HACETTEPE UNIVERSITY

INSTITUTE OF POPULATION STUDIES

ECONOMIC AND SOCIAL DEMOGRAPHY PROGRAMME

AN APPLICATION OF STRUCTURAL EQUATIONAL MODELLING ON FERTILITY IN METROPOLITAN AREAS OF TURKEY

by

Fulya Hande Tunçkanat

Submitted for

Partial Fulfilment of the Requirements of

M.A Degree in Economic and Social Demography

ANKARA

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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 Economic and Social Demography.

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SUMMARY

In this thesis fertility has been considered as a phenomenon revealed as a result of a decision process. Therefore this thesis mainly focuses on the fertility-related decision process of a woman which is modeled as one's perception affects her attitudes which in turn affects her fertility behavior. Moreover, it is hypothesized that a woman's daily-life activities play an important role in this process. Because a woman can not be isolated from the social environment that she is living in, her decision process has an effect on others' decision processes and is also affected by them. In other words, it is assumed that the social environment a woman surrounded by has an indirect effect on her fertility-related decision process.

The unit of analysis of the thesis is selected as ever-married women aged 15-49 living in metropolitan areas. Ever-married women aged 15-49 living in rural areas of Turkey are used as a control group. To carry out the analysis, Turkey Demographic and Health Survey-2003 (TNSA-2003) data set is used. In addition to descriptive analysis, multi-varied analysis are also applied by using Structural Equational Modeling (SEM) that enables the examination of casual and indirect relations and to work with variables that do not directly exist in the data set (latent variables). This method provides multivariate and multi-group analysis as well as descriptive analysis.

Fertility rates for metropolitan areas are estimated and it is found that metropolitan areas have fairly low levels of fertility in contrast to urban and rural areas. Descriptive analysis addresses the basic social and demographical differences between women living in metropolitan areas and in rural areas. Moreover, it shows the differences of women's daily-life activities, attitudes towards family planning, gender related issues and knowledge on sexually transmitted infections. SEM analyses reveals that the perception of a woman has a significant effect on her attitudes and her attitudes have a significant effect on her fertility behavior as suggested by the model. Multi-group analyze, which is performed in order control affect of the environment has revealed that an environment that surrounds a woman has an affect on her fertility-related decision process.

ÖZET

Bu tezde demografik bir olgu olan doğurganlık, karar verme sürecinin sonucunda ortaya çıkan bir kavram olarak ele alınmıştır. Tezde kadınların algılarının tutumlarını, tutumlarının ise doğurganlık davranışlarını etkilediği varsayımıyla modellenen bu sürece odaklanılmaktadır. Kadının yaşam tarzının ve günlük yaşam aktivitelerinin bu süreç içerisinde önemli bir yeri olduğu da tezin varsayımları arasında yer almaktadır. Kadının bulunduğu çevreden yalıtılamayacağı, bu nedenle çevresinden ve çevresindekilerin karar verme süreçlerinden de etkileneceği ve onları etkileyeceği tezin bir diğer varsayımıdır. Bir başka deyişle, sosyal çevrenin kadının karar verme süreci üzerinde dolaylı bir etkisi olduğu düşünülmektedir.

Tezde Türkiye Nüfus ve Sağlık Araştırması 2003 (TNSA–2003) veri seti kullanılmıştır. Analiz birimi olarak Türkiye'nin anakent (metropol) alanlarında yaşayan üreme çağındaki (15–49 yaşları arası) en az bir kez evlenmiş kadınlar ele alınmıştır. Karşılaştırma grubu olarak ise kırsal alanlarda yaşayan 15–49 yaş arası en az bir kez evlenmiş kadınlar seçilmiştir. Betimleyici analizlerin yanı sıra, Yapısal Eşitlik Modeli (YEM) adı verilen; nedensel ve dolaylı ilişkilerin incelenmesine olanak veren ileri analiz yöntemi kullanılmıştır. YEM aynı zamanda veri setinde doğrudan gözlenemeyen "örtük" değişkenlerle çalışma fırsatı da sunmaktadır.

Yapılan tahminlerin sonucunda anakentlerdeki doğurganlık düzeyinin gerek kırsal, gerekse kentsel alanlardan oldukça düşük olduğu bulunmuştur. Betimleyici analizler, anakent alanlarında ve kırsal alanlarda yaşayan kadınların temel demografik ve sosyal özelliklerine ilişkin farklılıklara dikkat çekmiştir. Ayrıca her iki gruptaki kadınların günlük yaşam aktiviteleri, toplumsal cinsiyet kavramına ve aile planlamasına karşı tutumları, cinsel yolla bulaşan hastalıklar hakkındaki bilgi düzeyleri konusunda farklılıklarını ortaya konmuştur. Modelde kurgulandığı gibi, YEM analizleri sonucunda kadınların algılarının tutumları üzerinde, tutumlarının ise doğurganlıkları üzerinde etkisi olduğu bulunmuştur. Çevrenin etkisini kontrol edebilmek için yapılan çoklu analizde ise anakentlerde geçerli olan modelin kırda geçerli olmadığı gösterilerek bu etkiye işaret edilebilmiştir.

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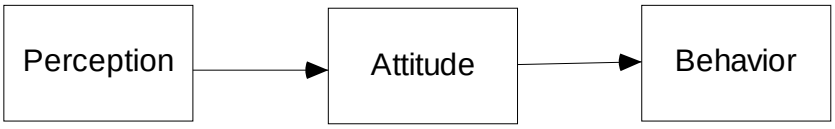
CHAPTER 1. INTRODUCTION

Fertility as one of the main subjects of demography shows starkly different trends around the world: for example high fertility and mortality and rapid population growth in sub-Saharan Africa, and low fertility and mortality and population decline in Europe. Causes of these varying patterns throughout the world have widely been examined, and great deal about the factors linked with population change has been learned, such as; economic changes, public health interventions, investment in education and environmental protection, the status of women, epidemics and other health threats and access to family planning information and services (Gelbard, Haub and Kent, 1999). Yet, still, there is so much left unknown.

Such an example about these unknown points can be given: Female education is widely linked with fertility and has become an essential component of fertility analysis. Information on schooling is routinely collected in all demographic surveys, and educational attainment is a standard criterion to examine fertility differentials. Moreover, its significance is almost taken for granted (Martin & Jaurez, 1994). However we are still far away from giving a fulfilled answer to the question that asks how an education factor can affect a woman's fertility. We know more about how education affects the size and direction of fertility and fertility differentials but we do not know the mechanisms. Moving from that point, this thesis mainly aims to examine if there is a relationship between women's (who are living in metropolitan areas of Turkey and aged between 15 and 49) perceptions, attitudes and fertility behaviors in order to gain a deeper insight. Consequently, it could be said that the thesis mainly focuses on decision processes of women about giving birth or not and how many births they give.

In this thesis, fertility is considered as a behavior which is an outcome of a decision process. This process has been conceptualized as below:



Putting aside the physiological and biological factors, a woman has two options about fertility: give birth or not. Choosing one of these options occurs as result of a decision process that is conceptualized above. A woman's perceptions affect her attitudes and her attitudes affect her fertility behavior. Therefore, in this thesis fertility has been considered as a phenomenon revealed as a result of a decision process instead of a concept which stands-alone in the space and affected directly by various factors (negatively or positively). Moreover, it is assumed that exogenous factors have indirect effects on fertility behavior by affecting decision processes of women.

In addition to various exogenous factors such as education, social environment (type of social interaction, daily-life styles, norms and social dynamics) that a woman living in has also an indirect affect on woman's decision process. Because a woman can not be isolated from the social environment that she is living in, her decision process affects others and also affected by them through social interaction. Based on this assumption, indirect effect of social environment on the conceptualized decision process is taken into consideration by comparing women living in metropolitan areas with those in rural areas of Turkey.

The unit of analysis of the thesis is selected as ever-married women aged 15-49 living in metropolitan areas (Adana, Ankara, Bursa, İstanbul and İzmir). In Turkey Demographic and Health Survey 2003 (TDHS-2003), which was conducted by Hacettepe University Institute of Population Studies, only ever-married women were interviewed about their birth histories, consequently only ever-married women

aged 15-49 will be analyzed. However, women living in metropolitan[1] areas are chosen in order to control the potential indirect effect of social environment on women's decision processes about fertility. As mentioned above, all ever-married women aged 15-49 living in Adana, Ankara, Bursa, İstanbul and İzmir have been used in multi-varied analysis but separate analysis for single metropolitan areas was not possible due to the utilization of sub-sample[2] which in turn results in insufficient number of case for analysis. TDHS-2003 data set is preferred because it is the only nationally representative survey that contains information about various social and demographic characteristics that are seek by this thesis. Moreover, because TDHS-2003 has a weighted, multistage, stratified cluster sampling approach, it enables to work with various domains, such as metropolitan, urban and rural areas.

As regards fertility levels and trends, it is presumed that metropolitan areas have a different structure when compared to urban and rural areas. As stated by Behar (1995), fertility decline had an early start in Turkey in İstanbul and the larger cities, and the fertility transition was well underway before the founding of the Republic (1923). The Ottoman censuses of 1885 and 1907 give cross-sectional total fertility rates (TFRs) of 3.5 and 3.8 births per women respectively for İstanbul. These levels were reached only in the late 1980s for overall Turkey, and are far below the range of TFRs of pre-industrial European populations (Behar 1995). The lowest rates in Europe before the onset of industrialization (around 4.1) were those of Sweden, Norway and Denmark in the 1770s (Coale and Watkins, 1986). Because it is assumed that stated differences in fertility levels and trends by Behar (1995) still exist in metropolitan areas, women living in metropolitan areas are selected for analysis rather than those living in urban or rural areas.

In the multi-group analyze, women living in rural areas of Turkey are used as a control group. This helps us to examine the differentiation of metropolitan areas

[1] Criteria for to be selected as an metropolitan area is having a population size one million and over.
[2] In TDHS-2003, "Fertility Preferences" and "Sexually transmitted diseases and AIDS" modules were applied to the sub-sample in order to save time and reduce the cost of the survey. Criterion for selection to the sub-sample is cluster and household number. A respondent can only be selected for the sub-sample if her cluster number and household number are even or both cluster and household numbers are odd.

from other urban and especially rural areas as rural areas display totally diverse characteristics in terms of mode of production (industrial – agricultural), social relations (primary relations- secondary relation), social norms and life-styles (individualistic- altruistic), and consequently fertility levels and trends (low fertility-high fertility).

Because a model that considers causalities, direct and indirect effects of various factors is suggested, a multi-varied analysis method which represents translations of a series of cause-effect relationship (casual relations) between variables into a composite hypothesis concerning patterns of statistical dependencies is needed. Structural Equational Modeling (SEM) fulfills this need. In SEM, relationships that are described by the parameters indicate the magnitude of the effect (direct or indirect) that independent variables have on dependent variables.

SEM also enables to test a model in two-or more different data sets simultaneously (multi-group analyze) in order to see the validity of a default model in different populations. This characteristic of SEM makes it preferable for this thesis in order to examine whether the suggested model is only valid for metropolitan areas of Turkey.

This thesis consists of six chapters. The first chapter gives the justification of the thesis and put forwards the objectives of the study. Chapter II reviews the literature that contributed to the formation of the theoretical framework of this thesis. Chapter III describes the data source which is TDHS-2003, and methodology of the study. In this chapter the Structural Equational Modeling (SEM) method and the software Analyses of Moment Structures (AMOS) are described in details. Chapter IV displays the basic characteristics of units of analysis which are ever-married women in five metropolitan areas as well as fertility levels. Chapter V displays the results of Structural Equational Model which is performed in metropolitan areas in addition to multi group analysis that is carried out in both metropolitan and rural areas of Turkey simultaneously in order to see difference of metropolitan areas. Finally, discussion of the findings is presented in Chapter VI.

CHAPTER 2. LITERATURE REVIEW

This chapter aims to give the theoretical background of the thesis. Since various studies about fertility in demographic literature are triggered by substantive fertility decline in the most countries of the world, a brief overview of the fertility decline in the world and in Turkey will be given to start with. Additionally, theories and perspectives that have influenced this thesis will also be represented. And finally, demographic studies including these perspectives will be summarized.

Between the late 1950s and late 1970s fertility began a persistent major decline in countries containing almost four-fifths of the world's population. The exceptions that did not follow within a further decade were nearly all found in three regions: sub- Saharan Africa, Arab Southwest Asia and Melanesia (Caldwell, 2001). According to United Nations (UN) data, total fertility rate (TFR) of Europe was around 2.5-2.6 in 1955-60 period while Asia and Africa were around 5.1 - 7.0. But in 1990-95 period, these rates were fallen to 1.5-2.0 level (which is under replacement level) in Europe while Asia and Africa had experienced 1.9- 5.9 TFR levels during the same period. Namely, in 1970-75, about 60 percent of all countries had total fertility of 4.5 births per woman or higher, however, a decade later, this figure had fallen to 50 percent, and by 1990-95 it had fallen further to 40 percent. Over these two decades, the proportion with total fertility under 2.5 rose from one-sixth to one-third of all countries (Bulatao, 2001).

In the case of Turkey, with the foundation of Turkish Republic in 1923, peace and more secure environment led to a steady decline in death rates, except for a brief reversal during the World War II. Fertility, instead of following and balancing mortality decline, increased significantly because of efforts to overcome the heavy human losses consequently to overcome the shortages of labor force in both agriculture and civil society. As a result of falling death rates and rising birth rates, the population of Turkey almost doubled between 1923 and 1955 period (SIS, 1995). Although during the 1950s, fertility began to decline and did not reverse; the rate of

decline was not fast enough to catch up immediately with the previous decline in death rates, so the population of Turkey continued to grow (SIS, 1995).

Fertility levels have almost declined continuously from the level of 4.3 births per woman in the early 1970s to 2.2 births per woman, which is slightly over the replacement level, in the 2000-2003 periods. Besides, age specific fertility rates (ASFR) derived from retrospective data of Turkey Demographic and Health Survey (TDHS) 2003 for the 1978 - 2003 period reveal that most rapid relative decline in fertility occurred in the 15-19 age group. A shift from the age groups 20-24 to 25-29 has been occurred (HUIPS, 2004).

TDHS-2003 displays a sustained decline in fertility with the current level of TFR that is 2.2 births per woman. This reveals that current fertility transition is about to reach its final stage (Yavuz 2006; Ünalan 1997; SIS 1995). However, the sequence of change is not uniform over the country as it is not in the world: a wide range of regional disparity had been displayed. While the West region is displaying the lowest fertility with the 1.9 births per woman, the East region displays the highest TFR level which is 3.7 (HUIPS, 2004). In addition to regional differences fertility level also varies as regards type of place of residence (urban and rural). According to TDHS-2003 TFR in urban and rural areas are indicated as 2.1 and 2.7 births per women respectively.

The shift from high to low fertility rates in the various countries of the world is one of the main components of all classical representations of demographic transition (Cleland 2001). Shift from high to low mortality is other core component of demographic transition that describes demographic change over time with four stages. First stage is represented by high birth and death rates; second stage is characterized by a population growth caused by a decline in death rate while birth rate remains high. Stage three is dominated by decline in birth rate that is expected to be around 2.1 births per woman (replacement level) that pushes population through stability in the fourth stage. Cleland (2001) rephrased this general characterization of

the link between mortality and fertility as below by adding, however, this characterization varies:

> "... a fall in death rates, an ensuing period of rapid natural increase, a lagged decline of birth rates, and an eventual return to population equilibrium..." (Cleland, 2001).

Mortality decline in second stage of demographic transition mostly linked with improvement in human survival with revolutions in health, better personal hygiene, public sanitation projects and access to safer drinking water. Infants and young children benefited most of this health revolution (Gelbard, Haub and Kent, 1999).

Although transition theory addresses the universal pattern, not all countries followed the same path to low mortality and low fertility as did European countries. In the second half of the 20th century more developed countries[3] completed their transition to low mortality and low fertility. Population growth slowed and even turned to negative in a few countries which is now perceived as a new stage in demographic history[4]. In less developed countries, the second half of the century brought decades of rapid population growth and migrants from rural to urban areas. Some countries appeared to be rushing through the various stages of the demographic transition while others appeared to be following a new path of demographic transition (Gelbard, Haub and Kent, 1999).

For a long time, modernization process has been introduced as the casual factors of declining fertility. This process has led to change in economic value of children (coast-benefit analyses) (Bühler 2006, Freedman 1979, Easterlin 1978, Thomson 1929). In modern societies, functions that were formerly served by families

[3] United Nations definitions for more developed or industrialized countries include Europe (including all of Russia), the United States, Canada, Australia, New Zealand, and Japan. The term "less developed" refers to countries in Africa, Asia (except for Japan), Latin America and the Caribbean, and Oceania (except for Australia and New Zealand).

[4] The idea that the countries of Western Europe and the other industrialized countries of the world, were facing a new stage in their demographic history , was first suggested by Lesthaeghe and Van de Kaa in 1986.

and their children are now located outside the family (like work) or are served by specialized institutions (like health services or retirement insurances). Moreover, compulsory school and labor markets that honor formal qualifications generate a situation in which household has to invest increasingly in their children. Consequently, they cannot benefit from their children's work abilities in the short run. Thus, large families become inefficient. Additionally, parents developed higher levels of aspiration according to their own and their children's quality of life, which increase the direct and indirect cost as well. Finally the process of modernization let better educated women and higher shares of women in the labor force. This increases women's opportunity costs of bearing and rearing children (Bühler 2006, Coale, 1965).

However, the hypothesis about the impact of modernization on fertility decline is only partly supported by empirical analyses (Bühler 2006, Smith 1989, Cleland and Wilson 1987). In many European countries, people who are well educated and who are employed in the secondary or tertiary sector build the first stratum with declining fertility. In addition to that, individual fertility has became more and more dependent on the individual as well as the societal economic situations. In many European regions, however, the onset and tempo of fertility decline has not been equal the onset and tempo of economic development (Bühler 2006, Watkins 1987, Knodel and van der Walle 1979). Therefore, socio-economic aspects of modernization are not the only casual factors for process of declining fertility. They are one aspect beside institutional and cultural changes (Cleland and Wilson 1987, Watkins 1987).

The decline of period total fertility rates in Europe immediately after 1965 struck the region unexpectedly (Van de Kaa, 2002). The idea that the countries of Western Europe and the other industrialized countries of the world were facing a new stage in their demographic history, which is called second demographic transition, was first suggested by Van de Kaa and Lesthaege in 1986. Moreover, Van de Kaa (1987) specified the characteristics of Europe's second demographic transition by defining background of first and second demographic transition. According to Van

de Kaa (1987), two key words characterize the norms and attitudes behind the first and second demographic transition and highlight the contrast between them: “altruistic” and “individualistic”.

> “The first transition to low fertility was dominated by concerns for family and offspring, but the second emphasizes the rights and self-fulfillment of individuals (Van de Kaa, 1987)”

Lesthaeghe and Wilson (1986) argue convincingly that industrialization, urbanization and secularization were the indirect determinants of the first transition. The shift from family based production to waged-paid labor that accompanied industrialization and urbanization reduced the economic utility of children. They could no longer serve as a cheap labor for the parental farm or business but instead required investment in schooling and training to give them a reasonable chance in life. Secularization reduced the influence of the churches and increased couples willingness to practice family planning.

According to Van de Kaa (1987), the indirect determinants of the second demographic transition can not be summed up so neatly. However, he stated that they are strongly related to the functioning of individuals in fast changing post-industrial societies. In these societies, one’s standards of living are largely determined by one’s level and quality of education, degree of commitment to societal goals. In the second demographic transition fertility influenced by normative changes in advanced industrialized societies. That shift in values system stresses individual freedoms and personal choice (Van de Kaa, 2002).

By addressing “freedom of choice” and change in “institutional arrangements”, Van de Kaa (2002) gives a special emphasis on socio-physiological dynamics and social changes and also life styles in the explanation of fertility decline.

"(…) The ways people look at life usually are determined by more mysterious, more indirect causes, I feel that profound, hidden but intense relationship exists between the long-term pattern of the birth rate and attitudes towards the child (…)" (Van de Kaa, 2002)

In addition to Van de Kaa's emphasis on freedom of choice and institutional changes, concept of social interaction is also influenced this thesis.

"Social interaction" is originally George Simmel's attempt to integrate analysis of individual action with the structural approach. He emphasized on social interaction at the individual and small group level by describing the society as a network of social interactions between and among individuals.

Bongaarts and Watkins (1996) defined three aspects of social interaction: the exchange of information and ideas, the joint evaluation of their meaning in a particular context, and social influence that constrains or encourages actions[5]. These three aspects explain how social changes (like shift from altruistic values to individualist values) diffuse in societies. Diffusion is the process in which an innovation is communicated through certain channels over time among the members of a social system. It is a special type of communication in which the messages are about a new idea. This "newness" of the idea in the message content gives diffusion its special character (Rogers, 2003).

This perspective has strongly affected this thesis' theoretical framework as well as social interaction and diffusion of innovations theory.

