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EFFECTS OF PRESENCE OF OTHERS AND REPORTING ON SENSITIVE AND ATTITUDE QUESTIONS IN DEMOGRAPHIC AND HEALTH SURVEYS CASE STUDY: 2013 TURKEY DEMOGRAPHIC AND HEALTH SURVEY

Farhia Salat MOHAMUD

Supervisor:

Assist. Prof. Dr. Tuğba ADALI

Department of Social Research Methodology

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ABSTRACT

Third parties during interviews albeit a common occurrence, it is not widely studied. Literature in this topic is limited and mostly old. As a primary requirement, interviewers are asked to ensure privacy during the interviews. This may not be achieved in some situations and may lead to other people listening in the interview or actively participate in it and this may led to social desirable responding.

Using the 2013 Turkish Demography and Health Survey data (TDHS -2013), this study explored factors that predisposes a third party person to be present, effects of their presence and if the type of third party presence elicit different effects. The focus of the TDHS -2013 were women of reproductive age, a total of 9,746 were interviewed. The interviewers were required to mark all the type of third party that were present at the end of the interview, the assumption is that the presence of a third party person was throughout the interview. In modelling the effects, variables selected were assumed to be sensitive or elicit social desirable responding.

Descriptive statistics and logistic regressions from the complex sample menu were used for analysis after the necessary recording of variables were done. Findings indicated that marital status and cohabitation duration was significant determinant of third party presence, shorter cohabitation duration increased the odds of having children, respondent's mother and mother-in-law present. Number of rooms and interview duration increased the odds of having a third party present. The impact of third party presence on selected variables was observed, some variables were affected by third party presence and the direction depended on the type of third party person. The findings reinforces the prerequisite of privacy to be ensured before interviews are conducted and recommends interviewers to be trained on effect of third party presence.

Key words: third part presence, socially desirable, sensitive.

ÖZET

Görüşmelerde üçüncü kişilerin bulunması yaygın bir durum olmasına karşın fazla araştırılan bir konu değildir. Bu konudaki literatür kısıtlıdır ve genellikle eski tarihlidir. Görüşmeciler öncelikli olarak görüşmeler sırasında gizliliği sağlamakla yükümlüdürler. Bu durum her zaman mümkün olmayabilir ve başka kişilerin görüşmeyi dinlemesi, etkin olarak görüşmeye katılması söz konusu olabilir, bu gibi durumlar cevaplayıcının sosyal istenirlik etkilerine maruz kalmalarına yol açabilir.

Bu çalışma, üçüncü bir kişinin varlığını etkileyen faktörleri ve bu kişilerin varlığının etkilerini 2013 Türkiye Nüfus ve Sağlık Araştırması'nı (TNSA-2013) kullanarak keşfetmektedir. TNSA-2013'ün odağında üreme çağındaki kadınlar bulunmaktadır ve 9,746 kadın ile görüşülmüştür. TNSA-2013 görüşmecilerinin görüşme sonunda görüşme sırasında orada bulunan tüm üçüncü kişileri işaretlemesi beklenmiştir. Bu soruya dayanan bu çalışmada bu kişilerin görüşme boyunca orada olduğu varsayılmıştır. Üçüncü kişilerin yanıtlara etkisinin modellenmesinde değişkenler üçüncü bir kişinin varlığından etkilenebilecek hassas veya sosyal istenirliğe maruz kalabilecek sorular olarak seçilmiştir.

Değişkenlerin hazırlanmasından sonra karmaşık örneklemler için betimleyici istatistikler ve lojistik regresyon analizi yapılmıştır. Üçüncü bir kişinin olmasının belirleyicileri büyük ölçüde daha önce yapılmış çalışmalarla benzerlik göstermiştir. Bulgular evlilik durumu ve süresinin üçüncü bir kişinin varlığının anlamlı belirleyicileri olduğunu göstermiş; daha kısa süredir evli olan kişilerin görüşmelerinde çocukların, cevaplayıcının annesinin veya eşinin annesinin bulunmasına dair odds oranları artmıştır. Konuttaki oda sayısı ve görüşme süresi de aynı yönde etki yapmıştır. Seçilmiş bazı değişkenlerde üçüncü kişilerin etkileri gözlenmiştir ve bu etki üçüncü kişinin niteliğine göre farklı yönlerde olmuştur. Bulgular görüşme öncesinde gizliliğin sağlanmasının önemini vurgulamış ve görüşmeci eğitiminde bu konunun öne çıkarılmasının altını çizmiştir.

