

HACETTEPE UNIVERSITY INSTITUTE
OF POPULATION STUDIES

**ADOLESCENT FERTILITY AMONG SYRIAN REFUGEE
WOMEN IN TURKEY: A COMPARATIVE STUDY**

Işıl Elif ARSLAN

Supervisor

Assist. Prof. Dr. Ayşe ABBASOĞLU ÖZGÖREN

Department of Demography

Master's Thesis

Ankara June

2022

HACETTEPE UNIVERSITY INSTITUTE
OF POPULATION STUDIES

**ADOLESCENT FERTILITY AMONG SYRIAN REFUGEE
WOMEN IN TURKEY: A COMPARATIVE STUDY**

Işıl Elif ARSLAN

Supervisor

Assist. Prof. Dr. Ayşe ABBASOĞLU ÖZGÖREN

Department of Demography

Master's Thesis

Ankara June

2022

APPROVAL PAGE

Adolescent Fertility Among Syrian Refugee Women In Turkey: A Comparative Study

Işıl Elif Arslan

This is to certify that we have read and examined this thesis and in our opinion it fulfills the requirements in scope and quality of a thesis for the degree of Master of Arts in Demography.
Jury Members:

Member (Chair):

Assoc. Prof. Dr. Sare Mıhçıokur
Başkent University, Department of Public Health

Member (Supervisor):

Assist. Prof. Dr. Ayşe Abbasoğlu ÖZGÖREN
Hacettepe University, Institute of Population Studies, Department of Demography

Member:

Assoc. Prof. Dr. Alanur ÇAVLİN
Hacettepe University, Institute of Population Studies, Department of Demography

This thesis has been accepted by the above-signed members of the Jury and has been confirmed by the Administrative Board of the Institute of Population Studies, Hacettepe University.

06 /06/2022

Prof. Dr. İsmet KOÇ
Director



HACETTEPE ÜNİVERSİTESİ
NÜFUS ETÜTLERİ ENSTİTÜSÜ
YÜKSEK LİSANS/DOKTORA TEZ ÇALIŞMASI ORJİNALLİK RAPORU

HACETTEPE ÜNİVERSİTESİ
NÜFUS ETÜTLERİ ENSTİTÜSÜ
NÜFUSBİLİM ANABİLİM DALI BAŞKANLIĞI'NA

Tarih: 29/07/2022

Tez Başlığı / Konusu: **Adolescent Fertility Among Syrian Refugee Women in Turkey: A Comparative Study**
Yukarıda başlığı/konusu gösterilen tez çalışmamın a) Kapak sayfası, b) Giriş, c) Ana bölümler ve d) Sonuç kısımlarından oluşan toplam 87 sayfalık kısmına ilişkin, **29/07/2022** tarihinde şahsım/tez danışmanım tarafından **Turnitin** adlı intihal tespit programından aşağıda belirtilen filtrelemeler uygulanarak alınmış olan orijinallik raporuna göre, tezimin benzerlik oranı **%10**'dur.

Uygulanan filtrelemeler:

- 1- Kaynakça hariç
- 2- Alıntılar hariç/dâhil
- 3- 5 kelimedenden daha az örtüşme içeren metin kısımları hariç

Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Tez Çalışması Orjinallik Raporu Alınması ve Kullanılması Uygulama Esasları'nı inceledim ve bu Uygulama Esasları'nda belirtilen azami benzerlik oranlarına göre tez çalışmamın herhangi bir intihal içermediğini; aksinin tespit edileceği muhtemel durumda doğabilecek her türlü hukuki sorumluluğu kabul ettiğimi ve yukarıda vermiş olduğum bilgilerin doğru olduğunu beyan ederim.

Gereğini saygılarımla arz ederim.

29.07.2022

Adı Soyadı: Işıl Elif Arslan
Öğrenci No: N18135288
Anabilim Dalı: Nüfusbilim
Programı: Yüksek Lisans
Statüsü: Y.Lisans Doktora Bütünleşik Dr.

DANIŞMAN ONAYI

UYGUNDUR.

(Assist.Prof.Dr. Ayşe Abbasoğlu
ÖZGÖREN)



HACETTEPE UNIVERSITY
INSTITUTE OF POPULATION STUDIES
THESIS/DISSERTATION ORIGINALITY REPORT

HACETTEPE UNIVERSITY
INSTITUTE OF POPULATION STUDIES
TO THE DEPARTMENT OF DEMOGRAPHY

Date: 29/07/2022

Thesis Title / Topic: **Adolescent Fertility Among Syrian Refugee Women in Turkey: A Comparative Study**

According to the originality report obtained by myself/my thesis advisor by using the **Turinitin** plagiarism detection software and by applying the filtering options stated below on 29/07/2022 for the total of 87 pages including the a) Title Page, b) Introduction, c) Main Chapters, and d) Conclusion sections of my thesis entitled as above, the similarity index of my thesis is **10%**.

Filtering options applied:

1. Bibliography/Works Cited excluded
2. Quotes excluded
3. Match size up to 5 words excluded

I declare that I have carefully read Hacettepe University Institute of Population Studies Guidelines for Obtaining and Using Thesis Originality Reports; that according to the maximum similarity index values specified in the Guidelines, my thesis does not include any form of plagiarism; that in any future detection of possible infringement of the regulations I accept all legal responsibility; and that all the information I have provided is correct to the best of my knowledge.

I respectfully submit this for approval.

29.07.2022

Name Surname: Işıl Elif Arslan
Student No: N18135288
Department: Demography
Program: Master of Science
Status: Masters Ph.D. Integrated Ph.D.

ADVISOR APPROVAL

APPROVED.

(Dr.Öğr.Üyesi Ayşe Abbasoğlu ÖZGÖREN)

Adolescent Fertility Among Syrian Refugee Women in Turkey: A Comparative Study

ORIGINALITY REPORT

10%

SIMILARITY INDEX

7%

INTERNET SOURCES

6%

PUBLICATIONS

1%

STUDENT PAPERS

PRIMARY SOURCES

1

www.hips.hacettepe.edu.tr

Internet Source

1%

2

dhsprogram.com

Internet Source

1%

3

somalilandcsd.org

Internet Source

1%

4

turkey.unfpa.org

Internet Source

1%

5

genderdata.worldbank.org

Internet Source

<1%

6

Sarah E Neal, Venkatraman Chandra-Mouli, Doris Chou. "Adolescent first births in East Africa: disaggregating characteristics, trends and determinants", Reproductive Health, 2015

Publication

<1%

7

Ngalinda, Innocent(Fassmann, Heinz and Münz, Rainer). "Age at First Birth, Fertility, and Contraception in Tanzania", Philosophische Fakultät III, 1998.

<1%

ETHICAL DECLARATION

In this thesis study, I declare that all the information and documents have been obtained in the base of the academic rules and all audio-visual and written information and results have been presented according to the rules of scientific ethics. I did not do any distortion in data set. In case of using other works, related studies have been fully cited in accordance with the scientific standards. I also declare that my thesis study is original except cited references. It was produced by myself in consultation with supervisor (Assist.Prof. Dr. Ayşe ABBASOĞLU ÖZGÖREN) and written according to the rules of thesis writing of Hacettepe University Institute of Population Studies.

(Signature)

Işıl Elif ARSLAN

DECLARATION OF PUBLISHING AND INTELLECTUAL PROPERTY RIGHTS

I declare that I give permission to Hacettepe University to archive all or some part of my master/PhD thesis, which is approved by the Institute, in printed (paper) or electronic format and to open to access with the following rules. With this permission, I hold all intellectual property rights, except using rights given to the University, and the rights of use of all or some parts of my thesis in the future studies (article, book, license, and patent).

I declare that the thesis is my original work, I did not violate rights of others and I own all rights of my thesis. I declare that I used texts with the written permit which is taken by owners and I will give copies of these to the University, if needed.

As per the “Regulation on the Online Availability, Arrangement and Open Access of Graduate Theses” of Council of Higher Education, my thesis shall be deposited to National Theses Center of the Council of Higher Education/Open Access System of H.U.libraries, except for the conditions indicated below;

- The access to my thesis has been postponed for 2 years after my graduation as per the decision of the Institute/University board.⁽¹⁾
- The access to my thesis has been postponed for ... month(s) after my graduation as per the decision of the Institute/University board.
- There is a confidentiality order for my thesis.⁽³⁾

.././.... (Signature)

Işıl Elif ARSLAN

ⁱ Regulation on the Online Availability, Arrangement and Open Access of Graduate Theses

⁽¹⁾ Article 6.1. In the event of patent application or ongoing patent application, the Institute or the University Board may

decide to postpone the open access of the thesis for two years, upon the proposal of the advisor and the assent of the Institute Department.

⁽²⁾ Article 6.2. For theses that include new techniques, material and methods, that are not yet published articles and are

not protected by patent and that can lead to unfair profit of the third parties in the event of being disseminated online, the open access of the theses may be postponed for a period not longer than 6 months, as per the decision of the Institute or the University Board upon the proposal of the advisor and the assent of the Institute Department.

⁽³⁾ Article 7.1. The confidentiality order regarding the theses that concern national interest or security, the police, intelligence, defense and security, health and similar shall be issued by the institution certified the thesis*. The confidentiality order for theses prepared pursuant to the cooperation protocol with institutions and organizations shall be issued by the University Board, upon the proposal of the related institutions and organizations and the assent of the Institute or the Faculty. The theses with confidentiality order shall be notified to the Council of Higher Education.

Article 7.2. During the confidentiality period, the theses with confidentiality order shall be kept by the Institute or the Faculty in accordance with the confidentiality order requirements, in the event of termination of the confidentiality order the thesis shall be uploaded to Thesis Automation System. Shall be issued by the Institute or Faculty Board upon the proposal of the advisor and the assent of the Institute Department.

ACKNOWLEDGEMENTS

I would like to express my gratitude to my esteemed advisor Ayşe Abbasolu ÖZGREN for her invaluable advice, efforts and support. I want to thank her for her assistance with my thesis during the entire process.

I would like to thank my committee members, Assoc. Prof. Dr. Alanur ÇAVLİN and Assoc. Prof. Dr. Sare Mıhçıokur, for their valuable comments and evaluations in my defense presentation.

I also would like to express my sincere gratitude to my loving family for all of their efforts in supporting me during my academic career.

ABSTRACT

The aim of this thesis is to examine the determinants of adolescent fertility of ever-married Syrian migrant women living in Turkey in comparison with their counterparts in the host community. Data used in the thesis was obtained from the 2018 Turkey Demographic Health Survey (2018 TDHS) which included both national and Syrian migrant samples. Descriptive and multivariate analyses for both of the samples, namely logistic regression, were applied to explore the determinants of adolescent fertility composed of four groups of variables: socio-economic, regional, marriage- and fertility-related characteristics. To reveal the variation of determinants between generations, analyses were carried out separately for the age groups of 20-49 and 20-24. The analysis results show that, women in the 20-24 age groups are more prone to teenage fertility than other age groups in Turkey and Syrian migrants. Also, 20-year-olds were more prone to adolescent fertility among the 20-24 age group of Syrian immigrants. For both groups, educational levels of women and their spouses have the greatest impact on women's early motherhood compared to other variables, and this result is in line with the results of the previous relevant studies in the literature. In addition, the rural place of residence during childhood of woman is among the important factors that accelerate adolescent fertility among the Syrian group of ages 20-24. For both Syrian migrant women and women in Turkey, it was revealed that women who did not work before marriage, had a large age difference with their spouses, and who had their first menstrual period at an early age were more likely to give birth in their adolescence period. While the presence of a consanguineous relationship with the spouse was a significant predictor of adolescent fertility in both groups of women aged 20-49, no significant association was observed for the new generation (20-24 age group). Also, based on the evidence of this thesis, it is critical to put in place sound and sustainable policies in order to lower high adolescent fertility rate of Syrian immigrant women in Turkey.

Key words: fertility, adolescent, Syrian , Turkey, refugee

ÖZET

Bu tezin amacı, Türkiye'de yaşayan en az bir kez evlenmiş Suriyeli göçmen kadınların adölesan doğurganlığının belirleyicilerini ev sahibi toplumdaki benzer kadınlarla karşılaştırmalı olarak incelemektir. Tezde kullanılan veri hem ulusal hem de Suriyeli göçmen örneklemelerini içeren 2018 Türkiye Nüfus ve Sağlık Araştırması'ndan (2018 TNSA) elde edilmiştir. Her iki örneklem için tanımlayıcı ve çok değişkenli analizler, yani lojistik regresyon, adölesan doğurganlığının sosyo-ekonomik, bölgesel, evlilik ve doğurganlıkla ilgili özellikler olmak üzere dört grup değişkenden oluşan belirleyicilerini araştırmak için uygulanmıştır. Belirleyicilerin kuşaklar arasındaki farklılığını ortaya çıkarmak için analizler 20-49 ve 20-24 yaş grupları için ayrı ayrı yapılmıştır. Analiz sonuçları, 20-24 yaş grubundaki kadınların seçilen diğer yaş gruplarına kıyasla hem Türkiye hem de Suriyeli göçmenlerde genç doğurganlığa daha yatkın olduğunu göstermektedir. Ayrıca Suriyeli göçmen örneğinde 20-24 yaş grubunda 20 yaşındakiler ergen doğurganlığına daha yatkındır. Her iki grup için de kadınların ve eşlerinin eğitim düzeyleri diğer değişkenlere göre kadınların erken anneliği üzerinde en fazla etkiye sahiptir ve bu sonuç literatürde daha önce yapılan ilgili çalışmaların sonuçları ile uyumludur. Ayrıca 20-24 yaş grubu Suriyeli kadınlar için kadının çocukluk döneminde yaşadığı yerleşim yerinin kırsal olması, adölesan doğurganlığını arttıran önemli faktörler arasında yer almaktadır. Hem Suriyeli göçmen kadınlar hem de Türkiye'deki kadınlar arasında, evlenmeden önce çalışmayan, eşleri ile yaş farkı yüksek olan ve ilk menstruasyonunu erken yaşta yaşayan kadınların ergenlik döneminde doğum yapmaya daha meyilli olduğu bulunmuştur. Eş ile akrabalık ilişkisinin bulunması her iki örnekte de 20-49 yaşındaki kadınların adölesan doğurganlıkları kapsamında önemli bir belirleyici olarak çıkarken; yeni kuşak (20-24 yaş grubu) için bu değişken özelinde önemli bir ilişki bulunamamıştır. Bu tezin bulguları ışığında, Türkiye'deki Suriyeli göçmen kadınların yüksek adölesan doğurganlık hızlarının azaltılmasında sağlam ve sürdürülebilir politikaların hayata geçirilmesi önem arz etmektedir.

Anahtar Kelimeler: doğurganlık,adolesan,Suriyeli,Türkiye,göçmen

TABLE OF CONTENTS

ABSTRACT.....	I
ÖZET	II
TABLE OF CONTENTS	III
LIST OF TABLES.....	IV
LIST OF FIGURES	VI
ABBREVIATIONS	VII
CHAPTER 1. INTRODUCTION AND OBJECTIVES.....	1
CHAPTER 2. THE GLOBAL & NATIONAL AGENDA AND TRENDS IN ADOLESCENT FERTILITY	5
2.1. The Global & National Agenda On Adolescent Sexual And Reproductive Health And Adolescent Fertility.....	5
2.2. Adolescent Fertility Trends In The World And Turkey.....	9
CHAPTER 3. LITERATURE REVIEW.....	17
3.1. Theoretical Frameworks: Determinants Of Fertility In The Literature.....	17
3.2. Previous Empirical Studies On Adolescent Fertility	20
3.3. Studies On Adolescent Fertility In Turkey	25
3.4. Studies On Adolescent Fertility Among Syrian Migrants In Turkey.....	29
CHAPTER 4. DATA AND METHODOLOGY	34
4.1. Data	34
4.2. Methodology	36
CHAPTER 5. FINDINGS	44
5.1. Results Of Descriptive Analyses For Ever-Married Women Aged 20-49	44
5.2. Results Of Descriptive Analyses For Ever-Married Women Aged 20-24	56
5.3. Results Of Multivariate Analyses.....	64
5.3.2. Results For Turkey.....	69
5.3.3. Results For Syrian Migrants	76
CHAPTER 6. DISCUSSION AND CONCLUSION.....	82
REFERENCES.....	87

LIST OF TABLES

Table 2.1. Adolescent Birth Rates per 1.000 Women Aged 15-19 in Turkey, 1978-2018	14
Table 2.2. Distribution of Adolescent Mothers Giving Birth by Age Group 15-19 and Their Share in Total Women Population Who Gave Birth in Turkey	15
Table 4.1. Number of Ever-Married Women Aged 20-49 by Socioeconomic and Regional Variables: Turkey and Syrian Migrant Samples	40
Table 4.2. Number of Ever-Married Women Aged 20-49 by Marriage Variables: Turkey and Syrian Migrant Samples.....	41
Table 4.3. Number of Ever-Married Women Aged 20-49 by Fertility Variables: Turkey and Syrian Migrant Samples.....	41
Table 4.4. Number of Ever-Married Women Aged 20-24 by Socioeconomic and Regional Variables: Turkey and Syrian Migrant Samples	42
Table 4.5. Number of Ever-Married Women Aged 20-24 by Marriage Variables: Turkey and Syrian Migrant Samples.....	43
Table 4.6. Number of Ever-Married Women Aged 20-24 by Fertility Variables: Turkey and Syrian Migrant Samples.....	43
Table 5.1. Percent Distribution of Ever-Married Women Aged 20-49 by Having a Child Before the Age of 20: Turkey and Syrian Migrant	45
Table 5.2. Percent Distribution of Ever-Married Women Aged 20-24 by Having a Child Before the Age of 20: Turkey and Syrian Migrant	45
Table 5.3. Percent Distribution of Ever-Married Women Aged 20-49 by Adolescent Fertility and Socioeconomic and Regional Variables: Turkey and Syrian Migrants	48
Table 5.4. Percent Distribution of Ever-Married Women Aged 20-49 by Adolescent Fertility and Marriage Variables: Turkey and Syrian Migrant	50
Table 5.5. Percent Distribution of Ever-Married Women Aged 20-49 by Adolescent Fertility and Fertility Variables: Turkey and Syrian Migrants	52
Table 5.6. Percentage of Women Who Had a Child Before Age 20 in Total (Ever-Married Women Aged 20-49) According to Independent Variables: Turkey and Syrian Migrants.....	54
Table 5.6. Percentage of Women Who Had a Child Before Age 20 in Total (Ever-Married Women Aged 20-49) According to Independent Variables: Turkey and Syrian Migrants (Continued)	55
Table 5.7. Percent Distribution of Ever-Married Women Aged 20-24 by Adolescent Fertility and Socioeconomic and Regional Variables: Turkey and Syrian Migrants	58
Table 5.8. Percent Distribution of Ever-Married Women Aged 20-24 by Adolescent Fertility and Marriage Variables: Turkey and Syrian Migrants	60

Table 5.9. Percent Distribution of Ever-Married Women Aged 20-24 by Adolescent Fertility and Fertility Variables: Turkey and Syrian Migrants	61
Table 5.10. Prevalence of Women Who Had Child Before Age 20 in Total (Ever-Married Women Aged 20-24) According to Independent Variables: Turkey and Syrian Migrants.....	63
Table 5.11. Multicollinearity Coefficient Results	65
Table 5.12. Classification Table* for Ever-Married Women Aged 20-49: Turkey Sample	67
Table 5.13. Classification Table* for Ever-Married Women Aged 20-49: Syrian Immigrants Sample	67
Table 5.14. Classification Table* for Ever-Married Women Aged 20-24: Turkey Sample	67
Table 5.15. Classification Table* for ever-married women aged 20-24: Syrian Immigrants sample	67
Table 5.16. Model Summary Showing -2Log Likelihood, Cox & Snell R ² And Nagelkerke R ² for Syrian Sample	68
Table 5.17. Hosmer and Lemeshow Test for Selected Age Groups.....	69
Table 5.18. Results of Binary Logistic Regression Model on Adolescent Fertility for Ever-Married Women Aged 20-49: Turkey	72
Table 5.19. Results of Binary Logistic Regression Model on Adolescent Fertility for Ever-Married Women Aged 20-24: Turkey	75
Table 5.20. Results of Binary Logistic Regression Model on Adolescent Fertility for Ever-Married Women Aged 20-49: Syrian Migrants	78
Table 5.21. Results of Binary Logistic Regression Model on Adolescent Fertility for Ever-Married Women Aged 20-24: Syrian Migrants	81

LIST OF FIGURES

Figure 2.1. Adolescent Fertility Rate in the World (1970,1995 and 2019 or latest available)....	11
Figure 2.2. Adolescent Fertility Rate (‰) in Turkey, 2001-2020.....	13
Figure 4.1. Selected Independent Variables within the Scope of the Study	38

ABBREVIATIONS

ABR	Adolescent Birth Rate
ABPRS	Address Based Population Registration System
MoFLSS	Ministry of Family, Labor and Social Services
CEFM	Child, Early and Forced Marriages
DHS	Demographic Health Survey
HUIPS	Hacettepe University Institute of Population Studies
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organization for Economic Co-operation and Development
STI	Sexually Transmitted Infection
TDHS	Turkey Demographic and Health Survey
TFR	Total Fertility Rate
UN	United Nations
VIF	Variance Inflation Factor
WHO	World Health Organisation

CHAPTER 1. INTRODUCTION AND OBJECTIVES

The World Health Organization (2010) defines adolescence period as the period of life from the age of 10 to 19 and the youth period between childhood and adulthood. While early adolescent period is accepted as the ages of 10 to 15, the middle and late adolescence spans to the years of 14 to 17 and 16 to 19 respectively (WHO,2010). In this period, very rapid changes are experienced in physical, psychological and social terms and while their bodies change and mature, teenagers gain knowledge and experience on how to deal with these changes, and their development and health.

The adolescents have generally either less possibility of giving birth or lower birth rates than women in the middle of their reproductive ages due to having lower fecundity, less sexual activity and lower possibility of conception (WHO, 2013). However, in some regions, for example Africa, Asia, Latin America and the Caribbean, the number of reproductions in adolescence period is dangerously high. Although adolescent fertility and pregnancies are considered as concerns in developing or underdeveloped countries, international organizations address this as a worldwide issue because of its detrimental effects on individuals, families, and society as well as the high risk of both mother and newborn mortality.

Adolescent moms give birth and raise children at a time in their lives when they are socially, biologically, and emotionally unprepared. From a societal viewpoint, adolescence should be committed to investing in individual human capital like education, which is often inconsistent with motherhood responsibilities. According to WHO (2013), women who have children early have less opportunities for wealth creation, owing to the fact that young mothers are less likely to finish their education and, if obliged to work, may find it particularly hard to cope with home and work tasks. Teenage childbirth has led to greater morbidity and maternal deaths, complications during pregnancy as well as higher infant mortality and poor health of children. (McAnarney and Hendee, 1989; as

cited in Floréz and Nunez, 2003). Furthermore, young pregnant women are more likely to consider abortion as a feasible solution which put risk on adolescent women's health (Bledsoey Cohen, 1993as cited in Cesare and Vignoli, 2006). From an emotional standpoint, several studies show that pregnancy causes a decrease in self-esteem and woman satisfaction in female teenagers as well as a severe negative impact on women's perceptions of happiness (Cesare and Vignoli, 2006)

Despite adolescent pregnancy and fertility is a global issue that affects economically developed, underdeveloped and developing countries, it is more prominent among vulnerable population and low-income countries around the world, mainly as a result of poverty, poor education, and lack of economic opportunity. According to the Population Reference Bureau (2013), more than 10% of adolescent girls in developing nations give birth each year, whereas less than 2% of females give birth before the age of 20 in developed nations.