There are various studies in demography literature that use social interaction, social networks or diffusion process in the explanation of fertility decline. For example Bühler (2006), mentioned about increasing recognition of social networks in fertility researches during the last two decades and also emphasized the spread of

[5] Bongaarts and Watkins (1996) stated that, these categories intersect with those of Casterline ; Montgomery and Rosero-Bixby, who distinguish between social learning and social influence.

modern contraceptive methods. Watkins (1987) addresses spatial closeness and a joint cultural background in building opportunities for interactions and establishment of interpersonal communication networks. This conclusion finally leads to the hypothesis that communication networks provide the channels for diffusion process, which have a significant influence on the transition from the high to low mortality (Cleland and Wilson 1987, Watkins 1987, Knodel and van de Walle 1979, Carlson 1966).

According to Bühler (2006), the idea to stop fertility at a fewer number of children is innovative and has to become socially accepted and to be integrated in new models of the family and gender roles. The spread of this new ideas, models and opinions characterize the diffusion process (Cleland, Pollak and Watkins 1993). In many developing countries, mass media and family planning programs build the starting point for the future changes of the population's reproductive behavior. By distributing new ideas about life, the family or gender-specific roles and by informing about innovative contraceptive methods (Bühler 2006, Barber and Axinn 2004, Freedman 1979), these media and programs influence the cognitive, emotional and social aspect of the process (Bühler 2006, Kincaid 2000, Palmore et al. 1976). However, actors adopt these new reproductive goals and contraceptive methods if these are translated into the local and cultural context and present traditions of fertility (Bühler 2006, Watkins 2000, Arends-Kuenning et al. 1999, Dubey and Choldin 1967).

There are also different empirical studies that document the informing, legitimizing, and integrating influence of every-day conversation (Rutenberg and Watkins 1997, Entwisle et al. 1996, Mita and Simmons 1995, Watkins 1990, Liu and Duff 1972, Palmore and Friedman 1969). According to Bühler (2006), these conversations can be directly fertility-related, like within the context of public family planning programs, but they can also address different topics of daily life such as family and children. During these conversations, people learn about gender-specific or family-related role models, fertility related values, normative behavioral expectations, or information and evaluation about particular contraceptives.

According to Bühler (2006), social networks are influential on processes of declining fertility within the first demographic transition in Europe and developing countries. Communication networks build structures of social learning and social influence that distribute fertility-related ideas, role models, information, experiences and normative expectations. They, therefore, promote or hinder individuals in pursuing new reproductive goals or in utilizing innovative contraceptive methods as also stated by Van de Kaa in 1987.

As a result, all these studies that concern social networks, social interactions and fertility-related diffusion process, have an influence on the theoretical framework of this thesis. In other words, this thesis neither aims to explore if there is a diffusion process among women living in metropolitan areas nor tries to determine the social networks and interactions it is only influenced by them. As mentioned in chapter I, the aim of this thesis is to examine if there is a relation between women's perception, attitudes and fertility behaviors and how they are related.

CHAPTER 3. METHODOLOGY:

3.1 Data Source:

Turkey Demographic and Health Survey 2003 (TDHS-2003) data had been used in this thesis. TDHS-2003 is a nationally representative survey and in the selection of its sample a weighted, multistage, stratified cluster sampling approach was used. This sample design provides estimates for a variety of characteristics for various domains (HUIPS, 2004).
These domains are:

- Turkey as a whole
- Urban and Rural Areas
- Each of the conventional five regions of the country (The west, south, central, north and east)
- The NUTS 1[6] regions, for selected indicators which are based on sufficient number of observations.

3.1.1 Sample Design and Stratification in TDHS 2003:

40 separate strata were created for the sample design of the TDHS-2003.This included the designation of 15 divisions by urban and rural stratum, the two strata within İstanbul (slum and non-slum), and metropolitan cities as mutually exclusive strata. The stratification also makes possible to combine provinces, which were affected by the earthquake in 1999 (HIPS, 2004).

Units of analysis[7] in this thesis are ever-married women aged 15-49 living in five metropolitan areas (Adana, Ankara, Bursa, İstanbul, İzmir) of Turkey. Control

[1]Currently Turkey is divided administratively into 81 provinces. Lately three levels of NUTS regions were constructed in order to adopt the European standards. The 81 provinces were designated as regions of NUTS 3 level; these were further aggregated into 26 regions to form the NUTS 2 regions. NUTS 1 regions were formed by aggregating NUTS regions into 12 region.

group is formed by selecting ever-married women aged 15-49 in rural areas of Turkey[8]. In TDHS-2003 Criteria for being selected as a metropolitan area is having a population size one million and over; and for rural area is having a population size less than ten thousand.

3.1.2 Questionnaires:

TDHS 2003 includes two main types of questionnaires which are "Household questionnaire" and "Individual questionnaire" for ever-married women in reproductive ages (15-49).

Household questionnaire included household module which consists of Household information panel, household listing form (for all residents) with place of birth, residence, maternal and paternal survival, migration and mobility (for age 5 and over), literacy and education status (for age 6 and over), school attendance (for age between 6-24), work status (for age 12 and over), and marital status (for age 12 and over) questions. Other modules covered by household questionnaire are "never-married women's information form", "welfare of elderly", "housing characteristics", and "İstanbul metropolitan household" modules. Household questionnaire was used for collecting information on age, sex, educational attainment, recent migration, mobility, employment, marital status and determining the relation to the head of household of each person listed as a household member or visitor. In addition to these, household questionnaire was used in order to obtain information to identify women who were eligible for the individual interview; enumerating information on background characteristics about never-married women age 15-49, and finally collecting information on the welfare of elderly people and housing characteristics. This questionnaire also included a module that was administrated only in İstanbul metropolitan households, on household ownership, use of municipal facilities and the like (HUIPS, 2004).

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[7] Ever-married women aged 15-49 in five metropolitan areas.
[8] For creating five metropolitan stratum, strata numbered (See appendix)1,2,7,12 and 21 were selected. For rural stratum, strata numbered 4,6,9,11,14,16,18,20,23,26,36,38 and 40 were selected.

The ever-married women's questionnaire (for women age 15-49) contains "respondent's background", "reproduction", "marriage", "contraception", "pregnancy and breastfeeding", "immunization and health", "husband's background", "women's work and status", and "anthropometry" modules which were applied to whole sample. Additionally it includes "Fertility Preferences" and "Sexually transmitted diseases and AIDS" modules which were applied to the sub-sample. The rationale behind applying these modules only to sub-sample was to save time and reduce the cost of the survey. Criterion for selection to the sub-sample is cluster and household number. A respondent can only be selected for the sub-sample if her cluster number and household number are even or her both cluster and household numbers are odd. Thus, 4078 of 8075 women were selected for the sub-sample.

As this thesis mainly concerns about ever-married women's (aged 15-49 in five metropolitan areas) decision making process about fertility, selected variables shown in Table 3.1.3.1 are from respondent's background, reproduction, contraception, fertility preferences, women's work and status, sexually transmitted diseases and AIDS modules in ever-married women questionnaire.

Table 3.1.2.1 Variables in the model

Independent Variables	**Variable Label**	**Explanation**
Current age of respondent (obs[9])	v012	
Education in single years (obs)	v133	
Proportion of the years lived in current place to age (obs)	pexposed (created)	values between 0 and 1
Perception (ltnt[10])		
Knowledge of ovulatory cycle (obs)	knowovu (recoded)	(0) does not know about ovulatory cycle (1) knows about ovulatory cycle
knowledge about ways to avoid aids (obs)	waysavo (created)	values between 0 and 1
knowledge about aids transmission ways (obs)	aidstrans1 (created)	values between 0 and 1
Daily-life (ltnt)		
Ever gone to the cinema (obs)	s768	(0) No/ (1) Yes
Ever gone to the theatre (obs)	s770	(0) No/ (1) Yes
Sports regularly (obs)	s772a	(0) No/ (1) Yes
Participates any societ/club (obs)	s772b	(0) No/ (1) Yes
Goes on holiday (obs)	s772c	(0) No/ (1) Yes
Goes outside for a meal (obs)	s772d	(0) No/ (1) Yes
Goes for a picnic (obs)	s772e	(0) No/ (1) Yes
Puts on make-up (obs)	s772f	(0) No/ (1) Yes
Wears a head scarf when going out (obs)	s772g	(0) No/ (1) Yes
Frequency of reading newspaper (obs)	v157h (recoded)	(0) less than once a week (1) more than once a week
Woman Status attitudes (ltnt)		
Wife beating justified (obs)	s766hnd (created)	(0) can not be justified (1) can be justified
Important decision are given by men (obs)	s767a	(0) No/ (1) Yes
Men are wiser (obs)	s767b	(0) No/ (1) Yes
Woman should not argue (obs)	s767c	(0) No/ (1) Yes
Male child should get education (obs)	s767d	(0) No/ (1) Yes
Family Planning atitudes (ltnt)		
Discuss family planning methods with someone (obs)	v630hnd (created)	(0) No/ (1) Yes
Appropriate to teach about FP at secondary school (obs)	s357a	(0) No/ (1) Yes
Appropriate to teach about FP at high school (obs)	s357b	(0) No/ (1) Yes
Allright for religion to use contraception (obs)	s368hnd (recoded)	(0) inappropriate/some methods are inappropriate (1)appropriate
Approves of induced abortion (obs)	s372hnd (recoded)	(0) approves/depends (1) does not approve
Would consider induced abortion (obs)	s373	(0) No/ (1) Yes

[9] Variables that directly exist in data set.
[10] Latent variable that can not be directly observed in data set. See chapter 3 section 3.1

3.2 Descriptive Analysis and Calculation of Total Fertility Rates (TFR):

Descriptive analysis aims to represent basic social and demographic characteristics of ever-married women aged 15-49 living in metropolitan areas of Turkey. Chapter IV presents age distribution, educational attainment, ethnicity (mother tongue, mothers' and fathers' mother tongues), employment status, and marital status of ever-married women aged 15-49 in five metropolitan areas in comparison to rural areas of Turkey.

Moreover, because it is expected that fertility levels in metropolitan areas of Turkey display differences between rural and urban areas as well as reflect the countrywide disparities, age-specific fertility rates (ASFR) and total fertility rates (TFR) have been calculated for five metropolitan areas, urban and rural areas and Turkey in order to make a whole comparison.

Age-specific fertility rates are useful in understanding the age pattern of fertility. Numerators of age-specific fertility rates are calculated by identifying live births that occurred in 1 to 36 months preceding the survey (determined from the date of interview and date of birth of the child), and then five-year age groups of the mother at the time of child's birth are classified. The denominators of these rates are the number of women-years lived in each of the specified five-year groups during 1-36 months preceding the survey. Although information on fertility can be obtained only for ever-married women, the age specific rates are presented for all women regardless of marital status. Data from the household questionnaire on the age structure of the population of never-married women have been used to calculate the all-women rates. This procedure assumes that women who have never been married have had no children (HUIPS, 2004).

Because information on fertility was obtained only for ever-married women, the age specific fertility rates are presented for all women regardless of marital status. Data from the household questionnaire on the age structure of the population of never-married women were used to calculate all women factors. This procedure

assumes that women who never been married have no children. Simply those factors are obtained by dividing all women in each single years of age to ever-married women in order to calculate to how many women does one ever-married women refers to. All women factors for rural areas have already been calculated by HUIPS (2004) and exist in data set. However, for metropolitan areas, all woman factors are calculated in this thesis.

Total fertility rate is a measure for examining the overall level of current fertility. TFR is a construct of the age-specific rates computed by summing the age specific rates and multiplying by five. It can be interpreted as the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the current observed age specific rates (HUIPS, 2004).

In addition to basic social-demographic characteristic of women and fertility levels, chapter IV also displays attitudes of ever-married women aged 15-49 living in metropolitan areas of Turkey, towards wife beating, gender differences and family planning methods. Daily-life activities of those women are also presented in that section.

As previously mentioned, aim of this thesis is exploring if there is a relationship between perception, attitudes and fertility behaviours of ever-married women living in metropolitan areas. Although descriptive analysis provide comparison for basic social, demographic economical characteristics of women living in metropolitan areas and those in rural areas, and present differentiation in their attitudes towards domestic violence, gender related issues and daily-life styles; they are not suitable for exploring casual and direct-indirect relations between variables. Consequently, multivariate statistical analyses are performed by using structural equational modelling (SEM) technique that is described in 3.3.

3.3 Structural Equation Modelling (SEM):

Structural Equation Modelling (SEM) techniques are considered today to be a major component of applied multivariate statistical analyses and are used by biologists, economists, educational researchers, marketing researchers, medical researchers, and a variety of other social and behavioural scientists (Hersberg et al. 2003). In its broadest sense, SEM models represent translations of a series of cause-effect relationship (casual relations) between variables into a composite hypothesis concerning patterns of statistical dependencies (Shipley, 2000). The relationships are described by parameters. These parameters indicate the magnitude of the effect (direct or indirect) that independent variables have on dependent variables. By enabling the translation of hypothesized relationships into testable mathematical models, SEM offers a comprehensive method for the quantification and testing of theoretical model (Hersberg et al. 2003).

3.3.1 SEM, PATH Analysis and Basic Concepts:

The definition of SEM model begins with a simple statement of the verbal theory that makes explicit the hypothesized relationships among a set of studied variables (Marcoulides, 1998). Typically, researchers communicate a SEM model by drawing a picture of it (Marcoulides & Hershberger, 1997). These pictures, called as path diagrams, simple graphical forms of mathematical representations of the proposed theoretical model (Hersberg, et al 2003).

SEM deals with measured variables and latent variables. A measured variable is a variable that can be observed directly and is measurable. Measured variables are also known as observed variables, indicators or manifest variables. An observed variable can be considered as a factor in classical factor analysis. In SEM measured variables are indicated by rectangles or squares. Measured variables in SEM may mostly be continuous. Categorical variables may also be used; however, dichotomous ones are preferred in SEM analysis, while nominal variables are not

suitable for SEM analysis. This limitation comes from the AMOS software itself that assesses categorical data as continuous data.

Latent variable is the unobserved variable whose existence is theoretically assumed. It is also assumed that latent variables are measured by their respective indicators which are observed variables. Because they are completely theoretical, latent variables have no measurement unit. That is why; each latent variable is fixed to an observed variable that is considered as the best representative of the related latent variable (Byrne, 1998; Jöreskog & Sörbom, 1993 ; Kline, 2005). This variable is called as reference variable. Latent variables in SEM are indicated by ellipses or circles.

Latent variables include independent, mediating, and dependent variables. "Exogenous" variables are independents with no prior causal variable. Exogenous constructs are sometimes denoted by the Greek letter Ksi (ξ). Relations between exogenous variables are denoted by Phi (Ø). Paths between exogenous variables and observed variables can be named as Lambada-x (λx). Endogenous variables are mediating variables (variables which are both effects of other exogenous or mediating variables, and are causes of other mediating and dependent variables), and pure dependent variables. Endogenous constructs are sometimes denoted by the Greek letter eta (η).Variables in a model may be upstream or downstream depending on whether they are being considered as causes or effects respectively. The representation of latent variables based on their relation to observed indicator variables is one of the defining characteristics of SEM. An important point in here is, each latent variable's one of the paths to its observed variables needed to be fixed to "1". This means, the observed variable goes up by "1"unit, the latent that it represents goes up by "1" unit either. However, which path will be fixed to "1" is up to theoretical framework of the researcher (Şimşek, 2007).

Basically, SEM is a combination of multiple regression and factor analysis. Therefore, Structural Equation Models contain two parts: The measurement model

and structural model. The measurement model deals with the relationships between measured variables and latent variables, its aim is to validate measurement model primarily through confirmatory factor analysis.

The main difference between classical factor analysis and the one in SEM is that, measured variables that will be subject to latent variable should be defined at first. In fact, this reflects the model itself envisaged according to this definition and factor loadings of each measured variable are calculated according to this definition (Şimşek, 2007). As it has been mentioned above, measured variables are indicated by rectangles or squares and latent variables are indicated by ellipses or circles. The relationship between various observed and/or latent variables are represented by one-way arrows in the path diagram. The variable at the end of an arrow is assumed to be affected by the variable at the beginning of the path diagram. These arrows can be considered as factor loadings in classical factor analysis (Şimşek, 2007).

In this part of the SEM, it is generally recommended to use multiple factors (preferably more than two) for each latent variable for avoiding under identification and/or failed convergence and unreliable error estimates.

Error terms in measurement model reflect the unexplained variance in the latent endogenous variable(s) due to all unmeasured causes. It is generally represented by “e” in SEM diagram. One of the advantages of SEM is that latent variables are free from random error; this is because error has been estimated and removed leaving only a common variance.

Two-headed curved arrows –unlike one headed ones- do not represent a casual relationship. They are representative of a covariance or association between connected variables; they are not directional in nature, but are represented as correlation. These coefficients or parameters can be “free”, i.e., to be estimated from the collected data, or can be “fixed”, i.e., set to some selected constant value or “constrained”, i.e., set equal to one or more other parameters (Hersberg et. al. 2003).

The data for a SEM are the sample variances and co variances taken from a population (the observed sample variance and covariance matrix).

The structural model is the set of exogenous and endogenous variables in the model, together with the direct effects (straight arrows) connecting them, any correlations among the exogenous variable or indicators, and the disturbance terms for these variables (reflecting the effects of unmeasured variables not in the model). Sometimes the arrows from exogenous latent constructs to endogenous ones are denoted by the Greek character gamma (γ), and the arrows connecting one endogenous variable to another are denoted by the Greek letter beta (β).

Path Analysis can be considered as a subset of SEM. It is used for examining causal relationships between two or more variables. It is based upon a linear equation system and was first developed by Sewall Wright in the 1930s to use in phylogenetic studies. Path Analysis was adopted by the social sciences in the 1960s. In social and behavioural sciences, path analysis is mainly used as an attempt to understand comparative strengths of direct and indirect relationships among a set of variables. In this way, path analysis is unique from other linear equation models: In path analysis mediated pathways, those acting through a mediating variable, i.e., "Y," in the pathway X → Y →Z, can be examined. Pathways in path models hypothesis of researchers, and can never be statistically tested for directionality.

3.3.2 Construction of A Structural Equation Model:

The goal in building a path diagram or other structural equation model is to find a model that fits the data well enough to serve as a useful representation of reality and a parsimonious explanation of the data.

There are five steps involved in SEM construction; Model specification, model identification, model estimation, testing model fit and model manipulation.

Model Specification is the step in which parameters are determined to be fixed or free. Fixed parameters are not estimated from the data and are typically fixed at zero (indicating no relationship between variables). The paths of fixed parameters are labelled numerically (unless assigned a value of zero, in which case no path is drawn) in a SEM diagram. Free parameters are estimated from the observed data and are believed by the investigator to be non-zero. Determining which parameters are fixed and which are free in a SEM is important because it determines which parameters will be used to compare the hypothesized diagram with the sample population variance and covariance matrix in testing the fit of the model. The choice of which parameters are free and which are fixed in a model is up to the researcher. This choice represents the researcher's a priori hypothesis about which pathways in a system are important in the generation of the observed system's relational structure.

Model Identification concerns whether a unique value for each and every free parameter can be obtained from the observed data. It depends on the model choice and the specification of fixed, constrained and free parameters. A parameter is constrained when it is set equal to another parameter. Models need to be over identified in order to be estimated and in order to test hypotheses about relationships among variables[11]. A necessary condition for over identification is that the number of variances and covariances less than the number of observed variables in the model.

The estimation procedures[12] derive from the relation of the covariance matrix of the observed variables to the structural parameters with the assumption of; Σ is equal $\Sigma(\theta)$ if the structural equation model is correct and parameters are known. But in practice we do not know either the population covariances and the variances or the parameters. Therefore, the task is to form sample estimates of the unknown parameters based on sample estimates of the covariance matrix.

[11] See Ullman, 1996 for a more detailed explanation of the levels of model identification.
[12] This part has based on Bollen, A. Kenneth; *Structural Equations with latent variables*, p 104-108, 1989.

For instance, if the simple structural equation $y_1 = x_1 + \xi_1$ has been considered, the population covariance matrix for y_1 and x_1 is

$$\Sigma = \begin{bmatrix} VAR(y_1) & COV(y_1, x_1) \\ COV(x_1, y_1) & VAR(x_1) \end{bmatrix}$$

The Σ matrix in terms of the structural parameters is

$$\Sigma(\theta) = \begin{bmatrix} \phi_{11} + \psi_{11} & \phi_{11} \\ \phi_{11} & \phi_{11} \end{bmatrix}$$

The sample covariance matrix, S, for y_1 and x_1 is

$$S = \begin{bmatrix} \text{var}(y_1) & \text{cov}(y_1, x_1) \\ \text{cov}(x_1, y_1) & \text{var}(x_1) \end{bmatrix}$$

Once we select the values for ϕ_{11} and ψ_{11}, the implied covariance matrix, $\hat{\Sigma}$, can be formed by substituting $\hat{\phi}_{11}$ and $\hat{\psi}_{11}$ into:

$$\hat{\Sigma} = \begin{bmatrix} \hat{\phi}_{11} + \hat{\psi}_{11} & \hat{\phi}_{11} \\ \hat{\phi}_{11} & \hat{\phi}_{11} \end{bmatrix}$$

The residual matrix ($S-\hat{\Sigma}$) indicates how "close" $\hat{\Sigma}$ is to S. To know when our estimates are as "close" as possible, the "close" must have been defined, that is required a function that must have minimized. Many different fitting functions for the task are possible. According to Browne (1984, 66) if the fitting function that following four properties; (1) $F(S, \Sigma(\theta))$ is scalar, (2) $F(S, \Sigma(\theta)) \geq 0$, (3) $F(S, \Sigma(\theta)) = 0$ if and only if $\Sigma(\theta) = S$, and (4) $F(S, \Sigma(\theta))$ is continuous in S and $\Sigma(\theta)$, than it lead to consistent estimators of θ. There are three most common functions as Bollen

presents (1989, p.106); maximum likelihood (ML), unweighted least squares (ULS), and generalized least squares (GLS). Generally one of these functions is offered by the SEM software (LISREL, AMOS and EQS).