Anahtar kelimeler: üçüncü kişilerin varlığı, sosyal istenirlik, hassas.

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ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
DHS	Demographic and Health Surveys
TDHS	Turkish Demographic and Health Survey
TPPs	Third Party Persons (presence of others during the interview)
SPSS	Statistical Package for the Social Sciences
NORC	National Opinion Research Center
USAID	United States Agency for International Development
HIV	Human Immunodeficiency Virus
STI	Sexually Transmitted Infections
SUE theory	Subjective Expected Utility theory
RC theory	Rational Choice theory
SAQ	Self-Administered Questionnaire
SRC	Social Research Survey
SRS	Simple Random Sample
GSS	General Social Survey
ABPRS	Address Based Population Registration System

CHAPTER 1. INTRODUCTION

Literature suggests that interviewers are required to interview the respondents alone to ensure privacy and confidentiality (Sudman & Bradburn, 1973). This is to assure the respondents of anonymity and minimize social desirability effects. Bardburn and Sudman (1980) described one study undertaken by The National Opinion Research Center (NORC) which advices that interviews should be conducted in a quiet room and away from other people. However, there are times when this is not the case and the interviewer has to improvise and try to stay close as possible to the ideal. In other words, third party people's presence are common incidences and tend to a possibly severe influence on responses. Their presence during interviews may bias answers especially on what are deemed sensitive and attitude questions (Silver, Anderson, & Abramson, 1986).

This study will focus on the 2013 Turkey Demographic and Health Survey (TDHS) individual women data. The questionnaire used to obtain this data set included the following sections: background characteristics; migration history; marriage history and information on marriage; pregnancy, birth history and fertility preferences; assisted reproductive techniques; knowledge and use of contraceptive methods, antenatal and postnatal care; breastfeeding, nutrition, and immunization of children under age five; women's work history and status; husband's background characteristics; and anthropometric measurements of women and their children under five (Hacettepe University Institute of Population Studies (HUIPS), 2014).

There were certain question items that are found in the core Demographic and Health Surveys questionnaire which were not included in the TDHS-2013. They include cooking fuel in the household questionnaire (this is replaced with heating in the TDHS -2013); complication that are a results of recent births; vitamin A boost in children; and HIV and other Sexually Transmitted Infections (STI) related questions (the HIV question was

added once in the TDHS -2003 to gauge the respondent's knowledge. It has been omitted ever since).

Migration history which is not part of the core DHS questionnaire was added in the last 3 TDHS as part of the question items. In the 2013 questionnaire, the presence of others is recorded towards the end of the interview, a screengrab of the section in the questionnaire where the third party person present are recorded is attached as Appendix A.

From the above listed topics, this study focused on questions that may be influenced by social desirability and which are deemed to be sensitive in nature. For the purpose of analysis and easier reporting, the questions were divided into attitude, behavioral and other questions which were further subdivided into different themes.

Attitude questions included questions on;

- Gender roles
- Fertility preference

Behavior questions included questions on;

- Lifestyle
- Religious practices

Others included questions related to;

- Reproductive health
- Financial matters
- Relationship with partner

The TDHS -2013 is the 10th in series of national-level population and health surveys and the 5th among the DHS series. The DHSs are conducted every five years in Turkey since 1993, the main goal is "to provide data on socioeconomic characteristics of

households and women between ages 15-49, fertility, childhood mortality, marriage patterns, family planning, maternal and child health, nutritional status of women and children, and reproductive health" (HUIPS, 2014 p. 37). The purpose of the information obtained from the TDHS-2013 is to aid policy makers and other stakeholders to assess current programs and to come up with new approaches that will improve demographic, social and health policies and to provide readily available and reliable data whenever it is required as the TSHS-2013 is part of the official statistic program.