The incidence of adolescent pregnancy in the world varies between 3.2‰ and 42‰ depending on the many factors and differences including adherence to traditions, religious beliefs, and cultural characteristics such as family structure, age at marriage, use of family planning, education, and economic status (Şen and Kavlak, 2011). Because of the "early marriage" setting, which is the marriage or partnership between two people while one or both spouses are under the age of 18, age at marriage can be acknowledged as one of the most essential and major variables determining teenage pregnancy. As indicated by the literature, early marriages and adolescent fertility drivers, notably social and cultural ones, create extremely similar results; hence, early marriage and the variables influencing it are commonly addressed in this study. The majority of girls who marry before turning 18 get pregnant within the first year of their marriage.

While the adolescent fertility rate in the world reached ‰41.55 in 2019 (World Bank, 2020), Turkey with ‰30 rate has been below the average of the world rate according to 2018 Turkey Demographic and Health Survey (2018 TDHS) (HUIPS,

2019a). The same study which is conducted for Syrian migrants¹ living in Turkey shows that the adolescent birth rate of Syrian migrants living in Turkey is very high with %209 (HUIPS, 2019b). Additionally, while 39.3% of Syrian adolescents have begun childbearing; this rate remains much lower among natives of Turkey (3.5%).

Indicating determinants of this high adolescent fertility rate of the Syrian population living in Turkey as well as explaining how these determinants have association with the behavior of adolescent fertility differentiate and/or show similarity between the two populations are defined as short-term objectives of this study. On the other hand, this thesis' general objective is to offer a study on adolescent fertility among Syrian immigrants in Turkey and to establish a baseline against which changes in adolescent fertility rates and factors in subsequent years can be assessed. The fact that Syrian immigrants who remain in Turkey, particularly the younger generation, become mothers before the age of 20 is crucial in terms of demographic integration, as is the question of whether the factors influencing this will change as a result of cross-cultural interaction.

The study compares and evaluates the determinants of adolescent fertility and how it differs between Syrian migrants and natives in Turkey by using the 2018 Turkey Demographic and Health Survey data. In parallel with the research aim, the research questions of the study are :

- 1- How are the selected independent variables/factors associated with the condition of first birth before the age of 20 for ever married women?
- 2- How do the factors on entrance into motherhood before age 20 differentiate between ever-married 20-49- and 20–24-year-old women in host community and Syrian migrants in Turkey?

The thesis consists of 7 chapters. The following chapter outlines the global and national agenda for teenage sexual and reproductive health, and teenage fertility. Likewise, changes in adolescent fertility rate in the world and Turkey are explicitly

¹ Syrian refugees living in Turkey were referred to as Syrian migrants in the study.

covered. The third chapter discusses the concept of the proximate determinants of fertility and summarizes previous studies related to adolescent fertility determinants and presents previous empirical studies. Also, it summarizes the major variables associated with adolescent pregnancies in Turkey and among Syrian migrants. The fourth section provides the structure and scope of the TDHS data. Further, dependent and independent variables used in regression models are explained within the scope of methodology. There is also a detailed discussion on descriptive and multivariate analysis applied separately for the age groups of 20-49 and 20-24 in Syrian and Turkish samples separately. The sixth chapter outlines the results of descriptive and multivariate analysis on adolescent fertility determinants for both Syrian and Turkish samples within the scope of selected age groups. Lastly, all findings and conclusion remarks on the association of adolescent fertility and its prominent factors are presented by referring to the adolescent fertility determinants in the literature in the sixth chapter.

CHAPTER 2. THE GLOBAL & NATIONAL AGENDA AND TRENDS IN ADOLESCENT FERTILITY

This section gives a summary of how adolescent fertility and sexual and reproductive health in adolescence are handled and what programs, goals and strategies are suggested and accepted in the global agenda. Furthermore, for both the globe and Turkey, the global changes and trends in teenage fertility rates, as well as how and to what degree the other factors directly impacting this rate have changed, are examined.

2.1. The Global & National Agenda on Adolescent Sexual and Reproductive Health and Adolescent Fertility

Policy interest in agenda for teenage sexual and reproductive health has begun to grow since 1974 as demographers, gynecologists, public health specialists, and policymakers have become increasingly interested in adolescent fertility and reproductive behavior. Adolescent fertility was first considered internationally in 1974 by the World Health Organization, and then continued to be on the agenda at regional and international meetings and debates by governments, international organizations, and allied foundations. In 1976, thirty-nine countries and seven concerned organizations participated in the first global meeting on adolescent fertility (Bogue, 1977 as cited in Altıkulaç, 2005) where all related implications including demographic, health, and legal were discussed, and solutions to problems and action plans were developed.

Following the first global meeting on adolescent fertility, the topic has come up repeatedly at international demographic and health conferences. The participating countries and organizations at the International Conference on Population in 1984 stated the primary issues linked to reproductive behaviors of the young population, particularly adolescent behavior. The importance of adolescent reproductive and sexual health was discussed in depth at the 1994 International Conference on Population and Development (ICPD) held in Cairo. For the first time, the international community recognized that adolescent reproductive and sexual health involves a separate set of demands from adult

needs at ICPD held in Cairo in 1994. The ICPD, ratified by 179 countries, and its ensuing Program of Action, emphasized the importance of addressing the education and service needs of young people in order to be able to deal with their sexuality constructively as well as responsibly (UNFPA, 1994). Shortly after, in 1995, the United Nations (UN) continued its initiatives to strengthen the situation of adolescent people worldwide by adopting the World Programme of Action for Youth, an international strategy that offers a legislative framework and operational implications for addressing the challenges that adolescents face, such as sexual and reproductive health. Through frequent meetings and activities, the UN continues to strive to encourage governments and countries to respect the targets of the World Programme of Action for Youth and to establish national youth policies to support and improve the lives of young people, along with policies to meet their sexual and reproductive health necessities. Various worldwide initiatives, international conferences and scientific commissions which stress efforts to promote teenage sexual and reproductive health have emerged such as the Lancet Commission, United Nations Commission on Population and Development, the Global Strategy for Women's, Children's, and Adolescents' Health (Woog and Kågesten, 2017).

Aside from the teenage sexual and reproductive health, the topic of adolescent childbearing has been considered as having an influence on nations' economic performance. Many governments have recognized the significance of young people as the future and one of the main drivers of development and growth at the national level. The number of countries with an adolescent reproductive health policy moved up from 60% in 1996 to 90% in 2013 (United Nations, 2014).

Aside from health-related policies, initiatives and programs, national economic performance and development variables are affected by adolescent childbearing including economic position, gender equality, income disparity and human development. High adolescent birth rates can jeopardize the "demographic dividend" (Gribble and Bremner, 2012), which refers to the economic development that takes place when birth rates fall and the share of working-age population rises, reducing that of the population that is economically dependent (Bloom, 2003). As a result, women may delay marriage and birth

by choosing other aspirations including economic, educational, social and civic participation options (United Nations, 2012).

Seventeen Sustainable Development Goals (SDG) are covered in the 2030 Agenda for Sustainable Development where there are 169 quantitative targets covering the social, economic, and environmental components of sustainable development, as well as a framework of 232 indicators for measuring global progress toward those goals. While Goal 3 in SDG aims for all people of all ages to have healthier life and support well-being, decreasing adolescent birth rate is one of the indicators under the target 3.7 on sexual and reproductive health. Differences across and within nations, as well as between demographic groups, suggest that a considerable proportion of young people lack access to fertility control, which has serious implications for their health. Because poverty is one of the variables that influence young marriages, pregnancies, and births, the 2030 Agenda emphasizes the relationship between guaranteeing equal access to sexual and reproductive health systems and other aspects of development.

In that respect, many countries have started to progress in improving health, social, and economic status of adolescent females within the scope of Sustainable Development Goals (SDGs). Nevertheless Botea and Rouanet (2020) mention that COVID-19 issue threatens to reverse this progress by removing adolescent girls from the protective environment of schools and putting them at higher risk of early pregnancy. For more equitable and sustainable growth, it is important that recovery efforts and policies assure ongoing and expanded investments in the human development of teenage girls in conjunction with SDGs.

The SDG Target 16.9 aims to provide legal identification for everyone and register births and its indicator 16.9.1 is the percentage of children under the age of five whose births have been registered with a civil authority, broken down by age. As births of adolescent mothers are more likely to be unregistered, preventing adolescent births would help achieve this target, too. In their study, Keskin and Çavlin (2020) discovered that children of adolescent mothers in Turkey have delayed birth registration, which, in turn,

prolongs the time that these children have without identity compared to children of adults. The rights of unregistered children of teenage mothers are slowly being recognized where there are traditional family norms. In parallel with this study, timely registration of babies of adolescent mothers is directly related to the above-mentioned SDG targets. Birth registration is accepted as the first step towards making all individuals visible, protecting individual rights and ensuring everyone's access to justice and social services.

The Nairobi Summit, also known as ICPD+25, was held in November 2019, to commemorate the 25th anniversary of the Cairo conference while the international community worked to meet the UN's Sustainable Development Goals by 2030. The Summit commits to broadening the scope of education (supporting quality education and appropriate skills at every level and access to comprehensive sexuality education and youth-friendly services) in order to enable all young people, particularly adolescent women, to make free and conscious decisions, and well-thought choices about their sexual and reproductive lives, as well as to protect themselves from unwanted pregnancies in order to facilitate a safe transition to adulthood. These commits are accepted as important prerequisites for attaining the demographic dividend on which much of the world's inclusive economic development and sustainability rely (ICPD25 Nairobi Summit, 2020).

To cover the aforementioned global targets, Turkey's Ministry of Health has established numerous subject-specific targets in the 2019-2023 Strategic Plan. "Goal 4" is specified in the strategy as implementing an integrated health service model in health services. This is the applicable aim, which incorporates maternal mortality and high-risk pregnancy metrics. "Target 4.2" is defined as reducing maternal deaths by building a system that would provide maternal health prevention and support. Increasing the knowledge level of health workers at all levels about maternal and reproductive health, ensuring close follow-up of risky pregnant women, and increasing the capacity of competent human resources to overcome complications that may occur during pregnancy and puerperium are among the needs and strategies identified within the scope of related sub target (Arslan et al., 2020).

2.2. Adolescent Fertility Trends in the World and Turkey

Pregnancies among teenagers and adolescent parenthood are a source of concern around the world. While around 16 million adolescents between the ages of 15-19 and a million teenage girls less than age 15 have baby each year around the world; 12 million women aged 15-19 years giving births and 21 million pregnant girls in the same ages are in developing countries (Darroch et al., 2016).

Teenage fertility rate representing the births per 1000 women in the 15-19 age group, has been decreasing dramatically since 2004 (United Nations, 2019). According to the World Bank's data of development indicators, the adolescent fertility rate has decreased globally by half, from 86 per 1000 women in 1960 to 41.55 per 1000 women in 2019. When looked at the regions where adolescent fertility rate is steadily declining, it can be said that, the drop in adolescent fertility is most noticeable in South Asia, and the Middle East and North Africa. In 2019, the rate in South Asia was a fifth of what it was in 1960 (from 114 to 23), while it was practically a fourth in the Middle East and North Africa (declining from 137 to 39). Despite a drop from 154 births per 1,000 teenagers in 1960 to 100 births in 2019, Sub-Saharan Africa's adolescent fertility rate remains the highest of all areas, more than twice the world average of 42 births per 1,000 adolescents.

Despite the decline in adolescent birth rates in the world, inequalities in global or countries, as well as between people, suggest that a considerable proportion of teenage people have lower access to fertility control, which has serious implications for their health. Because poverty is one of the variables that influences young marriages, pregnancies, and births, the 2030 Sustainability Agenda emphasizes the link between guaranteeing universal access to reproductive and sexual health and healthcare and other development goals, such as eradicating poverty in all its forms (United Nations, 2020).

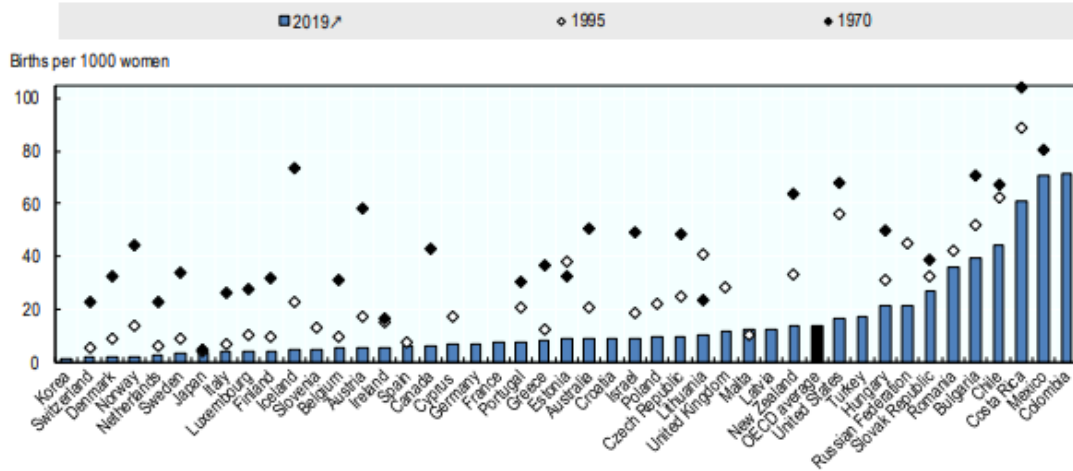
As the region's population grows, so does the number of adolescent girls giving birth. In 1960, 1.7 million females aged 15 to 19 gave birth; in 2019, 5.8 million girls aged

15 to 19 gave birth (World Bank, 2020). According to UNFPA World Fertility Report (2020), Africa had the greatest adolescent birth rate (ABR) levels between 2015 and 2020, followed by Asia, Latin America, and the Caribbean. Europe and Northern America had the lowest amounts, while Oceania had the highest. Algeria, Libya, and Tunisia were the only African countries with relatively low levels of adolescent fertility. The adolescent birth rate in West and Central Africa was the highest in 2020; there were 108 births per thousand girls between the ages of 15 and 19. East and Southern Africa took second place and third, with 95 births per thousand adolescent girls.

According to the OECD Family Database, trends in adolescent fertility rates reflect the move toward postponing the first child. Both in Turkey and across the world, the mean age of the women at birth is rising. In today's OECD countries, the mean age of the women at birth is 30. In Turkey, it is between 28 and 30 in Turkey, which is similar to Chile, Hungary, the United States, and Poland (OECD, 2019). Fertility rates for women aged 15 to 19 are currently at 13.7 births per 1000 women on average among OECD nations. In the last two decades, adolescent fertility has declined in every OECD country, sometimes as low as 50 births per 1000 women, in countries such as the United States, New Zealand, Iceland (Figure 2.1). Some OECD countries, however, have high teenage fertility rates. The current adolescent fertility rate in Costa Rica, for example, is 61.2 births per 1000 women aged 15 to 19. Over 70 births per 1000 women aged 15-19 occur in Colombia and Mexico, which is more than five times the OECD norm.

Figure 2.1. Adolescent Fertility Rate in the World (Births per 1000 women,15-19 year-olds), 1970,1995 and 2019 or latest available

Source: OECD, 2019



According to the Gender Data Portal of World Bank (2022), adolescent sexual activity is frequently linked to the married teenage girls or those in some sort of a union in low-income nations. As a result, teenage fertility is strongly linked to child marriage. In 2018, 19% of women aged 20 to 24 got married for the first time before the age of 18, a drop of half in 30 years (rate in 1988 was 41%) in the world. Furthermore, while teenage fertility rate is the highest in Niger in the world with 180 births per 1,000 adolescents, the rate of early marriage is also the highest with three-quarters of women aged 20-24 having been married before the age of 18.

United Nations’ World Fertility 2019 Report (2020) shows trends in 104 countries with similar levels of adolescent birth rates from 2015 to 2020 and compares the rate of decline and the factors of decline in those countries. Regarding the factors of decline; it is highlighted that modern contraceptive techniques have undoubtedly enabled young couples and individuals in avoiding unplanned pregnancies. Prevention methods have helped to reduce rates of infertility by preventing sexually transmitted infections (STIs). Furthermore, in nations where abortion was legal long before and modern contraceptives were accessible, it provided women with an alternative to carrying an unplanned pregnancy to term (Van de Kaa, 2002). The convergence of the ABR in 2015-2020 in

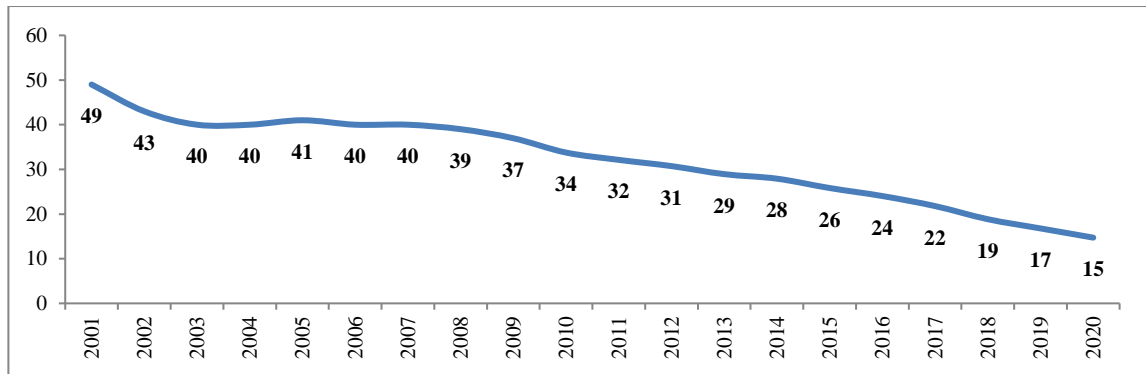
various countries could be explained by differences in the use and distribution of birth control measures, among other variables.

Santelli et al., (2017) emphasize in their study that variations in adolescent fertility across nations between 1990 and 2012 were connected with national socioeconomic indicators including trends in national wealth, income inequality, and educational expenditures. In other words, the most important cause for lowering adolescent fertility rates, according to temporal patterns, was increased national income. Inequalities in income were a second significant cause for these historical trends. While income inequalities remained stable over time, regions with lower income inequalities experienced faster rates of adolescent fertility drop (Santelli et al., 2017). This is indicative of the fact that the greatest reductions in teenage birth rates occurred in three regions with the lowest wealth disparity in 1990: Europe and Central Asia, the Middle East and North Africa, and South Asia. In addition, it is exemplified that, in 2015-2020, Namibia and Sudan had similar teenage fertility rates (64 births per 1,000 women), in spite of Sudan's lower GDP and education spending. Sudan, on the other hand, had much lower income inequality than Namibia in 2012. Improvements in economic disparity appear to have had a significant role in Sudan's adolescent fertility drop, which is already approaching Namibia's level (Santelli et al., 2017).

In Europe, Bulgaria had the greatest teenage fertility rate of 39 per thousand, while the Netherlands and Denmark had the lowest adolescent fertility rate of 2 per thousand in 2019. Turkey, along with eight other European Union member nations, had a teenage fertility rate of 17 per thousand in 2019, which was higher than the European Union average (World Bank, 2020). The rate of adolescent fertility in Turkey, as well as the rest of the globe, is declining year after year. In 2001, the adolescent fertility rate was 49 per thousand, by 2020, it had dropped to 15 per thousand (Figure 2.2). Both TURKSTAT (2021) data and TDHS results show that adolescent births are gradually decreasing in Turkey. Table 2.1 shows the changes of adolescent fertility rate specific to 15-19 age

groups according to TDHS results. While the rate was 93 per thousand in the 1978, it decreased to 30 in 2018 with 68% change in 40 years.

Figure 2.2. Adolescent Fertility Rate (%o) in Turkey, 2001-2020



Source: TURKSTAT, 2021, Birth Statistics, 2001-2020

In Turkey, the mean age of mothers who gave birth has risen in ways consistent with the decline in adolescent fertility. While the mean age of women giving birth was 18.6 in 1988 TDHS study, TURKSTAT Birth Statistics (2021) show that it climbed from 26.7 in 2001 to 29.0 in 2020. In addition to the mean age at first birth, the median age at first birth for women fluctuates with time, which is an important indicator of the age at first birth growth. When the statistics for 2018 is examined, the median age at first birth for women aged 25-49 is 23.3, while the rate for women over 40 is 22.5. It rises to 25 for women aged 25 to 29 (HUIPS, 2019a).

Table 2.1. Adolescent Birth Rates per 1.000 Women Aged 15-19 in Turkey, 1978-2018

Year	‰
1978	93
1983	55
1988	43
1993	56
1998	60
2003	46
2008	35
2013	31
2018	30

Source: HUIPS, 2019a

There has been a significant decrease in early births in direct relation with the increase in childbearing age. Currently, having a first baby at the age of 18 has dropped from 21% in 1993 to 9.4% among women aged 25 to 49 and pregnancy at ages 15-19 is 4%, while childbirth before the age of 17 is uncommon. In Turkey, almost 4% of teenage girls have begun childbearing. While 3% of women have given birth to a live child, 1% are currently pregnant with their first kid. Only 1% of women aged 15 to 19 have married before the age of 15 and 0.2% have given birth before the age of 15 (HUIPS, 2019a). Additionally, while 10.5% of women who gave birth in 2003 in Turkey were adolescents, only 7% were adolescents in 2013 and it decreased to 4.8% in 2018 indicating 48.0% decline over the last decade (Table 2.2). Likewise, although 11% of women aged 40-49 had their first child by the age of 18, just 5-7% of women aged 20-29 had begun childbirth by the age of 18 (HUIPS, 2019a).

Marriage symbolizes the entrance of the socially acceptable reproductive time in Turkey, hence it is well recognized that age at marriage can be accepted as one of the most critical variables associated with adolescent pregnancy. Demographic surveys conducted since 1978, show the prevalence and changes of early marriages in Turkey and the recent study conducted in 2018 shows that 20.9% of women aged 25-49 got married before the age of 18 and 3.9% before the age of 15. Also, while the median age at first marriage was 17 according to 1978 TDHS, it increased to 21.4 in 2018 TDHS. In the 40-year period,

child marriages decreased and the median age at first marriage increased by 4.4 years (HUIPS, 2019a).

Table 2.2. Distribution of Adolescent Mothers Giving Birth by Age Group 15-19 and Their Share in Total Women Population Who Gave Birth in Turkey

Year	Number of women who gave birth	Adolescent mothers (Age<20) who gave birth	
		N	%
	A	B	C*
2003	1.198.927	126.357	10.5
2008	1.295.511	120.309	9.3
2013	1.297.505	90.263	7.0
2018	1.253.981	60.740	4.8
2020	1.112.859	45.993	4.1

* $C=B*100/A$.

Source: TURKSTAT, 2021, Birth Statistics 2021

The report of Child, Early, and Forced Marriage in Turkey (2020) seeks to reveal the prevalence of child marriage of last 25 years in Turkey by touching on social, cultural factors, maternal health and child & reproductive rights. The report concludes that, the percentage of marriage before the age of 15 among women aged 20-24 fell from 10% to 2% (from 1978 to 2018). Similarly, while 41% of women aged 20-24 got married before the age of 18 in 1978, it declined to 15% at present. In the 2018 TDHS, the prevalence of marriage before the ages of 18 was 14.7% among women in the 20-24 age group, while the prevalence of marriage before the age of 15 was 2.0%. Women aged 20 to 49 were more likely to marry during childhood. Marriage before the ages of 18 and 15 was prevalent among women in this age range at 19.9% and 3.6%, respectively (Ergöçmen et.al, 2020).