In this thesis, as regards SEM analysis, maximum likelihood estimation has been used which is offered by AMOS 6.0. It is the most widely used fitting function for general structural equation models.

The fitting function that is minimized is :

$$F_{ML} = \log|\Sigma(\theta)| + \mathrm{tr}(S\Sigma^{-1}(\theta)) - \log|S| - (p+q)$$

Generally it has been assumed that $\Sigma(\theta)$ and S are positive-definite which means that they are non-singular. Otherwise, it would be possible for the undefined log of zero to appear in F_{ML}. Therefore a perfect fit of a model is indicated by a zero.

When returned to the structural equation, $y_1 = x_1 + \xi_1$, after substituting $\hat{\Sigma}$ for $\Sigma(\theta)$, F_{ML} is:

$$F_{ML} = \log\left(\hat{\psi}_{11}\hat{\phi}_{11}\right) + \hat{\psi}_{11}^{-1}\left(\mathrm{var}(y_1) - 2\,\mathrm{cov}(y_1,x_1) + \mathrm{var}(x_1)\right) + \hat{\phi}_{11}^{-1}\,\mathrm{var}(x_1) - \log\left[\,\mathrm{var}(y_1)\,\mathrm{var}(x_1) - (\mathrm{cov}(y_1,x_1))^2\,\right] - 2$$

For the minimization of F_{ML}, $\hat{\phi}_{11}$ and $\hat{\psi}_{11}$ be chosen so that the partial derivates of F_{ML} with respect to $\hat{\phi}_{11}$ and $\hat{\psi}_{11}$ are zero. Setting partial derivates to zero and solving for $\hat{\phi}_{11}$ and $\hat{\psi}_{11}$ lead to

$$\hat{\phi}_{11} = \mathrm{var}(x_1)$$

$$\hat{\psi}_{11} = \mathrm{var}(y_1) - 2\mathrm{cov}(y_1,x_1) + \mathrm{var}(x_1)$$

A sufficient condition for these values to minimize F_{ML} is that the matrix formed by taking the second partial derivates of the fitting function with respect to $\hat{\phi}_{11}$ and $\hat{\psi}_{11}$ be positive-definite. This matrix is:

$$\begin{bmatrix} -\hat{\phi}_{11}^{-2} + 2\hat{\phi}_{11}^{-3}\,\mathrm{var}(x_1) & 0 \\ 0 & -\hat{\psi}_{11}^{-2} + 2\hat{\psi}_{11}^{-3}(\mathrm{var}(y) - 2\,\mathrm{cov}(y_1, x_1) + \mathrm{var}(x_1)) \end{bmatrix}$$

For Assessing Fit of the Model, a fitting function value of close to 0 is desired for good model fit. However, in general, if the ratio between chi-square and degrees of freedom is less than two, the model is a good fit (Ullman 1996). If this value is less than five, model is expectable (Şimşek, 2007). Additionally, there are various goodness of fit indexes had been produced. Some of them are; Goodness of Fit Index (GIF), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI) and Root Mean Square Approximation (RMSEA). LISREL prints 15 and AMOS prints 25 different goodness of fit measures, the choice of which is a matter of dispute among methodologists. Hoyle (1995) recommends working with data that has sample size between 100 and 200 in order to have confidence in the goodness of fit test.

In Model Modification step; if the covariance/variance matrix estimated by the model does not adequately reproduce the sample covariance/variance matrix, hypotheses can be adjusted and the model retested. To adjust a model, new pathways are added or original ones are removed. In other words, parameters are changed from fixed to free or vice versa.

The common procedure used for model modification is to look modification index (MI) which is also known as, Lagrange Multiplier Index (LM), because MI is a univariate form of LM. MI is often used to alter models to achieve better fit, but this must be done carefully and with theoretical justification. That is, blind use of MI runs the risk of chance and model adjustment which makes no substantive sense (Silvia and MacCallum, 1998). In MI, improvement of fit is measured by a reduction in chi-square. MI output in AMOS requires a data set with no missing values. For

SEM analysis of this thesis Analysis of Moment Structure (AMOS) 6.0 has been used as a software program.

3.3.3 Multi-group analysis [13]:

The main purpose of a multi-group analysis is to find out the extent to which groups differ. To determine if the same SEM model is applicable across groups (ex., for men as well as women; for women living in metropolitan areas, women living in rural areas etc.), the general procedure is to test for measurement invariance between the unconstrained models for all groups combined, then for a model where certain parameters are constrained to be equal between the groups. If the chi-square difference statistic does not reveal a significant difference between the original and the constrained-equal models, then the researcher concludes that the model has measurement invariance across groups (that is, the model applies across groups).

Measurement invariance may be defined with varying degrees of stringency, depending on which parameters are constrained to be equal. One may test for invariance on number of factors; for invariant factor loadings; and for invariant structural relations (arrows) among the latent variables. While possible also to test for equality of error variances and covariances across groups, "the testing of equality constraints bearing on error variances and covariances is now considered to be excessively stringent..." (Byrne, 2001).

It is common to define measurement invariance as being when the factor loadings of indicator variables on their respective latent factors do not differ significantly across groups. If lack of measurement invariance is found, this means that the meaning of the latent construct is shifting across groups or over time.

[13] http://www2.chass.ncsu.edu/garson/pa765/structur.htm#mean 29/02/2007 09:53

3.3.4 Limitations and Advantages of SEM:

Limitations and advantages of Structural Equation Modelling may summarize as below:

SEM cannot test directionality in relationships. The directions of arrows in a structural equation model represent the researcher's hypotheses of causality within a system. The researcher's choice of variables and pathways represented will limit the structural equation model's ability to recreate the sample covariance and variance patterns that have been observed in nature. Despite of the fact that there may be several models that fit the data equally well, the SEM approach remains useful in understanding relational data in multivariate systems.

In addition to limitations of SEM there are also several limitations of its software programs. In this thesis Analysis of Moment Structure (AMOS), which is an SPSS based program has been used. Although, AMOS is easy to use and powerful Structural Equation Modelling software, it is not suitable for complex design surveys like TDHS-2003, which is a weighted, multistage, stratified cluster sampling survey. However, this is an unavoidable problem in both AMOS and SPSS until software has been developed to overcome this issue.

Moreover, AMOS cannot work with weighted data. It ignores the weighted cases in the file and gives a weight of "1" to each of them. Consequently, this affects the results of analysis. For handling this, a new data set has to be created, which composes of correlation or covariance matrix of necessary variables extracted from the existing weighted data.

The abilities of SEM are; distinguishing direct and indirect relationships between variables; analyzing relationships between latent variables without random error and enabling to explore casual relations, and finally to determine if a model is applicable within different groups. These utilities differentiate SEM from other simpler, relational modelling processes.

3.4 Model and Variables:

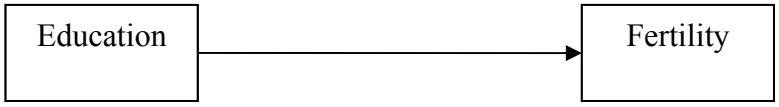
Ever-married women aged 15-49 living in five metropolitan areas of Turkey, have been used together in SEM analysis. Analyzing metropolitan areas separately cannot be possible for SEM analysis due to the utilization of sub-sample[14] which in turn results in insufficient case numbers for SEM.

3.4.1 Theoretical approach:

The model that has been created in this thesis focuses on individual's decision making process. Leaving physiological and biological factors (such as infertility) aside, a couple in reproductive ages has two options: to give a birth or not. It is known that fertility of women is directly linked with various determinants such as age, education, ethnicity etc.

What is new in this thesis is its focus on the process between determinant and fertility. For example; female education has become an essential component of fertility analysis and it has been widely used and its significant impact on fertility is supported by various studies. However, we do not know the mechanisms of how education affects women's fertility behaviours. This gap is the main motive for the formation of a model that focuses on fertility decision processes of ever-married women aged 15-49 living in metropolitan areas.

Figure 3.4.1.1. Illustration about fertility analysis I



[14] In TDHS-2003, "Fertility Preferences" and "Sexually transmitted diseases and AIDS" modules were applied to the sub-sample in order to save time and reduce the cost of the survey. Criterion for selection to the sub-sample is cluster and household number. A respondent can only be selected for the sub-sample if her cluster number and household number are even or her both cluster and household numbers are odd.

Figure 3.4.1.1 illustrates an example that uses “education”, which is an essential component of fertility analysis, for explaining the formation of the suggested model. Figure shows that education is considered as an independent variable that directly affects fertility.

Individual’s decision process, as a main focus of the model, is theoretically schematized in Figure 3.4.1.2. Model assumes a relation among perception, attitude and behaviour of a woman. Perception dimension can be analyzed in three aspects which are; perception of self, perception of others, and perception of related behaviour. Attitudes toward behaviour, which are formerly affected by the perception of a woman, affect her behaviour. It is this process that explains the unexplained link between education and fertility in Figure 3.4.1.1.

Figure 3.4.1.2 Illustration about fertility analysis II

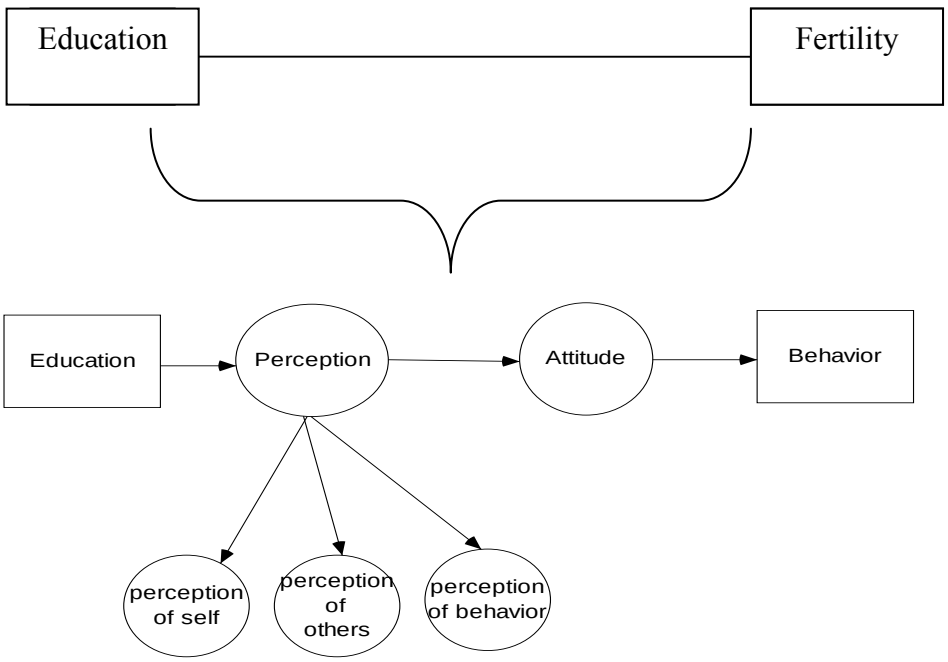
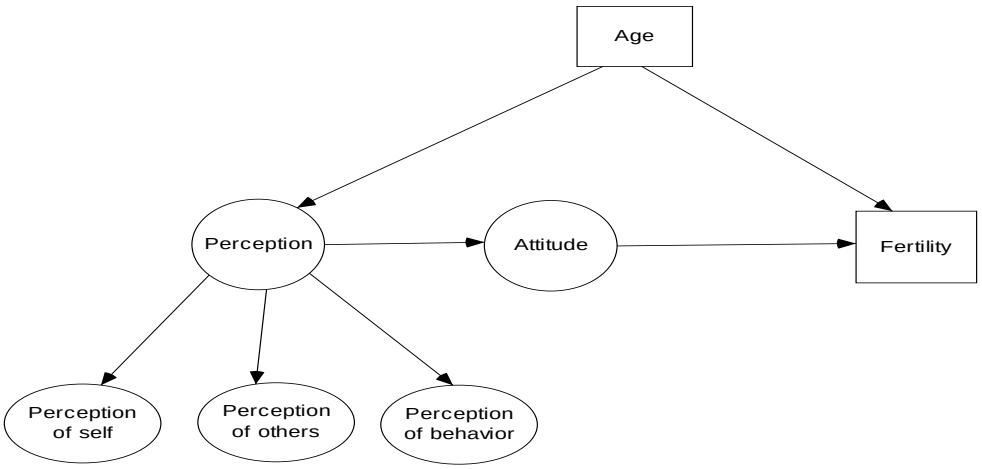


Figure 3.4.1.3 Controlling the effect of "Age"



However, an important factor of a fertility analysis, "The age of woman", has an impact on fertility a woman. Consequently effect of woman's age on her fertility has been controlled during the analysis by assuming an effect from "age" through "fertility" as shown in Figure 3.4.1.3.

In addition to age, "educational attainment of woman" is also included to the model as an independent variable. Educational attainment is included because it is believed that schooling increases reliance of scientific explanations to make sense of the world, inspires wider perspectives, and provides greater awareness of alternative lifestyles. The, secular scientific knowledge acquired in the classroom is not only valuable as an intellectual asset but is also instrumental in women's daily lives. It is illusory for instance, to think that women can gain control over their fertility without learning first about their bodies in relation to sex, reproduction and health (Martin & Jaurez, 1994).

Undoubtedly, being a social creature, a woman cannot be isolated from the social environment that she is living in. She interacts with other people, consequently, she affects others' decision processes and also affected by them. It is assumed by this thesis that the effect of social environment reaches out to women as visual, verbal or written messages whose contents are determined by social

dynamics, norms and informal relations of the current social environment that surrounds her. Thus, the hypothesis of the model is, "social environment that a woman in has an indirect affect on her fertility behaviour". The effect is described as "indirect" because it is assumed that the impact on behaviours occurs through her cognitive decision processes.

It is assumed that contents of visual, verbal or written messages in metropolitan areas are different from, non-metropolitan urban and rural areas. For this reason, another important factor that has to be controlled is the residence (metropolis/rural/non-metropolitan urban) for analyzing whether environment has an effect on its inhabitants behaviours. Consequently, units of analysis for the model have chosen from five metropolitan areas (Adana, Ankara, Bursa, İstanbul and İzmir). Exploring potential indirect effect of environment on women's decision process about fertility, ever-married women living metropolitan areas are used[15]. The reason for choosing women in metropolitan areas is the significantly different structure (being populous and dense, modes of production, access to education and health facilities, types economic activities, communication and transportation facilities, infrastructure, individualistic values, self-fulfilment etc.) of metropolitan areas. For exploring the difference, ever-married women living in rural areas are used for comparison. Rural areas are preferred instead of urban and non-metropolitan areas because rural areas display noticeably diverse characteristics in terms of mode of production (industrial – agricultural), social relations (primary relations-secondary relation), social norms and life-styles (individualistic- altruistic), and consequently fertility levels and trends (low fertility- high fertility) in contrast to metropolitan areas. Non-metropolitan areas are not preferred in order to have a composite comparison unit.

[15] A variable that presents women's exposure to metropolitan areas is created and its effect on women's perceptions has been controlled during the analysis. For isolating it from the age of a woman, years lived by a woman in metropolitan areas is divided by her age, consequently a standardized measure has been created.

It is also assumed that a woman's exposure to those messages correlated with her daily-life activities. In other words daily life style of a woman can give a hint about her attitudes. For instance, life style of a woman who goes to cinema frequently, goes outside for meal and/or participates the activities of any social groups is probably different from the one with no social activities and accordingly, such difference can give an opinion about her decision-making process for child bearing.

3.4.2 Model for TDHS-2003 Data:

Since TDHS-2003 mainly aims to collect descriptive data nationally and internationally important indicators, and does not aim examine the relation between women's perception, attitudes and behaviours or to explain effects of social environment on women's decision process, it does not fully satisfy theoretical needs of the current model. In addition to this, TDHS-2003 data is not very suitable for Structural Equation Modelling: As mentioned in 3.2.3; SEM mostly deals with continuous or dichotomous variables. However, TDHS-2003 data includes various categorical variables that have to be recoded in order to be used in SEM. Moreover, TDHS-2003 is a cross-sectional survey that aims to collect information about current status of women. However, the model in this thesis requires a longitudinal data because its focus is on decision "processes". Despite these limitations, it is believed that TDHS-2003 shall put out useful results.

The first element in the model, which is "perception", defined as; one's sensory experience of the world around him/her and involves both recognition of environmental stimuli and actions in response to this stimuli. Through the perceptual process, people gain information about properties and elements of the environment that are critical to their survival. Perception not only creates one's experience of the world around him/her, but also allows acting within environment (Morgan, 1984)

TDHS-2003 does not include information on women's perception about themselves, others or how women perceive fertility behaviour. Yet, there are

variables that present knowledge of women about sexually transmitted infection (STIs), ovulatory cycle and family planning methods. Those variables that are summarized in Table 3.1.2.1 have been used as proxies of women's perception about fertility behaviour. Knowledge about family planning methods have not been used in perception element because the frequency of women those know about family planning methods is 100%.

It has been assumed that the second element in the model, which is attitude, has been represented by three sub elements. These are women's attitudes towards issues about "women's status" and "family planning" and also daily life activities. As given in section 3.1, Table 3.1.3.1 lists the elements, sub-elements and their observed variables in the model. However, it is not asserted by the thesis that the variables are the only and absolute predictors for the elements, or the sub-element in the model.

As a result, the initial SEM model for metropolitan areas of Turkey has been modelled in this thesis as below:

Figure 3.4.2.1 Total model for ever-married women aged 15-49 living in metropolitan areas of Turkey, 2003[16]

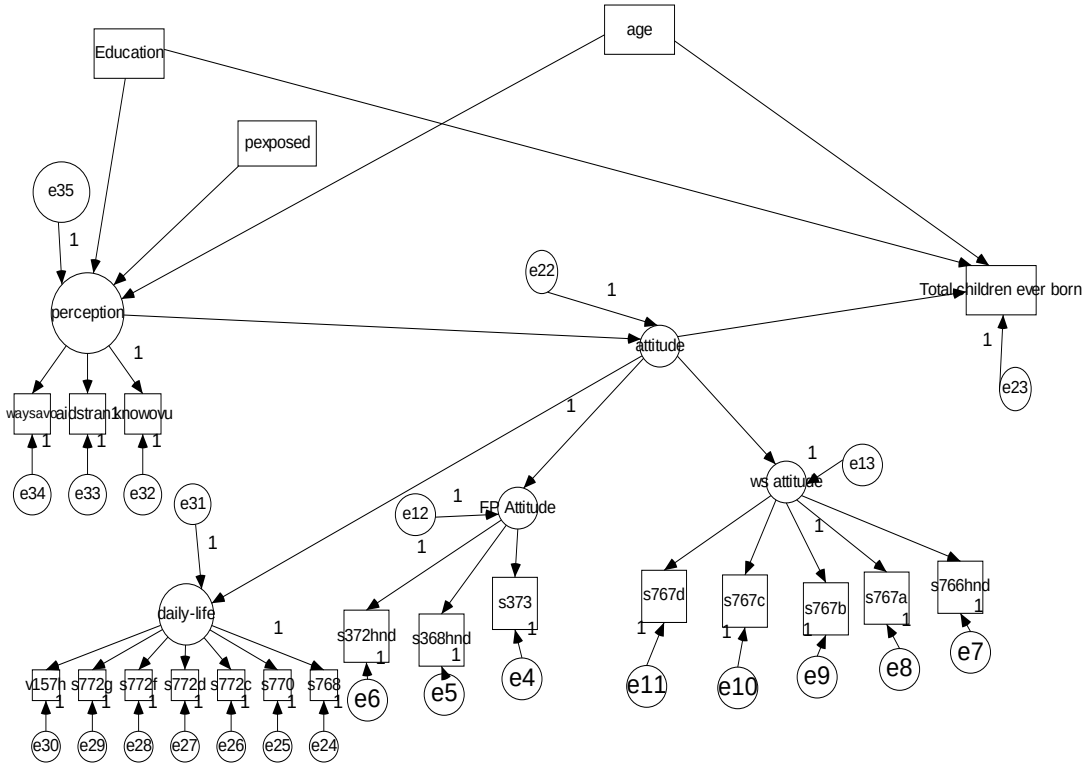


Figure 3.4.2.1 shows the total model that assumes a relation between perceptions, attitudes and fertility behaviour of women living in metropolitan areas of Turkey. Presented by circles, perception, attitude, daily-life, attitudes towards family planning methods and attitudes about women's status issues are unobserved (latent) variables. Attitude variable is predicted by ever-married women's (aged 15-49 and living in metropolitan areas) daily-life activities, their attitudes towards family planning methods and also towards gender related issues such as wife beating. It is assumed by the model that perceptions of ever-married women aged 15-49 living in metropolitan areas, which is predicted by their knowledge about sexually transmitted infections (STIs), AIDS and ovulatory cycle, affects those women's attitudes and their attitudes affects their fertility behaviours.