Turkey is known as a transcontinental country which part of it is situated in Western Asia (Anatolia) and the other in Southern Europe (East Thrace). The current population is estimated to be 82.96 million people, male make up 50.2% while the female make 49.8% of the total population, life expectancy at birth was 78 years as of 2016, 80.7 and 75.3 years for females and males respectively (Turkish Statistical Institute, 2018). Overall, females outlive their male counterparts and 5.4 years is the difference in life expectancy at birth. (Turkish Statistical Institute, 2017). As found in the result of Address Based Population Registration System (ABPRS), the average household size in Turkey was estimated to be 3.4 in 2017 which is a decline compared to the 2014 estimate (3.7) (Turkish Statistical Institute, 2017). Turkish is the widely spoken language in Turkey, while some region (Eastern and South-Eastern) speak Kurdish, Islam is the main religion (99.8%) of the country. The population is fairly comprised of young people; 0-14 years make up around 27%, 67% of the population are estimated to be around 15-64 years while 64 year old and above make up only 6% of the population. Literacy level is high in the country at 95.6% as of 2018, the literacy level for female population is lower at 92% compared to that of male (98%). 70% of the population is approximated to reside in urban centers and urbanization rate is 1.7% per year (World Population Review, 2019).The fertility rate is estimated to be 2.07 children born per woman in 2017 a decline from 2.11 children in 2016 (Turkish Statistical Institute, 2018).

Turkey is comprised of 81 provinces which are divided into districts, sub-divisions and villages. From 2002 in line with European Union (EU) unification procedures, a new regional statistical classification was accepted which is known as Nomenclature of Units for Territorial Statistics (NUTS) comprising of NUTS I (12 regions), NUTS II (26 regions) and NUTS III (81 provinces). Compared to other regions, the West region is the most advanced socio-economically and most industrialized. The region also contributes a big percentage to the Gross Domestic product (GDP) of the country, since most of the industries are situated there and has a large agricultural area. The least developed region in the country is the Eastern region.

Turkey has both traditional and modern lifestyle, residents of metropolitan areas practice modern lifestyles that mirror the western countries while those in the rural areas or outskirts of the urban centers are largely more traditional and conservative. Patriarchal beliefs are still dominant and have influence on social life despite the law of the land being more liberal on gender equality (HUIPS, 2014).

1.1. Objectives

The objective of this thesis is a close examination of the issue of presence of others in surveys in Turkey, through the practice of DHS. First of all, the extent of the presence of others in the 2013 TDHS will be determined. Afterwards, the factors that determine the presence of a third party person will be explored. As the next step, the effects of the presence of third party persons influences respondents' responses to certain questions of interest in the 2013 TDHS will be investigated. Moreover, whether or not the type of third person present has a different effect on the responses will be looked at.

Based on the above stated objectives, the research questions are as follows:

1. Does individual and household characteristics influence the presence of third party persons?

2. Does the presence of third party persons influence the respondents' responses to questions?
3. Is there a difference between the type of third part person present and the influence?

1.2. Justification

The DHS is carried out every five years in over 90 developing countries, with the main purpose of gathering, analyzing and publishing correct data that is representative in nature in the field of health and population (The DHS Program, 2018). The data is important for national prioritization of important areas such as health, nutrition and policy formulations. The typical DHS questionnaire asks about the presence of other persons (referred to in this study as "third party persons"), characterizes their typology. Generally, DHS requires the interviewer to make all efforts to ensure privacy of the respondent. Most of the research conducted on this topic have proven that children and spouses are by great deal, the most commonly appearing third party persons' in the course of interviews (Smith, 1997). A study on an international face-to-face survey series on mental health showed that the presence of a third persons' was greater than 35% when the interviews should have been conducted in private (Mneimneh, 2012). On the influence of presence of third party persons' on contraceptive use, it was discovered that spouse presence minimized the likelihood of reporting contraceptive use in a number of countries in Asia, Latin America, Africa and the Caribbean (Casterline & Chidambaram, 1984).

On the other hand, it was established that spousal presence during interviews lowered disclosing of depression symptoms among residents of Los Angeles (Pollner & Adams, 1997). When asked about their attitudes towards family, young adults and teenagers (15-29 years old) in India reported positively in the presence of their parents (Podmore et al., 1975). While in the presence of their partner, respondents in the US

reported better quality of married life (Aquilino, 1993). Pahl (1989) discovered that there were differences in responses to the same question when a couple was interviewed together at first and then each interviewed alone in a separate room at the same time. A survey conducted in six Western European countries showed that there was a high third party presence among second generation Turkish citizens compared to the natives. The survey also revealed that there were fewer acceptance of abortion and pre-marital sex when respondents were interviewed in the presence of someone in contrast to those who were interviewed alone among Turkish second generation descendants in Europe (Milewski & Otto, 2017).