While the rate of marriage before the age of 18 for Syrian migrant women aged 20-24 is 44.8%, the rate of those married before the age of 15 is 9.2%. (HUIPS, 2019b).

These results show that Syrian migrant women are frequently exposed to early marriages.

Also, nearly 39% of Syrian migrant teens have begun childbearing; 31% have given birth to a child, and 9% are currently expecting their first child. One in every five Syrian migrant women between the ages of 15 and 17 is a mother or expecting her first child. More than half of 18-year-old women and two-thirds of 19-year-old women have started having children. 13% of Syrian women aged 15 to 19 have married before the age of 15 and 2% have given birth before the age of 15 (HUIPS, 2019b). Gümüş et al. (2017), in their research on Syrian refugee women, discovered that 25% of the participants were under the age of 15 at the time of their first marriage. In the same study, 58.7% of patients had their first pregnancy between 15 and 19 weeks.

For Syrian migrant women aged 25 to 49, the median age at first marriage is 19.3 years, meaning that half of these women married before they reached that age. For the 20-49 age groups, the median age at first marriage is 18.9 years. Similarly, the median age at first marriage for Syrian migrant women aged 25-49 is 19.3; i.e. half of these women got married before reaching this age. The median age at first marriage for the 20-49 age group was 18.9. The average age at first marriage has increased for more than two decades, but has started to decline in the 2010s (HUIPS, 2019b). It is also found that 55% of women in the 25-49 age group were married at the age of 20, 38% at the age of 18, and 12% before the age of 15. Regarding Syrians' early marriage trends, Kaptanoğlu and Dayan (2020) used synthetic birth cohorts by using 20-24 age group to investigate trends in early marriages among Syrian migrants whose marriage patterns are unknown. They found that the share of marriages happening early for Syrian women in the oldest birth cohorts, 1969-1973, 1974-1978, and 1979-1983, has decreased from 50% to 33%, respectively. Because of the influence of the Syrian war on the time of marriage, there has been a rise in the share of child, early and forced marriage in the younger cohorts after the 1984-1988 cohorts. According to the results of the study, while the proportion of Syrian migrant women married before the age of 15 shows a decreasing trend among all cohorts, the marriage between the ages of 15 and 17 did not follow the same trend (Kaptanoğlu and Dayan, 2020).

CHAPTER 3. LITERATURE REVIEW

In this section, the theoretical frame of the thesis and previous studies on adolescent fertility are presented. Previous studies and theoretical assumptions have contributed greatly to the understanding of the proximate drivers of fertility and the social, regional, cultural and economic characteristics related to adolescent fertility in the literature. Firstly, it is discussed that the frameworks of the fertility determinants serve as the foundation for one of the most essential aspects of this research on the factors of adolescent fertility in Syrian migrant and Turkey samples. Then, a detailed literature review on adolescent fertility determinants attempts to highlight what has been done and what methods have been used in the former and current investigations.

3.1. Theoretical Frameworks: Determinants of Fertility in the Literature

The factors affecting adolescent fertility cannot be thought differently from fertility determinants in general. Fertility is influenced by a variety of elements including social, cultural, economic, health, and other environmental factors. Recognizing the influence of social, economic, and cultural aspects on fertility, Kingsley Davis and Judith Blake (1956) defined "intermediate fertility factors" to describe biologically and behaviorally based factors. Variations in fertility levels result from the differential effects of various independent variables. According to them, fertility is affected by two groups of factors. These have been identified as direct or proximal factors and indirect or background determinants. Davis and Blake presented 11 fertility predictors, including the proportion of ever-married women, contraceptive usage, incidence of induced abortion, frequency of sexual activity, infertility, spontaneous intrauterine death, and duration of fertile period. However, their classification was not widely accepted since it was difficult to incorporate into fertility analyses (Museve, 2015). The extent to which these intermediate determinants influence fertility differs in each society (Shalo, 2020; Bongaarts, 2015).

The importance of intermediary factors affecting fertility levels was widely acknowledged in Davis and Blake's study. However, due to a lack of suitable data on intermediate fertility factors, the concept is challenging to implement. Bongaarts was the first to propose a full multiplicative model who has taken into account all intermediate fertility points together. He created the framework for proximal factors and a methodology for evaluating the influence of each proximal determinant on fertility by regrouping the ideas of Davis and Blake. Bongaarts (1978) identified three key categories of fertility variables, totaling eight proximal elements. The first of these major categories is known as the exposure factor, and it includes the marriage rate. Contraception and abortion are classified as deliberate birth control factors in the second category. The third factor, which encompasses several factors, includes postpartum infertility, frequency of sexual intercourse, sterility, spontaneous intrauterine death, and fertility period duration.

According to Bongaarts(1982), the first four major proximate factors identified as marriage or cohabitation, contraception, induced abortion, and postpartum infertility may account for 96% of the fertility variation between populations. A simple multiplicative model (a quantitative framework) might then be proposed to explain these observed fertility levels in terms of four proximal factors. In the absence of conscious controls, these four determinants' impact lowers fertility from the overall fertility rate, which is the expected level of fertility or "natural fertility." Each of the four determinants has a value ranging from 0 to 1. The proximal determinant will have a negligible inhibitory influence on fertility when the index is near to 1, but a substantial inhibiting effect when the index is close to 0. Fertility will attain its biological maximum when all proximate factors have no effect on it (Total Fecundity Rate, TFR). The estimated total fertility rate (TFR) equals total fertility in this situation. Bongaarts advises using 15.3 as an estimate of TF, based on research of historical societies with the maximum documented fertility. This means that the maximum number of children a woman might have over her reproductive life span is 15.3 (Bongaarts and Potters, 1983; as cited in Majumder et al.,2015). Four indices and mathematical formulations were identified as the C_m is the marital, C_c is the contraception, C_a is the induced abortion and lastly, C_i as an indicator of postpartum

infertility, within the aggregated model of approximate fertility predictors. In the formula, TFR stands for Total Fertility Rate, whereas TF stands for Total Fecundity. The model's basic equation is as follows:

$$TFR = Cm * Cc * Ca * Ci * TF \quad (4.1)$$

In addition to these proximate determinants; Fertility is influenced by a variety of demographic, social and economic factors including education, residency, employment, media, ethnic group, religion, and so on. Bulatao (1984) looked at the factors influencing fertility and tried to come up with some results that may be useful in developing countries' family planning plans. They claim that while socioeconomic growth has an important impact on fertility reduction in the long term, the effect is less clear in the short future and for particular households. The study indicates that education, particularly for women, decreases fertility in a consistent and predictable manner, even though the effect may take years to show. Education has an impact on fertility through influencing the age at which people marry, enhancing understanding and accessibility to appropriate and effective planning alternatives, as well as influencing decision-making abilities about the number of children needed (Gupta, 2001). Other studies, on the other hand, it is found that educated women are less likely to breastfeed than uneducated women, which has an adverse effect on fertility (Bongaarts, 1978). In line with Bulatao and study, according to Garry Becker's theory and the School of Chicago, fertility is strongly influenced by education. It is indicated that education diminishes the understanding of "male breadwinner-female homemaker", and as a result, reduces reproduction (Zafeiris et al. ,2021 as cited in Becker, 1960). Employment, on the other hand, according to Kreyenfeld and Andersson (2014), have possibility to enhance fertility by reducing uncertain conditions and provide the finances and means to move far from home and create a new family.

Fertility is dramatically reduced when people are aware of contraception. Furthermore, according to Cheng (2011), exposure to media and social media play critical roles in gaining information of new contraceptive treatments. Women who are regularly

exposed to media such as television, radio, newspapers or magazines are more likely to be exposed to contraceptive information and therefore have a better understanding of birth control and methods. Similarly, women who are members of women's organizations are more likely to obtain contraceptive knowledge through forms of communication.

3.2. Previous Empirical Studies on Adolescent Fertility

Adolescent pregnancies experienced before reaching the necessary maturity in terms of physical, psychological, and social aspects is an important public health problem for many countries. Pregnancies that will occur in this way expose the lives of both the mother and the baby to important health problems (Bulut et al., 2008). Although this thesis does not aim to approach health consequences of adolescent fertility, there are plenty of studies indicating the risks of being pregnant and giving birth in the ages of 15-19. In that context, the health consequences of adolescent fertility have been substantially examined by many disciplines including the field of medicine. Most of what biological explanations offer is that adolescent mothers, especially those who are living in poor condition or having limited access to health care services, have a largely higher risk of maternal diseases and deaths. Also it is indicated that adolescents are more prone to having greater complications during childbearing than older women. The pregnancy-induced hypertension, anemia, sexually transmitted diseases can be examples of common fertility related diseases for women at adolescent ages (UNICEF, 2008). Also, incidence of low birth weight, premature births, and pregnancy loss are considerably higher among adolescents than older mothers (Yadav et al., 2008). Furthermore, nearly 3.9 million women have abortions each year among young individuals aged 15 to 19, resulting in maternal mortality, illness, and a variety of health concerns (Darroch et al., 2016). In the adolescent reproductive period, in addition to maternal health and mortality, high infant mortality rates and poor health status of newborn babies are observed (McAnarney and Hendee, 1989).

Several studies have been conducted to identify critical determinants linked with teenage fertility. Current age, educational attainment, place of residence, use of contraceptives, and wealth were found as key variables in these researches (Raharjo et al., 2019; Alemayehu et al., 2010). Other variables related to teenage fertility that vary by nation and even within countries include work situation, marriage status, postpartum infecundability, parents' wealth situation, religion, exposure to the media, the status of living with a partner (Alemayehu et al., 2010 as cited in Monari et al., 2022).

Mc Devitt (1996) published a report on adolescent's reproductive behavior by summarizing results from the US Census Bureau's International Database coming from 56 developing countries and this report is accepted as one of the initial comprehensive combined studies for developing regions in the world. The report uses the proximate determinants of fertility: place of living, educational attainment, marital status, age and contraceptive use to measure the magnitude of adolescent fertility. In the report, it is found that countries where early adolescent fertility was the highest in the 1990's, highest adolescent and infant mortality rates were seen as well. Also, urbanization patterns and timing of marriage are found to be one of the most important determinants of adolescent birth rates. The report concludes that many teenage women have unmet need within the scope of family planning in the regions.

One of the most important determinants of adolescent childbearing is accepted as early marriage. Riley (1994) touches upon the early family formation patterns and adolescent fertility nexus in rural Bangladesh. It is indicated that even if social norms in the region favor having an early marriage and to use no contraceptive method, delayed adolescent growth and late age at menarche resulted from malnutrition are very important factors on low fertility of adolescents. Regarding age at menarche, the earlier menarche occurs, the greater the biological possibilities of conception. The timing of menarche is crucial because it affects sexual beginning and marriage age, and so fertility. Young girls who develop early are more likely to engage in sex at an earlier age, putting them at higher risk of adolescent pregnancy (Mabeleng, 2019).

Contraceptive use is another determinant of adolescent reproductive behavior. Terry and Manlove (2000), in their article, found that adolescent women are less prone to use an effective contraception method than older women. This case can be interpreted as a barrier to decrease fertility among adolescents. Also, Rosenzweig and Schultz (1989) mention that effective use of contraceptive techniques and having enough knowledge on contraceptive methods is strongly related to education. In this context, education is generally accepted as the most important factor affecting fertility since it is believed that women primarily get education in their younger ages and after finishing education, they can have a baby as an adult. Their knowledge on contraceptive use is strongly related to the matter.

Ovulation cycle knowledge or fertility awareness is the understanding of the likelihood of conceiving during the menstrual cycle (Iyanda et al., 2020; Hampton and Mazza, 2015), as well as recognizing the related risks of sexual conduct, and making childbearing decisions. Unintentional or unintended pregnancy in marriage, as well as abortion among adolescent women may result from a lack of knowledge about the ovulation phase. Due to a lack of access to contraception methods, fertility awareness studies using ovulation cycle information were frequently conducted in Sub-Saharan African nations. A study conducted to investigate the association between ovulation awareness and contraception among young women aged 15 to 24 in 29 African nations, shows that ovulation awareness is highly related to the prevalence of unwanted pregnancy and adolescent women (age 15-19) have a faulty knowledge of ovulation and are more likely to become pregnant unexpectedly. It is also determined that adolescent women have limited ovulation knowledge and are more likely than women aged 20–24 to experience an unintended pregnancy/child (Iyanda et al., 2020). When looked at the 2018 TDHS results, it is seen that age with correct knowledge of the ovulation period is lowest in 15-19 age groups in both Syrian immigrant (15.3%) and Turkish samples (17.8%) (HUIPS 2019a; 2019b).

Meeker (1994) in his study tries to understand how education has an impact on adolescent fertility in the Sub-Saharan Africa region. Although his study shows that there

is an unclear relationship between educational level of women and adolescent fertility, Gupta and Leite (1999) have found that among teenage females, higher educational level is strongly related to lower early fertility level and the use of reproduction control methods. Mason (1986) It is also underlined that education can cause increasing autonomy of women in the household and in this way, they can have more chances to participate in fertility decision making. (Mason,1986; as cited in Güneş,2016) Also, according to Martin and Juarez (1995) husband's education cannot be thought separately from the determinants of marital fertility. In the same study, they tried to look at the relation by using regression analysis and found that in Latin America, husband's education is a stronger factor on fertility than mother's education.

The study of Khan and Mishra (2008) is an extensive recent report which investigates sexual and reproductive health of adolescents for 38 developing countries. They find that teenage childbearing and pregnancy are more common in rural than in urban regions. The cause of this situation is explained as having less or more options for employment and education between rural and urban regions. Although unmarried and sexually active women who are aged 15-19 are using modern methods more, unmet need for contraception is at higher levels when compared to married women at the same ages. The work status of teenage women has also been analyzed in the report and it is found that every teenage pregnancy rate is higher among women who are working and have a job in many of developing countries analyzed except Eritrea, Ethiopia, Honduras, and Morocco. In the study, exposure to media is also defined as a variable to determine the effect on adolescent pregnancy. It is noted that if adolescents are exposed to mass media (including listening radio, watching TV or reading a newspaper) less, they become more likely to be pregnant in many developing countries. Similarly, Dulanto (2000), emphasizes that the effects of socio-cultural and environmental aspects including laws, media, rituals or norms of society and religion or ethnicity of adolescents are also important determinants of adolescent fertility in addition to the reproductive behavior of adolescents.

Koç and Ünalın (2000) conducted a study on adolescent fertility and reproductive behavior in Turkey, analyzing data from the 1998 TDHS and comparing their findings

with those from other Middle Eastern and Near Asian nations. They look at adolescent fertility rates in Turkey to see what factors influence it. Although the average age of first marriage in Turkey is increasing, adolescent marriage and fertility remains a significant issue in Turkey. They examine how the type of childhood residence, ethnicity, age at marriage, working status before marriage, region and educational level of women have affected adolescent fertility behavior in Turkey. They compared the results of Turkey with the results from Egypt, Jordan, Morocco, Sudan and Tunisia. They found that although adolescents in Turkey are highly informed about contraceptive methods, due to high demand of having child, contraceptive use has stayed low among them. In addition to contraceptive use, they showed that higher child and infant mortality rates have occurred among adolescents compared to women aged 20-29 and they concluded that teenage women who have high level of education and are living in urban areas have been less likely to get pregnant and bear a child.

Savaş (2001), in her study, finds parallel results about the situation in Turkey. She uses 1998 TDHS data and shows that adolescent marriage which leads to teenage fertility is more common in rural and traditional societies, particularly in the Eastern region. She emphasizes that uneducated husbands have an effect on increasing adolescent marriage and fertility in Turkey as well. In addition, she also establishes a connection with social security and work status of adolescent women and prevalence of marriage within them. She found that adolescent women with social security are less prone to get married and to give birth.

The article of Adalı and Tezcan (2012) provides a comprehensive study on marriage characteristics and reproductive health of adolescents in Turkey. They look and compare the results of 1998 TDHS and 2008 THDS by using logistic regression model. The results show that women who reside in lower-income households, have traditional parental families, and who are with low educational attainment or not employed, are more prone to get married in their ages of 15-19. The results also indicate that marriage characteristics including consanguineous marriages or unions, religious marriage ceremonies or marriages arranged by families are strongly related to adolescent fertility.

Yavuz (2012) who presents a comparative analysis of adolescent fertility in Turkey, Morocco and Egypt, observes determinants of adolescent fertility by using DHS of the countries by using hazard model and finds out that age in the first marriage becomes the most significant determinant for teenage childbearing in all three countries. He finds that, while defining factors of adolescent fertility, husband dimension should be included in whole countries' surveys and studies, and promoting female education should be one of the main policies to decrease adolescent fertility.

3.3. Studies on Adolescent Fertility in Turkey

The determinants influencing adolescent fertility in Turkey are addressed in this section in the context of the studies and discussions in literature. Besides, in the next section, the determinants that can be associated with adolescent fertility among the Syrian population are presented.

The impact of early marriages on adolescent fertility in Turkey is critical since marriage is widespread in Turkey and childbearing outside of marriage is rare. According to 2018 TDHS data in Turkey, it has been observed that 66% of women between the ages of 15-49 are presently married and 30% have never been married (HUIPS, 2019a); and according to TURSKTAT Marriage Statistics (2020), only 2% of unmarried women are raising children.

Therefore, the variables that influence teenage fertility are quite similar to those that influence early marriage in Turkey. When looked at the social and cultural variables influencing early marriage and fertility, studies show that education is the most important factor. In other words, educational attainment has a critical effect in postponing both marriage and fertility in Turkey (Kavas, 2022; Yüksel-Kaptanoğlu and Akadlı-Ergöçmen, 2012; Yavuz, 2012). Recent TDHS study, 2018 TDHS, confirmed this situation: compared to 1% of those with a high school or higher degree, 20% of youths with finished primary school education had started childbearing. Turkey raised the minimum education

requirement from five to eight years in 1997 to eight to twelve years in 2012. This change resulted in a 33% fall in teenage fertility (Güneş, 2015; Yavuz, 2012). Kırdar, Dayıoğlu, and Koç (2018) also investigated the impact of expanding compulsory schooling from 5 to 8 years on young girls' marriage and birth outcomes. They discovered that this law enhanced young girls' schooling by nearly a year on average and greatly lowered the possibility of marriage at 16 and first birth at 17. Furthermore, the outcomes of their study reveal that obligatory schooling up to the eighth grade (about 14 years old) decreases the likelihood of giving birth by the age of 17 by up to 50%.

The factor of childhood or current place of residence and economic and structural inequality within regions of Turkey affects both early marriage and adolescent fertility rate. It is important to indicate that these regional differences and inequalities are also reflected in the total fertility rate. According to 2018 TDHS, the total fertility rate (TFR) in eastern Turkey is 3.2, while it is 2.0 and 1.6 in western and northern Turkey, respectively. Saka, Ertem and Çiftlin (2001) conducted a study in Diyarbakır Maternity Care Center, it was determined that 10.3% of the women who gave birth were adolescents. In the same study, it was deliberated that 59.7% of women were married at 18 and below the age. In a study conducted in a socio-economically underdeveloped district in the same province, only 14% of women were found as being married at the age of 19 or over. Ertem, Saka, Ceylan, Değer and Çiftçi (2008) conducted another in Mardin, 56.1% of women reported that the age at first marriage was 18 and below (Ertem et al., 2008). In a study conducted in Denizli, almost 6.4% of teenage girls were married, 4.9% were pregnant, 23.3% were expecting their first child, and 4.8% had given birth.

Despite a significant progress, patriarchy persists in the Turkish culture, particularly in rural regions where adolescent fertility rates are higher. Women in patriarchal settings are more likely to marry a person arranged by their family and relatives rather than marrying a man chosen with their own free will (Çoban, 2009). According to the findings of the General Directorate of Family and Social Research "2006 Family Structure Research," (AÇSHB, 2006), 36.2% of women stated that the marriage was formed through an arranged procedure and with the decision of their family, while only

27.4% of the women stated that they made the marriage decision with their own choice and the approval of their families. As these findings show, patriarchal norms in the Turkish culture are effective even in determining the marriage and choice of husband. It is considerably more difficult to make autonomous judgments for women when they are under the legal age of marriage.

In Turkey's eastern and rural regions, where patrilocal residence and extended family structure is more common, adolescent fertility and early marriages are higher than among urban and Western residences. Adolescent fertility rates are ranging from 2% in the West to 7% in the South in Turkey (HUIPS, 2019a; Ergöçmen, et al., 2020). In Eastern region which is the least developed area in Turkey, women's education levels remain lower and early marriages, mainly religious marriages, are significantly common among Kurds and Arabs than among Turks (Kavas, 2022). Among the factors affecting adolescent pregnancies in rural areas are family structure, family history of violence or the presence of older siblings with adolescent pregnancy (Gökçe et al., 2007). It is crucial to underline that early family formation and having birth in adolescence period are also recorded in urban areas, and not all early marriages are forced or negotiated by young women's parents without the permission of her. While parents or relatives may be effective on arranging an early marriage which is more common in the rural; women in many circumstances make their own decisions and choose to marry by dropping out of school and eloping (ATHGM, 2015).

Furthermore, parents' inadequate wealth and economic burden are frequently identified as the one of the primary motivators of daughters to marry at their young ages in Turkey (Kavas, 2022; Gökçe et al., 2007). As discussed in CEFM study (2020), low-income parents typically struggle to provide for their children, especially if they have a large family, and are sometimes driven to considering marrying off their daughters in order to decrease the family's expense burden. In addition to economic hardship, Kara (2015), discusses this situation from families' possibility of having economic opportunity by receiving bride money with this early marriage. Even if not in big cities; receiving bride money still continues in rural areas and in relatively small settlements (Beder Sen, 1996,

as cited in ATHGM, 2015). Also, Gökçe (2007) highlights that, early marriage can be seen as a way out of poverty by young girls to have a better life economically in the husband's household. It is observed that there is a significant relationship between wealth status and early childbearing. The 2018 TDHS study showed that 9% of adolescents aged 15-19 in the lowest wealth quintile started having children, while only 1% of adolescents in the highest wealth quintile started having children.

Women's knowledge on contraceptive use is an important factor on early motherhood in Turkey. Koç and Ünalın (2000) emphasize that most adolescent married women lack adequate awareness of family planning methods, resulting in low rates of contraceptive usage and high rates of unintended pregnancy. According to 2018 TDHS, the use of a family planning strategy increases as the age of currently married women rises; younger women (ages 15-19 and 20-24) are less likely to use contraceptive methods (36% and 53%, respectively). Even if these younger women desire to avoid pregnancy, they may be unable to do so due to the absence of access to contraceptive services.

Furthermore, Yavuz's (2012) study demonstrates that a high age difference between husbands and wives increases the possibility of adolescent childbearing. Importantly, a large age gap between husband and wife may make it more difficult for adolescent women to discuss with her husband the issues including her personal health care requirements and contraceptive usage (Rahsad et al., 2005).