[16] See table 3.1.3.1 for variable labels.

Ever-married women's ages, educational attainments, and their exposure to metropolitan areas have been controlled during the analysis as shown in Figure 3.4.2.1. It is assumed that age has a direct effect on total children ever born and perception as well as education. It is also assumed that a women's exposure to metropolitan area affects her perception.

As mentioned before, circles presents unobserved (latent) variables while rectangles present observed ones. Straight arrows show hypothesized relationships between variables. Circles named with "e_x" refer to error terms whose variances are equalled to "1" in order to have constrains. To sum up, Figure 3.4.2.1 presents the whole model that is hypothesized by this thesis.

CHAPTER4. BASIC CHARACTERISTICS OF WOMEN IN METROPOLITAN AREAS AND LEVELS OF FERTILITY:

This chapter aims to present social and demographic differences between ever-married women aged between 15 and 49 living in five metropolitan areas and those living in rural areas of Turkey.

4.1 Basic Characteristics

Table 4.1.1 Percent distribution of ever-married women by age groups and place of settlement, Turkey 2003

Percentage distribution of ever-married women living in metropolitan areas and ever-married women living in rural areas by five years groups of age, Turkey 2003

Age	Percent	
	Five metropolitan areas	Rural areas
15-19	2,5	2,7
20-24	11,0	13,9
25-29	19,8	14,7
30-34	19,1	17,2
35-39	17,4	20,5
40-44	16,7	16,0
45-49	13,4	14,9
Total	100,0	100,0
Number of women	2326	1408

Table 4.1.1 presents percent distribution of ever-married women living in metropolitan areas and those living in rural areas with respect to five year age groups. It may be observed from the table that, age groups 25-29 and 30-34 have the highest percents for ever-married women in metropolitan areas while these age groups are 30-34 and 35-39 for rural areas. However, it is possible to conclude ever-married women living in metropolitan and those living in rural areas do not display a significant difference in terms of their age distributions.

Table 4.1.2 Percent of metropolitan native and rural native women aged 15-49 by the place of settlement

Percent distribution of ever-married women aged 15-49 in five metropolitan and rural areas by their previous residences, Turkey 2003.

	Five metropolitan areas	**Rural areas**
Native metropolitan/Native rural	21,6	47,4
Other mobility	78,4	52,6
Total	100,0	100,0
Number of women	2326	1402

Table 4.1.2 percent of metropolitan native and rural native ever-married women between ages 15 and 49. It is seen from the table that percent of ever-married women aged 15-49 who always lived in rural areas is higher than those lived in metropolitan areas. Metropolitan areas have the highest proportion of migrants from rural areas. Consequently, it can be concluded from the table 4.1.2 that metropolitan areas give and/or receive more migrant in contrast rural areas.

Table 4.1.3 Previous region of residence of ever-married women aged 15-49 in metropolitan areas and rural areas, Turkey 2003

Percent distribution of ever-married women aged 15-49 in five metropolitan, and in rural areas by their previous region of residences, Turkey 2003.

Region	**Five metropolitan areas**	**Rural areas**
Native	21,6	47,4
West	20,8	21,2
South	4,5	10,8
Central	22,6	15,8
North	14,4	2,3
East	16,2	2,5
Total	100	100,0
Number of women	2326	1402

Table 4.1.3 presents the origin region of ever-married women that are migrated to metropolitan or rural areas. It is also shown by the table 4.1.3 that proportion of native women in rural areas is higher than metropolitan areas. 21,2 percent of ever-married women living in rural areas are migrated from the West; 15,8 percent of women are from the Central, and 10,8 of ever-married women living in

rural areas are migrated from the South region of Turkey. North and East regions have the lowest migrant shares. However, among ever-married women living in metropolitan areas, North and East regions have relatively higher shares.

Table 4.1.4 Ethnicity of ever-married women aged 15-49 in metropolitan areas

Percent distribution of ever-married women aged 15-49 in five metropolitan area and rural areas by their mother tongue, mother's mother tongue and father's mother tongue, Turkey 2003.

	Five metropolitan areas				Rural areas			
	Turkish	Kurdish	Other	Number of women	Turkish	Kurdish	Other	Number of women
Mother tongue	89,7	8,4	1,9	2326	91,4	6,1	8,6	1043
Mother's mother tongue	86,7	10,5	2,8	2324	88,6	8,5	11,4	1043
Father's mother tongue	86,9	10,4	2,8	2324	89,0	8,1	2,9	1042

Table 4.1.4 represent ethnicity of ever-married women in reproductive ages (15-49). Although Turkish is the most common language among ever-married women aged 15-49 living in metropolitan areas and those living in rural areas, it is observed that the shares of women whose mother tongues are Kurdish is considerably high among ever-married women living in metropolitan areas and those living in rural areas. In addition to that, ever-married women living in rural areas and whose mother tongues are different than Turkish and Kurdish is almost 9,0 percent. This result may refer to relative heterogeneity of ever-married women living in metropolitan areas.

Mother's and father's mother tongues also fallow same patterns with mother tongues of ever married women living in metropolitan areas and those in rural areas. Yet it is significant that percentages of women whose mother's and father's mother tongues are different than Turkish is higher. This may be explained with the new generations' adoption of the language that has been used in their places residence.

Table 4.1.5 Educational attainment

Percent distribution of ever-married women aged 15-49 in five metropolitan areas and rural areas by educational attainment, Turkey 2003

	Five metropolitan areas	Rural areas
No education	9,1	11,4
Incomplete primary	4,9	6,7
Complete primary	49,6	69,6
Incomplete secondary	12,5	6,6
Complete secondary	13,2	4,2
Higher	10,7	1,5
Total	100,0	100,0
Number of women	2326	1408

It is observed from the Table 4.1.5 that educational attainments of ever-married women living in metropolitan areas are higher than those living in rural areas. 10,7 percent of women living in metropolitan areas have stated that they educational attainment are higher than secondary school level. However this percent goes down to 1,5 percent among women living in rural areas. Moreover percentage of women who have no education is lower in metropolitan areas in contrast to rural areas. Additionally, table 4.1.5 reveals that proportion of women who have completed only primary school is lower in metropolitan areas. To sum up, it can be concluded that ever-married women aged 15-49 living in metropolitan areas have the higher educational attainment levels relative to these living in rural areas.

Table 4.1.6 Literacy status of ever-married women's parents

Percent distribution of literacy status of mothers and fathers of ever-married women aged 15-49 in five metropolitan areas and rural areas Turkey 2003

	Five metropolitan areas	Rural areas
Mother literate		
Yes	46,1	38,9
No	53,7	60,8
Don't know	0,2	0,2
Total	100,0	100,0
Number of women	2317	1401
Father literate		
Yes	82,5	78,1
No	17,0	21,6
Don't know	0,5	0,3
Total	100,0	100,0
Number of women	2321	1408

Looking at literacy status of mothers and fathers of ever-married women aged 15-49 living in metropolitan areas and those living in rural areas; it is observed from the Figure 4.1.6 that proportion of literate mothers and fathers are higher among women living in metropolitan areas. However there is a significant gap between literacy status of mothers and fathers both in metropolitan and rural areas. This gap is possibly caused of lower educational attainment of female children that refers to the gender inequality among men and women in Turkish society.

Table 4.1.7 Current employment status of ever-married women

Percent distribution of ever-married women aged 15-49 in five metropolitan and rural areas by their current working status, Turkey 2003

	Five metropolitan areas	**Rural areas**
Not employed	67,2	37,7
Not employed in 12 months preceding the survey	9,8	22,6
Currently employed	23,0	39,8
Total	100,0	100,0
Number of women	2326	1408

Table 4.1.7, which presents working status of ever married-women age 15-49 living in metropolitan areas and those in rural areas of Turkey shows that share of currently working women, is lower in metropolitan areas. This is a fairly unexpected result. However, table 4.1.8 gives a clue for the reason of this situation: Shares of seasonal workers are higher among women living in rural areas which can be explained with women working in agriculture as unpaid family workers. Besides, as shown in table 4.1.8, percent of women living in metropolitan areas and working all year is considerably high than those in rural areas.

Table 4.1.8 Type of occupation

Percent distribution of ever-married women aged 15-49 in five metropolitan and rural areas by their occupation type, Turkey 2003

	Five metropolitan areas	**Rural areas**
All year	70,1	39,1
Seasonal	10,3	51,9
Occasional	19,6	9,0
Total	100,0	100,0
Number of women	763	876

Table 4.1.9 Current marital status

Percent distribution of ever-married women aged 15-49 in five metropolitan areas and rural areas by their current marital status, Turkey 2003

	Five metropolitan areas	**Rural areas**
Married	95,4	96,0
Widowed	1,7	2,1
Divorced	1,9	1,1
Not living together	1,0	0,8
Total	100,0	100,0
number of women	2326	1408

Looking at current marital status of ever-married metropolitan women in reproductive ages, table 4.1.9 reveals that percentages of women who are currently divorced are low among women living in metropolitan areas and those in rural areas. It is observed from the table almost all ever married women living in metropolitan areas and in rural areas are currently married. Therefore ever-married women living in metropolitan areas and those in rural areas do not display a significant difference in terms of their current marital status.

4.2 Fertility levels & trends:

As mentioned in chapter one, main reason for choosing ever-married women aged 15-49 living in metropolitan areas as unit of analysis is their experiences about low fertility levels. Fertility levels of these areas in contrast to rural areas and overall Turkey are presented in this chapter as total fertility rates and age specific fertility rates. Three year-periods was chosen for calculating these estimates (rather than longer or shorter periods) in order to get current information and to provide comparability with TDHS-2003 report by HUIPS, 2004.

Table 4.2.1 Total Fertility Rates

Total fertility rates in three –year periods preceding the survey of ever-married women in five metropolitan, four metropolitan, İstanbul metropolitan area, urban and rural areas and Turkey, Turkey 2003

	Number of years preceding the survey[17]		
	1994-1997	**1997-2000**	**2000-2003**
Five metropolitan areas	2,4	2,1	1,8
Rural	3,6	3,2	2,7
Turkey	3,0	2,6	2,2

Table 4.2.1 presents total fertility rates in five metropolitan areas, rural areas and in overall Turkey between 1994-1997, 1997-2000 and 2000-2003 periods. Table 4.2.1 and Figure 4.2.1 confirm that fertility has fallen substantially among all parts of the Turkey. Although five metropolitan, rural, urban areas and overall Turkey are displaying a persistent fertility decline from 1994 to 2003, in all three time periods, five metropolitan areas have the lowest fertility levels which are 2,4; 2 and 1,7 births per women. In the 1997-2000 period, metropolises are the only areas which below the replacement level[18] .

[17] Fertility trends in 4.2.1 investigated using retrospective data from the birth histories collected from the respondents in TDHS-2003.
[18] 2,1 births per woman.

Figure 4.2.1 Total Fertility Rates during last 9 years

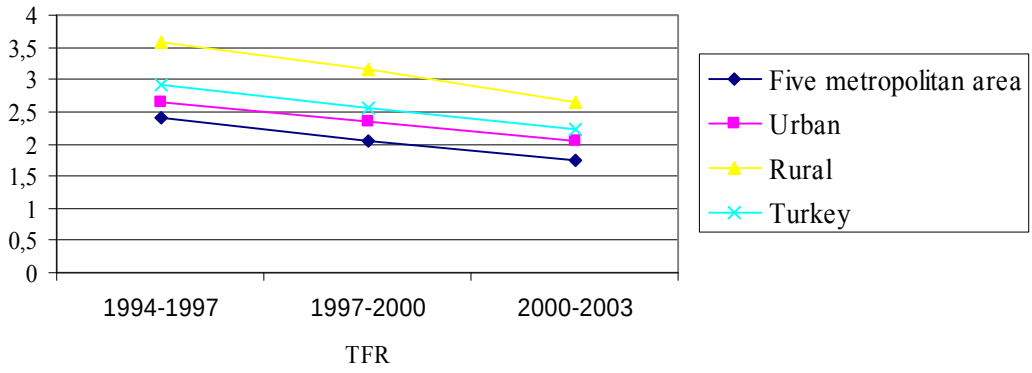


Figure 4.2.2 Age specific fertility rates, TDHS 2003

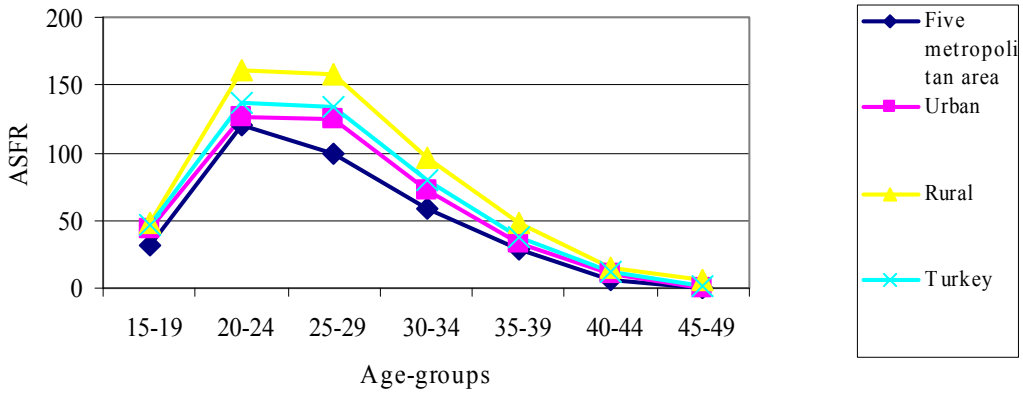


Figure4.2.2 presents the age specific fertility rates in five metropolitan, urban, rural areas and overall Turkey. Each line displays ASFR trends of those areas. It has observed from the Figure 4.2.2 that until the age group 25-29, ASFR trends in all areas have followed same pattern. However, in age group 20-25, the most rapid relative decline has occurred in metropolitan areas. Especially, metropolitan areas has displayed the most rapid, and significant decline after age group 20-24.

Figure 4.2.3 Age-specific fertility rates between 1988-2003, Turkey 2003

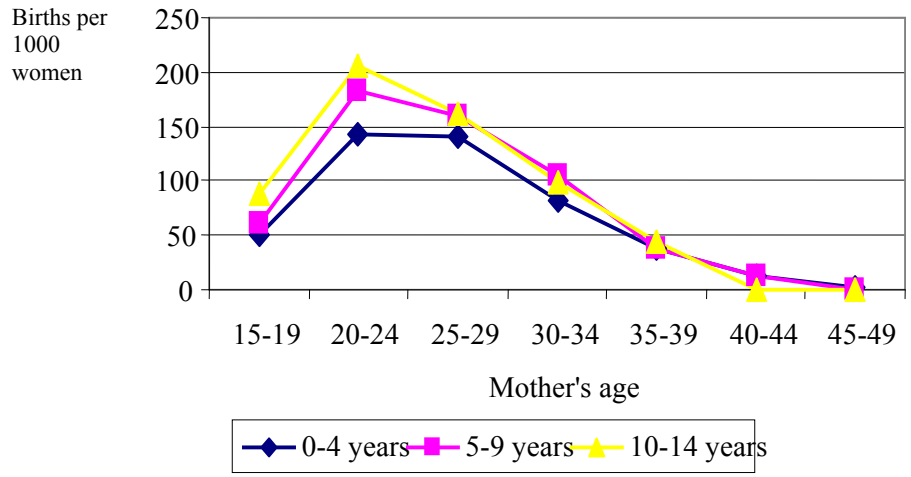


Figure 4.2.3 shows age-specific fertility rates in Turkey between the years of 1988 and 2003. It has observed that; women aged 25-29 in metropolitan areas in Turkey is following a similar pattern that women aged 25-29 in overall Turkey during the 1985-1989 periods had experienced. Turkey had experienced a shift from 3.0 births per woman between the years 1984 and 1989 to 2.1 births per woman in the five year period preceding the survey (HUIPS, 2004). It may be said that couples in metropolitan areas of Turkey probably prefer to have one child instead of having two children. However, further studies must be done in order to explore the reasons of these patterns.

4.3 Family planning methods, sexually transmitted infections, women's status and daily-life activities:

Table 4.3.1 Pattern of method use

Percent distribution of ever-married women aged 15-49 in five metropolitan and rural areas by their contraceptive use pattern, Turkey 2003

	Five metropolitan areas	Rural areas
Currently using	72,9	66,2
Used since last birth	12,5	14,0
Used before last birth	8,7	7,9
Never used	5,9	11,9
Total	100,0	100,0
Number of women	2467	1408

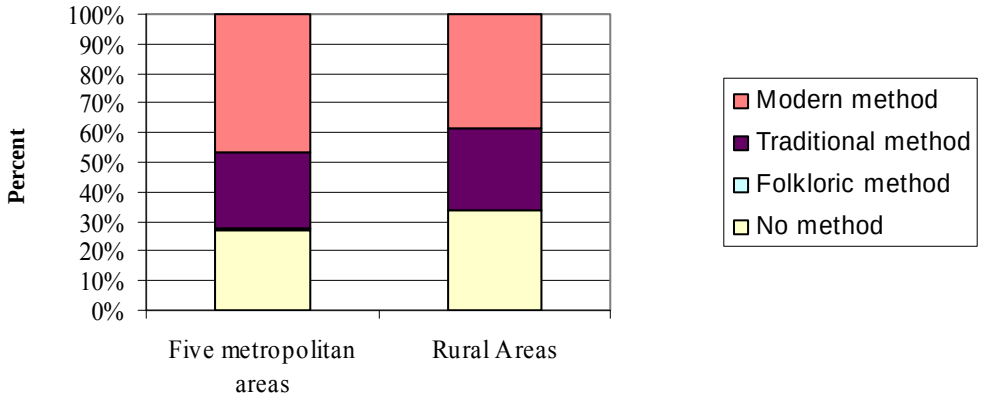
The TDHS-2003 collected data on the level of ever use of family planning methods, which is defined as the use of contraceptive method at any time during a women's reproductive years (ages between 15-49) (HUPS,2004). Table 4.3.1 shows percentages of ever-married women living in five metropolitan areas and those in rural areas of Turkey by their pattern of method use. It is observed from the table that proportion of women that are currently using family planning methods is higher in metropolitan areas than those in rural areas. However, this proportion is not very low in rural areas.

Table 4.3.2 Current method use by type among ever-married women

Percent distribution of currently married women in five metropolitan and rural areas by their current use of method type and patter of use, Turkey 2003.

	Five metropolitan areas	Rural Areas
Current use by method type		
No method	27,1	33,8
Folkloric method	0,5	0,3
Traditional method	26,1	27,4
Modern method	46,4	38,5
Total	100,0	100,0
Number of women	2467	1408

Figure 4.3.1 Current method use by type among ever-married women in metropolitan and rural areas, Turkey 2003



As Table 4.3.2 shows and Figure 4.3.1 clearly presents, ever-married women that use modern methods have the highest share among those living in metropolitan areas and rural areas. It can be conclude from Tables 4.3.1; 4.3.2 and FIGURE 4.3.1 that percentages of women that are ever-used and/or currently using family planning methods are lower in rural areas relative to metropolitan areas. Moreover, among current method users, more women living in metropolitan areas prefer to use modern methods in contrast to those living in rural areas. In addition to that, percent of women that use traditional methods is higher in rural areas than in metropolitan areas.

Table 4.3.3 Knowledge about ovulatory cycle

Percent distribution of ever-married women aged 15-49 in five metropolitan and rural areas by their knowledge about ovulatory cycle, Turkey 2003

	Five metropolitan areas	**Rural areas**
During her period	0,4	0,2
After period ended	26,0	18,2
Middle of the cycle	32,0	20,3
Before period begins	3,3	0,5
At any time	12,5	25,3
Other	2,2	1,9
Don't know	23,7	33,5
Total	100,0	100,0
Number of women	2466	1408

Table 4.3.3 shows the percent distribution of ever-married women according to their knowledge about ovulatory cycle. Among the response categories, women who chose “middle of the cycle” had given the correct answer.