This thesis sought to illustrate that the presence of other persons during TDHS-2013 interviews can significantly influence the responses of the respondents, especially on attitudes and sensitive questions. The thesis attempted to scope this influence in order to show the significance of the influence. Moreover, the DHS approach to train interviewers to ensure interviews are done in private, we aimed to see if this worked in real life.

CHAPTER 2. LITERATURE REVIEW AND HYPOTHESIS

The literature on the presence of third party persons in surveys is usually from developed countries and focuses on the presence of spouse, parents and children. There are relatively few studies from developing countries. This section presents the literature reviewed to find the gaps in literature this thesis aims to fill, and help understand the findings of this thesis.

There is a growing support in survey literature that people tend to provide accurate responses when confidentiality and privacy issues are employed and adhered to hence the need to minimize the presence of others (Tourangeau & Smith, 1996) . It is suggested that interviewers are required to interview the respondents alone to ensure privacy and confidentiality (Sudman & Bradburn, 1973). This is to assure the respondents of anonymity and minimize social desirability effects. This chapter explains literature on the social desirability effect, determinants of third party presence and effect of their presence on selected question items.

2.1. Social Desirability Effects

Interview items inquiring on topics that are deemed taboo or sensitive such as illegal behaviors, or sexual activities often produce inaccurate assessments which are impacted by social desirability bias. Respondents under-state socially undesirable issues and over-state ones that are acceptable socially, and this is attributed to social presentation concerns. Other than need for social approval and conformity, the degree and occurrence of social desirability bias is also determined by components of interview characteristics, survey design and the survey condition (Krumpal, 2011). The notion of social desirability stands on the belief that there are societal rules regulating certain attitudes and actions and

that individuals might falsely showcase themselves to give an impression that they are conforming to such norms. For instance, voting is regarded as an obligation for all adult citizens and not meeting that obligation is seen as a breach of the norm. Hence some respondents over report voting (Belli, Traugott, & Beckmann, 2001). Correspondingly some interviewees under state behaviors that are unacceptable like heavy consumption of alcohol and illegal drug usage (Tourangeau & Yan, 2007). Many subject areas may be susceptible to social desirability influence, these include having a card for the library (Parry & Crossley, 1950), abortion related topics (Jones & Forrest, 1992) and attending religious activities (Presser & Stinson, 1998).

Individuals tend to omit the truth to avoid harmful or undesirable emotions of embarrassment, shame and dishonor in social settings (Schaeffer, 2000). Study by psychologists from the cognitive field indicate "misreporting on sensitive questions being a controlled, deliberate and motivated process at least partly under the respondent's voluntary control, rather than an automatic mental process happening completely outside of the respondent's consciousness" (Holtgraves, 2004; Holtgraves, Eck, & Lasky, 1997). Three outcomes of survey are believed to be affected by sensitive questions through:

a) Unit or overall response rates (proportion of members in a sample who participate in the study).
b) Item nonresponse rates (proportion of those who accept to take part in a study and refuse to answer a specific question).
c) Accuracy of the response (proportion of respondents who respond honestly to questions).

Using the selected items from the German General Social Survey (ALLBUS), It is assumed that if an item in the questionnaire is very "sensitive" then item nonresponse will be high. For example questions regarding income item has the highest sensitivity (20.7-26.2%) compared to age (0.0-0.4%) and employment status (0.1-0.2%) (Krumpal, 2011).

In an online survey in Germany, 2,075 respondents were tasked with rating petty offences on a sensitivity scale (the action is not okay and it would be uneasy to confess). Shoplifting (79%) and infidelity (73%) were noted to be the most sensitive, driving while under influence of alcohol and marijuana were next (53% and 43% respectively) with average score on sensitivity, while not paying for public transport (22%) and keeping change (20%) scored low on sensitivity scale (Coutts & Jann, 2011).

