *Obstetrics and Gynecology Clinics of North America*, *42*(4), 631–645.

Raine, T.R., Foster-Rosales, A., Upadhyay, U.D, Boyer, C. B., Brown, B. A., Sokoloff, A., & Rosenberg, M.J., & Waugh, M.S. (1998) Oral contraceptive discontinuation: a prospective evaluation of frequency and reasons. *American Journal of Obstetrics and Gynecology*, *179* (3 Pt 1), 577-582.

Rosenstock, J. R., Peipert, J. F., Madden, T., Zhao, Q., & Secura, G. M. (2012). Continuation of reversible contraception in teenagers and young women. *Obstet Gynecol*, *120*(6), 1298-1305.

Smith, C., Gold, J., Ngo, T.D., Sumpter, C., & Free, C. (2015). Mobile phone-based interventions for improving contraception use. *The Cochrane database of systematic reviews, 2015*, *26*(6), CD011159.

Steyn, P.S. & Goldstuck, N.D. (2014) Contraceptive needs of the adolescent. *Best Practice & Research Clinical Obstetrics & Gynecology*, *28*(6), 891- 901.

Westhoff, C. L., Heartwell, S., Edwards, S., Zieman, M., Stuart, G., Cwiak, C. & Kalmuss, D. (2007). Oral contraceptive discontinuation: do side effects matter?. *American journal of obstetrics and gynecology*, *196*(4), 412.e1–412.e7.

White, K.O. (2011). The Effect of Pack Supply on Oral Contraceptive Pill Continuation: A Randomized Controlled Trial, *Obstetrics & Gynecology*, *118*(3), 615-622.

WHO, (2016). *Global health estimates 2015: deaths by cause, age, sex, by country and by region, 2000–2015*, Geneva: WHO.

Winner, B, Peipert, J.F., Zhao, Q., Buckel, C., Madden, T., Allsworth, J.E., & Secura, G.M.H. (2012). Effectiveness of long-acting reversible contraception. *N Engl J Med*, *366*, 1998-2007.