Table 4.3.4 Knowledge about family planning methods

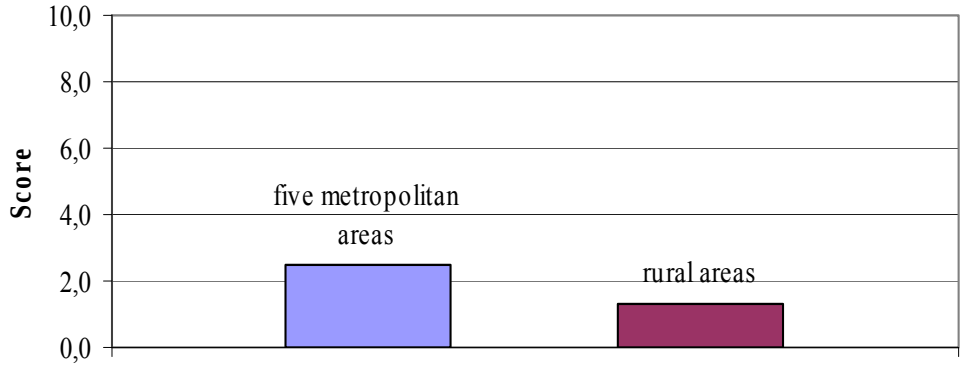
Percent distribution of ever-married women in five metropolitan, and rural areas by their knowledge about family planning methods, Turkey 2003

	Five metropolitan areas	**Rural areas**
Knows no method	0,0	0,8
Knows only traditional methods	0,0	0,4
Knows modern methods	100,0	98,8
Total	100,0	100,0
Number of women	1209	1408

To obtain data on contraceptive knowledge, TDHS-2003 respondents were first asked to name the means or methods by which couples could delay or avoid pregnancy. If the respondent failed to mention any of the methods listed in the questionnaire, the interviewer described the method and asked whether the respondent recognized it. Using this approach, information was collected for modern and traditional methods. Other traditional or folkloric methods mentioned by the respondent were also recorded (HUIPS, 2004).

Table 4.3.4 shows level of knowledge of contraceptive methods among ever-married women in metropolitan areas and Turkey by method types. Because no question were asked to elicit information on depth of knowledge of these methods, in the analysis, knowledge of a family planning method is simply defined as heaving heard of it (HUIPS, 2004). Consequently, almost 100 percent of ever married women in metropolitan and rural areas are presented by the table 4.3.5 as “knows modern methods”.

Figure 4.3.2 Weighted mean scores of ever-married women living in metropolitan and rural areas about their knowledge on AIDS transmission ways, Turkey 2003

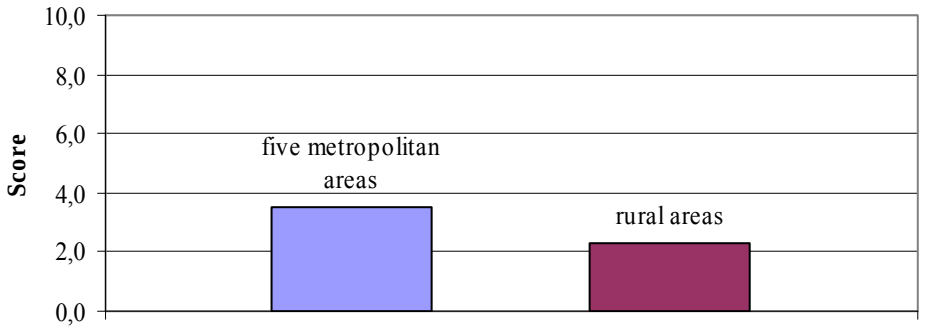


In TDHS-2003, ever-married women were asked if they know about how AIDS transmits. Each correct answer that is given by the respondent is scored by "1"point. Because there are 10 correct answers, the maximum point can women get is 10[19].

Figure 4.3.2 shows the weighted means of scores that ever-married women living in metropolitan areas and those in rural areas get. As clearly observed from the figure ever-married women living in metropolitan areas knows more about HIV/AIDS transmission ways in contrast to ever-married women in rural areas.

[19] Table A.2 in appendix gives percent distributions of women living in metropolitan areas and in rural areas by their scores.

Figure 4.3.3 Weighted mean scores of ever-married women living in metropolitan and rural areas about their knowledge on ways to avoid AIDS, Turkey 2003



By following the same procedure that is used for scoring women's knowledge about HIV/AIDS transmission ways, ever-married women's knowledge about ways to avoid AIDS is also scored[20]. Figure 4.3.3, which presents the weighted mean scores, reveals that women living in metropolitan areas are more aware of ways to avoid AIDS relative to those in rural areas.

Yet, still neither women in metropolitan areas nor in rural areas have reached a higher score level which is 10. The most important result in both figures is difference between metropolitan areas and overall Turkey. It may be concluded that ever-married women in metropolitan areas are more conscious about HIV/AIDS which is still insufficient.

[20] Table A.3 in appendix gives percent distributions of women by their scores. Tables A.4 and A.5 show the questions that were used for scoring women's knowledge about HIV/AIDS.

Table 4.3.5 Discuss Family Planning with someone

Percent distribution of ever-married women aged 15-49 in five metropolitan and rural areas by if they discuss with someone about family planning methods or not, Turkey, 2003

Discuss family planning with anyone	**Five metropolitan areas**	**Rural areas**
Yes	23,5	21,2
No	76,5	78,8
Total	100,0	100,0
Number of women	1209	733

Table 4.3.5 resents percent distribution of ever-married living in metropolitan areas and those in rural areas by their openness to discussion about family planning methods with people around them. Approximately about 80 percent of ever married women in all metropolitan areas and Turkey had reported that they do not discuss about family planning methods with anyone. In contrast to knowledge about HIV/AIDS, there is not a significant difference between metropolitan areas and overall Turkey about their openness to discussion about family planning methods.

Table 4.3.6 Opinions about appropriateness of teaching about Family Planning at schools

Percent distribution of ever-married women aged 15-49 in five metropolitan, and rural areas by their opinion about appropriateness of teaching about family planning methods in schools, Turkey 2003

Appropriate to teach about family planning at secondary school	**Five metropolitan areas**	**Rural areas**
No	33,3	30,4
Yes	61,4	55,4
Don't know	5,3	14,3
Total	100,0	100,0
Number of women	1209	733
Appropriate to teach about family planning at high school		
No	8,0	10,5
Yes	89,6	81,9
Don't know	2,4	7,6
Total	100,0	100,0
Number of women	1209	733

Table 4.3.6 shows that women living in metropolitan areas are more likely to think as "teaching family planning methods in both secondary and high schools is appropriate" in contrast to women living in rural areas. However, percentages of women that think teaching about family planning methods is inappropriate in secondary schools are higher in both metropolitan and rural areas in contrast to those who think it is appropriate. Yet, table 4.3.6 clearly presents the significant differences in positive attitudes of women living in metropolitan and rural areas towards teaching family planning methods in schools.

Table 4.3.7 Appropriateness of Family Planning methods for the religious grounds

Percent distribution of ever-married women aged 15-49 in five metropolitan, and rural areas by their opinion about appropriateness of family planning methods to religion, Turkey 2003

All right for religion to use contraception	**Five metropolitan areas**	**Rural areas**
Yes, appropriate	81,3	75,7
Some methods are inappropriate	5,6	4,6
Inappropriate	5,9	8,8
Has no religion	0,5	0,0
Don't know	6,7	10,9
Total	100	100
Number of women	1209	733

Table 4.3.7 shows women's opinions about appropriateness of family planning methods in their religious grounds. It is observed from the table that, women in metropolitan areas are more likely to consider family planning methods as appropriate according to their religion.

Table 4.3.8 Approves of induced abortion

Percent distribution of ever-married women aged 15-49 in five metropolitan, and rural areas by their approvals about induced abortion, Turkey, 2003

Approves of induced abortion	**Five metropolitan areas**	**Rural areas**
Approves	23,0	14,8
Disapproves	66,0	76,5
Depends	10,7	7,8
Don't know	0,4	0,9
Total	100,0	100,0
Number of women	1209	732

It has presented in table 4.3.8 that only 23 percent of ever-married women in metropolitan areas had stated they approve of induced abortion. This percent decreases to 14,8 in rural areas.

Table 4.3.9 Considers induced abortion

Percent distribution of ever-married women aged 15-49 in five metropolitan, and rural areas by opinions about considering induced abortion, Turkey, 2003

Would consider induced abortion	**Five metropolitan areas**	**Rural areas**
No	50,9	59,6
Yes	41,5	34,1
Don't know	7,6	6,3
Total	100,0	100,0
Number of women	1209	732

Although only 23 percent of ever-married women living in metropolitan areas and 14,8 percent of women in rural areas have stated that they approve of induced abortion; these percentages goes up to 41 in metropolitan areas and 34 in rural areas in terms of their consideration of induced abortion as presented in table 4.3.9 . This means 34 women among each 100 women in metropolitan areas have stated that if they have an unwanted pregnancy, they will likely to consider induced abortion even they thinks it is not appropriate. However it can be concluded from the table 4.3.9 that, women living in metropolitan areas are more likely to consider induced abortion.

Table 4.3.10 Number of induced abortion

Percent distribution of ever-married women aged 15-49 in by number of induced abortion they have ever had, Turkey, 2003

		Number of induced abortion						
	Never had an abortion/never get pregnant	**1**	**2**	**3**	**4+**	**Ever had an abortion**	**Total**	**Number of women**
Five metropolitan area	70,0	16,5	8,6	2,8	2,1	30,0	100	2467
Rural areas	79,3	12,5	4,6	2,5	1,1	20,7	100	1408

Table 4.3.1o shows the actual induced abortion performances of ever-married women living in metropolitan areas and those in rural areas. Although there are differences between percentages of ever-married women who stated that they would have considered abortion and ever-married women that ever had an induced abortion both in metropolitan and rural areas; it may be concluded that, attitudes those women are almost consistent with their behaviors. The reason of small discrepancy may be caused of various factors such as contraceptive use -especially in metropolitan- areas and high prevalence of contraceptives. Table 4.3.10 also shows the difference between percent of women that ever had an induced abortion in metropolitan and in rural areas. Less women living in rural areas are stated that they ever had an induced abortion. This may also caused of various factors such as limited access to health services in rural areas.

Table 4.3.11 Justification of wife beating

Percent distribution of ever-married women aged 15-49 in five metropolitan, four metropolitan, İstanbul metropolitan areas and Turkey by their justification of wife beating, Turkey 2003

	Five metropolitan area	**Rural areas**
Can not be justified	70,4	37,6
Can be justified	29,6	62,4
Total	100,0	100,0
Number of women	1205	1197

In the TDHS-2003, women were asked a number of questions on their attitudes regarding especially physical violence, which is one of the special types of domestic violence, with regard the weather they viewed physical violence as justified under given circumstances. Women were asked whether a husband would be justified in beating his wife for each of the following reasons separately: if she burns the food, if she argues with him, if she spend too much money, if she neglects the children, and if she refuse to have sex with him (HUIPS, 2004).

Table 4.3.11 gives the percentages of women that agree with any of the specified reason or none of them by five metropolitan areas and rural areas. As observed from the table, there is a huge difference about women's (living in metropolitan areas and those in rural areas) opinions toward wife beating. 70 percent of women living in metropolitan areas think that wife beating can not be justified in any situation. However, this percentage declines to 38 in rural areas.

Table 4.3. 12 Attitudes towards gender related issues

Percent distribution of ever-married women aged 15-49 in five metropolitan and rural areas by their opinions on gender issues, Turkey 2003

Five metropolitan areas	**No**	**Yes**	**Don't know**	**Total**	**Number of Women**
Important decision are given by men	78,5	21,2	0,3	100,0	1205
Men are wiser	83,6	33,8	1,8	100,0	1205
Women should not argue	64,3	12,1	1,9	100,0	1204
Male child should get education	87,8		0,1	100,0	1205
Rural areas					
Important decision are given by men	48,7	49,1	2,2	100,0	1197
Men are wiser	58,9	37,4	3,7	100,0	1197
Women should not argue	39,1	58,6	2,3	100,0	1197
Male child should get education	70,9	27,4	1,7	100,0	1197

Table 4.3.12 represents percentage distribution of ever-married women's attitudes towards women's status. Each statement that contains gender-specific values was asked to the ever-married women sample in TDHS-2003. As in table 4.3.11, percentages of women who disagree with statements are much higher than ones who agree in both metropolitan and rural areas. In addition to that, metropolitan areas display better results by having lower percents of ever-married women who do not think that men are wiser; important decisions are given by men; women should not argue and male child should get education. 49 percent of ever-married women living in rural areas think that important decisions are given by men. 37 percent think that men are wiser, 50 percent thinks that woman should not argue. 27 of every 100 ever-married women in rural areas believe that only male child should get education instead of females.

Table 4.3.13 Daily-life activities

Percent distribution of ever-married women aged 15-49 in five metropolitan, and rural areas by their daily-life activities, Turkey 2003

	Five metropolitan areas		**Total**	**N**	**Rural areas**		**Total**	**N**
	No	Yes			No	Yes		
Ever gone to the cinema	36,6	63,4	100,0	1207	78,9	21,1	100,0	1197
Ever gone to the theatre	55,6	44,5	100,0	1207	90,0	10,0	100,0	1197
Sports regularly	84,5	15,6	100,0	1204	97,9	2,1	100,0	1197
Participates in any society/club	94,6	5,4	100,0	1204	99,0	1,0	100,0	1197
Goes on holiday	52,1	47,9	100,0	1202	85,1	14,9	100,0	1197
Goes outside for a meal	42,0	58,0	100,0	1201	77,6	22,4	100,0	1195
Goes for a picnic	17,6	82,5	100,0	1204	46,2	53,8	100,0	1197
Puts on make-up	48,4	51,6	100,0	1204	84,6	15,4	100,0	1197
Wears a head scarf when going out	55,5	44,5	100,0	1204	8,8	91,2	100,0	1197

As shown in Table 4.3.13, higher percents of women in metropolitan areas are stated that they went to the cinema, theater; go outside for a meal and/or holidays; participate in clubs, put on make up. However, higher percent of women in rural areas are stated that they wears a head scarf when they going out. It can be concluded from the table that daily and/or social lives of ever-married women living in metropolitan areas are more active than those in rural areas.

As mentioned in chapter I, aim of this thesis is to explore if there is a relation between perceptions, attitudes and fertility behaviors of ever-married women aged 15-49 living in metropolitan areas. Women living in metropolitan areas are preferred as units of analysis in terms of their assumed lower (or the lowest for Turkey) fertility levels and different social characteristics. Ever-married women in rural areas were used for compression because of their expected differences in fertility levels and also social characteristics. Consequently, descriptive analyses are performed for ever-married women aged 15-49 living in metropolitan areas in metropolitan areas and those in rural areas for exploring if they really display differences in their basic social and demographical characteristics.

Results of descriptive analysis are revealed that there are differences between ever-married women living in metropolitan and in rural areas in terms of their fertility levels, daily-life styles, and attitudes towards family planning issues, their knowledge about sexually transmitted infections and their attitudes towards gender-related issues. However, these findings are only draw the picture of the disparities. They are not enough for exploring casual relations and for testing the hypothesized relation by this thesis. Consequently further analyses are needed.

CHAPTER 5. RESULTS OF SEM MODEL:

This chapter aims to give results of SEM model which investigates if there is a relationship between ever-married women's perceptions, attitudes and fertility behaviors in metropolitan areas. As explained in details in chapter III; perception, attitude and behavior are the main three elements of the model: Perception element refers women's knowledge about sexual health issues and women's ovulation processes; attitude refers to three sub elements (presented by latent variables in the model) which are daily-life activities, attitudes towards women's status and family planning methods. Behavior element is simply represented by total number of children ever born. There are also control variables: Age, education and woman's exposure to the area where she is currently living in[21].

Flow of presentation of results in this chapter, is given in three phase: Results of confirmatory factor analysis (CFA) which have been done in order to compose latent variables and explore if observed variables predict their respective latent variable successfully; results of general model which have been performed in five metropolitan areas (Adana, Ankara, Bursa; İstanbul and İzmir); and finally results of multi-group analysis that have been implemented in five metropolitan areas and rural areas simultaneously in order to explore if metropolitan areas displays a disparity.

5.1. Results of Confirmatory Factor Analysis:

As mentioned before, confirmatory factor analysis (CFA) is performed in order to explore if observed variables, which are suggested by the researcher, are able to predict their respective latent (unobserved) variable. This section gives results of CFAs that are implemented for latent variables of the model.

[21] See table 3.1.3.1 for a full list of variables and variable labels that are used in the model.

Figure 5.1.1 CFA for "perception"

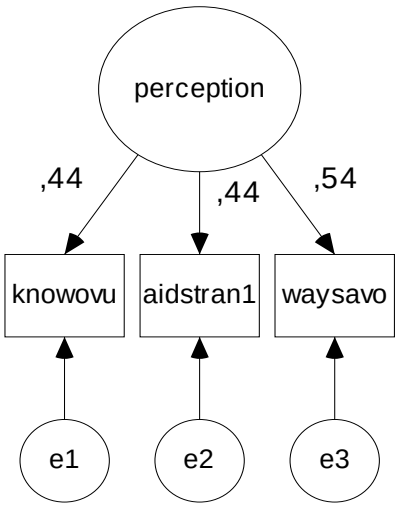


Figure 5.1.1 shows the results of CFA for perception variable. For composing "perception", which is a latent (unobserved) variable that does not directly exist in data set, three observed variables have been used: "Waysvo[22]" (knowledge about ways to avoid aids), "aidstran1" (knowledge about aids transmission ways" and "knowovu" (knowledge about ovulatory cycle)[23]. As explained in chapter 3, squares represent variables that are directly exist in data set (observed variables) while circles represent unobserved (latent) ones. Straight arrows can be considered as regression weights that represent one-way relations.

Regression weights of *knowovu*, *aidstran1* and *waysavo* are given by numbers next to straight arrows in Figure 5.1.1. All three observed variable exhibits strong relations with *perception* in terms of their regression weights. Figure 5.1.1 reveals that when *perception* goes up by one standard deviation, *waysavo* goes up by 0,54 standard deviations, aidstran1 goes up by 0,44 and *knowovu* goes up by 0,44 standard deviations.

[22] See table 3.1.3.1 for full explanation and labels of variables that are used in the model.
[23] Knowlege about contraceptions have also wanted to be used however, as given in chapter 4, 100 percent of all ever-married women stated that they know about contraceptions.

First column in Table 5.1.1 shows unstandardized regression weights while second column represents standard error of regression weight (S.E). Column three gives critical ratios (C.R) that are calculated by dividing the regression weight estimate by the estimate of its standard error. Fourth column, "level of significance for regression weight (P)", that needs to be considered in order to understand if regression weight of current latent for predicting its observed variables are significantly different than 0 at the 0,001 level.

Table 5.1.1 puts out that each observed variable that is used for composing "perception" is significant (***). In other words, the regression weight for perception in the prediction of *waysavo* is significantly different from zero at the 0,001 level which is symbolized by three stars (***).

Table 5.1.1 Regression Weights: (Five metropolitan area - Default model)

	Estimate	S.E.	C.R.	P	Label
waysavo <--- perception	,396	,081	4,865	***	par_1
aidstran1 <--- perception	,166	,031	5,324	***	par_2
knowovu <--- perception	1,000				

Kline (1998) had given following critical values for interpreting effect size of standardized regression weights: Values smaller than ∓.10 refer to small effects; values around ∓.30 point to medium affect and finally values that are equal or bigger than∓.50, interpreted as large effects. According to this scale *knowovu* and aidstran1 observed variables have medium effects on perception while *waysavo* has large affect.

Observed variables that are *s766hnd* "whether a woman justifies wife beating", *s767a* "whether a women agrees with the statement that important decisions are given by men"; *s767b* "whether a woman thinks that men are wiser"; *s767c* "whether a woman agrees with the statement that women should not argue"; and *s767d* "whether a woman believes that only male child should education" have

been used in order to form another latent variable in the model: *WS Attitude* "women's attitudes towards the concept of women's status".

Figure 5.1.2 CFA for "Women's status Attitudes" (Five metropolitan areas)[24]

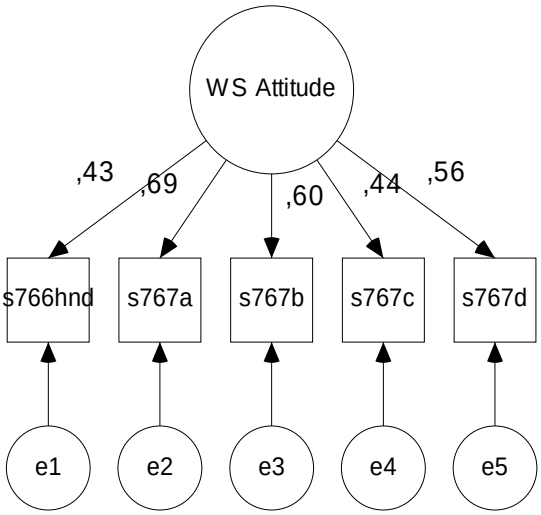


Figure 5.1.2 gives the results for confirmatory factor analysis for "*WS Attitude*", that has formed in order to represent ever-married women's (aged 15-49 in metropolitan areas) attitudes towards a women's status. *S767a* "whether a woman agrees with the statement that important decisions are given by men" has the largest affect size for explaining the change in *WS Attitude* when other observed variables have stayed constant. Additionally, *S767b* "whether a woman thinks men are wiser" and s767d "whether a woman believes that only male child should education" have also large affect sizes. It has seen from the Figure 5.1.2 that when *WS Attitude* goes up by 1 standard deviation, *s767c* "whether a woman agrees with the statement that women should not argue" goes up by 0,44 standard deviation which refers to moderate effect size. *S766hnd* has also moderate effect on the change in Women's Status Attitude when *s767a*, *s767b*, *s767c* and *s767d* have stayed constant.