As indicated by Renzetti and Lee (1993), sensitive subject is one that conceivably possess a significant risk for those participating, which makes it tricky for the researcher as well as what is inquired about, the gathering, as well as distribution of research information. They contend that subjects under research is associated with costs and risks, for example, adverse sentiments of disgrace and humiliation or negative results, like likelihood of penalties. They stressed the social component of sensitivity is more about the connection between the social setting in which the study is conducted rather than topic (Lee and Renzetti 1993). There are three different features of sensitivity distinguished by Tourangeau and Yan (2007):

1. The first aspect is "intrusiveness". This alludes to the way questions may be seen as private or taboo in some cultures. Examples of issues perceived to be too intrusive include questions regarding one's income, sexual inclinations and health etc.

2. Threat of disclosure is the second measurement. This is in relation to the respondents' apprehensions regarding conceivable dangers or contrary results of honestly detailing a delicate conduct should the sensitive response end up revealed to a third party persons or organizations outside the setting of the interview. Such undesirable outcomes perhaps be: indictments, loss of employment or problems in the family. Also in the same category is for example asking the respondents to report on unlawful conduct (e.g. tax fraud, if the respondents is an illegal immigrant and stealing at the work place).

3. Social desirability is the third measurement. This refers to honestly revealing an attitude or conduct that is contrary to existing social standards which is considered unsatisfactory by the general public. To adhere to the standards set by the society, the interviewee may present themselves positively devoid of their genuine attitudes, feelings and behaviors. It is the inclination to disclose qualities that are societally approved and to reject the undesired traits. Socially acceptable answers can also be viewed as respondent's brief and temporary social tactics to adapting to the diverse circumstantial elements in research such as subject matter of the question and presence of others during the interview.

The issue is not the sensitivity of the question rather is sensitivity of the response, according to Fowler (1995), questions tend to be categorized as 'sensitive' if a 'yes' answer is likely to be judged by society as undesirable behavior. However, for those whom the answer is 'no' questions about any particular behavior are not sensitive. Responses suggesting rules abiding behaviors which are deemed desirable are linked with anticipated reward like approval from the interviewer whereas responses signifying nonconformity to societal rules are perceived to be socially undesirable (Fowler, 1995). It is taken into account that respondents are likely to over report behaviors that are socially acceptable and under report those that socially undesirable in order to present favorable version of themselves, the respondents distort their responses towards the social norm (Rauhut & Ivar Krumpal, 2008).

Subjective Expected Utility theory (SEU-theory) and Rational Choice theory (RC theory) frameworks are used to conceptualize the rationale of answering sensitive questions. It is assumed by the empirical utilizations of RC theory that the respondent's probability to respond honestly to be an element of anticipated losses and dangers from answering honestly (Becker & Mehlkop, 2006). The RC theory overall hypothesis is that, reacting to a study question is an objective, coordinated and utility-maximizing selection choice between various response choices. Respondents aims to capitalize on feelings that

are positive due to social approval and to evade contemptuous backlash from the public. This motivates the respondents to use different approaches of "impression management" including responding in a manner that is acceptable socially (Stocké, 2007). Three crucial preconditions are hypothesized by RC theory for social desirability bias:

1. A nonzero subjective likelihood of unfavorable consequences because of an apparent absence of privacy
2. A powerful urge for approval from the society
3. Interviewee convictions that the decision of selecting a certain response of another choice is of importance. This means the reaction of the other subject will be dissimilar for a reply to option A in contrast to the option B response.

An increasing composition of the above factors is presumed to influence behavior and to ascertain the direction and magnitude of bias due to social desirability. Nothing will affect the prevalence of social desirability bias if just one of these factors are not presented and the respondents are assumed respond truthfully (Stocké, 2007).

The behavioral model of SEU theory can be utilized to study the interviewees' feelings and attitudes in surveys that are sensitive by demonstrating apparent gains and losses during interview situations and researching their effect on the respondent's choice of whether to react honestly or not (Rasinski et al. 1994, 1999): if the respondents have been participating in actions that are disapproved, they can decide whether to respond to the sensitive question honestly or not as "making a risky decision with incomplete knowledge about the associated risks and losses" (Rasinski et al. 1999, p. 467). When SEU-theory viewpoint is applied to the survey situation, a person can perceive a respondent's choice whether or not to confess to a behavior that is sensitive as a deliberation of different losses, risks and consequences related to that decision. The predictions by the SEU theory linking the respondents' perceived losses and risks to their propensity of answering honestly study questions that are sensitive was found by Rasinki