Depending on the sociocultural and traditional patterns of the family, culture, and geography the woman lives in, adolescent pregnancies may be a result of unprotected sexual experience at a young age, unofficial weddings, or legally permitted marriages before the age of 18. It is vital to consider the legal position of the legal marriage age in this context while analyzing pregnancies under the age of 18 under the label of sexual abuse. Reporting of adolescent pregnancy is obligatory in Turkey, and according to Articles 103 and 104 of the Turkish Penal Code (TCK) (2004), any sexual act against a child under the age of 15 is considered a crime regardless of complaint. The reporting of pregnant women under the age of 18 to judicial authorities in Turkey is regulated as

follows: Pregnant women under the age of 18 who do not have a civil marriage and those who have not completed the age of 15 (with or without consent) are provided with judicial notification when they apply to public health institutions and organizations. In addition, according to Article 104 of the Turkish Civil Code; if there is force, threat, cheating or any indication that affects the will, those who have completed the age of 15 are notified to the judicial authorities (Turkish Civil Code Art.104).

3.4. Studies on Adolescent Fertility Among Syrian Migrants in Turkey

In addition to main determinants affecting teenage fertility in Turkey, evaluating the adolescent fertility variables of the Syrian population and the influence of war on Syrian's fertility is significant. The Syrian conflict has been described by the United Nations as one of the major humanitarian disasters of the twenty-first century. Forced displacement leads to deaths, poverty, increased physical and mental disease, and the disruption of long-term health services such as reproductive health (Gül, 2022). As of March 2022, the total number of Syrians who migrated to Turkey as a result of the Syrian civil conflict is 3,754,591, with roughly half of them being women, and women and children are the groups most affected by migration.

2018 TDHS results show that the general fertility rate of Syrian migrant women in Turkey is 203 per 1,000 women aged 15-44 and total fertility rate is 5.3 children. According to the Ministry of Interior announcement in September 2019, the number of Syrian infants born in Turkey is over 450 thousand. Syrian migrants explain their high fertility mainly with cultural meanings including as the continuance of the father to son, work force, religious belief, land cultivation, and the losses they have endured in the present conflict circumstances (Özlem and Gökler, 2021; Karakaya et al., 2017). The preference of Syrians to use contraception methods and access to family planning services is undoubtedly affected and limited by these cultural factors. Şekerci and Yıldırım (2020) try to identify the reproductive characteristics of Syrian refugee women, as well as their family planning knowledge, attitudes, and behaviors in Hatay region. They find that, even

if they have been aware of contraception options, the rate of women using these methods is found to be low in their study of Syrian migrant women's fertility practices (Özlem and Gökler, 2021). Also, they found that although majority of participants employ a family planning technique, most of them hold misleading views regarding pregnancy and family planning strategies (Şekerci and Yıldırım, 2020). Syrians who have registered in Turkey and have a temporary identity number are entitled to free access to all curative, preventative, and emergency medical treatments. Additionally, in Turkey, Immigrant Health Centers (GSM) are established in areas where these people reside in large numbers in order to more effectively and efficiently provide preventive health services and primary health care services, to get around issues brought on by language and cultural barriers, and to improve their access to health services. Contraception counseling and method provision, antenatal and post-partum follow-ups are offered in primary care and Immigrant Health Centers. All of these developments aim to make it easier for Syrian immigrants to access healthcare services, including both prenatal and postpartum care. According to Hacettepe's 2019 research report the majority of Syrian women's deliveries in Turkey take place in public hospitals with a doctor present (Özvarış, et al., 2019). 93% of Syrian women's deliveries, according to TDHS data, occurred in a medical facility, and 5% occurred at home (HUIPS, 2019b). Also, Syrian women can gain access to a wide range of services for their own and their children's health if they go to the Migrant Health Centers. After giving birth, they learn the means of contraception in the hospital or health facility. Access to health services increases with first birth. In that context, it can be said that following the first birth before the age of 20, modern contraception techniques can be obtained and used.

Studies show that migration can raise the likelihood of females to marry too young which might result in adolescent pregnancies and sexual health issues. The reasons for these early marriages are problems such as poverty, breaking up of families, lack of education, security, barriers for access to school in the country of emigration and language. Arab and Sagbakken (2019) have conducted a study on the health and social dimensions of early marriage in Syrian children living in Jordan and Lebanon. The driving

factors in early marriage in both countries are found to be tradition, honor, economy, protection and fear. Violence and displacement have caused these marriages to take place without the consent of the children. Kaptanoğlu and Dayan (2020) confirmed in their study that war and conflict increased the tendency for early marriage with the Syrian migrant population living in Turkey. While the war and migration process may be a direct cause of adolescent pregnancy and early marriages in the Syrian sample, many social and cultural factors influence Syrian women's decision to marry and have children at a young age in Turkey as well as in other host countries. Bailey-King, in her blog (2018), highlights that early marriages were also common in Syria before the war and 13% of Syrian women aged 20-25 were married before the age of 18 before the conflict.

In Syria, adolescent pregnancies and early marriages follow a fairly similar path in terms of trends and drivers; that is the factors that influence both are related. As stated in the previous chapter, the majority of Syrian refugee women are married, and the rates of marriage before the ages of 20, 18, and 15 are fairly high. (55%, 38% and 12% in the 25-49 age group, respectively). In this regard, it might be stated that childbirth of teenage women frequently occurs during marriage. Although the studies on adolescent fertility factors are rare in the literature, studies on the dynamics of early marriage among Syrians before and after the Syrian conflict provide relevant and appropriate contexts with teenage fertility. As a result, the variables that contribute to Syrian migrants' teenage fertility are discussed below using early marriage indicators from studies in the literature. According to Article 15 of the Syrian Personal Status Law, the age at marriage is 18 for men and 17 for women. However, according to Article 18 of the Law), *“Boys over the age of 15 and girls over the age of 13 must declare that they have reached puberty and request marriage; If the judge is convinced that he can physically abolish the marriage with the accuracy of the allegations, the religious (customary) marriage that has been made or to be made can be approved if the child's father or grandfather gives consent. The marriage of girls under the age of 13 and boys under the age of 15 by religious marriage is not legally disregarded, and its legal result is annulment.”*. (Gül, 2022; Karataş, 2020:54-55)

Although the age of marriage in Syria is 17 for females and 18 for boys, there are exceptions as can be seen from the related law and article. As a result, the viewpoint that allows marriage at a young age remains prevalent. Öztürk and et al., examine the major mechanisms of child marriages among refugees in Turkey from the perspective of professionals who work directly with refugees. The research revealed that child marriage among refugees is strongly linked to patriarchal and traditional beliefs. Similarly, “Survey of Marriage Relations between Syrians and Citizens of the Republic of Turkey” (ASPB,2016) shows that patriarchal structure maintains the early marriages and adolescent fertility. Survey results indicate that marriages among Syrian population are most common between the ages of 16 and 18, with a lower prevalence at younger ages. Also, Syrian households tend to marry off their daughters before they reach the age of 18. Families are concerned that unmarried girls, particularly those who have entered puberty, may "stray" and "get into a bad situation." Obstacles to females' education include lack of family support and economic deficiencies. Girls are raised as wives, not as individuals, from infancy. Women in Syrian society have a restricted right to speak about family life, having children, and divorce (Çelik and Vural, 2018:344). Although social norms vary according to rural-urban area, ethnicity and religion, women are generally secondary in social life. In that context, Syrian's patriarchal structure seems to be a very important and influential factor in adolescent marriage and fertility. In addition, kinship marriage can be accepted as one of the determinants of teenage fertility in Syrian sample, because 39% of ever-married Syrian women aged 20-24 reported that that a high percentage of them marry a relative (HUIPS, 2019b). When looked at the percent distribution of all ever-married Syrian migrant women; it can be said that more than half of women aged 40 to 49 had a kinship connection with their spouses. In other age groups, the rates are approaching 50%(HUIPS, 2019b).

Öztürk and his colleagues' study(2021) also reveals that the refugee girls are at high risk of underage marriage due to their families' incapacity to provide their children's fundamental requirements. Marriage is seen as a protection mechanism for the honor of females by the old patriarchal culture as well as religious practices and traditional cultural

norms, security hazards, sexual exploitation, inaccessibility to education, and pressure to grow population owing to war losses surfaced as key dynamics (Öztürk et al., 2021). Education is one of the key predictors of adolescent fertility of Syrian migrant women, just as it was in the Turkey. Among Syrian migrant women aged 15-19, 35% of young women with no education or incomplete primary level education have started to give birth to children. On the other hand, the number of Syrian migrant women aged 15-19 who have high school or higher education is 11% (HUIPS, 2019b). In Syrian families living in Turkey the predicament of girls who are unable to finish their education to marry at a young age is prevalent (Hopancı,Koç and Özkoçak,2019: 14). The perception of early marriages as normal and common in Syrian culture also contributes to these kinds of marriages and this directly contributes to adolescent fertility (Şenol & Dinç, 2016:239-240).

In conclusion, it is possible to state that refugee child marriage is highly linked to patriarchal and traditional norms; however, the effects of war and migration also contribute to these marriages.

CHAPTER 4. DATA AND METHODOLOGY

4.1. Data

The data used in this thesis have been obtained from Turkey Demographic and Health Survey for the year 2018 (2018 TDHS) which is the most recent demographic survey representing the whole nation in Turkey. The national demographic surveys have been conducted every five years since 1968 in Turkey while the Demographic and Health Surveys have been conducted since 1993 by Hacettepe University Institute of Population Studies (HUIPS). Like the previous surveys, the main objective of 2018 TDHS is to offer recent data on fertility levels and changes, mother and child health, family planning and early childhood development. The survey questions, which are based on the DHS Program Model Questionnaires, were adjusted to meet Turkey's demographic and health status.

Based on the sample design and estimates, data is collected for Turkey as a whole, for rural and urban regions, and also for the five demographic regions (West, East, Central, South, and North). The study was conducted with 15,834 households in Turkey representing the whole nation. One adult member who is 15 or older was interviewed from each household. All women aged between 15-49 who were regular members of the selected households or visitors who stayed at the night before the interview in the household were deemed eligible for the 2018 TDHS. A total of 754 clusters were chosen and 750 of them were interviewed. The interviews were conducted with 11,056 households and 7,346 women who were aged 15-49 with response rates of 79.2% and 81.1%, respectively.

Two surveys were employed in TDHS namely household and women's questionnaires. While Household surveys released details on the economic status of households as well as data on age, gender, education level, marriage status, and connection with the head of family for each member of the household.; The Woman's Questionnaire was constructed for women between the ages of 15 and 49 who were also members of these households. The latter questionnaire asked about women's birth history and fertility

preferences, latest pregnancies, method of contraception use, antenatal and postnatal care of women and their children in antenatal and postnatal period, breastfeeding and early childhood development, marriage work history, partner's background characteristics.

Unlike previous TDHSs, the 2018 TDHS included Syrian migrants, with a separate sample of migrants. The main objective of the 2018 TDHS Syrian Migrant Sample was to provide both demographical and health-related indications for the Syrian refugees in Turkey for the first time. 2018 TDHS Syrian migrant sample was designed using a different frame. Since Syrian individuals with temporary protection status in Turkey are not represented in the national frame of the Address Based Population Registration System (ABPRS), a sample was created based on the population size of each quarter —Turkey's smallest administrative unit and then, only one variable which is camp/non-camp population, was employed to stratify the 2018 TDHS Syrian sample. The study frame included 759 quarters and 13 camps, which included Syrian households. The study used a nationally representative sample of 2,000 Syrian households in 100 clusters in Turkey as the target sample size. The sample size was chosen to achieve a high degree of precision for core indicators that could be compared to results from the national sample. Fifteen clusters were chosen from the camps, while 85 clusters were chosen from quarters outside the camps. Every household which had an adult member (15 or older) was interviewed to obtain information on household members, just like the national sample. All women aged between 15 and 49 who were household members or visitors (who stayed in the house at the night before the survey day) were deemed eligible to be interviewed in the 2018 TDHS Syrian migrant sample study.

There were 2,391 eligible women in the households. Among the Syrian migrant sample, 2,216 women interviews in 1,826 households were successfully completed with 92.7% response rate among women and 94.5% among households. The 2018 TDHS Syrian Migrant Sample used the same two questionnaires as the 2018 TDHS: the Household Questionnaire and the Woman's Questionnaire. As in Turkey sample, the women's questionnaire and its results are also analyzed and discussed for Syrian migrants

in this thesis. In the analysis part of this thesis, both Turkey & Syrian samples are used and the results are compared.

4.2. Methodology

In this study, descriptive and multivariate statistical analyses are employed, which are based on women who are ever-married and aged between 20 and 49: 1,664 women for the Syrian migrant sample and 5,411 women for the Turkey sample. While women aged 20-49 in the data provide more retrospective information, i.e. information related to the older periods, married women aged 20-24 were also examined separately to show a more recent situation. This differentiation allows seeing the changes and differences between generations on adolescent fertility determinants. The number of ever- married women in the 20-24 age range is 453 in the Turkish sample and 423 in the Syrian sample.

Besides descriptive analysis, the method to analyze determinants of adolescent fertility in Turkey and for Syrian migrants living in Turkey is the logistic regression model. It is a method to describe the relationship between the dependent variable and the independent (predictor) variables. In our case, the model is applied to evaluate which and to what extent independent variables affect the behavior of the entry into motherhood under age 20.

Logistic regression model assumes that dependent variable is dichotomous indicating whether or not a woman ever had a child before age 20.

The Logistic Regression formula is written as:

$$\hat{p} = \frac{\exp (b_0 + b_1X_1 + b_2X_2 + \dots + +b_pX_p)}{1 + \exp (b_0 + b_1X_1 + b_2X_2 + \dots + +b_pX_p)} \quad (3.1.)$$

In this formula, \hat{p} denotes the expected probability of having birth before age of 20. While X_1 through X_p are different independent variables, b_0 through b_p represent the regression coefficient. In the logistic regression equation, the odds ratio, written as $\exp(b)$, is the ratio of the likelihood of an occurrence to the probability of it not occurring (b). The $\exp(b)$ value of an independent variable shows that in how much and in what aspects it affects the probability of the occurring dependent variable. Odds ratios cannot be less than zero, but they can be more than one.

In both the Turkish and Syrian migrant groups, TDHS-2018 data was used in the logistic regression phase to assess the deciding factors of adolescent fertility. Adolescent fertility is the study's dependent variable. The situation of having a child before the age of 20 is signified by "1," and the situation of not having a child before the age of 20 is denoted by "0" as dependent variable(Y).

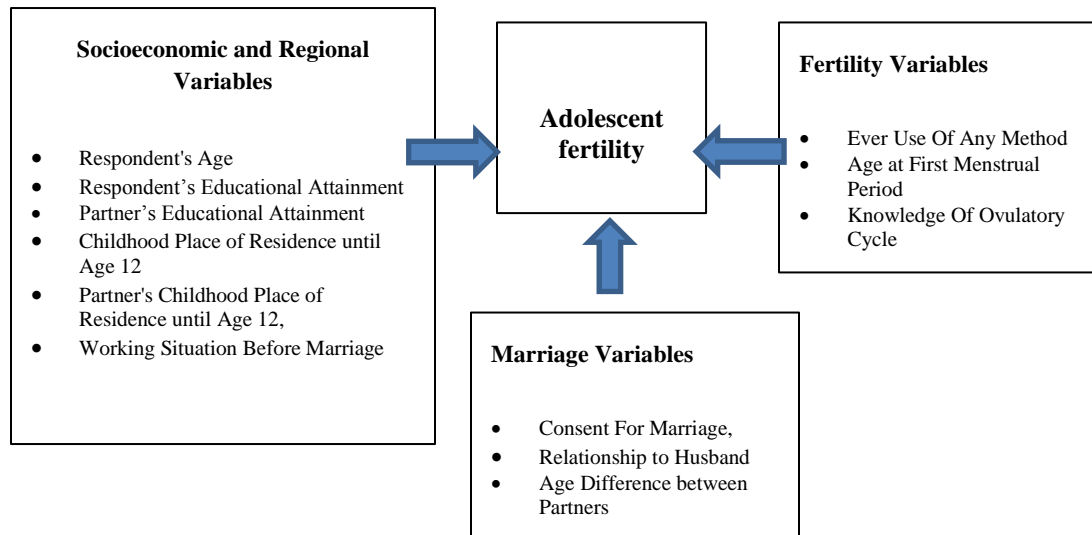
The statistical method used in multivariate analyses is enter method binary logistic regression model which requires that all predictor variables are included in the model together and at the same time by grouping in blocks and to enter these blocks in to the model in order of significance. As noted above, the models' dependent variable is "having a child during adolescence". While the adolescent fertility is defined as having birth before the age of 20, non-adolescent fertility is defined as "age at first birth" corresponding to a period older than 19 years, i.e. 20 years or above.

The analytical sample chosen for analyses is composed of women 20-49 years or 20-24 years, and the 15-19 age group was excluded. Since the adolescence period is not yet completed for women aged 15-19 years, and adolescent fertility cannot yet be determined for this group, women of age 15-19 at the time of interview were excluded from the analyses.

The independent variables are classified under three main levels as; socioeconomic and regional variables (respondent's grouped age or age, respondent's educational level, partner's education level, childhood place of residence until age 12, partner's childhood place of residence until age 12, working situation before marriage), marriage variables

(respondent's consent for marriage, relationship to husband, age difference between partners), and fertility variables (ever use of any method, age at first menstrual period, knowledge of ovulatory cycle) as shown Figure 4.1 below. The literature on the topic was evaluated during the variable selection phase, and variables regarded to have significant potential influences on adolescent fertility were included in the study.

Figure 4.1. Selected Independent Variables within the Scope of the Study



For both age groups, twelve independent factors were chosen with the aim of determining their associations with teenage fertility. For the 20-24 age group, the age variable was handled using single ages as 20-21-22, 23 and 24, while the age category for the 20-49 age group was included in the analysis in groups of six categories (20-24; 25-29; 30-34; 35-39; 40-44; 45-49). Original variables were re-coded to construct the final categories of the variables. Women's and partner's childhood place until age 12 was re-coded as: urban and rural, while working situation of respondent was created according to dates of start of work and date of first marriage.

The variable of “respondent's consent for marriage” has been re-created with the variables "Who arrange marriage" and "Respondent's consent for marriage". “Relationship to husband” was re-coded as: having relation or no relation. “Age difference between partners” was re-coded as: "Between (-4) and 4”, "Between (-9) and (-5)",

“Between 5-12”, and "Between 13 and 33". The first marriage of women was considered when constructing the marriage variables since the share of women whose first birth occurred after second or third marriages among women aged 20-49 were very low². Furthermore, “knowledge of ovulatory cycle” was re-coded as: know or do not know and “age at first menstrual period” was re-coded with 5 age group categories including “8-12”, “13”, “14”, “15-23”, and “26-43”.

The possible discrepancies in adolescent fertility with respect to independent variables are investigated in the first section on a descriptive basis. The second phase of the study, which includes multivariate analyses, is dedicated to determining the association of the variables with adolescent fertility and determining the extent to which they contribute to estimating adolescent fertility.

In the analyses, IBM SPSS Statistics 21 is used as the statistical software and data was weighted using the sample weight calculated as V005/1,000,000. As to note, in descriptive tables, the case numbers presented are unweighted. The frequencies as the unweighted numbers of women with a breakdown of independent variables for Turkish and Syrian samples are presented in Tables 4.1, 4.2, 4.3, 4.4, 4.5 and 4.6 below. The descriptive and multivariate analysis including the general test of the model coefficients, the model summary, the classification tables and regression results for women of age 20-24 and 20-49 for Turkey and Syrian migrant samples are explained and discussed in the next section.

² There are only 1 case in 5,411 women in the national sample and 12 cases in 1,664 in Syrian sample whose first birth occurred after start of higher order marriages.

Table 4.1. Number of Ever-Married Women Aged 20-49 by Socioeconomic and Regional Variables: Turkey and Syrian Migrant Samples

		TURKEY	SYRIAN SAMPLE
Socioeconomic and regional variables	New Age in 5-year groups		
	20-24	453	423
	25-29	831	379
	30-34	1065	311
	35-39	1104	249
	40-44	1023	180
	45-49	935	122
	Educational attainment of Respondent		
	Complete high school/higher	1574	247
	Complete secondary	900	316
	Complete primary	2170	785
	No education /primary incomplete	767	316
	Educational attainment of Husband		
	Complete high school/higher	2149	282
	Complete secondary	978	320
	Complete primary	2012	751
	No education /primary incomplete	238	288
	Missing	34	23
	Working Situation Before Marriage		
	Yes	2124	192
	No	3287	1472
	Childhood place of residence until age 12		
	Urban	1450	771
Rural	3895	884	
Missing	66	9	
Partner's childhood place of residence until age 12			
Urban	1306	707	
Rural	4049	948	
Missing	56	9	
TOTAL	1664	5411	

Table 4. 2. Number of Ever-Married Women Aged 20-49 by Marriage Variables: Turkey and Syrian Migrant Samples

	TURKEY	SYRIAN SAMPLE	
Marriage Variables	Respondent's consent for marriage		
	Yes	5029	1603
	No	376	61
	Missing	6	0
	Relationship to husband		
	Have no relation	4096	908
	Have relation	1310	756
	Missing	5	0
	Spousal Age difference		
	Between (-4) and 4	2846	646
	Between (-9) and(-5)	51	16
	Between 5-12	2237	825
	Between 13-33	187	126
	Missing	90	51
	TOTAL	1664	5411

Table 4.3. Number of Ever-Married Women Aged 20-49 by Fertility Variables: Turkey and Syrian Migrant Samples

	TURKEY	SYRIAN SAMPLE	
Fertility Variables	Age at first menstrual period		
	15-23	935	258
	14	1027	437
	13	1675	686
	8-12	1771	283
	26-43	3	0
	Ever Use of any method		
	Used Modern Method	4135	973
	Used only Modern Method	696	284
	Never used	580	407
	Knowledge of ovulatory cycle		
	Know	4367	1346
	Don't Know	1044	318
	TOTAL	1664	5411

Table 4.4. Number of Ever-Married Women Aged 20-24 by Socioeconomic and Regional Variables: Turkey and Syrian Migrant Samples

		TURKEY	SYRIAN SAMPLE
Socioeconomic variables	Age		
	20	61	83
	21	74	95
	22	81	82
	23	110	90
	24	127	73
	Educational Attainment of Respondent		
	Complete high school/higher	135	64
	Complete secondary	202	128
	Complete primary	84	185
	No education /primary incomplete	32	46
	Educational Attainment of Husband		
	Complete high school/higher	195	74
	Complete secondary	157	82
	Complete primary	80	194
	No education /primary incomplete	20	67
	Missing	1	6
	Working Situation Before Marriage		
	Yes	159	50
	No	294	373
	Childhood place of residence until age 12		
	Urban	132	201
	Rural	318	222
	Missing	3	0
	Partner's childhood place of residence until age 12		
	Urban	115	184
Rural	338	238	
Missing	0	1	
TOTAL	453	423	

Table 4.5. Number of Ever-Married Women Aged 20-24 by Marriage Variables: Turkey and Syrian Migrant Samples

		TURKEY	SYRIAN SAMPLE
Marriage Variables	Respondent's consent for marriage		
	Yes	443	418
	No	10	5
	Relationship to husband		
	Have no relation	343	258
	Have relation	110	165
	Spousal Age difference		
	Between (-4) and 4	203	157
	Between 5-12	238	239
	Between 13-33	11	21
	Missing	1	6
TOTAL	453	423	

Table 4.6. Number of Ever-Married Women Aged 20-24 by Fertility Variables: Turkey and Syrian Migrant Samples

		TURKEY	SYRIAN SAMPLE
Fertility Variables	Age at first menstrual period		
	15-23	69	71
	14	97	100
	13	136	177
	8-12	151	75
	Ever Use of any method		
	Used Modern Method	255	148
	Used only Modern Method	92	105
	Never used	106	170
	Knowledge of ovulatory cycle		
	Know	386	331
	Don't Know	67	92
	TOTAL	453	423

CHAPTER 5. FINDINGS

The findings are discussed in two major sections. The outcomes of descriptive analyses are addressed in the first sub-section, which examines the relationship between the chosen independent variables and adolescent fertility. In descriptive analysis, selected characteristics of all women and of women who had adolescent fertility are compared. The second part discusses the results of the multivariate analyses to determine the degree of the association of the factors included in the logistic regression models with adolescent fertility.