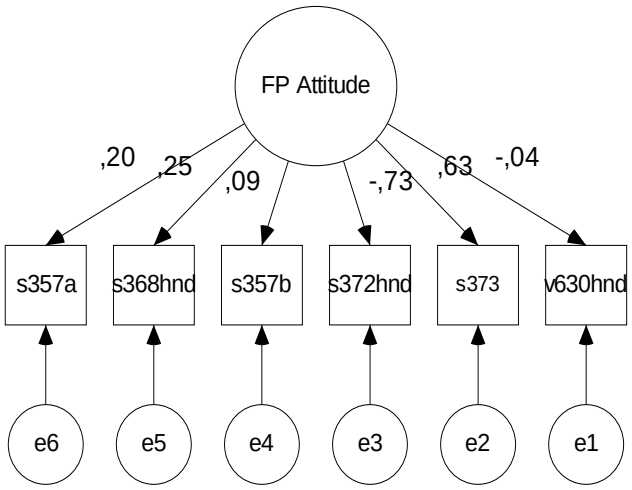
[24] See table 3.1.3.1 for labels of variables.

Table 5.1.2 Regression Weights for Women's Status Attitudes: (Five metropolitan areas - Default model)

			Estimate	S.E.	C.R.	P	Label
s767d	<---	WS Attitude	,865	,079	10,991	***	Male child should get education
s767c	<---	WS Attitude	1,006	,109	9,244	***	Woman should not argue
s767b	<---	WS Attitude	1,000				Men are wiser
s767a	<---	WS Attitude	1,342	,114	11,758	***	Important decision are given by men
s766hnd	<---	WS Attitude	,936	,102	9,152	***	Wife beating justified

Table 5.1.2 reveals that regression weights for *WS Attitude* in the prediction of *s767d*, *s767c*, *s767b*, *s767a* and s*766hnd* are significantly different from zero at the 0,001 level.

Figure 5.1.3 CFA for "Family Planning Attitudes" (Five metropolitan areas)

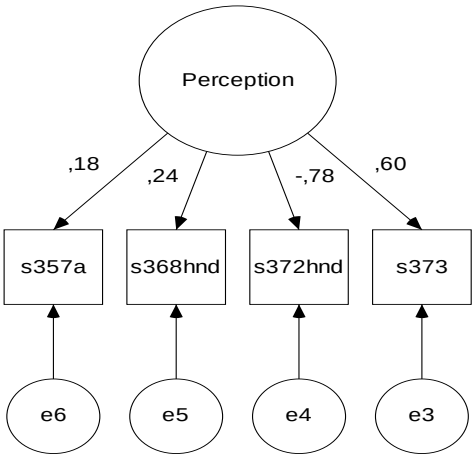


Another latent variable in the model is "Family Planning Attitude" that has formed in order to refer ever married women's (aged 15-49 in metropolitan areas) attitudes towards family planning issues and methods. As presented in Figure 5.1.3, *s357a* "women's opinions about appropriateness of teaching family planning at secondary school" and *s368hnd* "whether a woman thinks that it is alright to her religious grounds to use contraception" have moderate effect sizes while *s372hnd* "whether she approves of induced abortion" and *s373* "whether she would consider induced abortion" having large effect sizes. However, both *s357b* " women's opinions about appropriateness of teaching about FP at high school" and *v630hnd* "does a woman discuss FP methods with someone" have fairly week effect sizes which are not significantly different from 0 at the 0,005 as shown in Table 5.1.3 level as a regression weight for FP Attitude.

Table 5.1.3 Regression Weights for FP Attitude: (Five metropolitan area - Default model)

	Estimate	S.E.	C.R.	P	Label
v630hnd <--- FP Attitude	-,060	,060	-1,004	,315	par_1
s357a <--- FP Attitude	,308	,070	4,399	***	par_2
s357b <--- FP Attitude	,071	,036	1,987	,047	par_3
s368hnd <--- FP Attitude	,253	,047	5,366	***	par_4
s372hnd <--- FP Attitude	-1,106	,184	-6,002	***	par_5
s373 <--- FP Attitude	1,000				

Figure 5.1.4 Revised CFA for "Family Planning Attitudes" (Five metropolitan areas)



Consequently, *s357b* and *v630hnd* have omitted from the current latent variable and CFA has performed without them as Figured in 5.1.4.

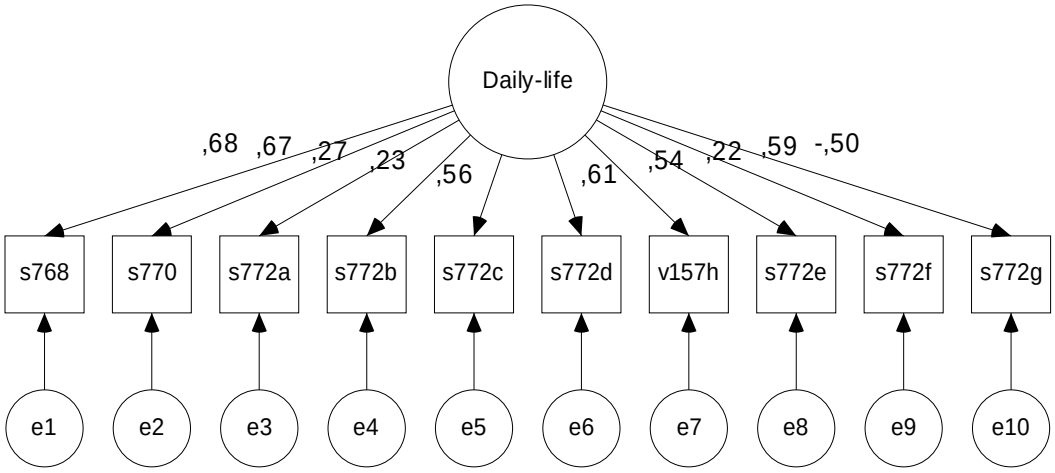
S373 and *s372hnd* display strong effect sizes. When FP Attitude goes up by 1 standard deviation, *s372hnd* goes down by 0,78 standard deviations that refers to a negative association. Although *s368hnd* and *s357* have week effect sizes, they have not been omitted from FP Attitude because it is assumed by the thesis that women that think it is appropriate to teach family planning methods in schools and women that thinks it is alright for religion to use contraception are significantly different than those do not agree with those opinions. However, it is also shown by the Table 5.1.4 that they are significantly different from 0 at 0,001 level.

Table 5.1.4 Revised Regression Weights for Family Planning Attitudes: (Five metropolitan areas - Default model)

	Estimate	S.E.	C.R.	P	Label
s357a <--- FP Attitude	,291	,071	4,110	***	par_1
s368hnd <--- FP Attitude	,254	,048	5,321	***	par_2
s372hnd <--- FP Attitude	-1,233	,229	-5,392	***	par_3
s373 <--- FP Attitude	1,000				

In order to form *Daily-life*, *s768* “Ever gone to the cinema”; *s770* “Ever gone to the theatre”; *s772a* “Does she Sport regularly”; *s772b* “Does she participate any society/club”; *s772c* “Does she goes on holiday”; *s772d* “Does she go outside for a meal” ; *s772e* “Does she go for a picnic”; *s772f* “Does she put on make-up” ; *s772g* “Does she wear a head scarf when going out” and *v157h* “Frequency of reading newspaper” have been used. Figure 5.1.5 shows regression weights for *Daily-life* in the prediction of mentioned variables above. Except *s772a, s772b* and *s772e*, all observed variables have large effect sizes.

Figure 5.1.5 CFA for "Daily-Life" (five metropolitan areas)



In the Table 5.1.5, P values reveal that regression weights for Daily-*life* in the prediction of its observed variables are significantly different from 0 at the 0,001 level. Despite of their significance, *s772a, s772b* and *s772e* have been omitted in terms of their week effect sizes

Table 5.1.5 Regression Weights for "Daily-life" (Five metropolitan areas - Default model)

	Estimate	S.E.	C.R.	P	Label
S772g <--- Daily-life	-,776	,064	-12,188	***	par_1
S772f <--- Daily-life	,916	,065	14,071	***	par_2
S772e <--- Daily-life	,253	,045	5,570	***	par_3
V157h <--- Daily-life	,843	,064	13,078	***	par_4
S772d <--- Daily-life	,932	,064	14,454	***	par_5
S772c <--- Daily-life	,878	,065	13,556	***	par_6
S772b <--- Daily-life	,166	,028	5,974	***	par_7
S772a <--- Daily-life	,313	,047	6,721	***	par_8
s770 <--- Daily-life	1,034	,067	15,543	***	par_9
s768 <--- Daily-life	1,000				

Results of CFA for *Daily-life*, which is performed without *s772a*, *s772b* and *s772e*, has disclosed below: Regression weights for *s768* "if she ever gone to the cinema", *s770* "if she ever gone to the theatre"; *s772c* "does she goes on holiday"; *s772d* "does she goes outside for a meal" ; *s772f* "does she puts on make-up" ; *s772g* "does she wear a head scarf when going out" and *v157h* "Frequency of reading newspaper" have large affect sizes in the prediction of *Daily-life* and they are significantly different from 0 at the 0,001 level (Table 5.1.6). In other words; being a theoretical component of the suggested model for metropolitan areas, *Daily-life* has strongly predicts its observed variables

Figure 5.1.6 Revised CFA for "Daily-life" (Five metropolitan areas)

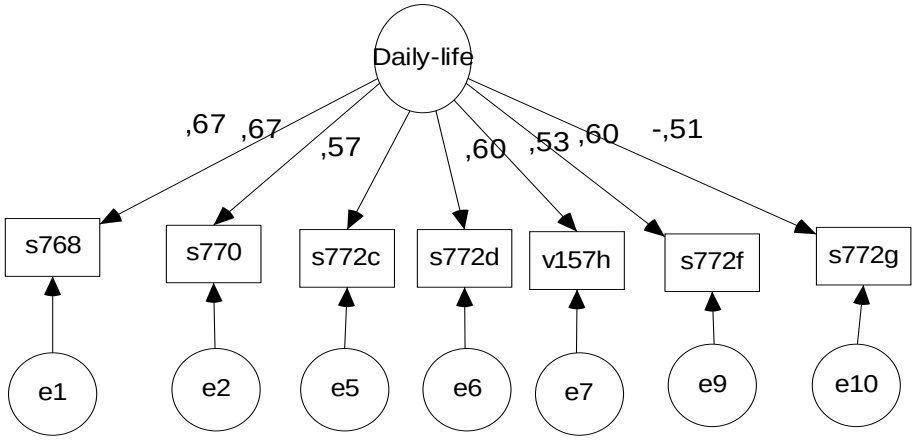
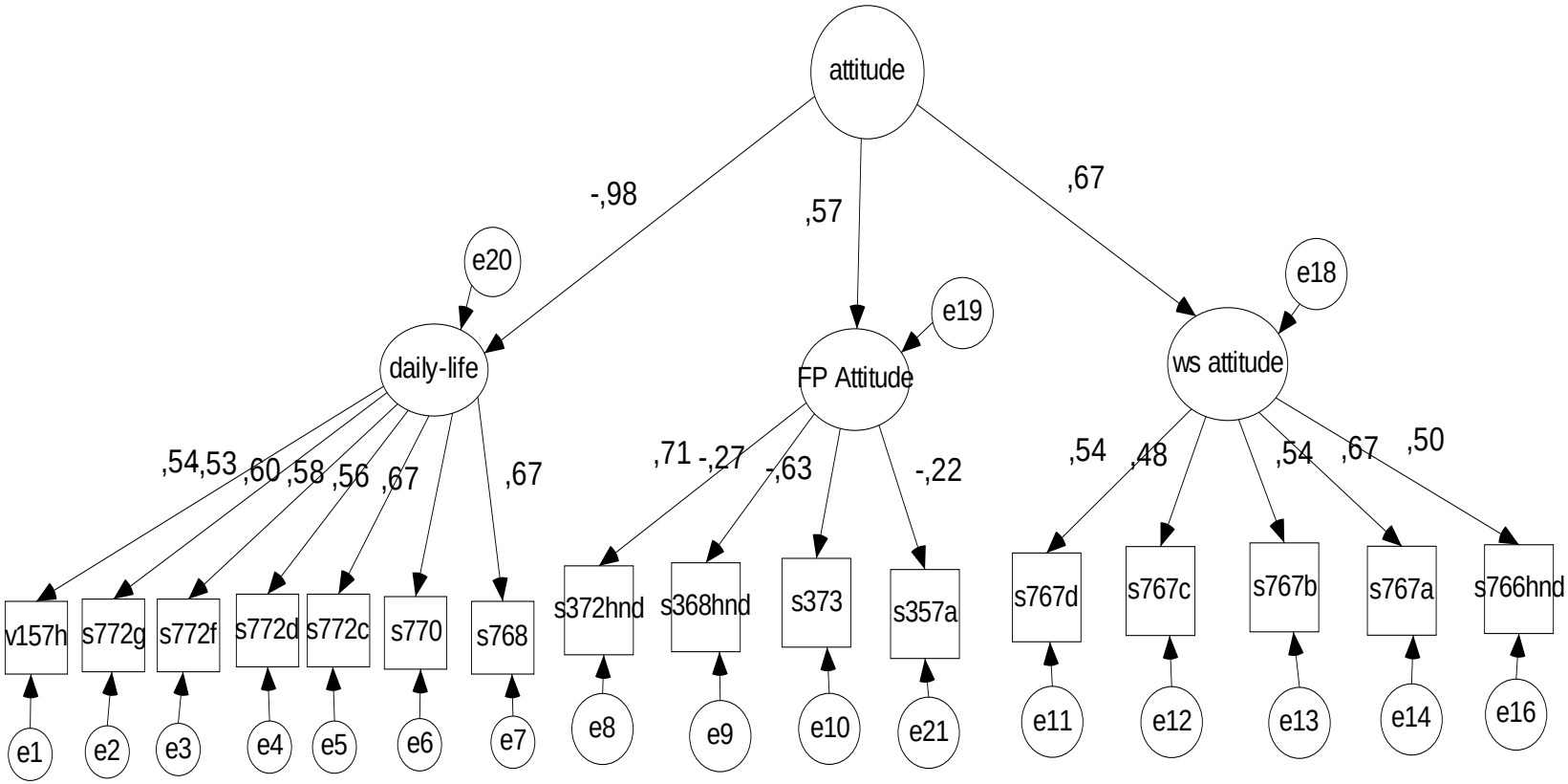


Table 5.1.6 Revised Regression Weights for "Daily-life" : (Five metropolitan areas - Default model)

		Estimate	S.E.	C.R.	P	Label
s772g	<--- Daily-life	-,792	,064	-12,283	***	par_1
s772f	<--- Daily-life	,940	,066	14,199	***	par_2
v157h	<--- Daily-life	,826	,065	12,712	***	par_3
s772d	<--- Daily-life	,918	,065	14,107	***	par_4
s772c	<--- Daily-life	,890	,066	13,555	***	par_5
s770	<--- Daily-life	1,038	,068	15,376	***	par_6
s768	<--- Daily-life	1,000				

Figure 5.1.7 Second Order CFA for "Attitude" (five metropolitan areas):



"Women's Status Attitude", "Family Planning Attitude" and "Daily-life" have been used to compose one of the three main elements in the model: "Attitude". Prediction of a latent variable with another latent variable, which is formerly predicted by observed variables, is called "second order confirmatory factor analysis". In the second order confirmatory factor analysis, it is possible to see indirect effects as well as direct effects. "Attitude" is created by using this method as shown in Figure 5.1.7. By using second order confirmatory factor analysis, it is explored that if "Attitude" of women has an effect on women's daily lives, their attitudes towards family planning, and their attitudes towards women's status.

Table 5.1.7 Regression Weights for "Attitude": (Five metropolitan areas - Default model)

			Estimate	S.E.	C.R.	P	Label
Daily-life	<---	Attitude	1,732	,249	6,942	***	par_12
ws attitude	<---	Attitude	-,828	,110	-7,528	***	par_13
FP Attitude	<---	Attitude	1,000				
v157h	<---	Daily-life	,850	,064	13,190	***	par_1
s772d	<---	Daily-life	,892	,064	13,964	***	par_2
s772c	<---	Daily-life	,885	,065	13,665	***	par_3
s770	<---	Daily-life	1,059	,067	15,909	***	par_4
s373	<---	FP Attitude	1,000				
s372hnd	<---	FP Attitude	-1,072	,104	-10,316	***	par_5
s368hnd	<---	FP Attitude	,275	,045	6,120	***	par_6
s357a	<---	FP Attitude	,341	,067	5,061	***	par_7
s766hnd	<---	ws attitude	1,000				
s767a	<---	ws attitude	1,213	,109	11,128	***	par_8
s767b	<---	ws attitude	,845	,084	10,102	***	par_9
s767c	<---	ws attitude	1,030	,109	9,426	***	par_10
s767d	<---	ws attitude	,772	,076	10,101	***	par_11
s772g	<---	Daily-life	-,836	,064	-13,030	***	par_14
s768	<---	Daily-life	1,000				
s772f	<---	Daily-life	,949	,065	14,526	***	par_15

Table 5.1.7 gives P values for each observed variable in the Figure 5.1.7. All P values that are illustrated with stars (***) represents that each variable in the model

is significantly different from 0 at the 0,001 level. Additionally, except s368hnd and s357a, all observed variable in the CFA for "Attitude" has large effect size.

Table 5.1.8 Standardized Indirect Effects for "Attitude" (Five metropolitan areas - Default model)

	Attitude
FP Attitude	,000
daily-life	,000
ws attitude	,000
s357a	-,127
s372hnd	,408
s770[25]	**-,659**
s368hnd	-,157
s373	-,360
s772d	**-,563**
s768	**-,654**
s772c	**-,549**
s767b	,364
s767c	,323
s767d	,364
v157h	**-,527**
s772g	**,520**
s772f	**-,590**
s767a	,451
s766hnd	,333

Table 5.1.8 shows standardized indirect effects of "Attitude" on first order variables. It is observed from the Table that, "Attitude" has large indirect effect sizes on the observed variables that are used in first order CFA for "daily-life". When "Attitude" goes up by 1 unit, *s772d* "if she goes outside for a meal" goes down by 0,563 units; *s768* "if she ever gone to the cinema" goes down by 0,654; s772c "does she goes on holiday" goes down by 0,549; *v157h* "frequency of reading newspaper" goes down by 0,527; *s772f* "if she puts on make up" goes by 0,590 units while *s772g*

[25] Bold variables are used in order to mark variables that are used in 1st order CFA for "Daily-life".

"does she wears a headscarf when going out" goes up by 0,520 units. Moreover, "Attitude" has moderate indirect effect sizes on first order observed variables that are used for "Women's Status Attitudes" and Family Planning Attitudes".

It may be concluded from Figure 5.1.7 and from the Table 5.1.8 that, "Attitude" is such a component, which is negatively related with women's[26] daily-life activities (for example never went to cinema and/ or theater; going outside for a meal less, not participating societies and clubs etc.) and with their positive attitudes towards family planning methods (for example thinking that teaching family planning methods in schools is inappropriate or does not consider induced abortion even if she had to). Additionally, "Attitude" is positively related with women's positive attitudes towards gender related issues which refers gender discrimination in society (for example being more likely to think men are wiser or to think that only male child should get education etc.).