et al. (1994). A total of 192 participants were exposed to written down hypothetical scenarios explaining the interview setting. In the female's version, the respondents were inquired regarding driving under the influence of alcohol and abortion while in the male's version, the topics included drunk driving and total number of sexual partners before marriage. The interview settings varied in three ways: the mode of data collection (self – administered versus interviewer administered; the age of the interviewer (50 versus 20 year olds); if a family member is present or absent. On a scale of one to ten, the participants were to rate the probability of the hypothetical interviewee disclosing a sensitive behavior and then they were to asses risks and losses of likely consequence. The findings showed that there was a low chance of reporting truthfully if the interviewer was older and if a relative was present. Moreover, female respondents demonstrated a reduced likelihood to provide true answers when family members were at home and the survey was interviewer administered (Rasinski, 1994).

Within a society, norms may differ based on subcultures or social classes. It is noted that there are cultural variations in socially desirable responding. When the difference in norms is present, the bias brought about by socially desirable responding may alter the observed links between the characteristics and the action of the respondent in question, apart from affecting the estimates of overall proportions and means. For example the rule voting may be stronger among people who are highly educated compared to those who are less educated. This leads to respondents with high education to say they voted when they did not vote compared to respondents who are less educated. This leads to overestimation of the strength of the connection between education and voting (Johnson & Vijver, 2002).

2.2. Third Party Presence

There is a growing support in survey literature that people tend to provide accurate responses when confidentiality and privacy issues are employed and adhered to hence the need to minimize the presence of others (Tourangeau & Smith, 1996).

Bradburn and Sudman (1979) stated that ensuring that none other than the respondents and the interviewer are present during face to face interviews is a standard good field practice. This is to minimize contamination or distortion of the respondent's answers (Silver et al., 1986). Several researchers have urged that interviews on sensitive subjects should be undertaken in privacy (Back and Stycos 1959; Bradburn and Sudman 1979; Moser and Kalton 1972; Warwick and Lininger 1975).

Social psychology proposes self-presentation theory (Goffman, 1959; Metts, 1997), to explain the situation in social interactions where people attempt to present themselves in a manner that will appease others. Sensitive questions during interviews may have "socially approved" responses which indicates rules of suitable behaviors. The respondents' readiness to disclose sensitive information, for examples their usage of illicit drugs when another person is in the vicinity is diminished by the desire to portray a positive image (Metts, 1997).

Privacy throughout the interview setting reduces problems related with self-presentation, which in turn lessens the inclinations towards social desirable responding to what are perceived as intimidating research questions (Sudman and Bradburn 1974). Achieving total privacy in many instances is challenging due to the interview settings. Even though the interviewers may recommend to the interviewee that they converse in private, the interviewers are not capable of controlling the behavior of other family members. To avoid risking the completion of interviews, the interviewers may be hesitant to upset the respondents by demanding for total privacy. Thus, 25-50% of the interviews

in many household surveys are conducted within listening distance of mostly family members (Bradburn and Sudman 1979).

When experienced interviewers in a national survey undertaken in 1975 by the "National Opinion Research Center (NORC)" were tasked with special instruction to ensure all third parties leave the room before the interview commences, 26% of the interviews were still conducted with a by-stander present (Bradburn and Sudman 1980). This indicates that others are more likely to be present when no extra effort is made to decrease third party person presence. In another study, "Participation in America" survey conducted by NORC, 43% of the interviews were done in the company of a third party person aged 15 years and older (Verba and Nie's, 1972). 42% of interviews on "Class Awareness in America" study conducted by the "Survey Research Center (SRC)", were undertaken in the presence of third parties aged 10 years and above (Jackman and Jackman 1983). Anderson and Silver also noted 52% of the interviews of "Soviet Interview Project General Survey" undertaken by NORC were done in the presence of third party persons (Anderson and Silver, 1986). World Fertility Surveys targeting women from developing countries, on average in about half of the interviews had someone else present even after firm instructions were given to the interviewers to ensure they conduct the interviews privately (Casterline and Chidambaram, 1984:268). A study on an international face-to-face survey series on mental health showed that the presence of a third persons' was greater than 35% when the interviews should have been conducted in private (Mneimneh, 2012).