5.1. Results of Descriptive Analyses for Ever-Married Women Aged 20-49

Descriptive approaches are essential for comprehending the features of the data and the population being studied. Descriptive analysis, which examines data in a variety of ways, can help in making generalizations about the population(s) in question and revealing their characteristics. This chapter examines the data from the 2018 Turkey Demographic and Health Survey in depth, and based on that, the features of women with adolescent fertility and how they differ from the average are examined in relation to selected variables. In this part, it is presented the percent distribution of ever-married women aged 20-49 and 20-24 by adolescent fertility and independent variables among Syrian migrants and natives in Turkey to see how the features of women who have given birth in adolescence and all women differ from each other. In addition, prevalence of adolescent fertility is calculated for each category of independent variables for both Turkish women and Syrian migrants.

Table 5.1 and Table 5.2 show the percent distribution of ever-married women of age 20-49 and 20-24 according to status of having a child before the age of 20 for both Turkey and Syrian migrants. The number and proportion of women aged 20-49 that had given birth at least once before age 20 is 1.552 (27.5%) in Turkey and 756 (45.7%) in Syrian migrants. When the prevalence of adolescent fertility is examined according to 20-24 aged women in both populations, it is noticed that percentage of the situation of “having child before 20” is higher than 20-49 age groups. In other words, the level of adolescent

fertility behavior in the 20-24 age groups appears to be higher than in the 20-49 age group. In Turkey 42% of ever-married women aged 20-24 had first child in their adolescent period compared to 57% of Syrian refugees in the same age group (Table 5.2). The fact that in 20-24 aged groups, adolescent fertility levels are higher than the 20-49 age groups may be due to the selectivity of ever-married status. In other words, it can be said that the ever-married selectivity of the 20-24 age group, that is, their early marriage situation, caused higher adolescent fertility levels in this group. Additionally, the adolescent fertility of Syrian migrants is substantially higher than that of Turkish women in both the 20-49 and 20-24 age groups.

Table 5.1. Percent Distribution of Ever-Married Women Aged 20-49 by Having a Child Before the Age of 20: Turkey and Syrian Migrant

	Syrian Migrant		Turkey	
	N	%	N	%
Have no child before 20	908	54.3	3859	72.5
Have child before 20	756	45.7	1552	27.5
Total	1664	100	5411	100

Table 5.2. Percent Distribution of Ever-Married Women Aged 20-24 by Having a Child Before the Age of 20: Turkey and Syrian Migrant

	Syrian Migrant		Turkey	
	N	%	N	%
Have no child before 20	180	42.8	267	57.9
Have child before 20	243	57.2	186	42.1
Total	423	100	453	100

The percent distribution of ever-married women by three blocks of independent variables, namely socioeconomic and regional variables, marriage variables and fertility variables are presented in the descriptive tables below. Women who gave birth before the

age of 20 were also shown in the tables to observe how their characteristics differed from the average.

Table 5.3 shows the percent distribution of ever-married women aged 20-49 by adolescent fertility, and socioeconomic and regional variables among Syrian migrants and natives in Turkey. When looking at the age groups, it is clear that Syrian women, who had a child during their adolescent years, are younger compared to Syrian migrants in total: 55.1% of them are younger than 30 years old. Natives, on the other hand, appears to have a more balanced percentage distribution although the share of women of age 20-24 is higher among women with adolescent fertility.

Education of women and their partners is a significant factor that influences fertility behavior in teenagers. This is due not just to the fact that more time spent in school leads to later marriage, but also to the postponement of births. Adolescent education has been linked to later ages at first sex, marriage, and childbearing in terms of demographic results (Population Council, 2009a). Two factors are taken into account when it comes to education: completed educational level of women and that of husband/partner. It can be said that Syrian women, who had child in their adolescence period have lower educational level when compared to the total population. While the primary school completion rate (53.1%) is higher than the total population (46.6%), share of high school and higher level graduates are much lower (7% for adolescent mothers and 15% for all). In Turkey, almost 39.6% in all women and 50.9% of women who experienced adolescent fertility had just a primary education level. Turkey has a scenario similar to Syria in that women who have had a child before the age of 20 are less educated than their counterparts in general. While only 8.9% of women who became mothers before the age of 20 in Turkey completed their higher education; the proportion is much higher for the whole population analyzed for Turkey (31.8%).

The distribution and findings of the influence of husbands' education level on teenage fertility are quite comparable to the distribution of women's education levels. Completing primary level remains highest (45.3%) than other educational levels in total

Syrian population; husbands of Turkish women' highest proportion for educational attainment is high school and higher degree with 40.2%. In Turkey among women who gave birth during adolescence, the proportion of having a partner with a high education level (25%) is lower than that among overall population. In the Syrian migrants, the higher education level of the partners (17%) in total population is much higher than that of the spouses of adolescent fertile women (12.7%). It is seen that the primary education is the most prevalent level among husbands of women who had first birth before 20 in Turkey and Syrian migrants (48.3% and 45.9%, respectively) Husbands' highest proportion for educational attainment is high school and higher degree with 40.2% in total group of Turkey. Among women who gave birth during adolescence, the proportion of having a partner with a high education level (25%) is lower than that among overall population. Concerning women's working situation before marriage, it is noticed that prevalence of non-working situation is higher for women who had their first birth before age 20 than all populations in Syrian migrants (94.1%) and Turkey (76.9%).

In Syria, the proportion of women who worked before marriage and had birth in adolescence (5.9%) is much higher than ones who did not work (94.1%). Turkey has higher proportion of working situation before marriage than Syrian population in total as well as in adolescent fertile women group (41.5% and 23.1%, respectively).

The childhood residence of both the women and their spouses has been identified as a significant factor in adolescent fertility. This is due to the social structures, customs, living styles, and beliefs that differ between urban and rural areas. The percent distribution of women who lived in urban in their childhood (47%) and rural (52%) are equal in total population and group who had first birth before age 20. In Turkey, it is possible to say that women who had an early pregnancy in Turkey live more in rural areas during childhood. The percentage of women living in rural (77.8%) is higher for those who had their first child before the age of 20 than for all women (72.9%). The distribution of women with respect to the place of residence where spouses lived until the age of 12 in both Turkey and Syrian migrants are similar for both the total population and the adolescent fertile group.

Table 5.3. Percent Distribution of Ever-Married Women Aged 20-49 by Adolescent Fertility and Socioeconomic and Regional Variables: Turkey and Syrian Migrants

	SYRIA		TURKEY	
	All	Women had first birth before age 20	All	Women had first birth before age 20
	%	%	%	%
Age in 5-year groups				
20-24	26.0	32.5	8.3	12.8
25-29	23.0	22.6	15.1	14.5
30-34	18.5	15.8	19.2	16.3
35-39	14.4	11.2	20.7	20.2
40-44	10.8	10.2	19.4	18.1
45-49	7.3	7.8	17.2	18.1
Educational Attainment of Respondent				
Complete high school/higher	15.0	7.0	31.8	8.9
Complete secondary	19.2	20.9	16.3	20.3
Complete primary	46.6	53.1	39.6	50.9
No education /primary incomplete	19.2	19.0	12.3	19.9
Working situation before marriage				
Working	11.5	5.9	41.5	23.1
Not working	88.5	94.1	58.5	76.9
Educational Attainment of Husband				
Complete high school/higher	17.0	12.7	40.2	25.0
Complete secondary	18.9	19.4	18.6	21.7
Complete primary	45.3	48.3	36.6	45.9
No education /primary incomplete	17.6	18.9	4.0	6.9
Missing	1.2	.7	.6	25.0
Childhood place of residence until age 12				
Urban	47.5	47.4	26.0	21.1
Rural	52.0	52.1	72.9	77.8
Missing	.5	.5	1.1	1.1
Partner's childhood place of residence until age 12				
Urban	44.2	45.2	26.0	19.5
Rural	55.3	54.2	72.9	78.9
Missing	.5	.6	1.1	1.6
Total(%)	100.0	100.0	100.0	100.0
Total(N)	1664	756	5411	1552

Table 5.4 shows the percent distribution of ever-married women aged 20-49 by adolescent fertility and marriage variables among Syrian migrants and natives in Turkey. It is seen that in both countries' percentages of the women who have consent for marriage is quite high for all women groups. In Turkey, the percentage of non-consensual marriage

among adolescent fertile women (13.3%) is nearly double that of all women without consent (6.9%). In Syria, the proportion of those who became mothers before the age of 20 and married without their consent is much lower (4.7%) compared to the Turkey.

As seen from the same table (Table 5.4), the percentage of having consanguinity relation in Syrian's total population (45.7%) is lower than the category of having no relation (54.3%). Whether Syrians have a relation with their spouse or not is fairly equally balanced among Syrians who gave birth before the age of 20. In Turkey, nearly one-fourth of ever-married women (23.7%) in the whole population have a consanguineous connection with their spouse, while 32.7% of women had first child in their adolescence do.

When looked at the variable of spousal age difference, it is noticed that, the category of "5-12 years" remains higher (50.4%) than other age difference categories in total Syrian population, as in group of women who had adolescent fertility (66.5%). In Turkey, the 5-12 age difference has the largest percentage in both the teenage group (60.6%) and the whole population (40.6%). In Turkey, like in the Syria, the age difference from the husbands of women who gave birth before the age of 20 is greater than in the general population. This is also supported by the higher share of the 13-33 spousal age difference among women who had birth during adolescence for both Turkey and Syrian migrants.

Table 5.4. Percent Distribution of Ever-Married Women Aged 20-49 by Adolescent Fertility and Marriage Variables: Turkey and Syrian Migrant

	SYRIA		TURKEY	
	All	Women had first birth before age 20	All	Women had first birth before age 20
	%	%	%	%
Respondent's consent for marriage				
Yes	96.3	95.3	93.0	86.7
No	3.7	4.7	6.9	13.3
Missing	0	0	.1	0
Relationship to husband				
No relation	54.3	50.8	76.2	67.3
Having relation	45.7	49.2	23.7	32.7
Spousal Age difference				
betw(-4) and 4	38.5	22.3	53.8	32.0
betw (-9) and (-5)	.8	0	.9	.4
betw 5-12	50.4	66.5	40.6	60.6
betw 13-33	7.3	8.3	3.3	5.9
Missing	3.0	2.8	1.5	1.1
Total (%)	100.0	100.0	100.0	100.0
Total(N)	1664	756	5411	1552

Table 5.5. shows the percentage distribution of ever-married women aged 20-49 by adolescent fertility and fertility variables among Syrian migrants and natives in Turkey. Age at first menstruation is a variable that directly affects the ability to have a child before the age of 20. When the table is analyzed, it is seen that in the Syrian migrants and Turkish women, respectively 13 years and 8-12 years of age has the highest proportion for menstruation age in women with both total and adolescent fertility. Shares of Syrian women who had their first period in the ages of 8-12 or 13 and who gave birth before the age of 20 (19% and 43.9%, respectively) are slightly higher than their counterparts in the total population (16.8% and 41.8% respectively). Similarly, percentages of Turkish women who had their first period in the ages of 8-12 or 13 and who had birth before the

age of 20 (35% and 31.3%, respectively) are slightly higher than or similar to their counterparts in the total population (33.8% and 31.1% respectively).

Contraceptive use and method, which is a deliberate practice to reduce the risk of becoming pregnant, is one of the important determinants of adolescent fertility. The fertility-inhibiting impact of contraception increases with the amount of contraceptive usage in adolescent fertility as well as in a population, whereas it decreases with the level of contraception use. Both in Turkey and Syrian all groups, current use of modern method contraceptives have a majority (77.7 and 58.3%, respectively) while proportion of those women who have never used contraceptives is 24.5% for Syrians and 10.6% for Turkish women.

When the proportions of women who had first birth before age 20 in both societies are examined, it can be concluded that modern contraceptive use is much higher and more widespread than all population. While 70.7% of Syrian women who became mothers before the age of 20 use modern methods, the proportion in Turkey is much higher (83.7%).

Nearly 80% of the Syrian women ever married and aged 20-49, as well as women who became mothers before the age of 20, are aware of their cycle; those who were unaware were evaluated at 20% in total population. Women who had birth before the age of 20 in Turkey (78.8%) have slightly less knowledge of the cycle than the all population (82.4%).

Table 5.5. Percent Distribution of Ever-Married Women Aged 20-49 by Adolescent Fertility and Fertility Variables: Turkey and Syrian Migrants

	SYRIA		TURKEY	
	All %	Women had first birth before age 20 %	All %	Women had first birth before age 20 %
Age at first menstrual period				
15-23	15.1	12.2	16.2	15.2
14	26.2	24.9	18.9	18.5
13	41.8	43.9	31.1	31.3
8-12	16.8	19.0	33.8	35.0
Ever use of any contraception method				
Used Modern Method	58.3	70.7	77.7	83.7
Used only Traditional Method	17.2	13.7	11.7	10.4
Never Used	24.5	15.6	10.6	6.0
Knowledge of ovulatory cycle				
Know	80.7	80.4	82.4	78.8
Don't know	19.3	19.6	17.6	21.2
Total(%)	100.0	100.0	100.0	100.0
Total(N)	1664	756	5411	1552

Prevalence of Adolescent Fertility among Ever-Married Women of Age 20-49: Turkey and Syrian migrant

In this part, the teenage fertility prevalence results of Turkish women and the Syrian migrants women are analyzed descriptively (Table 5.9) Concerning age group, it is observed that, Syrian migrants (57.2%), women aged 20-24 is most likely to have a child before age 20 than that of women in the same age group in Turkey (42.1%). In addition, the 20-24 age group is the age group with the highest adolescent fertility prevalence in total for both Turkey and Syrian group.

When the adolescent fertility variable is also examined according to education of the Turkish women aged 20-49, it is seen that having birth in adolescence is most prevalent among those women who have no education or incomplete primary level of education with 44.5%. For the Syrian migrants, on the other hand, it is seen that the highest adolescent fertility prevalence (52.1%) is seen in primary school graduates. For both, Turkish women and Syrian migrants, it is observed that the prevalence of adolescent fertility decreases as the level of education increases.

When the education level of the husbands is examined, it appears to be similar to the association between the education level of women and the prevalence of adolescent fertility. As the education level of the spouse increases, the proportion of giving birth before the age of 20 decreases. In Turkey, prevalence for women who lived in rural areas is 30.7% in terms of having a baby before the age of 20 and it is higher than those who lived in the urban (19.9%). The same variable showed similar prevalence for urban and rural categories in Syria (45.8 and 45.6% respectively). Regarding the variable of “partner's childhood place of residence until age 12”, it is found that spouse that had lived in a rural place in Turkey (29.7%) increases the level of adolescent fertility compared to having lived in the urban (20.6).

In both Turkish women and Syrian migrants, the prevalence of giving birth before the age of 20 in women ever-married and aged 20-49 and who did not work before marriage (36.1 and 48.6% respectively) is about twice as much as that of those who worked before the age of 20. Related to marriage consent, more than half of non-consensual women appear to have a child before the age of 20 for both Turkish (53.1%) and Syrian (57.3%) migrant women. In Syrian migrants, the prevalence of being a mother before the age of 20 is higher with a proportion of 49.2% for those who have a consanguineous relationship with their spouses compared to those who do not have a consanguineous relationship (42.7%). In Turkey, these rates are 37.9% and 24.3%, respectively. In this context, it can be said that relationship with spouse is an important and relevant variable for adolescent fertility.

Spousal age difference is also a significant variable as regards its effect on the prevalence of fertility in adolescence. Having birth in adolescence is most prevalent among those women whose age difference between their husbands is 5-12 years for Syrian migrants and Turkish women (60.3 and 41% respectively). When couples' ages differed by “-4 and 4”, prevalence of teenage fertility among women declines. In this scenario, it is noticed that when the age gap widens, both populations' teenage fertility prevalence increase.

With a prevalence of 55.3% in Syrian migrant women, adolescent fertility is more common among those who have ever used modern methods. Also, in Turkey, adolescent fertility level is higher in women who have ever used modern method than who used traditional methods or who have never used. Age at first menstruation categories appeared at similar rates in both countries. The prevalence of adolescent fertility was slightly higher at 51.5% in Syrian women who had their first menstrual period at the age of 8-12. When the ovulatory cycle information of women is evaluated, the teenage fertility prevalence of those who do not know about the cycle (33.1%) in Turkey is slightly more than that of those who do know (26.3%). This variable, however, did not show a substantial connection with teenage fertility for the Syrian migrants.

Table 5.6. Percentage of Women Who Had a Child Before Age 20 in Total (Ever-Married Women Aged 20-49) According to Independent Variables: Turkey and Syrian Migrants

		TURKEY		SYRIAN MIGRANTS	
		Women having child before age 20	Total ^a	Women having child before age 20	Total ^a
		%	N	%	N
Age in 5-year groups	20-24	42.1%	453	57.2%	423
	25-29	26.3%	831	44.8%	379
	30-34	23.4%	1065	38.9%	311
	35-39	26.8%	1104	35.5%	249
	40-44	25.6%	1023	43.4%	180
	45-49	28.8%	935	48.5%	122

Table 5.6. Percentage of Women Who Had a Child Before Age 20 in Total (Ever-Married Women Aged 20-49) According to Independent Variables: Turkey and Syrian Migrants (Continued)

Educational Attainment of Respondent	Complete high school/higher	7.7%	1574	21.3%	247
	Complete secondary	34.1%	900	49.8%	316
	Complete primary	35.3%	2170	52.1%	785
	No education /primary incomplete	44.5%	767	45.1%	316
Educational Attainment of Husband	Complete high school/higher	17.1%	2149	34.1%	282
	Complete secondary	32.1%	978	46.9%	320
	Complete primary	34.5%	2012	48.7%	751
	No education /primary incomplete	47.5%	238	49.0%	288
Women's childhood place of residence until age 12	Urban	19.9%	1450	45.6%	771
	Rural	30.7%	3895	45.8%	884
Partner's childhood place of residence until age 12	Urban	20.6%	1306	46.8%	707
	Rural	29.7%	4049	44.8%	948
Working situation of women before marriage	Working	15.3%	2124	23.2%	192
	Not working	36.1%	3287	48.6%	1472
Respondent's consent for marriage	Yes	25.6%	5029	45.2%	1603
	No	53.1%	376	57.3%	61
Relationship to husband	Have no relation	24.3%	4096	42.7%	908
	Have relation	37.9%	1310	49.2%	756
Spousal Age difference	Between (-4) and 4	16.4%	2846	26.5%	646
	Between (-9) and(-5)	11.0%	51	*	16
	Between 5-12	41.0%	2237	60.3%	825
	Between 13-33	49.3%	187	52.1%	126
Ever Use of Any Method	Used Modern Method	29.5%	4135	55.3%	973
	Used only Modern Method	24.4%	696	36.5%	284
	Never used	15.5%	580	29.1%	407
Age at First Menstrual Period	15-23	25.9%	935	36.8%	258
	14	26.9%	1027	43.4%	437
	13	27.6%	1675	48.0%	686
	8-12	28.4%	1771	51.5%	283
	26-43	*	3	*	0
Knowledge of Ovulatory Cycle	Know	26.3%	4367	45.5%	1346
	Don't Know	33.1%	1044	46.4%	318
TOTAL			5411		1664

^aTotal numbers include unweighted numbers of ever married women aged 20-49. Missing categories are not shown. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

5.2. Results of Descriptive Analyses for Ever-Married Women Aged 20-24

Table 5.6 shows the percentage distribution of ever-married women aged 20-24 by adolescent fertility and socioeconomic and regional variables among Syrian migrants and natives in Turkey.

As regards to the age variable, it can be said that ever-married women of ages 20-24 who became mothers before the age of 20 are younger due their higher share in the ages of 20 and 21 (26.9 and 24.3%). In Turkey, the largest share in the total population is 24 years old with 26.4%, followed by 23.9%.

While the proportion of ever married 20-24 aged women who have primary level of education is the highest in all Syrian migrants' group (44.1%), it is higher among adolescent fertile Syrian mothers (50.7%). While 31.4% of married women aged 20-24 in Turkey are graduated from high/higher school, this proportion is only 11.3% for those who gave birth before the age of 20. Also, while the proportion of total population with high/ higher education is 14.7%, among Syrians the proportion for women with adolescent motherhood experience is slightly lower (7.4%). In both country, when the proportions of the all population and women who have had a baby before the age of 20 are compared in relation to the level of education; it seems that women with adolescent fertility are less educated compared to the total populations.

When looked at the husband's level of education it can be said that while the proportion of women whose spouses are primary school graduates is 46.1% in the Syrian migrants; this proportion increases to 50.7% in women who had adolescent fertility. In Turkey, while spouses' being high school/higher graduates have the highest proportion in the all population (43.2%), it is the secondary level in the group who became a mother before the age of 20 (34.5%). Spouse's high school graduation, which is 17.2% of the all population in Syrian migrants, drops to 12.3% for the spouses of women who became mothers before the age of 20. Similar to Syrian, this proportion for Turkey is 43.2% and 32.5%, respectively. It is seen that the partner's education level is an important variable within the respect of adolescent fertility in both countries. In both countries, spouses of

women who gave birth before the age of 20 have lower levels of education compared to the total population.

Concerning women's working situation before marriage, it is noticed that non-working situation is widespread for women who had their first birth before age 20 than women ever-married 20-24 aged in both Syrian (92.8%) and Turkish (77.2%) women. Turkey has higher proportion of women who were working before their marriage than Syrian population in total as well as adolescent women group (34.5% and 12.1%, respectively). In Syria, the proportion of women who were not working before marriage and had birth in adolescent period is significantly lower (7.2%).

Considering the variable of where women lived during childhood, the share of women who lived in rural is higher in the Turkey (69.2%) than in the Syrian migrants (53%) among women who gave birth before the age of 20. In both countries, women had first birth before 20 present almost same proportion to the total population regarding where they lived in childhood. The places of urban or rural where the spouses of the 20-24 year old women included in the analysis lived in childhood has close rates to the variable where the women lived in childhood. In Turkey, it is seen that share of women with spouses who lived in rural areas have high shares both in the total population (73.7%) and in the adolescent fertility group (74.5%). In Syria, both in the women had adolescent fertility group and in the total population, the rural place where the spouses lived during childhood have a slightly higher percentage (54.2 and 55.5%).