To sum up; five latent (unobserved) variables for the model have been composed by using aforementioned observed variables in TDHS-2003 data set. Confirmatory factor analysis has been performed in order to examine if chosen observed variables are really predicted by their latent variables which are "Perception", "WS Attitude", "FP Attitude" and "Daily-life". Fifth latent variable, which is "Attitude" in the model has composed via second order confirmatory factor analysis by using "WS Attitude", "FP Attitude" and "Daily-life".
The aim in here is to explore if main components, which have been referred by theoretical model and which are also abstract, can be predicted by the data[27]. By performing CFAs, it is concluded that "Perception", "WS Attitude", "FP Attitude", "Daily-life" and "Attitude" can be predicted by certain observed variables in TDHS-2003 data set by achieving significant regression weight and large effect sizes. However, it is thought that the most interesting result that can be concluded from

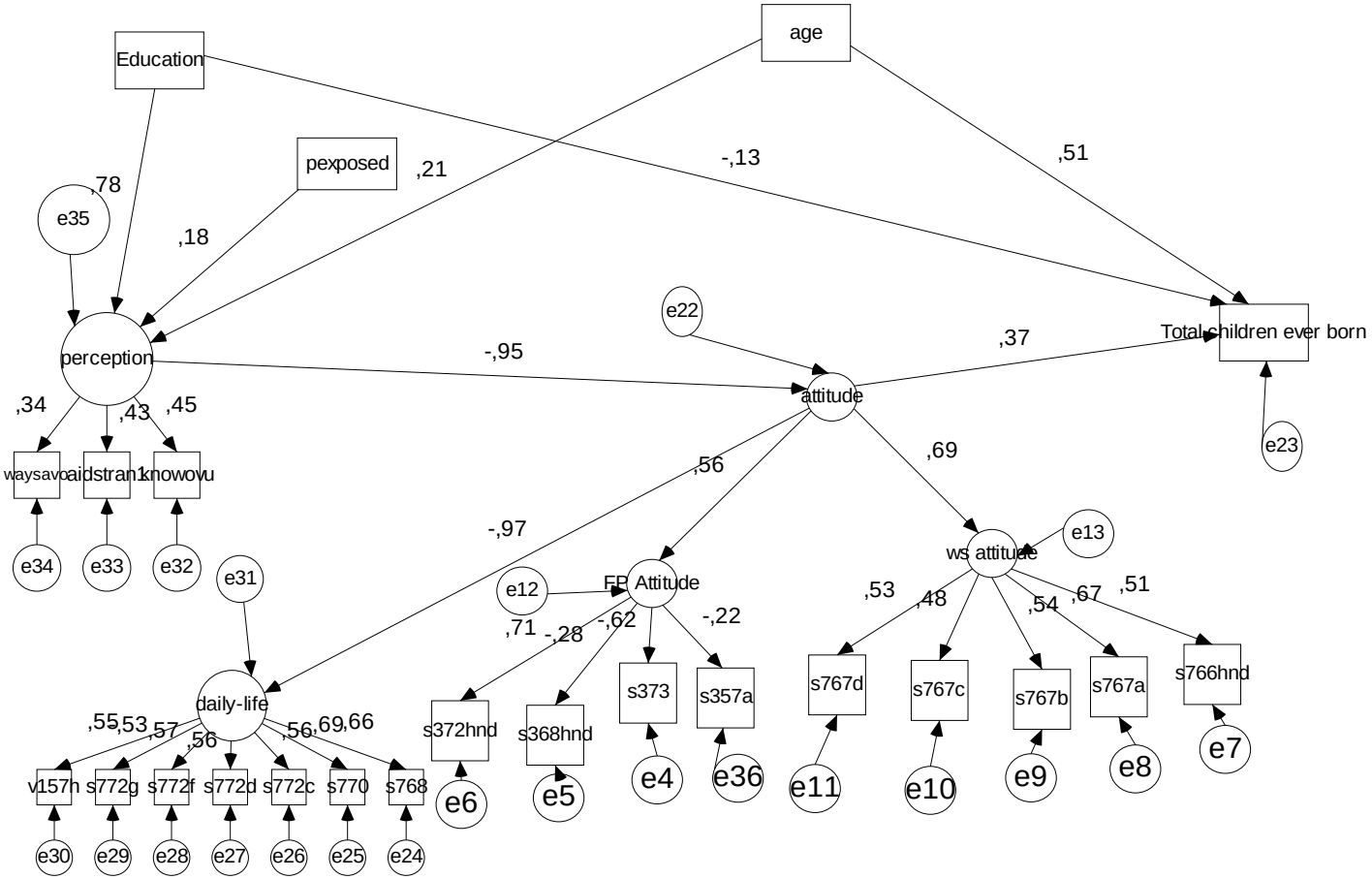
[26] In this section, "Women" refer to ever-married women aged 15-49 living in metropolitan areas of Turkey.
[27] It should be rephrased that is why SEM method, which allows working with variables that are not directly exist in data set, is preferred

CFAs is about “Attitude” and its indirect effect patterns on “Daily-life”, “WS Attitude” and “FP attitude” as stated above.

5.2 Results of SEM model for five metropolitan areas :

As explained in previous chapters, this thesis has suggested a model that has focuses on decision processes of women in terms of giving a birth and how many births they will give. The model has mainly formed by assuming a relationship between perceptions, attitudes and fertility behavior of women. Figure 5.2.1 illustrates the model ever-married women aged 15-49 living in metropolitan areas of Turkey.

Figure 5.2.1 Total SEM model for five metropolitan areas, Turkey 2003



Before interpreting the results, model fit values has to be checked in order to see if the model fits the population and if it is acceptable. First column (NPAR) of the Table 5.2.1 shows the number of parameters that are being estimated. CMIN is the minimum value of the discrepancy and DF is the number of degrees of freedom for testing the model. P is a "*p* value" for testing the hypothesis that the model fits perfectly in the population. CMIN/DF is the minimum discrepancy divided by its degrees of freedom. It is concluded from the Table that default model fits the data and acceptable since its P value smaller than 0,01 and CMIN/DF value smaller than 5.

Table 5.2.1 Model Fit for default model (five metropolitan areas, Turkey 2003)

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	52	823,633	224	,000	3,677

Table 5.2.2 Regression Weights for total model: (Five metropolitan areas - Default model)

			Estimate	S.E.	C.R.	P	Label
perception	<---	v133	,040	,003	12,109	***	par_18
perception	<---	pexposed	,107	,019	5,744	***	par_22
perception	<---	v012	,006	,001	6,558	***	par_23
attitude	<---	perception	-,830	,098	-8,479	***	par_17
ws attitude	<---	attitude	,676	,080	8,478	***	par_7
FP Attitude	<---	attitude	1,000				
daily-life	<---	attitude	-1,625	,160	-10,183	***	par_21
s373	<---	FP Attitude	-,921	,089	-10,362	***	par_1
s368hnd	<---	FP Attitude	-,257	,042	-6,158	***	par_2
s372hnd	<---	FP Attitude	1,000				
s766hnd	<---	ws attitude	1,224	,119	10,262	***	par_3
s767a	<---	ws attitude	1,440	,121	11,913	***	par_4
s767b	<---	ws attitude	1,000				
s767c	<---	ws attitude	1,241	,125	9,953	***	par_5
s767d	<---	ws attitude	,909	,086	10,589	***	par_6
s768	<---	daily-life	1,000				
s770	<---	daily-life	1,101	,065	16,870	***	par_8
s772c	<---	daily-life	,892	,064	14,019	***	par_9
s772d	<---	daily-life	,885	,063	14,146	***	par_10
s772f	<---	daily-life	,917	,064	14,394	***	par_11
s772g	<---	daily-life	-,845	,063	-13,387	***	par_12
v157h	<---	daily-life	,884	,064	13,913	***	par_13
v201	<---	v012	,090	,005	17,264	***	par_14
knowovu	<---	perception	1,000				
aidstran1	<---	perception	,155	,017	9,027	***	par_15
waysavo	<---	perception	,238	,031	7,677	***	par_16
v201	<---	attitude	2,836	,485	5,851	***	par_19
v201	<---	v133	-,044	,017	-2,518	,012	par_20
s357a	<---	FP Attitude	-,312	,062	-5,001	***	par_24

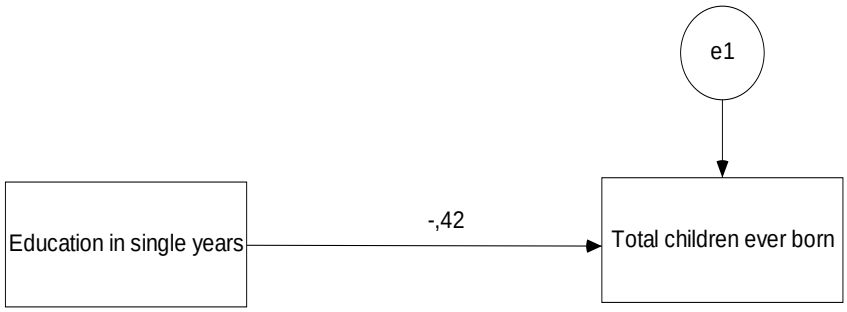
Relationship between perception, attitude and fertility behavior, which is assumed by the model is also observed from the values of paths as presented in Figure 5.2.1 It is observed that when “Perception” goes up by 1 standard deviation, “Attitude” goes down by 0,95 standard deviations which refers to a very large effect size. In other words, “Attitude” explains the 95 percent of the change in perception while other variables stay constant. In addition to that, when “Attitude” goes up by 1 standard deviation, “Total Children ever born” goes up by 0,37 standard deviations

which is a moderate effect size. Table 5.2.2 shows that regression weights for both perception and attitude are significantly different from 0 at the 0,001 level. Consequently it can be concluded that one of the main hypothesis of model which assumes a relation between perception attitude and fertility behavior of ever-married women aged 15-49 living in metropolitan areas is supported using the TDHS-2003 data.

Table 5.2.2 gives the P values of estimates which are significantly different than 0 at the 0,001 level. However, the regression weight for v133 "highest years of education" in the prediction of v201 "total children ever born" is not significantly different than zero at 0,001 level. This is a fairly challenging result that contradicts plenty of previous fertility studies in demography literature. However, it may be caused of mediation effect of education on fertility which can be explained with an indirect effect of education on fertility through other variables in the model.

In order to see mediation (indirect effect), firstly basic regression for v133 "education in single years" and v201 "total children ever born to a woman" was performed. As presented in Figure 5.2.2, when v133 goes up by 1 standard deviation, v201 goes down by 0,42 standard deviations, which is fairly moderate effect size. It displays similarity with the results of other fertility studies in demography literature.

Figure 5.2.2 Basic regression for "Education" and "Fertility"



However, in Figure 5.2.1, the effect of education on total children ever born to a women is to "-0,13" when other variables are excluded in the model. This does not mean that education does not have a significant effect on fertility: It means "Education" has an indirect effect on fertility through "Perception" and "Attitude".

Table 5.2.3 Standardized Indirect Effects (five metropolitan areas - Default model)

	pexposed	v133	v012	perception	attitude
perception	,000	,000	,000	,000	,000
attitude	-,167	-,740	-,199	,000	,000
daily-life	,163	,721	,194	,925	,000
ws attitude	-,114	-,507	-,136	-,651	,000
FP Attitude	-,093	-,413	-,111	-,530	,000
s357a	,020	,090	,024	,116	-,122
waysavo	,059	,263	,071	,000	,000
aidstran1	,075	,332	,089	,000	,000
knowovu	,080	,354	,095	,000	,000
v157h	,090	,399	,107	,512	-,539
s772g	-,086	-,382	-,103	-,490	,516
s772f	,094	,414	,111	,532	-,560
s772d	,092	,406	,109	,521	-,549
s772c	,091	,402	,108	,516	-,544
s770	,113	,499	,134	,641	-,675
s768	,107	,476	,128	,611	-,643
v201	-,062	-,276	-,074	-,354	,000
s767d	-,061	-,271	-,073	-,347	,366
s767c	-,055	-,246	-,066	-,316	,332
s767b	-,061	-,272	-,073	-,349	,368
s767a	-,076	-,339	-,091	-,435	,458
s766hnd	-,058	-,258	-,069	-,331	,348
s372hnd	-,066	-,295	-,079	-,378	,398
s368hnd	,026	,114	,031	,146	-,154
s373	,058	,257	,069	,329	-,347

Table 5.2.3 gives standardized indirect effects of each latent and observed variable in the model. The standardized indirect (mediated) effect of v133 on v201 is -,277. That is, due to the indirect (mediated) effect of v133 on v201, when v133 goes

up by 1 standard deviation, v201 goes down by 0,277 standard deviations. This is in addition to any direct (unmediated) effect that v133 may have on v201.

Table 5.2.4 Standardized Total Effects (five metropolitan areas - Default model):

	pexposed	v133	v012	perception	attitude	daily-life	ws attitude	FP Attitude
perception	,176	,779	,209	,000	,000	,000	,000	,000
attitude	-,167	-,740	-,199	-,950	,000	,000	,000	,000
daily-life	,163	,721	,194	,925	-,974	,000	,000	,000
ws attitude	-,114	-,507	-,136	-,651	,685	,000	,000	,000
FP Attitude	-,093	-,413	-,111	-,530	,558	,000	,000	,000
s357a	,020	,090	,024	,116	-,122	,000	,000	-,219
waysavo	,059	,263	,071	,338	,000	,000	,000	,000
aidstran1	,075	,332	,089	,426	,000	,000	,000	,000
knowovu	,080	,354	,095	,454	,000	,000	,000	,000
v157h	,090	,399	,107	,512	-,539	,553	,000	,000
s772g	-,086	-,382	-,103	-,490	,516	-,530	,000	,000
s772f	,094	,414	,111	,532	-,560	,575	,000	,000
s772d	,092	,406	,109	,521	-,549	,564	,000	,000
s772c	,091	,402	,108	,516	-,544	,558	,000	,000
s770	,113	,499	,134	,641	-,675	,693	,000	,000
s768	,107	,476	,128	,611	-,643	,660	,000	,000
v201	-,062	-,403	,439	-,354	,373	,000	,000	,000
s767d	-,061	-,271	-,073	-,347	,366	,000	,533	,000
s767c	-,055	-,246	-,066	-,316	,332	,000	,485	,000
s767b	-,061	-,272	-,073	-,349	,368	,000	,537	,000
s767a	-,076	-,339	-,091	-,435	,458	,000	,668	,000
s766hnd	-,058	-,258	-,069	-,331	,348	,000	,508	,000
s372hnd	-,066	-,295	-,079	-,378	,398	,000	,000	,714
s368hnd	,026	,114	,031	,146	-,154	,000	,000	-,275
s373	,058	,257	,069	,329	-,347	,000	,000	-,622

The standardized total (direct and indirect) effect of v133 on v201 is -,403 which is presented by the Table 5.2.4 That is, due to both direct (unmediated) and indirect (mediated) effects of v133 on v201, when v133 goes up by 1 standard deviation, v201 goes down by 0,403 standard deviations as given in Table 5.2.4.

This finding is fairly important because it is known that female education (represented by v133 "education in single years" in the model) has become an essential component of fertility analysis. Moreover, because of familiarity with education as an independent variable in demographic studies, its significance is nearly taken for granted (Martin & Jaurez, 1994). However, it is revealed by the analysis that education has an indirect effect on fertility rather than a direct effect. This result may taken into consideration and be explored by further studies in terms of understanding the mechanisms of fertility decline.

Direct effect of v133 "education in single years" is the largest on "perception" which is 0,78 as seen in Figure 5.2.1. However its indirect effect size on "Attitude" is also large: The standardized indirect (mediated) effect of v133 on "Attitude" is -0,740. That is, due to the indirect (mediated) effect of v133 on "Attitude"; when v133 goes up by 1 standard deviation, "Attitude" goes down by 0,740 standard deviations. Moreover when v133 goes up by 1 standard deviation, "daily-life" goes up by 0,721 standard deviations and "WS Attitude" goes down by 0,507 standard deviations. All these estimates concludes that; "Education" affects women's fertility behavior by affecting their "Perceptions" that is predicted by knowledge of sexually transmitted diseases and ovulatory cycle, and their "Attitudes". As a result, the second assumption of the thesis has also supported by the model that has performed in five metropolitan areas in Turkey, by displaying indirect (mediated) effect on fertility behavior.

"Perception" is directly affected by "education", "age" and "pexposed[28]". As presented by the Figure 5.2.1, education has a large effect size on "perception": 1 units of change in education causes 0,78 units of change in perception. . Although it is significant, pexposed has a weak effect size on "Perception" as seen in Figure 5.2.1. Looking at standardized indirect effects of "perception" in Table 5.2.3, it is observed that "pexposed" does not have considerable indirect effect on any other

[28] Pexposed has formed by dividing number of years that a woman lived in current place by woman's age in order to create a standard scale that measures a woman's exposure to a metropolitan area. See table 3.1.3.1 for a full explanations of the variables in the model.

variable in the model in spite of its effects on “Attitude”, “Daily-life” and “Ws attitude”: One units of change in “pexposed” has causes -0,167, 0,163 and -0,114 units of change in them respectively. In addition to “education” and “pexposed”, it is observed that v012 “Age” also effects “perception”: When “Age” goes up by 1 standard deviation, perception goes up by 0,209 standard deviations.

Having no direct effect, the standardized indirect (mediated) effect size of perception on daily-life is considerably large (see Table 5.2.3). That is, due to the indirect (mediated) effect of perception on daily-life, when perception goes up by 1 standard deviation, daily-life goes up by 0,925 standard deviations. In addition to large direct effect size of perception on attitude, it also has indirect effects on “WS Attitude”, “FP Attitude” and “Daily life”. One units of change in perception ends with 0,651 units of decline in “WS Attitude” and 0,53 units of decline in “FP Attitude”.

Finally, Table 5.2.3 displays that, “Perception” has mediated effect on v201 “total children ever born to a woman”. The standardized indirect (mediated) effect of perception on v201 is -0,354. That is, due to the indirect (mediated) effect of perception on v201, when perception goes up by 1 standard deviation, v201 goes down by 0,354 standard deviations.

Mentioned before, “Age” is controlled during the analysis by assuming a direct effect from age to “total children ever born” and “perception. Consequently, v201 , which displays 0,51 units of change corresponds to one units of change in “age”, directly affected by “Attitude” component of the model. When attitude goes up by one standard deviation, v201 goes up by 0,373 standard deviations. In other words, “Attitude” has moderate effect size on fertility behavior of women in five metropolitan areas of Turkey.

All these results show that fertility behavior of ever-married women in five metropolitan areas of Turkey is directly and/or indirectly affected by their perceptions and attitudes.

5.3 Results of multi-group analysis:

Another hypothesis of the model assumes that ever-married women living in metropolitan areas are different from those in rural areas in terms of their perception, attitudes and fertility behaviors. Consequently, this section presents the analysis that explores those differences.

Multi-group analysis method, which is explained in chapter 3, enables to test the validity of a model in different groups by performing it concurrently. In this thesis, suggested model is implemented in two groups which are ever-married women aged 15-49 living in metropolitan areas and those living in rural areas. Therefore, by using multi-group analysis, it is tried to be showed that the default model suggested by the thesis is only valid for ever-married women aged 15-49 living metropolitan areas of Turkey.

In multi-group analysis AMOS performs the model according to six different phases for two or more populations that we defined by the researcher. First one is unconstrained in which all relations have been released. Others were performed by equaling measurement weights, structural weights, structural covariances, structural residuals and measurement residuals of the models respectively. In order to say that a model is valid for all groups that are determined by the researcher, all six model types' CMIN/DF values must be smaller than five[29].

[29] Ideal CMIN/DF value is usally accepted as values that are $\leq$ 2. However, values smaller than five are also acceptable (Şimşek, 2007). Yet, it should be stated that CMIN/DF values $\leq$4 are fairly high from the ideal CMIN/DF number which is $\leq$2 are not considered as significant in this thesis.

Table 5.3.1 Model fit values for multi group analysis:

Model	NPAR	CMIN	DF	P	CMIN/DF
Unconstrained	104	1671,291	448	,000	3,731
Measurement weights	88	1885,648	464	,000	4,064
Structural weights	80	2093,686	472	,000	4,436
Structural covariances	77	2189,658	475	,000	4,610
Structural residuals	72	2501,437	480	,000	5,211
Measurement residuals	52	3878,669	500	,000	7,757

Table 5.3.1 gives model fit values of multi-group analysis. According to Table only when all parameters are set free the default model is valid for both groups. Other models can not be accepted because of their CMIN/DF values.