2.1.2.1 Patterns and Determinants of Third-Party Presence

During face to face interviews, factors that influence the presence of a third party is seen primarily from three outlooks:

1. The need for support
2. The control motivation
3. The opportunity Structure (Reuband 1984; Mohr 1986; Aquilino 1993; Hartmann 1994; Smith 1997; Pollner and Adams 1997; Lander 2000; Zipp and Toth 2002)

The Need for Support

This alludes situations that requires the presence of a third party person (Reuband 1984, 1992). For instance when a question is asked, the third person present can offer support in case the respondent cannot recall (retrieval problem). He/she may support respondent's aversion to respond to threatening questions (Schräpler, 2006).

The Control Motivation

Regarding the concept of social control, the theoretical approaches concerning third party presence and their effects on responses to interview questions largely centers in the modification in self-presentation style manner of the interviewee. The core hypothesis is that there is a high probability a respondent will behave contrary to and give incorrect responses if a person known to the interviewee is in vicinity compared to when he/she would in a private setting with an interviewer he/she did not know before the interview and is not likely to encounter another time. The presence of someone usually known to the respondents, may influence the respondent to make her/himself appear conforming to societal beliefs or expectations (Hartmann 1994). Hence it is possible that distortion in responses to interview questions is caused by social desirability bias or situational desirability bias (Esser 1986).

The Opportunity Structure

This are conditions that permits a third person to be present during the interview, these circumstances include:

- Employment status of the respondent
- Type of housing
- Marital status
- Other persons living in the household,
- Number of rooms (Reuband 1992; Aquilino 1993; Hartmann 1994; Zipp and Toth 2002).

In envisaging if a third party person will be present or not, a comprehensive model was presented by Aquiliano (1993) on his research about presence of a spouse during interview. Using the 1987/1988 "United States National Survey of Families and Household", he discovered that being married, sharing a household with the spouse, being male, being older, having a small home and having an unemployed partner enhances the likelihood that a partner will be present. Additionally he noted that the chances a third party person will be present reduces with rise in income, education level and when the children in the household 13 years and older. Aquilino also noted that during interviews the presence of a respondent's partner is not chance occurrence but rather it mirrors in part the preferences and living situation of the couple. Couple who spend a lot of free time together are highly likely to have a spouse present during interviews in contrast to couples who spend their free time doing individual activities (Aquilino, 1993).

Casterline and Chidambaram (1984) in their study of contraceptive knowledge and presence of third party persons during the interview in developing countries, did not find the lack of someone present during interviewed was influenced by age of the respondents rather by education ("they were better educated"), residential area ("lived in urban") and

partner's field of employment ("their spouse doesn't work in agricultural sector") (Casterline & Chidambaram, 1984).

Using the German General Social Survey (1984–1990) data and focusing also on the interview setting, Hartmann (1994) reported similar findings. She discovered that the interview duration increases the probability of a third party person being present. Additionally if the interviewer and the respondent are not of same gender increases the likelihood of a bystander being present, especially in cases where a female is being interviewed by a male interviewer. This reinforces descriptive results of Mohr (1986), who proposed that the bystander presence is mostly specific to gender. As stated by the jealousy hypothesis, a man may feel apprehensive if he finds out his wife will be interviewed by a male interviewer and consequently he may want to be present during the wife's interview. Nonetheless, Hartmann's findings indicate that females are highly likely than males to be present in the partner's interviews irrespective of the gender of the interviewer. Utilizing several samples in the same survey (1980-1998), Lander (2000) provided more information on the jealous theory by proposing that the spouse may want to be in a position to influence the interview setting if he/she assumes that the interviewee will be queried on issues regarding their relationship (Lander 2000).

2.2.2 Effects of Third Party Person Presence

Studies have showed that the presence of others are common phenomena and they can potentially impact responses if the answers provided by the respondents are different from when no one is present (Smith, 1997). The respondent's choice between the various response selections and their willingness to cooperate and honest answering of questions may be affected when privacy is breached during an interview by the third party person presence. As generally assumed third party presence causes the respondents to distort their responses to what he/she presumes the other approves. The respondent may also react by

not avoiding to produce extensive response for example they can refuse to give a response, choose a middle alternative (if presented) or provide "Don't Know" as a response (Hartmann, 1996).