Table 5.7. Percent Distribution of Ever-Married Women Aged 20-24 by Adolescent Fertility and Socioeconomic and Regional Variables: Turkey and Syrian Migrants

	SYRIA		TURKEY	
	All	Women had first birth before age 20	All	Women had first birth before age 20
	%	%	%	%
Age				
20	19.8	26.9	12.0	12.7
21	23.0	24.3	17.5	21.9
22	19.4	17.1	20.2	19.9
23	21.6	20.0	23.9	24.2
24	16.2	11.6	26.4	21.3
Educational Attainment of Respondent				
Complete high school/higher	14.7	7.4	31.4	11.3
Complete secondary	30.3	30.5	43.3	50.4
Complete primary	44.1	50.7	19.1	29.8
No educ./primary .incomplete	10.9	11.4	6.2	8.5
Working situation before marriage				
Working	12.1	7.2	34.5	22.8
Not working	87.9	92.8	65.5	77.2
Educational Attainment of Husband				
Complete high school/higher	17.2	12.3	43.2	32.5
Complete secondary	19.5	19.5	36.2	34.5
Complete primary	46.1	50.7	15.8	23.8
No educ./prim.incomp	16.0	16.7	4.8	9.3
Missing	1.2	.7	.1	0
Childhood place of residence until age 12				
Urban	47.8	47.0	30.9	30.8
Rural	52.2	53.0	68.2	69.2
Missing	0.0	0.0	.9	0.0
Partner's childhood place of residence until age 12				
Urban	44.4	45.7	26.3	25.5
Rural	55.5	54.2	73.7	74.5
Missing	.1	.1	0.0	0.0
Total (%)	100.0	100.0	100.0	100.0
Total (N)	423	243	453	186

Table 5.7 shows the percent distribution of ever-married women aged 20-24 by adolescent fertility and marriage variables among Syrian migrants and natives in Turkey. It is seen that in both countries' percentages of the women who have consent for marriage is significantly high for all women groups. In both Syrian migrants and Turkish women and in all analysis groups, it is striking that more than 95% of women have consent to marriage. In Turkey, the percentage of non-consensual marriage among adolescent fertility women (4.4%) nearly doubles that of all women without consent (2.3%). In Syrian migrants, the proportion of those who became mothers before the age of 20 and married without their consent (1.3%) is much lower compared to the Turkish women. In Syrian migrants, 61.5% of 20-24-year-old women who gave birth before the age of 20 do not have a consanguineous relationship with their husband.-Among the Syrian migrants, the age difference between “(-4) and 4” years, which is 37.9% in the whole population, decreases to 26.4% for women had first birth before age 20. Similarly, in Turkey, the proportion of “(-4) and 4” category (43.9%) decreases to 31% proportion in the adolescent fertility group. The 5-12 age difference category, which has the largest proportion in both countries, is substantially greater among women who became mothers before the age of 20 than in the general total population. While it is 56.3% in Syria's total population, it is 66.4% among adolescent fertility women. In Turkey, the percentages are 53.2% and 65.5%, respectively It is possible to argue that the age difference between spouses is greater in teenage birth groups.

Table 5.8. shows the percentage distribution of ever-married women aged 20-24 by adolescent fertility and fertility variables among Syrian migrants and natives in Turkey. When the table is analyzed in context of age at first menstrual period of women, it is seen that in in Syrian migrants, the 13 year of age is the highest proportion both in total (42.1%) and among women who had adolescent fertility (46.8%). The proportion of “between 8-12” age is the highest in Turkey both in total (35.5%) and adolescent fertility group (43.4%). The result of this variable revealed very parallel results with the results of the 20-49 age groups for both countries.

In comparison to the age group of 20-49 analyzed above, women aged 20-24 were less likely to use modern contraceptive techniques. In the Syrian migrants, 40% of all married women aged 20- 24 did not use any kind of contraception, whereas 34.8% utilized a modern method. The usage of modern techniques (47.9%) among Syrians who became moms before the age of 20 substantially have greater proportion than total population (34.8%) among Syrian migrants. In Turkey, 71% of women who became moms during their adolescence ever used the modern method, which is much higher than the overall percentage of women who use modern methods (57.7%). In line with this result, while 1 in 4 Turkish women ever married and aged 20-24 have never used contraception (25%), 13% of women who had first birth before age 20 never did so.

Table 5.8. Percent Distribution of Ever-Married Women Aged 20-24 by Adolescent Fertility and Marriage Variables: Turkey and Syrian Migrants

	SYRIA		TURKEY	
	All	Women had first birth before age 20	All	Women had first birth before age 20
	%	%	%	%
Respondent's consent for marriage				
Yes	98.7	98.7	97.7	95.6
No	1.3	1.3	2.3	4.4
Relationship to husband				
No relation	60.6	61.5	77.0	73.2
Having relation	39.4	38.5	23.0	26.8
Spousal Age difference				
betw(-4) and 4	37.9	26.4	43.9	31.0
betw 5-12	56.3	66.4	53.2	65.5
betw 13-33	4.4	5.3	2.5	3.5
Missing	1.3	1.9	.3	0.0
Total (%)	100.0	100.0	100.0	100.0
Total(N)	423	243	453	186

Table 5.9. Percent Distribution of Ever-Married Women Aged 20-24 by Adolescent Fertility and Fertility Variables: Turkey and Syrian Migrants

	SYRIA		TURKEY	
	All	Women had first birth before age 20	All	Women had first birth before age 20
	%	%	%	%
Age at first menstrual period				
15-23	17.0	14.4	14.4	10.3
14	23.6	19.3	21.6	14.8
13	42.1	46.8	28.6	31.5
8-12	17.3	19.5	35.5	43.4
Ever use of any method				
Used Modern Method	34.8	47.9	57.7	71.6
Used only Traditional Method	25.0	23.6	17.2	14.9
Never Used	40.1	28.5	25.1	13.5
Knowledge of ovulatory cycle				
Know	77.4	76.3	85.7	84.9
Don't know	22.6	23.7	14.3	15.1
Total(%)	100.0	100.0	100.0	100.0
Total(N)	423	756	453	186

The proportion of women in all group or adolescent mothers knowing their ovulation at the survey date is 77.4% in Syrian migrant women. The proportions of women (85.7%) and adolescent fertile mother group (84.9%) who have information about the ovulatory cycle in Turkish women are higher than the Syrian migrants. The percentages of knowing or not knowing about the ovulation cycle are very close in both countries and in the total women group. As a result, it appears unlikely that these ratios will be used to establish a link between cycle information and adolescent fertility. On the other hand, the cycle knowledge of adolescent mothers did not differ from total population group in the analyses. As explained above for the 20-49 age group, the fact that women know the

ovulation cycle at the time of the study may not lead to an expected link between becoming a mother before the age of 20.

Prevalence of Adolescent Fertility among Ever-Married Women of Age 20-24: Turkey and Syrian migrants:

In this part, the teenage fertility prevalence results of Turkish women and the Syrian migrant women aged 20-24 are analyzed descriptively (Table 5.10). Concerning age, it is observed that, in the Syrian migrant women aged 20 (77.7%) and 21 (60.4%) are more likely to have a child before age 20 than ages 22, 23 and 24. In Turkey, age 21 is the age with the highest adolescent fertility prevalence in total (52.8%) and age 24 is the lowest one. When the proportion of adolescent fertility variable is also examined according to education of the Turkish and Syrian migrant women aged 20-24, it is seen that having birth in adolescence is most prevalent among those women who have primary education or incomplete primary level of education with 65.7% for both countries. Additionally, in both Turkey and Syrian migrants, it is observed that the prevalence of adolescent fertility decreases as the level of education increases after the primary level. When the education level of the husbands is examined, it appears to have a similar trend with the education level of women and the prevalence of adolescent fertility. As the education level of the spouses increases, the proportion of giving birth before the age of 20 decreases. No important association of childhood place of residence of women and their husbands with adolescent fertility prevalence is observed in the 20-24 age groups. Within the context of urban and rural categories, teenage fertility proportions were found to be quite close each other in both populations.

As seen from the Table 5.10, the prevalence of women who had first birth before age 20 have relation (49.1%) with their husband is higher than the group who do not (40%) in Turkey. In the Syrian migrants, however, no significant relationship was found between the variable of relation with the spouse and the prevalence of adolescent fertility. When we look at the employment status of women before marriage, it is seen that the prevalence of adolescent fertility is higher in women who did not work in both Turkey and Syrian migrants (49.6% and 60.3% respectively) compared to those who worked (27.8% and

34.1% respectively). The variable of age difference between the spouses presents results that can have association with the adolescent fertility for the 20-24 age group as in the 20-49 age group. The adolescent fertility prevalence of women with 5-12 age difference with their spouses is higher in this category for both Turkey and Syria (51.8%, 67.4%) than other age difference categories. From this point of view, it is possible to say that as the age difference increases, the adolescent fertility behavior also increases. It is found that, the prevalence of Syrian and Turkish women had birth in adolescent period decreases as their age at first menstruation rises. The knowledge of a woman's ovulation cycle was chosen as another variable to see how the prevalence of women who became mothers before the age of 20 differs among 20-24 age group. Although the prevalence of becoming a mother before the age of 20 is greater in women who did not know their cycle than among those who did, the difference in prevalence is small.

Table 5.10. Prevalence of Women Who Had Child Before Age 20 in Total (Ever-Married Women Aged 20-24) According to Independent Variables: Turkey and Syrian Migrants

		TURKEY		SYRIAN MIGRANTS	
		Women having child before age 20	Total ^a	Women having child before age 20	Total ^a
		%	N	%	N
Ages in 20-24 Age Group	20	44.5%	61	77.7%	83
	21	52.8%	74	60.4%	95
	22	41.5%	81	50.5%	82
	23	42.7%	110	53.0%	90
	24	33.9%	127	40.9%	73
Educational Attainment of Respondent	Complete high school/higher	15.2%	135	29.0%	64
	Complete secondary	49.0%	202	57.5%	128
	Complete primary	65.7%	84	65.7%	185
	No education /primary incomplete	58.0%	32	59.9%	46
Educational Attainment of Husband	Complete high school/higher	31.7%	195	40.8%	74
	Complete secondary	40.1%	157	57.4%	82
	Complete primary	63.5%	80	62.9%	194
	No education /primary incomplete	*	20	59.7%	67

Table 5.10. Prevalence of Women Who Had Child Before Age 20 in Total (Ever-Married Women Aged 20-24) According to Independent Variables: Turkey and Syrian Migrants(Continued)

Women's childhood place of residence until age 12	Urban	42.0%	132	56.2%	201
	Rural	42.7%	318	58.1%	222
Partner's childhood place of residence until age 12	Urban	40.9%	115	58.8%	184
	Rural	42.5%	338	55.8%	238
Working situation of women before marriage	Working	27.8%	159	34.1%	50
	Not working	49.6%	294	60.3%	373
Respondent's consent for marriage	Yes	41.2%	443	57.1%	418
	No	*	10	*	5
Relationship to husband	Have no relation	40.0%	343	58.0%	258
	Have relation	49.1%	110	55.8%	165
Spousal Age difference	Between (-4) and 4	29.7%	203	39.8%	157
	Between (-9) and(-5)	*	0	*	0
	Between 5-12	51.8%	238	67.4%	239
	Between 13-33	*	11	*	21
Ever Use of Any Method	Used Modern Method	52.3%	255	78.6%	148
	Used only Modern Method	36.3%	92	53.9%	105
	Never used	22.7%	106	40.6%	170
Age at first menstrual period	15-23	30.3%	69	48.3%	71
	14	28.8%	97	46.8%	100
	13	46.4%	136	63.6%	177
	8-12	51.5%	151	64.2%	75
	26-43	*	0	*	0
Knowledge of Ovulatory Cycle	Know	41.7%	386	56.4%	331
	Don't Know	44.4%	67	59.9%	92

5.3. Results of Multivariate Analyses

Within the context of multivariate statistical analysis, the binary logistic regression approach was used to uncover the determinants of adolescent fertility in addition to descriptive analyses.

Before application binary logistic regression analysis, multicollinearity has been tested. In a regression analysis, multicollinearity arises when two or more predictive

variables are substantially associated as well as when they do not provide unique or independent information in the regression model. When the strength of correlation between variables is high enough, fitting and evaluating the regression model may become difficult. One tool for determining multicollinearity is the variance inflation factor (VIF), which examines the connection and degree of correlation between independent variables in a regression model. The Variance Inflation Factor (VIF) is $1/\text{Tolerance}$, and it is never less than or equal to 1. While there's no defined VIF score which could be used to assess multicollinearity existence, a value of 1 shows that a given independent variable has no relation to any other variables in this study. If the VIF values are higher than 10, multicollinearity is present. Table 5.9 shows that the VIF values for each age group and sample are close to 1, indicating that the model does not have multicollinearity.

Table 5.11. Multicollinearity Coefficient Results

	VIF			
	TURKEY		SYRIAN	
	Ever-married aged 20-49 women	Ever-married aged 20-24 women	Ever-married aged 20-49 women	Ever-married aged 20-24 women
Age in 5-year groups / Age	1.104	1.047	1.139	1.045
Educational Attainment of Respondent	1.509	1.429	1.231	1.137
Educational Attainment of Husband	1.302	1.299	1.136	1.087
Childhood place of residence until age 12	1.325	1.449	1.898	1.705
Partner's childhood place of residence until age 12	1.326	1.438	1.879	1.645
Working situation before marriage	1.108	1.078	1.041	1.029
New Respondent's consent for marriage	1.073	1.035	1.034	1.062
New Relationship to husband	1.089	1.121	1.039	1.034
Spousal Age difference	1.046	1.048	1.047	1.067
Ever Use of any method	1.04	1.114	1.112	1.124
Age at first menstrual period	1.009	1.054	1.029	1.045
New Knowledge of ovulatory cycle	1.048	1.108	1.053	1.116

Dependent Variable :Having birthbefore20

Socioeconomic and regional, marriage, and fertility variables were added with the enter method regression model in 3 steps, respectively. The logistic regression analysis has been applied to women ever married and aged 20-49 and 20-24 separately for both

Turkish women and Syrian migrants. In the part of regression results, the significance value threshold has been accepted as $p < 0.1$ and each variable that shows significance is explained according to the reference category.

5.3.1. Goodness of Fit Measures

Following the fitting of a model to a set of data, it's reasonable to examine how well the fitted values of the dependent variables under the model match the observed values. The model may be suitable if there is good relation between the observations and the fitted values. Otherwise, the current model will be unacceptably flawed, and it can be necessary to change the model. The term "goodness of fit" is used to describe this feature of a model's adequacy. Classification table goodness-of-fit test were used to estimate the overall significance of a logistic model Likelihood Ratio Test in this thesis below. Also, Hosmer-Lemeshow goodness-of-fit is used to decide whether the predicted model fits well or not. In this study, Hosmer-Lemeshow test was also applied for each sample group. With the created models, the probability of the dependent variable is calculated in each observation, and the categories of the dependent variable are assigned according to the selected probability cut-off point. According to the results of the assignment, the classification tables (Table 5.10, Table 5.11, Table 5.12, and Table 5.13.) show the extent to which the observed groups of the dependent variable are estimated. As the 3 steps defined in the blocks are added to the analysis, respectively, the percentage of predictability increases in both Turkey and Syria samples. The cut-off value in the model's classifications table is 0.5; the true classification for the women 20-49 aged percentage is 77.7 in Turkey model; 72.4% in Syria model. When looked at the 20-24 age groups included in analysis for both samples; it is 76.0% 76.7% respectively and the model's classification power for all models can be accepted as fit based on these findings.

Table 5.12. Classification Table* for Ever-Married Women Aged 20-49: Turkey

	Having birth before age 20		Percentage Correct
	Observed	Predicted	
Have no child before 20	3324	362	90.2
Have child before 20	772	623	44.6
Overall Percentage			77.7

*The cut value is 0.500.

Table 5.13. Classification Table* for Ever-Married Women Aged 20-49: Syrian Migrants

	Having birth before age 20		Percentage Correct
	Observed	Predicted	
Have no child before 20	663	217	75.4
Have child before 20	231	509	68.8
Overall Percentage			72.4

*The cut value is 0.500.

Table 5.14. Classification Table* for Ever-Married Women Aged 20-24: Turkey

	Having birth before age 20		Percentage Correct
	Observed	Predicted	
Have no child before 20	198	48	80.5
Have child before 20	54	124	69.7
Overall Percentage			76.0

*The cut value is 0.500.

Table 5.15. Classification Table* for ever-married women aged 20-24: Syrian Migrants

	Having birth before age 20		Percentage Correct
	Observed	Predicted	
Have no child before 20	124	56	68.7
Have child before 20	42	199	82.7
Overall Percentage			76.7

*The cut value is 0.500.

Cox&Snell or Nagelkerke R^2 values are used to assess the model's explanatory power. The model is better comprehended if these values are near to 1. Furthermore, the combined impact of all predictor factors on the dependent variables is calculated using the Nagelkerke R^2 concept, which is detailed in the model summary (Table 5.14). The Hosmer and Lemeshow test which tell you whether or not this model is suitable, preferable for the "sig" value to be larger than 0.05 in order to emphasize that the model's fit is adequate. The significance value for selected all age groups is larger than 0.05 as shown in Table 5.15.

Table 5.16. Model Summary Showing -2Log Likelihood, Cox & Snell R^2 And Nagelkerke R^2 for Syrian Migrants

Selected Samples	-2LL	Cox & Snell R^2	Nagelkerke R^2
Turkey (20-49 age group)	4635.048*	.232	.335
Syrian Migrants(20-49 age group)	1781.035*	.244	.326
Turkey (20-24 age group)	389.578	.357	.480
Syrian Migrants(20-24 age group)	400.014*	.340	.456

*Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Since the pseudo R^2 values in logistic regression tend to be small, it is recommended to be used to compare different model performances rather than evaluating model fit. Cox-Snell R^2 can never take the value 1, while Nagelkarke R^2 can take the value 1. For this reason, the Nagelgerke R^2 value is always greater than the Cox-Snell R^2 value. When the table is examined, it can be said that the model fit was assured, since the Cox-Snell R^2 value was found to be respectively 0.232; 0.244; 0.357 and 0.340 for the Turkey and Syrian migrants by age categories of 20-49 and 20-24. (Table 5.14) after all independent variables were added to the model. Since the variables added to the model at each step have a positive effect on the fitness of the model, Cox-Snell R^2 and Nagelgerke R^2 values increase at each step in all models employed.

Table 5.17. Hosmer and Lemeshow Test for Selected Age Groups

Models	Chi-square (χ^2)	df	Sig.
Turkey 20-49 age group	15.332	8	.053
Turkey 20-24 age group	9.177	8	.328
Syrian migrants 20-49 age group	7.545	8	.479
Syrian migrants 20-24 age group	4.347	8	.825

A logistic regression was performed to ascertain the effects of socioeconomic and regional variables, marriage variables and fertility level variables on the likelihood that Turkish and Syrian women have a child before they were 20 years old.

The logistic regression models were statistically significant for the all sample included analysis, $\chi^2 = 15.332, 9.177, 7.545, 4.347$, and $p > .0005$ for the all models. The models explained respectively 33.5%; 32.6%; 48.0% and 45.6% (Nagelkerke R^2) of the variance in having a child before 20 in the models of Turkey 20-49 age group, Turkey 20-24 age group, Syrian migrants 20-49 age group, and Syrian migrants 20-24 age group. In the tables containing the multivariate analysis results below, odds ratios in logistic regression models are presented together with their statistical significance values.

5.3.2. Results for Turkey

The results of the study were examined using binary logistic regression models for both 20-49 and 20-24 age groups for Turkey and Syrian migrants. The results showing how socioeconomic, marriage and fertility variables are associated with the odds of adolescent fertility are shown with the tables below.

Table 5.16. presents the logistic regression results of the effect of independent variables on the likelihood that a woman was having first birth before age 20 for Turkish women who are ever married and aged 20-49. In the first dependent variable, it can be

seen that age of the woman has a highly statistically significance in explaining adolescent fertility. Women whose age group is 25-29 ($e^b = 0.417, p < 0.01$), 30-34 ($e^b = 0.273, p < 0.01$), 35-39 ($e^b = 0.283, p < 0.01$), 40-44 ($e^b = 0.260, p < 0.01$), and 45-49 ($e^b = 0.273, p < 0.01$) are less likely to have adolescent fertility (58%, 73%, 72%, 74%, 73% respectively) compared to women in 20-24 age groups for Turkish women.

Educational attainment of women is also seen to have a very significant effect on adolescent fertility of women in Turkey: women completed primary school level ($e^b = 5.771, p < 0.01$) are 5.8 times, women have no education or incomplete primary level ($e^b = 8.459, p < 0.01$) are 8.5 times more likely to experience adolescent fertility than women graduates from high school or higher level of education (reference category). Besides, Turkish women who are graduates of secondary school ($e^b = 3.943, p < 0.01$) are 3.9 times more likely to have children before 20 than their counterparts with higher level of education.

When analyzed by husband's/partner's educational level which is also highly significant, it is important to indicate that those whose spouses are primary school graduates ($e^b = 1.285, p < 0.01$) are 1.3 times more prone to adolescent fertility than those with spouses who have high school and higher education (reference group). Also, the odds of experiencing adolescent fertility are 1.7 times higher among women when their partners have no education or incomplete primary level education ($e^b = 1.654, p < 0.01$) than that of women whose husband has higher level of education. Working situation before marriage has a significant effect on adolescent fertility: woman who did not work before marriage ($e^b = 2.223, p < 0.01$) are 2.2 times more likely to have children under the age of 20 than the ones who worked prior to marriage. Respondent's consent for marriage is observed to be a highly effective factor of adolescent fertility for 20-49 age groups in Turkey. The likelihood of having first birth before the age of 20 among the selected women who have no consent are 2.4 times as much that of those who have consent for marriage ($e^b = 2.393, p < 0.01$).

The odds of experiencing adolescent fertility are 1.3 times higher among women who they are relatives with their husbands ($e^b=1.285$, $p<0.01$) than the ones who are not. Women whose spousal age difference is between 5-12 years of age ($e^b=3.503$, $p<0.01$) are 3.5 times more likely to have children in their adolescent period than women whose age difference is 4-year (reference category). Additionally, those with a 13-33 age difference ($e^b=4.198$, $p<0.01$) are 4.2 times more likely to have birth in their adolescence than those reporting a 4-year age difference.

There is a high importance on ever-use of any contraception method variable. Women who never used method ($e^b=0.220$, $p<0.01$) and women who used only traditional method ($e^b=0.532$, $p<0.01$) are less likely to have adolescent fertility than women used modern method (78% and 47% respectively). Regarding age at first menstrual period, women who stated that they had first menstruation between the ages of 8-12 are ($e^b=1.283$, $p<0.05$) 1.3 times more likely to have children under the age of 20 compared to women who started menstruating between the ages of 15-23 (reference variable).

The results of regression analysis for the women ever married and 20-49 age group in Turkey, show that the place where themselves and their husbands lived in childhood in rural ($e^b=1.152$, $p>.1$ and $e^b=0.963$, $p>.1$ respectively) and knowledge of ovulatory cycle ($e^b=1.123$, $p>.1$) are not found to be significantly associated with adolescent childbearing.