Table 5.3.2 Regression Weights for Rural areas (Unconstrained)

		Estimate	S.E.	C.R.	P	Label
perception	<--- v133	,037	,004	9,824	***	b4_2
perception	<--- pexposed	-,060	,016	-3,821	***	b7_2
perception	<--- v012	,003	,001	3,789	***	b8_2
attitude	<--- perception	,557	,110	5,052	***	b3_2
ws attitude	<--- attitude	-2,152	,413	-5,216	***	b1_2
FP Attitude	<--- attitude	1,000				
daily-life	<--- attitude	2,663	,489	5,448	***	b6_2
s373	<--- FP Attitude	1,044	,167	6,256	***	a1_2
s368hnd	<--- FP Attitude	,308	,068	4,530	***	a2_2
s372hnd	<--- FP Attitude	1,000				
s766hnd	<--- ws attitude	,703	,062	11,268	***	a3_2
s767a	<--- ws attitude	,892	,066	13,473	***	a4_2
s767b	<--- ws attitude	1,000				
s767c	<--- ws attitude	,616	,062	10,007	***	a5_2
s767d	<--- ws attitude	,715	,057	12,584	***	a6_2
s768	<--- daily-life	1,000				
s770	<--- daily-life	,738	,057	12,907	***	a7_2
s772c	<--- daily-life	,719	,063	11,389	***	a8_2
s772d	<--- daily-life	,906	,074	12,297	***	a9_2
s772f	<--- daily-life	,882	,066	13,458	***	a10_2
s772g	<--- daily-life	-,577	,049	-11,858	***	a11_2
v157h	<--- daily-life	1,047	,084	12,443	***	a12_2
v201	<--- v012	,118	,008	14,945	***	b2_2
knowovu	<--- perception	1,000				
aidstran1	<--- perception	,372	,053	7,009	***	a13_2
waysavo	<--- perception	,573	,064	8,935	***	a14_2
v201	<--- attitude	-5,263	1,621	-3,247	,001	a15_2
v201	<--- v133	-,152	,036	-4,189	***	b5_2
s357a	<--- FP Attitude	,063	,073	,855	,392	a16_2

Figure 5.3.1 Total SEM model for rural areas (unconstrained), Turkey 2003:

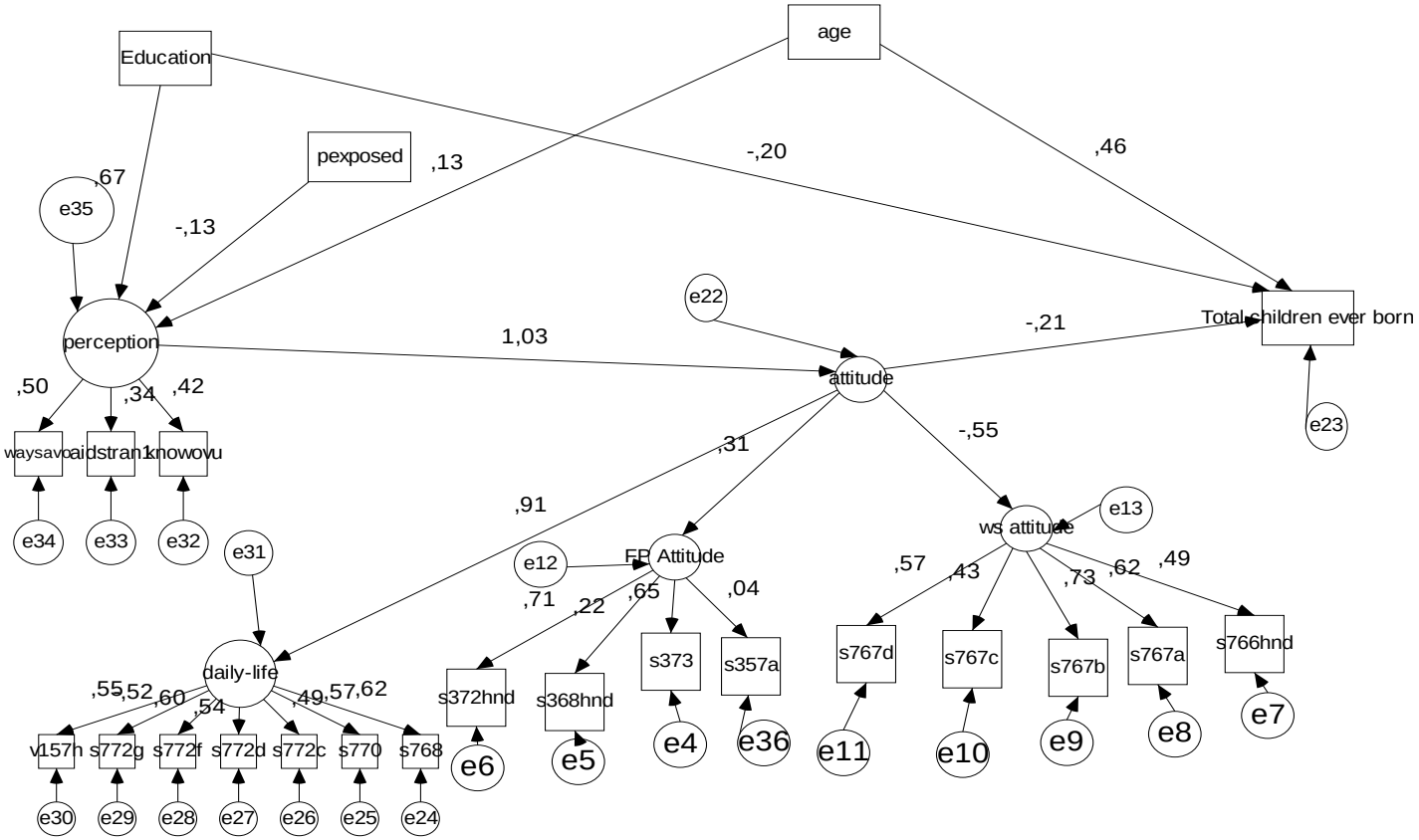


Figure 5.3.1[30] shows the results of multi-group analysis for women living in rural areas. Although in Table 5.3.1, unconstrained model has acceptable model fit value, when looking at significance of standardized estimates given in Table 5.3.2, it can be observed that effect of attitude on v201 "total children ever born", which is -0,21, is not significant. This means, one of the main assumption of the model that predicts a significant relation between perception, attitude and behavior of women has failed in rural areas.

As a result of the multi-group analysis it is revealed that relation among perception, attitude and fertility behavior that is suggested by the model is significant for ever-married women living in metropolitan areas while it is not for those living in rural areas of Turkey. This is because of differentiation of perceptions and attitudes of women in metropolitan areas and in rural areas. For example one of the predictors of attitude variable is daily-life activities of women. As expected, most of these activities can mostly be performed in modern life's conditions. For example, women living rural area may not as easily access to the movie as metropolitan. Or women, living in rural areas all day may have a little chance to put on make up in the evening and go outside for a dinner with her friends. In other words, rural areas have different daily-life dynamics and structures in contrast to metropolitan areas. Consequently, "*Daily-life"*, which is formed as a latent variable in the SEM model, is reflecting the daily-life conditions of certain areas such as metropolises, not the rural. That is why hypothesized structures are insignificant for women in rural areas.

[30] In figure 5.3.1 standardized direct effect of perception on attitude is revealed as 1,03. Jöreskog has stated that (1999), "…. a common misunderstanding is that coefficients in the completely standardized solutions must be smaller than one in magnitude and if they are not, something must be wrong. However this needs not to be so. If the factors are correlated, the factor loadings are regression coefficients, are not correlations and such they can be larger than one in magnitude. This can indeed happen also for any LISREL or AMOS model.(…) a standardized coefficients of 1.04,1.40 or even 2.80 does not imply that something is wrong, although it might suggest there is a multcollinearity in the data(…) ". The rural data is tested for multicollinearity by performing classical factor analysis between perception and attitude variables and it is found that observed variables of daily-life have a slight collinearity with *perception (see Appendix, table A.5, A.6, A.7).*

To sum up, it can be concluded that, because the perception and attitudes of women living in rural areas differs from those in metropolitan areas, relation between them also differs. Moreover, because concept attitude that is formed in this thesis are not suitable for women living in rural areas, its effect on fertility behavior is displayed as insignificant.

CHAPTER 6. CONCLUSION & DISCUSSION:

Fertility analyses are widely performed in demographic studies in order to explore dynamics of persistent major decline in fertility. Today, countries of the world have almost divided into three groups as post- transitional, transitional and pre–transitional in terms of fertility transition stages they are currently in. Fertility transition is basically defined by Cleland (2001) as a fall in death rates, an ensuing period of rapid natural increase, a lagged decline of birth rates, and an eventual return to population equilibrium.

Recently second demographic transition defined as the fertility decline below come into debate. Moreover, at the end, negative population growth is expected. Post-transitional countries (mostly more developed countries) have already started to experience adverse effects of negative population growth such as aging. On the contrary pre-transitional countries with high fertility rates are also experiencing adverse effects of rapid population growth.

Turkey, with the 2.23 TFR level, is considered as transitional country. However, considering the difference between rural-urban as regard to their TFR levels, it is possible to observe various phases of fertility transition. TDHS-2003 reveals the current estimates of TFR levels by residence. The total fertility rate in rural areas of Turkey is 2.65 births per women, which is far from replacement level (2.1), while it is 2.06 in urban areas (HUIPS, 2004). Total fertility rates for metropolitan areas are calculated in this thesis in order to see residential differences as a whole. It was found that TFRs of metropolitan areas prevail the lowest fertility levels in Turkey. TFR in five metropolitan areas indicates that if fertility rates were to remain constant at the level prevailing during the three year period before the TDHS-2003, a woman living in five metropolitan areas would bear 1.73 children during her life-time.

To sum up, Turkey is experiencing different TFR levels according to residences (metropolitan areas/urban areas/rural areas) which reflect pre-transitional,

transitional and post-transitional fertility characteristics. Thus Turkey has a potential to experience negative consequences of low fertility rates as well as high in different parts of the country. That is why, it is believed that mechanisms of fertility decline should be examined. In order to explore the mechanisms of differentiation in fertility, an alternative perspective has been tried to build up in this thesis. Giving a birth or not is considered as result of a decision process. For modeling the decision process of a woman, it is hypothesized that one's perception affects her attitudes and those attitudes affect her fertility behavior.

Structural Equational Modeling (SEM) method has been used in order to explore casual relations and indirect effects as well as direct ones that are suggested by the model. Using Turkey Demographic and Health Survey 2003 data, analyses were performed mainly among ever-married women aged 15-49 living in metropolitan areas in order to explore if there is a relation between their perception, attitudes and fertility behaviors. Those women are preferred as units of analysis because it is assumed that metropolises have different social dynamics (life-styles, type of social interactions and relations etc) that affect women's decision processes about fertility. Ever-married women aged 15-49 living in rural areas are used for comparison.

There are several core conclusions derived from the analyses of this thesis which are discussed below:

Estimated total fertility rate (TFR) has shown that, metropolitan areas of Turkey have the lowest TFRs which are far below the replacement level (2.1) and display significant difference in contrast to rural and overall urban areas. As highlighted in chapter 4 section 2; age specific fertility rates (ASFR) observed in five metropolitan (Adana, Ankara, Bursa, İstanbul, İzmir) areas, in 25-29 age group display a very similar path with ASFRs of the same age group for overall Turkey 5-14 years ago. It is believed that, this similarity should be explored by further studies in order to predict future fertility trends of Turkey.

Result of SEM analysis used for testing the default model presented in chapters 3 and 5 show that unobserved variable that is conceptualized as "perceptions of women" has a very large effect on "attitudes" which is also an unobserved variable . Moreover, perception has moderate negative effect on fertility: which means one unit of increase in "perception" ends with 0,95 and 0,35 units of decrease in "attitude" and "fertility" behavior respectively. In addition to these, perception has a large positive effect size on latent variable constructed as "daily-life" styles of women while it has large and negative effect on latents which are conceptualized as "attitudes towards women's status" and toward "family-planning methods and issues". It is also revealed that, "attitude" that is predicted by using daily-life styles, attitudes towards women's status and family planning methods has a moderate and negative effect on fertility.

It can be concluded that women with higher knowledge about menstruation periods, sexually transmitted infections and ways to avoid STIs have more active-daily lives; they are more sensitive towards gender issues such as domestic violence or gender roles that are presented by society and have relatively less children. Moreover, women that have positive attitudes towards domestic-violence and normative gender roles and have relatively isolated lives more likely to have higher numbers of children.

Another finding of this thesis is about the effect of education on fertility. Information on schooling is routinely collected in all demographic surveys as well as Turkey Demographic and Health Survey 2003 that has been used in this thesis. That is why effect of education is controlled during analysis. However, an interesting result is revealed: The direct effect of education on fertility is founded as insignificant by the analysis. The reason of this result is explored and concluded that education has a significant indirect effect on fertility instead of direct effect.

Consequently, it can be said that since female education enables women to process a wide range of information, and stimulates cognitive changes that shape woman's interaction with surrounding world, it positively affects her knowledge

about sexual health issues as well as her daily-life style, her perspectives about gender equality or inequality and therefore her behaviors about childbearing. Martin and Jaurez (1994) have stated "schooling's role in attitude formation and attitude change goes far beyond the enhancement of conceptual reasoning or other information-processing abilities. Women's exposure to new ideas and behavioral models, for example, may lead to a crucial transformation in aspirations and, eventually, to questioning traditional beliefs and authority structures. These subtle changes are linked not only to the content of the schooling curriculum but also to the organization of instruction and the social process of learning."

The mediating effect can be possible for various variables whose significance is nearly taken for granted in fertility analysis. Therefore further studies must be performed about this issue in order to determine the mechanisms of fertility decline.

However, it should be mentioned that these findinga are for five metropolitan areas of Turkey. Although default model fits the rural data in unconstrained model, results of multi-group analysis showed that hypothesized effect of attitude on behavior is insignificant for ever-married women aged 15-49 in rural areas of Turkey. This finding can be interpreted as; the modeled decision process for performing fertility behavior is valid for women both in metropolitan and rural areas. However, form of perceptions and attitudes must be built up by considering social, economical and geographical dynamics of the population of interest which requires a researcher who is familiar with that population.

Consequently, this thesis does not aim to provide a model that fully explains decision process of women and the effects of all exogenous and endogenous factors on fertility. Its aim is to present an alternative perspective that focuses on social and social-psychological processes. Results of this thesis may provide a suggestion that refers to multi-disciplinary approaches in social sciences, exertion of social interaction and interpersonal relations, and role of in depth view in fertility studies which may end with a more clear understanding of fertility decline mechanisms.

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APPENDIX

Table A.1 List of strata by region, NUTS1 region, residence, type and province, Turkey 2003[31]

Stratum	Region	Nuts 1 region	Type	Province
1	West	İstanbul	Urban/Metropol/Slum	İstanbul
2	West	İstanbul	Urban/Metropol/Slum	İstanbul
3	West	İstanbul	Urban	İstanbul
4	West	İstanbul	Rural	İstanbul
5	West	West Marmara	Urban	Edirne,Kırklareli, Tekirdağ, Balıkesir, Çanakkale
6	West	West Marmara	Rural	Edirne,Kırklareli, Tekirdağ, Balıkesir, Çanakkale
7	West	Aegean	Urban/Metropol	İzmir
8	West	Aegean	Urban	İzmir, Aydın, Denizli, Muğla, Manisa
9	West	Aegean	Rural	İzmir, Aydın, Denizli, Muğla, Manisa
10	Central	Aegean	Urban	Afyon, Kütahya, Uşak
11	Central	Aegean	Rural	Afyon, Kütahya, Uşak
12	West	East Marmara	Urban/Metropol	Bursa
13	West	East Marmara	Urban	Bursa
14	West	East Marmara	Rural	Bursa
15	West	East Marmara	Urban/Earthquake	Kocaeli, Sakarya, Yalova
16	West	East Marmara	Rural/Earthquake	Kocaeli, Sakarya, Yalova
17	Central	East Marmara	Urban	Bilecik, Eskişehir
18	Central	East Marmara	Rural	Bilecik, Eskişehir
19	Central	East Marmara	Urban/Earthquake	Bolu, Düzce
20	Central	East Marmara	Rural/Earthquake	Bolu, Düzce
21	Central	West Anatolia	Urban/Metropol	Ankara
22	Central	West Anatolia	Urban	Ankara, Konya, Karaman
23	Central	West Anatolia	Rural	Ankara, Konya, Karaman
24	South	Mediterranean	Urban/Metropol	Adana
25	South	Meditarranean	Urban	Antalya, Burdur, Isparta, Adana,İçel, Hatay, K.Maraş, Osmaniye
26	South	Meditarranean	Rural	Antalya, Burdur, Isparta, Adana,İçel, Hatay, K.Maraş, Osmaniye
27	Central	Central Anatolia	Urban	Kırşehir, Nevşehir, Niğde, Aksaray, Kırıkkale, Kayseri, Sivas, Yozgat
28	Central	Central Anatolia	Rural	Kırşehir, Nevşehir, Niğde, Aksaray, Kırıkkale, Kayseri, Sivas, Yozgat
29	North	West Black Sea	Urban	Zonguldak, Bartın, Karabük, Kastamonu, Sinop, Samsun
30	North	West Black Sea	Rural	Zonguldak, Bartın, Karabük, Kastamonu, Sinop, Samsun

[31] Source: HIPS (2004)

Continuing

Table A.1 List of strata by region, NUTS1 region, residence, type and province, Turkey 2003/Continued

31	Central	West Black Sea	Urban	Çankırı, Amasya, Çorum, Tokat
32	Central	West Black Sea	Rural	Çankırı, Amasya, Çorum, Tokat
33	North	East Black Sea	Urban	Artvin, Giresun, Gümüşhane, Ordu, Rize, Trabzon
34	North	East Black Sea	Rural	Artvin, Giresun, Gümüşhane, Ordu, Rize, Trabzon
35	East	Northeast Anatolia	Urban	Erzincan, Erzurum, Bayburt, Ağrı, Kars, Ardahan, Iğdır
36	East	Northeast Anatolia	Rural	Erzincan, Erzurum, Bayburt, Ağrı, Kars, Ardahan, Iğdır
37	East	Central East Anatolia	Urban	Bingöl, Elazığ, Malatya, Tunceli, Bitlis, Hakkari, Muş, Van
38	East	Central East Anatolia	Rural	Bingöl, Elazığ, Malatya, Tunceli, Bitlis, Hakkari, Muş, Van
39	East	South East Anatolia	Urban	Adıyaman, Gaziantep, Kilis, Diyerbakır, Şanlıurfa, Mardin, Siirt, Batman, Şırnak
40	East	South East Anatolia	Rural	Adıyaman, Gaziantep, Kilis, Diyerbakır, Şanlıurfa, Mardin, Siirt, Batman, Şırnak

Table A.2 Scores about ways to avoid AIDS

Percent distribution of ever-married women aged 15-49 living in metropolitan and rural areas by their correct answers they have given to ways to avoid HIV/AIDS transmission questions

Scores	**five metropolitan areas**	**Rural areas**
0	7,1	28,3
1	6,0	10,2
2	12,1	11,5
3	17,8	18,3
4	26,5	18,3
5	21,9	10,8
6	6,6	2,5
7	1,5	0,0
8	0,2	0,1
9	0,2	0,00
10	0,0	0,0
Total	100	100

Table A.3 Scores about AIDS transmission ways

Percent distribution of ever-married women aged 15-49 living in metropolitan and rural areas by their correct answers they have given to how HIV/AIDS transmits questions

Scores	**Five metropolitan areas**	**Rural areas**
0	36,1	60,7

1	0,4	1,2
2	7,6	14,1
3	0,0	0,0
4	49,4	22,1
5	5,4	1,7
6	0,9	0,2
7	0,1	0,0
8	0,0	0,0
9	0,0	0,0
10	0,0	0,0
Total	100	100

Table A.4 List of the questions that were asked in order to obtain information about women's knowledge on HIV/AIDS Transmission ways

AIDS Transmits through sexual relation	Yes/No
AIDS Transmits by having more than one partner	Yes/No
AIDS Transmits through sexual relationship with prostitutes	Yes/No
AIDS Transmits through sexual relationship without using condom	Yes/No
AIDS Transmits through homosexual relationship	Yes/No
AIDS Transmits through blood transfusion	Yes/No
AIDS Transmits through injection	Yes/No
AIDS Transmits through kissing	Yes/No
Other	Yes/No
Don't know	Yes/No

Table A.5 List of the questions that were asked in order to obtain information about women's knowledge on ways to avoid HIV/AIDS Transmission

AIDS Transmission can be avoid by using condom	Yes/No
AIDS Transmission can be prevented by avoiding sex with multiple sex partners	Yes/No
AIDS Transmission can be prevented by avoid having sexual relation with prostitutes	Yes/No
AIDS Transmission can be avoid by not preferring homosexual relationship	Yes/No
AIDS Transmission can be prevented by avoiding blood transfusion	Yes/No
AIDS Transmission prevented by using sterile injections	Yes/No
AIDS Transmission prevented by avoiding kissing	Yes/No
AIDS Transmission can be prevent by avoiding mosquito bite	Yes/No
AIDS Transmission can be prevented seeking help from traditional healers	Yes/No
Other	Yes/No
Don't know	Yes/No

Table A.5 Rotated Component Matrix for Perception and Daily-Life

	Component	
	1	2
waysavo ways to avoid aids	-,051	,743
aidstran1 knowledge about aids transmission ways	,080	,665
knowovu knowledge of ovulatory cycle	,314	,307
v157h reads newspaper	,605	,019
s772g Wears a head scarf when going out	-,386	-,464
s772f Puts on make-up	,482	,493
s772d Goes outside for a meal	,676	,107
s772c Goes on holiday	,683	,005
s770 Ever gone to the theatre	,604	,216
s768 Ever gone to the cinema	,606	,289

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Table A.6 Rotated Component Matrix(a) for Perception and FP Attitude

	Component		
	1	2	3
waysavo ways to avoid aids	,055	,589	,201
aidstran1 knowledge about aids transmission ways	-,024	,735	,158
knowovu knowledge of ovulatory cycle	,077	,648	-,345
s372hnd approves of induced abortion	,847	,083	,041
s368hnd allright for religion to use contraception	,149	,156	,606
s357a Appropriate to teach about FP at secondary school	-,056	-,008	,782
s373 Would consider induced abortion	,867	-,006	,045

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Table A.7 Rotated Component Matrix for Perception and WS Attitude

	Component	
	1	2
waysavo ways to avoid aids	-,083	,614
aidstran1 knowledge about aids transmission ways	-,033	,771
knowovu knowledge of ovulatory cycle	-,123	,553
s767d Male child should get education	,680	-,015
s767c Woman should not argue	,575	-,006
s767b Men are wiser	,737	-,209
s767a Important decisions by men	,756	-,072
s766hnd wife beating justified	,539	-,245

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.