Table 5.18. Results of Binary Logistic Regression Model on Adolescent Fertility for Ever-Married Women Aged 20-49: Turkey

	B	S.E.	Wald	Sig.	Exp (B)	95% C.I. for EXP(B)	
						Lower	Upper
Age in 5-year groups							
20-24(ref.)							
25-29	-0,874	0,152	33,08	.000***	0,417	0,31	0,562
30-34	-1,297	0,151	73,51	.000***	0,273	0,203	0,368
35-39	-1,262	0,153	67,89	.000***	0,283	0,21	0,382
40-44	-1,346	0,155	75,56	.000***	0,26	0,192	0,353
45-49	-1,299	0,159	66,95	.000***	0,273	0,2	0,372
Educational Attainment of Respondent							
Complete high school/higher(ref.)							
Complete secondary	1,372	0,132	107,6	.000***	3,943	3,043	5,11
Complete primary	1,753	0,128	188,9	.000***	5,771	4,495	7,41
No educ./primary incomplete	2,135	0,154	193,2	.000***	8,459	6,26	11,431
Partner's Educational Attainment							
Complete high school/higher(ref.)							
Complete secondary	0,389	0,107	13,09	.000***	1,475	1,195	1,821
Complete primary	0,251	0,097	6,742	.009***	1,285	1,063	1,553
No educ./primary incomplete	0,503	0,186	7,341	.007***	1,654	1,149	2,381
Women's childhood place of residence until age 12							
Urban (ref.)							
Rural	0,141	0,102	1,939	0,164	1,152	0,944	1,406
Partner's childhood place of residence until age 12							
Urban (ref.)							
Rural	-0,037	0,104	0,128	0,72	0,963	0,785	1,182
Working situation before marriage							
Working(ref.)							
Not working	0,799	0,081	97,1	.000***	2,223	1,896	2,605
Respondent's consent for marriage							
Yes(ref)							
No	0,872	0,129	45,9	.000***	2,393	1,859	3,08
Relationship to husband							
Have no relation(ref.)							
Have relation	0,251	0,082	9,328	.002***	1,285	1,094	1,51
Spousal age difference							
Between(-4) and 4(ref.)							
Between (-9) and (-5)	-0,083	0,507	0,027	0,87	0,921	0,341	2,486
Between 5 and 12	1,254	0,077	265,3	.000***	3,503	3,013	4,073
Between 13 and 33	1,435	0,184	60,86	.000***	4,198	2,927	6,019
Ever Use of any method							
Used modern method(ref.)							
Used Only Traditional method	-0,631	0,117	28,82	.000***	0,532	0,423	0,67
Never Used	-1,515	0,143	112,2	.000***	0,22	0,166	0,291
Age at first menstrual period							
15-23(ref.)							
14	0,104	0,125	0,694	0,405	1,109	0,869	1,416
13	0,145	0,113	1,641	0,2	1,156	0,926	1,443
8-12	0,249	0,111	4,986	.026**	1,283	1,031	1,596
Knowledge of ovulatory cycle							
Know(ref.)							
Don't Know	0,116	0,092	1,598	0,206	1,123	0,938	1,344
Constant	-2,793	0,2	194,9	.000***	0,061		

*** p<.01, ** p<.05, * p<.1 Ref= Reference Category

Table 5.17 presents the logistic regression results on the likelihood that a woman was having first birth before age 20 for ever-married women aged 20-24 for the Turkey. In the first dependent variable, it can be seen that age of the woman is not statistically significance in explaining adolescent fertility for aged 20-24 except age of 24 ($e^b = 0.301$, $p < 0.05$) for Turkish women.

Educational level of women is an important factor of adolescent fertility for the selected age group; women who have no education or incomplete primary level ($e^b = 10.019$, $p < 0.01$) are 10 times more likely to have a birth in the adolescent period than are their counterparts who have high school or higher level of education. Also, the odds of having birth in adolescence when their educational level is primary ($e^b = 12.463$, $p < 0.01$) is 12.5 times higher than among women with high school or higher education. Besides, 20-24 aged Turkish women who graduates from secondary school ($e^b = 5.703$, $p < 0.01$) is 5.7 times more likely to have children before 20 than women of higher graduates.

As one would expect, husband's/partner's education level has also significant association with adolescent childbirth of women in Turkey. Women whose spouses have no education or incomplete primary level ($e^b = 5.610$, $p < 0.05$) are 5.6 times more likely to adolescent childbearing than those whose spouses are high school or higher education graduates. Women whose husband's educational level is secondary ($e^b = 1.734$, $p < .1$) are 1.7 times more likely to have adolescent fertility than women in 20-24 age groups for women in Turkey.

The results show that working situation of women before marriage has a significant association with having birth before age of 20. Women who did not work before marriage ($e^b = 2.450$, $p < 0.01$) are almost 2.5 times more likely to have children under the age of 20 than working ones. It is seen that women whose spousal age difference is between 5-12 years of age ($e^b = 3.184$, $p < 0.01$) are 3.2 times more likely to have children in their adolescent period than women whose spousal age difference is 4 years.

As regards age at first menstruation, the odds of having first birth in adolescent period are 2.7 times higher among women whose start of menstruation was between the age of 8-12 ($e^b=2.656$, $p<0.05$) than that of the reference group (15-23 ages). Women's ever-use of contraception method showed the result as in the 20-49 age group of Syrians and the case with the descriptive analysis. Women who never used method ($e^b=0.094$, $p<0.01$) and women who ever used only traditional method ($e^b=0.322$, $p<0.01$) are less likely to have adolescent fertility than women used modern method (91% and 68% respectively).

In the regression analysis of the selected women group; the rural place where the women and her husbands lived in childhood was found insignificant when reference category was taken as urban place ($e^b=0.748$, $p>.1$ and $e^b=0.883$, $p>.1$ respectively). Additionally, having no consent of the women for the marriage ($e^b=4.204$, $p>.1$), having relationship with the spouse ($e^b=0.917$, $p>.1$) and the having no knowledge of ovulatory cycle knowledge ($e^b=1.272$, $p>.1$) were found to have insignificant coefficients on adolescent fertility behavior for 20-24 aged ever married women in Turkey.

Table 5.19. Results of Binary Logistic Regression Model on Adolescent Fertility for Ever-Married Women Aged 20-24: Turkey

	B	S.E.	Wald	Sig.	Exp(B)	95% C.I. for EXP(B)	
						Lower	Upper
Age							
20							
21	-0,37	0,492	0,563	0,453	0,691	0,263	1,814
22	-0,813	0,498	2,665	0,103	0,443	0,167	1,177
23	-0,739	0,476	2,408	0,121	0,478	0,188	1,214
24	-1,199	0,48	6,25	.012**	0,301	0,118	0,772
Educational Attainment of Respondent							
Complete high school/higher(ref.)							
Complete secondary	1,741	0,343	25,765	.000***	5,703	2,912	11,171
Complete primary	2,523	0,464	29,507	.000***	12,463	5,015	30,971
No educ./primary incomplete	2,304	0,653	12,472	.000***	10,019	2,789	35,998
Partner's Educational Attainment							
Complete high school/higher(ref.)							
Complete secondary	0,55	0,306	3,238	.072*	1,734	0,952	3,158
Complete primary	1,122	0,413	7,39	.007***	3,071	1,368	6,895
No educ./primary incomplete	1,724	0,737	5,469	.019**	5,61	1,322	23,803
Women's childhood place of residence until age 12							
Urban (ref.)							
Rural	-0,29	0,365	0,631	0,427	0,748	0,366	1,53
Partner's childhood place if residence until age 12							
Urban (ref.)							
Rural	-0,125	0,378	0,109	0,741	0,883	0,421	1,851
Working situation before marriage							
Working(ref.)							
Not working	0,896	0,291	9,512	.002***	2,45	1,386	4,33
Respondent's consent for marriage							
Yes(ref)							
No	1,436	1,086	1,75	0,186	4,204	0,501	35,296
Relationship to husband							
Have no relation(ref.)							
Have relation	-0,087	0,319	0,074	0,786	0,917	0,491	1,714
Spousal age difference							
Between(-4) and 4(ref.)							
Between 5 and 12	1,158	0,283	16,765	.000***	3,184	1,829	5,544
Between 13 and 33	-0,594	0,801	0,55	0,458	0,552	0,115	2,654
Ever Use of any method							
Used modern method(ref.)							
Used Only Traditional method	-1,134	0,358	10,007	.002***	0,322	0,159	0,65
Never Used	-2,367	0,377	39,325	.000***	0,094	0,045	0,197
Age at first menstrual period							
15-23(ref.)							
14	-0,004	0,446	0	0,992	0,996	0,416	2,385
13	0,691	0,425	2,64	0,104	1,995	0,867	4,588
8-12	0,977	0,422	5,357	.021**	2,656	1,161	6,072
Knowledge of ovulatory cycle							
Know(ref.)							
Don't Know	0,24	0,373	0,414	0,52	1,272	0,612	2,644
Constant	-2,33	0,667	12,198	.000***	0,097		

*** p<.01, ** p<.05, * p<.1

Ref= Reference Category

5.3.3. Results for Syrian Migrants

Table 5.18 presents the logistic regression results on the likelihood that a woman had the first birth before age 20 for ever-married Syrian migrants aged 20-49.

In the first variable, it can be seen that age of the woman has high significance in explaining adolescent fertility. Women whose age group is 25-29 ($e^b=0.381$, $p<0.01$), 30-34 ($e^b=0.231$, $p<0.01$), 35-39 ($e^b=0.199$, $p<0.01$), 40-44 ($e^b=0.270$, $p<0.01$), and 45-49 ($e^b=0.260$, $p<0.01$) are less likely to have adolescent fertility (62%, 77%, 80%, 73%, and 74% respectively) than women in the 20-24 age group (reference category) for Syrian migrants.

Educational level of the women is also seen to have been very statistically significant, as emphasized in the studies in literature on factors affecting early marriages and childbirths of Syrian girls. According to results, women having primary school level ($e^b=3.856$, $p<0.01$) and having no education or incomplete primary education ($e^b=4.017$, $p<0.01$) are more likely to experience adolescent fertility than women graduates of high school or higher level of education (3.9 times and 4.0 times, respectively). Besides, Syrian women who are graduates of secondary school ($e^b=3.293$, $p<0.01$) are almost 3.3 times more likely to have children before 20 than women of high school/ higher graduates.

When analyzed by husband's/partner's education level, it is important to indicate that those whose spouses are primary ($e^b=1.485$, $p<0.05$) and secondary school graduates ($e^b=1.452$, $p<0.01$) are almost 1.5 times more likely to adolescent fertility than those whose spouses are higher education graduates. Working situation before marriage, as in Turkey, has a significant effect on adolescent fertility: while among woman who did not work before marriage ($e^b=2.492$, $p<0.01$) are 2.5 times more likely to have children under the age of 20 than the ones who worked. Also, women who have a kinship relation with their spouses ($e^b=1.415$, $p<0.01$) are 1.4 times more likely to have children under the age of 20 than women who have no relation. Women whose spousal age difference is between 5-12

years of age ($e^b=3.920$, $p<0.01$) are 3.9 times more likely to have children in their adolescent period than women whose age difference is 4 years. Moreover, those with a 13-33 age difference ($e^b=3.123$, $p<0.01$) are 3.1 higher than those reporting a 4-year age difference with high significance. Regarding the variable of contraception method using, the categories in the variable has high importance in the regression, likelihood of having a baby before the age of 20 is lower for women who have never used contraception ($e^b=0.230$, $p<0.01$) or who use traditional methods ($e^b=0.393$, $p<0.01$). As regards to the age at first menstruation, the odds of having first birth in adolescent period are respectively 1.5 times and 1.4 times higher among women whose start of menstruation was between the age of 8-12 ($e^b=1.525$, $p<.1$) and age of 13 ($e^b=1.404$, $p<.1$) than the reference group (15-23 ages).

In the regression analysis of the ever-married and aged 20-49 Syrian migrant women group; the rural place where the women and her husbands lived in childhood was found to be insignificant when taken reference category is urban place ($e^b=1.135$, $p>.1$ and $e^b=0.991$, $p>.1$ respectively). Additionally, having no consent of the women for the marriage ($e^b=1.567$, $p>.1$), and the having no knowledge of ovulatory cycle ($e^b=0.884$, $p>.1$), were included in the model but were found to be insignificantly associated with adolescent fertility behavior.

Table 5.20. Results of Binary Logistic Regression Model on Adolescent Fertility for Ever-Married Women Aged 20-49: Syrian Migrants

	B	S.E.	Wald	Sig.	Exp(B)	95% C.I. for EXP(B)	
						Lower	Upper
Age Group							
20-24(ref.)							
25-29	-0,966	0,176	30,276	.000***	0,381	0,27	0,537
30-34	-1,464	0,195	56,491	.000***	0,231	0,158	0,339
35-39	-1,615	0,209	59,883	.000***	0,199	0,132	0,299
40-44	-1,308	0,226	33,463	.000***	0,27	0,173	0,421
45-49	-1,348	0,256	27,786	.000***	0,26	0,157	0,429
Educational Attainment of Respondent							
Complete high school/higher(ref.)							
Complete secondary	1,192	0,22	29,423	.000***	3,293	2,141	5,066
Complete primary	1,35	0,207	42,551	.000***	3,856	2,571	5,784
No educ./primary .incomplete	1,39	0,243	32,782	.000***	4,017	2,495	6,465
Partner's Educational Attainment							
Complete high school/higher(ref.)							
Complete secondary	0,373	0,204	3,339	.068*	1,452	0,973	2,166
Complete primary	0,396	0,182	4,72	.030**	1,485	1,039	2,123
No educ./primary .incomplete	0,46	0,221	4,33	.037**	1,584	1,027	2,441
Women's childhood place of residence until age 12							
Urban (ref.)							
Rural	0,127	0,169	0,562	0,454	1,135	0,815	1,58
Partner's childhood place of residence until age 12							
Urban (ref.)							
Rural	-0,009	0,169	0,003	0,959	0,991	0,712	1,38
Working situation before marriage							
Working(ref.)							
Not working	0,913	0,211	18,706	.000***	2,492	1,648	3,769
Respondent's consent for marriage							
Yes(ref)							
No	0,449	0,297	2,282	0,131	1,567	0,875	2,807
Relationship to husband							
Have no relation(ref.)							
Have relation	0,347	0,118	8,64	.003***	1,415	1,123	1,785
Spousal age difference							
Between(-4) and 4(ref.)							
Between (-9) and (-5)	-19,632	10474,4	0	0,999	0	0	,
Between 5 and 12	1,366	0,128	113,534	.000***	3,92	3,049	5,039
Between 13 and 33	1,139	0,231	24,223	.000***	3,123	1,984	4,916
Ever Use of any method							
Used modern method(ref.)							
Used Only Traditional method	-0,933	0,17	29,981	.000***	0,393	0,282	0,549
Never Used	-1,47	0,162	82,333	.000***	0,23	0,167	0,316
Age at first menstrual period							
15-23(ref.)							
14	0,052	0,193	0,074	0,785	1,054	0,722	1,538
13	0,339	0,18	3,561	.059*	1,404	0,987	1,997
8-12	0,422	0,211	3,999	.046*	1,525	1,008	2,306
Knowledge of ovulatory cycle							
Know(ref.)							
Don't Know	-0,123	0,151	0,664	0,415	0,884	0,658	1,188
Constant	-2,283	0,348	43,012	.000***	0,102		

*** p<.01, ** p<.05, * p<.1

Ref= Reference Category

Table 5.19 presents the logistic regression results on the likelihood that a woman was having first birth before age 20 for ever-married Syrian migrants aged 20-24.

In the first dependent variable, it can be seen that age of the woman has a highly statistically significance in explaining adolescent fertility for aged 20-24 Syrian women. Women whose age is 21 ($e^b=0.233$, $p<0.01$), 22 ($e^b=0.226$, $p<0.01$), 23 ($e^b=0.189$, $p<0.01$) and 24 ($e^b=0.075$, $p<0.01$), are less likely to have adolescent fertility (77%, 77%, 81% and 92% respectively) compared to women aged 20.

Educational level of women is again a very crucial factor of adolescent fertility for 20-24 age groups for Syrian migrants. Women who have no education or primary incomplete level education ($e^b=7.154$, $p<0.01$) are almost 7.2 times more likely to have a birth in the adolescent period than their counterparts who have high school or higher level of education. Also, 20-24 aged Syrian women who are graduates from secondary school ($e^b=3.298$, $p<0.01$) and primary school ($e^b=4.208$, $p<0.01$) are respectively 3.3 and 4.2 times more likely to have children before 20 than women of higher graduates. When analyzed by husband's/partner's educational level, the primary school level of education ($e^b=3.136$, $p<0.01$) is also significant. Women whose spouses have primary education are respectively 3.1 times more prone to adolescent fertility than those whose spouses are high school or higher education graduates.

The same table also shows that working situation of women before marriage and women's childhood place of residence until age 12 are significant factors on adolescent fertility. Women who did not work before marriage ($e^b=4.316$, $p<0.01$) are 4.3 times more likely to have children under the age of 20 than working ones. Also, women whose childhood place was rural ($e^b=2.001$, $p<0.05$) are more prone to (2 times) adolescent fertility than women whose childhood place was urban. It is seen that spousal age difference has highly significance in explaining adolescent fertility. Women whose

spousal age difference is between 5-12 ($e^b=3.732$, $p<0.01$) and 13-33 ($e^b=4.124$, $p<.1$) years of age are respectively 3.7 and 4.1 times more likely to have children in their adolescent period than women whose age difference between her husband is 4 year.

The categories of the variable of ever-use of contraception method have high importance in the regression analysis. In the Syrian migrant women, the categories in this variable did not show the predicted results, as they did in the previous analyses. According to studies in the literature, women who became mothers during their adolescent years were more likely to use traditional or never utilize contraception. The multivariate results show that Syrian women aged 20-24 are respectively almost 91.6% and 70.7% less likely to have children before age 20 when they have never used any contraception method ($e^b=0.084$, $p<0.01$) or used only traditional method ($e^b=0.293$, $p<0.01$). As regards to the age at first menstruation, the odds of having first birth in adolescent period are respectively 2.1 times higher among women whose start of menstruation is at the age of 13 ($e^b=2.097$, $p<.05$) than the odds of the reference group (15-23 ages).

In the regression analysis; the place where the women's husbands lived during childhood ($e^b=0.924$, $p>.1$), the consent of the women for the marriage ($e^b=2.080$, $p>.1$), the relationship with the spouse ($e^b=1.331$, $p>.1$), the women's knowledge of ovulatory cycle ($e^b=1.354$, $p>.1$) were included in the model but found to have insignificant coefficients. These variables do not create a strong association between becoming a mother before the age of 20.

Table 5.21. Results of Binary Logistic Regression Model on Adolescent Fertility for Ever-Married Women Aged 20-24: Syrian Migrants

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Age								
20(Ref.)								
21	-1,456	0,418	12,15	1	.000***	0,233	0,103	0,529
22	-1,487	0,416	12,79	1	.000***	0,226	0,1	0,511
23	-1,667	0,425	15,39	1	.000***	0,189	0,082	0,434
24	-2,591	0,475	29,7	1	.000***	0,075	0,03	0,19
Educational Attainment of Respondent								
Complete high school/higher(ref.)								
Complete secondary	1,193	0,413	8,332	1	.004***	3,298	1,467	7,417
Complete primary	1,437	0,422	11,6	1	.001***	4,208	1,841	9,619
No educ./primary incomplete	1,968	0,557	12,46	1	.000***	7,154	2,399	21,333
Husband's educational level								
Complete high school/higher(ref.)								
Complete secondary	0,755	0,433	3,041	1	.081*	2,128	0,911	4,971
Complete primary	1,143	0,388	8,67	1	.003***	3,136	1,466	6,712
No educ./primary incomplete	0,628	0,484	1,684	1	0,194	1,875	0,726	4,843
Women's childhood place of residence until age 12								
Urban (ref.)								
Rural	0,694	0,34	4,172	1	.041**	2,001	1,028	3,892
Partner's childhood place of residence until age 12								
Urban (ref.)								
Rural	-0,08	0,334	0,057	1	0,812	0,924	0,48	1,777
Working situation before marriage								
Working(ref.)								
Not working	1,462	0,401	13,28	1	.000***	4,316	1,966	9,477
Respondent's consent for marriage								
Yes(ref.)								
No	0,733	1,126	0,423	1	0,515	2,08	0,229	18,916
Relationship to husband								
Have no relation(ref.)								
Have relation	0,286	0,263	1,184	1	0,277	1,331	0,795	2,229
Spousal age difference								
Between(-4) and 4(ref.)								
Between 5 and 12	1,317	0,274	23,09	1	.000****	3,732	2,181	6,387
Between 13 and 33	1,417	0,736	3,711	1	.054*	4,124	0,976	17,435
Ever Use of any method								
Used modern method(ref.)								
Used Only Traditional method	-1,229	0,344	12,79	1	.000***	0,293	0,149	0,574
Never Used	-2,481	0,355	48,91	1	.000***	0,084	0,042	0,168
Age at first menstrual period								
15-23(ref.)								
14	-0,187	0,405	0,214	1	0,643	0,829	0,375	1,833
13	0,741	0,362	4,177	1	.041**	2,097	1,031	4,267
8-12	0,466	0,429	1,181	1	0,277	1,593	0,688	3,69
Knowledge of ovulatory cycle								
Know(ref.)								
Don't Know	0,303	0,332	0,831	1	0,362	1,354	0,706	2,597
Constant	-1,826	0,748	5,964	1	.015**	0,161	-1,826	

*** p<.01, ** p<.05, * p<.1

Ref= Reference Category

CHAPTER 6. DISCUSSION AND CONCLUSION

This study has investigated how the prevalence and determinants of adolescent fertility differ and show similarity in Syrian migrant and in Turkey. The study used multivariate regression model to identify the association between adolescent fertility and socioeconomic-regional, marriage and fertility characteristics that were emphasized as related and significant factors in literature. Separate analyses were conducted for the 20-24 and 20-49 age groups to assess the generational variation of how determinants have been related with teenage fertility. In the study, ever-married women were included analyses because fertility commonly begins with marriage in both Syria and Turkey. Also, early marriage is a major factor of adolescent childbearing while as emphasized in the literature. Adolescents in Turkey and Syria who are not married have much lower odds of having children than married adolescents.

Most of the studies examining related factors affecting adolescent childbirth, have addressed the relationship between women's and their spouse' educational level and have concluded that women and partners with lower levels of education are more likely to have adolescent fertility tendencies. The study's findings in both descriptive analysis and multivariate analysis, which attempted to understand the determinants associated with adolescent childbirth in Turkey and for Syrian migrants, aged 20-24 and 20-49, confirm the previous studies' suggestion that education has a substantial influence in adolescent fertility.

In the study, women in the 20-24 age groups are more prone to teenage fertility than other age groups, according to the data obtained for 20–49-year-old and ever-married women in Turkey. In the 20-24 age group analysis, it was not observed that a single age had a significant relationship with adolescent fertility. When the 20-49 age group was considered, it was discovered that the 20-24 age group had a significant association with teenage fertility like in Turkey, whereas 20-year-olds were more prone to adolescent

fertility in the 20-24 age group in Syrian migrants. It is a fact that, high prevalence of early marriage and adolescent births among Syrians is mostly linked to socio-cultural, economic, and patriarchal beliefs. As emphasized in studies in the literature, it can be said that war and migration process may have a significant influence on teenage fertility, given that the prevalence of adolescent fertility is greater in the 20-24 age group than in other age groups. Additionally, it can be said that the adolescent fertility trends and rates are higher in the 20-24 age group in both societies due to the selectivity of ever-married factor in the analysis.

Concerning women's and their partner's childhood place of residence; it is an important factor of adolescent fertility especially for Turkey. Many studies in literature assume that early marriages and adolescent fertility are higher due to social norms, family structure and patriarchy in rural and Eastern regions of the country. The descriptive findings of this study shows that whether Syrian migrant women and their spouses spent their childhood in rural or urban regions have no relation on their adolescent fertility.

A close association is observed between large spousal age difference and adolescent fertility in both Syrian migrants and Turkey for the two analyzed age groups (20-24 and 20-49). The likelihood of having birth before age 20 is higher among those women who have 5-12 or 13-33 years of age difference with their husbands. As emphasized in the study of Yavuz (2012), it is revealed that high age difference increases the probability of childbearing in adolescence.

Additionally, women's work experience before marriage has a very important association with teenage fertility in both the Syrian migrants and Turkey, as well as in the 20-49 and 20-24 age groups. For the Turkey, the share of women who worked before marriage in all age groups are much higher than that of women for the Syrian migrants, whether or not women have children before the age of 20. In both countries, it was found that women who worked before marriage were less prone to adolescent fertility, and this variable was more effective in the 20-24 age group in Syrian migrant women than in the 20-49 age group. Additionally, in both countries and age groups, it can be said that women

who experience their first menstruation period at the ages of 8-12 and 13 years, that is, at an earlier age than the other categories, have higher adolescent fertility predisposition.

Although the prevalence of teenage fertility was greater in the 20-24 and 20-49 age groups who did not know their ovulatory cycle, there was no significant indication in the multivariate analyses based on whether the woman was aware of her ovulatory cycle or not had an association with adolescent fertility in both Turkey and Syrian migrants. This variable may be more important in separate research for the 15-19 age range, as in the studies in the literature. In other words, examining whether women have ovulatory cycle knowledge before the age of 20 may yield more significant and useful results regarding the relationship with adolescent fertility.

For Turkey, it was concluded that the adolescent fertility prevalence of 20-49 and 20-24 year-old women with consanguineous relationship with their husband is higher than those do not have. However, in the regression results, while the relationship with the spouse have significant association with the adolescent childbirth of women aged 20-49, there is no significance for women whose adolescent fertility is recent. Similarly, it was concluded that women in the 20-49 age group who have a consanguineous relationship with their spouses are more prone to adolescent fertility in Syrian migrants. The results of the study confirm what has been discussed in the literature.

In terms of contraceptive use, ever use of modern methods by women who became mothers before the age of 20 is higher than those who use traditional methods or do not use them at all in both countries according to the descriptive analysis results of the age group of 20-49. The prevalence of women adopting modern methods and experiencing teenage fertility increases significantly in the younger generation (20-24 age group). Regarding contraceptive use, the majority of the research including Cheng (2011), Terry and Manlove (2000), Koç and Ünalın (2001) and Bongaarts (1978) focuses on how the use of contraception lowers fertility or teenage fertility. Both the descriptive and regression analysis results imply that using any method and the inverse relationship between using traditional methods and adolescent fertility leads both Turkish and

immigrant women to the modern method with the aim of setting a certain interval for the second child after having their first child. In other words, the results may imply that adolescent women before turning 20 years old adopt modern methods more frequently after having their first child.

Suggestions

High adolescent fertility rate which is significantly higher than the global average among Syrian migrants is a great challenge. Although it is decreasing with time in Turkey, the above-mentioned socioeconomic and cultural factors sustain the situation of being a mother before the age of 20. Regarding results of important determinants on teenage childbirth in this study, some recommendations can be taken into consideration. Considering the frequency of adolescent fertility in early marriages; first and foremost, the first way to prevent adolescent fertility can be interpreted as preventing early marriages as emphasized in the study of Yüksel-Kaptanoğlu and Ergöçmen (2012) for both countries.

About the girl's education: Mihçioğur and Akin, (2015) suggest that obligatory schooling should be formed as 12 years without interruption, not in the form of 4+4+4. This new form will deter families from marrying their daughters at a young age. Also, developing and implementing intervention programs that ensure that the Syrian migrant population, which has very high adolescent fertility rates, is informed about family planning, reproductive health and sexual health and access to these services can be an important step in reducing adolescent births. All preventative health services, including those related to reproductive health, should be consistently and easily available. In order to address the fundamental needs of refugee women between the ages of 15 and 49, regular prenatal and postnatal care, as well as the prevention of adolescent marriages and pregnancies, health promotion activities should be planned. One of the important aspects for the successful integration of Syrian refugees into the Turkish healthcare system will be raising health workers' understanding of the issues with migrant women's reproductive health and outlining the dangers of early pregnancy.

Furthermore, as Yavuz (2012) indicates, all efforts targeted at reducing childbirth during adolescents should have a spouse and partner aspect because spouse or partner variables are significantly associated with adolescent fertility in both countries.

As Öztürk et al.,(2021) emphasize, the patriarchal understanding that exists in the social structure in both Turkey and Syrian migrants has a great effect on child marriage and therefore on adolescent fertility. As a result, empowering migrant girls, improving their knowledge of equality, and providing them with work possibilities would have an impact on reducing adolescent pregnancies among Syrian migrants.

REFERENCES

- Altıkulaç, E. (2005). Education And Adolescent Fertility in Turkey [Master's thesis, Nüfus Etütleri Enstitüsü]. <https://acikbilim.yok.gov.tr/handle/20.500.12812/432084>
- ASPB. (2016). *Suriyeliler ile Türkiye Cumhuriyeti Vatandaşları Arasındaki Evlilik İlişkileri Araştırması*. Ankara: Aile ve Sosyal Politikalar Bakanlığı Aile ve Toplum Hizmetleri Genel Müdürlüğü.
- Bahar Özvarış, Ş., Yüksel-Kaptanoğlu, İ., Koşuk-Ünlü, H., & Erdost, T. (2019). Kadın Sağlığı Danışma Merkezlerine Başvuran Suriyeli Kadınların Üreme Sağlığı ve Toplumsal Cinsiyet Temelli Şiddet Hizmetlerine İlişkin İhtiyaçlarının Belirlenmesi Araştırma Raporu.
- Bailey-King, E. (2018). Child Marriage And The Syrian Conflict: 7 Things You Need To Know. 20.04.2022 , Girls Not Brides, Retrieved from <https://www.girlsnotbrides.org/child-marriage-and-the-syrian-conflict-7-things-youneed-to-know/>, April 27, 2022
- Bakanlık Aile ve Toplum Hizmetleri Genel Müdürlüğü (ATHGM), (2015). *Türkiye’de Evlilik Tercihleri Araştırması*(39-41). Retrieved from <https://www.aile.gov.tr/uploads/athgm/uploads/pages/arastirmalar/tu-rkiyede-evlilik-tercihleri-aras-tirmasi-2015.pdf>, accessed on 23,04,2022
- Bledsoe, C., y B. Cohen, 1993, *Social Dynamics of Adolescent Fertility In Sub-Saharan Africa*, National Academy Press, Washington D.C.
- Bloom,DE. Canning D Sevilla J. 2003. The demographic dividend: a new perspective on the economic consequences of population change. Santa Monica, CA: RAND;2003.
- Bogue, D. J., Oettinger, M., Thompson, M., & Morse, P. (1977). Adolescent fertility: the proceedings of an international conference. In Adolescent fertility: the proceedings of an international conference (pp. 193-193).
- Bongaarts J (1982) The fertility-inhibiting effects of the intermediate fertility variables. *Studies in Family Planning* 13:178–189.
- Bongaarts J.(2015) Modeling the fertility impact of the proximate determinants: time for a tune-up John Bongaarts. *Demogr Res.* 2015;33:535–560. doi:10.4054/DemRes.2015.33.19
- Bongaarts, J. (1978). A Framework for Analyzing the Proximate Determinants of Fertility. *Population and Development Review*, 4, pp. 105-131.
- Bongaarts, J. and Potter, R.J. (1983) *Fertility biology and behavior: An analysis of the proximate determinants of fertility*. Academic Press, New York.

Bulatao, Rodolfo A. (1984). "Reducing fertility in developing countries: a review of determinants and policy framework", World Bank Staff Working Papers, No. 680, Population and Development Series No. 5, World Bank, Washington D.C.

Bulut S, & Gürkan A, Sevil Ü. (2008). Adölesan Gebelikler. *Aile ve Toplum*, 10 (4): (13) Ocak-Şubat-Mart.

Çelik, İ. A. ve Vural, F. (2018). Suriyeli Mülteci Kadınların Kuma Dramı: Kilis İli Örneği. *Uluslararası Toplum Araştırmaları Dergisi*, 8(14), 342-382

Cesare, M. and R. Vignoli. (2006) Micro Analysis of Adolescent Fertility Determinants: The Case of Brazil and Colombia.

Cheng,K. (2011). The Effect of contraceptive knowledge on fertility: The roles of mass media and social networks. *Journal of Family and Economic Issues* 32: 257–267.

Darroch, J. E., Woog, V., Bankole, A., & Ashford, L. S. (2016). Adding It Up: Costs And Benefits Of Meeting the Contraceptive Needs of Adolescents.

Davis, K. and Blake, J. (1956). Social structure and fertility: An analytic framework. *Economic Development and Cultural Change*. : 4 (4):211-235.

Dulanto, E. (2000), *El adolescente*, México, D.F., McGraw-Hill Interamerican.

El Arab, R., & Sagbakken, M. (2019). Child marriage of female Syrian refugees in Jordan and Lebanon: a literature review. *Global health action*, 12(1), 1585709.

Ergöçmen, A. B., Keskin, F., & Kaptanoğlu, İ Y. (2020). Child, Early and Forced Marriage in Turkey. Ankara, Turkey: UNFPA Turkey.

Ertem M, Saka G, Ceylan A, Değer V. & Çiftçi S. (2008). The factors associated with adolescent marriages and outcomes of adolescent pregnancies in Mardin Turkey. *Journal of Comparative Family Studies*, (3); 229-238.

Gökçe, B., Özşahin, A., & Zencir, M. (2007). Determinants of adolescent pregnancy in an urban area in Turkey: a population-based case-control study. *Journal of biosocial science*, 39(2), 301-311. <https://doi.org/10.1017/S0021932006001763>

Gül, M. (2022). "Göç Sürecinde Erken Yaşta Evlilikleri Türkiye’de Yaşayan Suriyeli Çocuklar Özelinde Düşünmek". *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 49, Denizli, pp. 573-588.

Gümüş Şekerci, Y., & Aydın Yıldırım, T. (2020). The knowledge, attitudes and behaviours of Syrian refugee women towards family planning: Sample of Hatay. *International journal of nursing practice*, 26(4), e12844. <https://doi.org/10.1111/ijn.12844>

Gümüř, G., Kaya, A., Yılmaz, S. S., Özdemir, S., Bařıbüyük, M., & Margirit Cořkun,(2017). Suriyeli Mülteci Kadınların Üreme Saęlıęı Sorunları. *Kadın Saęlıęı Hemřirelięi Elektronik Dergisi*, cilt.3, ss.1-17, 2017

Güneř, P. (2016). The Impact of Female Education on Teenage Fertility: Evidence from Turkey. *The B.E. Journal of Economic Analysis & Policy*, 16(1), 259-288. <https://doi.org/10.1515/bejeap-2015-0059>

Gupta, N., & Mahy, M. (2001). Sexual Initiation Among Adolescent Women And Men: Trends And Differentials in Sub-Saharan Africa.

Hacettepe University Institute of Population Studies (HUIPS). (2019a). *2018 Turkey Demographic and Health Survey*. Hacettepe University Institute of Population Studies, T.R. Presidency of Turkey Directorate of Strategy and Budget and TÜBİTAK, Ankara, Turkey.

Hacettepe University Institute of Population Studies. (2019b). *2018 Turkey Demographic and Health Survey Syrian Migrant Sample*. Hacettepe University Institute of Population Studies, T.R. Presidency of Turkey Directorate of Strategy and Budget and TÜBİTAK, Ankara, Turkey.

Hopancı, S., Koç, F. ve Özkoçak, V. (2019). Erken Yařta Evlendirilmiř Suriyeli Çocuklar. *Researcher: Social Science Studies*, 7(4), 10-22.

İçaęasıoęlu Çoban, D. A. (2009). Adölesan Evlilikleri . *Sosyal Politika Çalıřmaları Dergisi* , 16 (16) , 37-50 . Retrieved from <https://dergipark.org.tr/tr/pub/spcd/issue/21096/227194>

ICPD25 Nairobi Summit Commitments. (2020). Nairobi Statement on ICPD25: NairobiSummitReport.pdf

Ioana Botea, Léa Rouanet.(2020). *Empowering adolescent girls in the time of COVID-19*. Retrieved from <https://blogs.worldbank.org/developmenttalk/empowering-adolescent-girls-time-covid-19> accessed on 28,04,2022

Iyanda, A. E., Dinkins, B. J., Osayomi, T., Adeusi, T. J., Lu, Y., & Oppong, J. R. (2020). Fertility Knowledge, Contraceptive Use And Unintentional Pregnancy in 29 African Countries: A Cross-Sectional Study. *International Journal Of Public Health*, 65(4), 445-455.

Kara, Bülent.(2015). Deęiřen Aile Dinamikleri Açısından Erken Yasta Evlilikler Surnu ve Toplumsal Önemi. *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi* , 20 (2) , 59-72 .

Karakaya, E., Cořkun, A. M., Özerdoęan, N., & Yakıt, E. (2017). Suriyeli Mülteci Kadınların Doğurganlık Özellikleri ve Etkileyen Faktörler: Kalitatif Bir Çalıřma. *Journal of International Social Research*, 10(48), 417-428.

Karataş, A. E. (2020). Geçici Koruma Altındaki Suriye Vatandaşlarının Çocuk Yaşta Evliliklerinin Mukayeseli Hukuka ve Türk Hukukuna Göre Geçerliliği. *İstanbul Hukuk Mecmuası*, 78(1), 21-81.

Kavas, S. (2022). “Courage in Ignorance”: Mothers’ Retrospective Accounts of Early Childbearing in Turkey. *Comparative Population Studies*, 47.

Keskin, F., & Çavlin, A. (2020). Unregistered Births of Adolescent Mothers in Turkey: Invisible Children. *Comparative Population Studies*, 45.

Khan S, Mishra V. Youth Reproductive and Sexual Health, DHS Comparative Reports. Calverton, MD, USA: *Macro International*, Inc; 2008. p. 19.

Kırdar, M. G., Dayıoğlu, M., & Koç, İ. (2018). The effects of compulsory-schooling laws on teenage marriage and births in Turkey. *Journal of Human Capital*, 12(4), 640-668.

Koç, İ., & Ünalın, T. (2001). Adolescent Reproductive Behaviour in Turkey. *The Turkish Journal of Population Studies*, 22, 37-55.

Konstantinos N. Zafeiris, Anastasia Kostaki, Georgios Kontogiannis & Aspasia Tsoni (2021) Factors affecting fertility in the multicultural environment of Thrace in Northern Greece, *Communications in Statistics: Case Studies, Data Analysis and Applications*, 7:4, 639-669, DOI: [10.1080/23737484.2021.1973927](https://doi.org/10.1080/23737484.2021.1973927)

Kreyenfeld, M., G. Andersson, and A. Pailhé. (2012). Economic Uncertainty and Family Dynamics in Europe. *Demographic Research* 27 (2015):835–852. <https://doi.org/10.4054/demres.2012.27.28>.

Mabeleng, T. I. (2019). Factors influencing adolescent fertility in Lesotho (Doctoral dissertation, North-West University (South Africa)).

Majumder, N., & Ram, F. (2015). Explaining the role of proximate determinants on fertility decline among poor and non-poor in Asian countries. *PloS one*, 10(2), e0115441. <https://doi.org/10.1371/journal.pone.0115441>

Martin, T. C., & Juarez, F. (1995). The impact of women's education on fertility in Latin America: Searching for explanations. *International Family Planning Perspectives*, 52-80.

Maswikwa, B., Richter, L., Kaufman, J., & Nandi, A. (2015). Minimum marriage age laws and the prevalence of child marriage and adolescent birth: evidence from sub-Saharan Africa. *International perspectives on sexual and reproductive health*, 41(2), 58-68.

Mcanarney, E.R. Y W.R. Hendee(1989), Adolescent pregnancy and its consequences, en *Journal of the American Medical Association*, 262.

McDevitt, T. M., Adlakha, A., Harris-Bourne, V., & Fowler, T. B. (1996). Trends in adolescent fertility and contraceptive use in the developing world. Washington, DC:

Mihçioğur, S., & Akın, A. (2015). Çocuk Yaşta, Zorla Evlilikler ve Ergen Gebelikleri. Türkiye Klinikleri *Journal of Public Health-Special Topic*, 1(2), 22-31.

Monari N, Orwa J, Agwanda A (2022) Adolescent fertility and its determinants in Kenya: Evidence from Kenya demographic and health survey 2014. PLoS ONE 17(1): e0262016. <https://doi.org/10.1371/journal.pone.0262016>

Museve, A. K. (2015). *Factors influencing adolescent fertility in urban Kenya* (Doctoral dissertation, University of Nairobi).

Özlem, A., & Gökler, M. E.(2021). Göçmen Kadınlarda Üreme Sağlığı. *Medical Research Reports*, 4(3), 57-64.

Öztürk, A. B., Albayrak, H., Karataş, K., & Aslan, H. (2021). Dynamics Of Child Marriages Among Syrian And Afghan Refugees In Turkey. *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 25(1), 251-269.

Özvarış, Ş., Yüksel-Kaptanoğlu, İ., Konşuk-Ünlü, H. & Erdost, T. (2019). Survey Report on Determining the Needs of Syrian Women Applying to Women's Health Counselling Centres Related to Services in Reproductive Health and Gender-Based Violence. Hacettepe Üniversitesi Kadın Sorunları Uygulama ve Araştırma Merkezi (HÜKSAM). (<https://dspace.ceid.org.tr/xmlui/handle/1/836>)

Population Council. (2009a) *The Adolescent Experience In-Depth: Using Data to Identify and Reach the Most Vulnerable Young People: Egypt 2005*. New York.

Population Reference Bureau (PRB). The world's youth 2013 datasheet. Washington, DC: PRB, 2013. <https://www.prb.org/resources/the-worlds-youth-2013-data-sheet/>

Raharjo, B. B., Nugroho, E., Cahyati, W. H., Najib, N., & Nisa, A. A. (2019). Proximate Determinant of Adolescents Fertility in Central Java. *KEMAS: Jurnal Kesehatan Masyarakat*, 15(1), 141-146.

Rahsad, H., M. Osman, and F. Rouidi-Fahimi. (2005) *Marriage in the Arab World*. Population Reference Bureau:Washington D.C.

Republic of Turkey Ministry of Family, Labour and Social Services (AÇSHB) (2006). *Family Structure in Turkey*, Retrieved from <https://www.aile.gov.tr/uploads/athgm/uploads/pages/arastirmalar/taya2006.pdf>. April 27, 2022.

Riley, A. P. (1994). Determinants of adolescent fertility and its consequences for maternal health, with special reference to rural Bangladesh. *Annals of the New York Academy of Sciences*, 709, 86-100.

Saka G.Ertem M, İçlin E. Diyarbakır Doğum Evi Hastanesinde Doğum Yapan Gebelerde Risk Faktörleri: Ön Çalışma. *Perinataloji Dergisi*, (9); 110-115, 2001.

Santelli, John S., Xiaoyu Song, Samantha Garbers, Vinit Sharma and Russell M. Viner (2017). Global Trends in Adolescent Fertility, 1990-2012, in Relation to National Wealth, Income Inequalities, and Educational Expenditures. *Journal of Adolescent Health*, vol. 60, pp. 161–168.

Savaş, B. (2001). Determinants of adolescent marriage in Turkey. *Acta Universitatis Carolinae. 2001 Geographica*, No:107-121

Şen, S. & Kavlak, O. (2011). Çocuk Gelinler: Erken Yaş Evlilikleri ve Adölesan Gebeliklere Yaklaşım . *Sosyal Politika Çalışmaları Dergisi* , 25 (25) , 35-44 . Retrieved from <https://dergipark.org.tr/tr/pub/spcd/issue/21104/227282>

Şenol, D., & Dinç, A. (2016). Türkiye'nin Suriyeli çocuk gelinleri: sosyolojik bir değerlendirme. *Üsküdar Üniversitesi Suriyeli Çocuklarla El Ele Uluslararası Göç ve Çocuk Sempozyumu. İstanbul*, 17, 18.

Shallo, S. A. (2020). Roles of proximate determinants of fertility in recent fertility decline in Ethiopia: application of the revised bongaarts model. *Open Access Journal of Contraception*, 11, 33.

Statistical Office of the European Communities. (2020). EUROSTAT: *Fertility Statistics*. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Fertility_statistics

Sutay, Y. (2012). A comparative analysis of adolescent fertility in Morocco, Egypt and Turkey. *Co*, 10(2), 111-127. doi:10.1501/cogbil_0000000133

Terry, E., & Manlove, J. (2000). Trends in Sexual Activity and Contraceptive Use among Teens. *Child Trends Research Brief*.

Tezcan, Sabahat ve Tuğba Adalı (2012). “Marriage Characteristics and Reproductive Health of Adolescents in Turkey: Findings from Demographic and Health Surveys 1998 and 2008”. *The Turkish Journal of Pediatrics* 54: 273-282.

Turkish Statistical Institute (TURKSTAT) (2021). Birth Statistics Retrieved from <https://data.tuik.gov.tr/Bulten/Index?p=Birth-Statistics-2020-37229&dil=2> April 28, 2022.

UNDP. (2014). Human Development Report. Geneva: United Nations Development Programme.

UNICEF . Maternal Newborn Health: The State of World’s Children 2009. New York: United Nations Children Fund (UNICEF); 2008.

United Nations Population Fund (UNFPA), *Programme of action, adopted at the International Conference on Population and Development*, Cairo, Sep. 5–13, 1994.

United Nations, Department of Economic and Social Affairs, Population Division (2020). World Fertility 2019: Early and later childbearing among adolescent women (ST/ESA/SER.A/446).

Van de Kaa, Dirk J. (2002). The Idea of a Second Demographic Transition in Industrialized Countries. Sixth Welfare Policy Seminar of the National Institute of Population and Social Security, Tokyo, Japan, 29 January 2002. Tokyo: pp.1–34.

Woog, Vanessa and Anna Kågesten (2017). The Sexual and Reproductive Health Needs of Very Young Adolescents In Developing Countries. Guttmacher Institute, No. May,

World Bank. The Social and Educational Consequences of Adolescent Childbearing. (25.02.2022). Retrieved from: <https://genderdata.worldbank.org/data-stories/adolescent-fertility/>, April, 27, 2022

World Bank, United Nations Population Division, World Population Prospects. (2020). [Adolescent fertility rate]. Retrieved from <https://data.worldbank.org/indicator/SP.ADO.TFRT/>

World Health Organization. (2013). *Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence*. World Health Organization.

World Health Organization (2010). *Stages of Adolescent Development*. https://apps.who.int/adolescent/second-decade/section/section_2/level2_2.php

Yadav, S., Choudhary, D., Narayan, K. C., Mandal, R. K., Sharma, A., Chauhan, S. S., & Agrawal, P. (2008). Adverse reproductive outcomes associated with teenage pregnancy. *McGill journal of medicine : MJM : an international forum for the advancement of medical sciences by students*, 11(2), 141–144.

Yüksel Kaptanoğlu, İ., Ergöçmen, B. (2012). Çocuk Gelin Olmaya Giden Yol. *Sosyoloji Araştırmaları Dergisi*. 15:130-161.

Yüksel-Kaptanoğlu, İ., & Dayan, C. (2020). 5 Child, early and forced marriages among Syrian migrant women in Turkey. *Syrian Refugees in Turkey: A Demographic Profile and Linked Social Challenges*, 68-85.