There are two circumstances that explains the direction and magnitude of the effects of the third party presence:

- The frequency with which third party persons are there during interviews
- The impact of the presence of third parties on responses (Silver et al., 1986)

According to the findings of Reuband (1987 and 1992), respondents are inclined to give conservative answers to questions that are sensitive and exhibit more traditional values and norms concerning family in the presence of their partner. Mohr (1986) in interview settings, found a deviation in answers with changes in the gender assemblage. He noted that in matters related to partnership quality, marriage satisfaction, both women and men responded more positively when interviewed by interviewers of the same gender while spouse was present. Since in household survey, the researcher can only interview one person in each household, the approach taken by these kinds of methodological studies is to contrast the responses of those interviewed alone with just the interviewer against those who were interviewed in the presence of another person present (Anderson and Silver 1987). Using data from "British Household Panel Study" where both spouses in each household were interviewed, Zipp and Toth (2002) used an approach that was different. After controlling for confounders, they compared responses given by the two spouses, they noted that spouse presence amplified the degree of agreement among the couples (Zipp and Toth 2002). When youth and young adults between the ages of 15 to 29 were interviewed in the presence of their parents stated more positive attitudes towards family in India (Podmore et al. 1975).

In regards to either the magnitude or the direction of privacy effects, there is little consensus among existing empirical studies. Some studies found significant effects (such as Casterline and Chidambaram 1984; Taietz 1962). Others reported no or few effects (Anderson and Silver 1987; Zanes and Matsoukas 1979) while others had mixed results (Bradburn and Sudman 1979).

The likelihood of presence of someone during interviews affecting the respondents' responses to sensitive questions depends on:

1. Is the survey inquiring about factual information on events and behaviors or subjective analysis of feelings, relationships and attitudes?

2. When asked for factual information, to what extent the person present is knowledgeable about the behavior or event in question? Does he or she know what the interviewee's response ought to be?

3. In what manner will the other person present be affected by the responses if he/she does not have prior information about the facts asked or the interviewer asks subjective analysis of relationships or feelings? Does the other person present have a stake in how the respondents answers the questions?

4. Will the respondent be worried (and to what extent) with how the other person present, reacts to the interview responses especially if the information generated from the interview is new to the third party? (Aquilino, 1997).

If factual information is required from the respondents then the presence of someone who has prior information on the topic of interview will most likely increase the accuracy of answers (Aquilino, 1993). It may be difficult to distort or fail to recall factual information in the presence of someone who has knowledge of the required information (Mitchell 1965).

With a sample of 355 (200 males and 150 females) participants who were 65 years or older in rural Netherlands, Philip Taitez conducted a study in 1962 on "Conflicting Group Norms and the "Third" Person in The Interview". The requirement of the study were that the respondents and their children should be living in the same household. The answers to a number of statements were used to gauge traditional extended family attitudes. The statements included:

- When living in the same home with their children, older people are happier.
- For young married people, it is better to have their own space than to stay with their parents.
- It is more desirable to live with own children
- Living situation they would like if they had a choice

Taitez (1962) hypothesized that answers to attitude question concerning extended family would be affected by the type of relationship the respondent has with the "third" person present, meaning the answers presented in the presence of a partner were expected to be significantly different from those issued in the presence of a child or when both the partner and child are present. The findings showed a greater percentage of the older respondents gave a traditional answers in the presence of children alone compared in the presence of partner alone or when both partner and children are present. Taitez (1962) stated that "aged respondents in the presence of their children more often express the view that old people are happiest when they live in the same house with their children; that it is better for a young married couple to live in the same house with their parents; that living with their children is very desirable; and that if they had their choice they would live with their children." He noted significant difference between the children present scenario and all other scenarios and also between the partner present only situation and all others, although he did not observe any difference when comparing the children and partner present scenarios and the no one present scenario. This shows that; the influence of child

is in an opposite direction to that of partner, when both are present the effect is nullified; and it is the relationship of the third party to the respondent that impacts the responses and not just the sheer presence of someone. When the partner is present, the respondent responds to the scenario from the perspective of his position as a partner and his duty as culture bearer. Since the partner is of the same generation, she's likely to share the same values and principles regarding extended family and he can easily say what he feels and that his position on extended family will not go contrary to her expectations. A conflict in norms occurs between the aged person's status and duty as a partner and parent when both the children and partner are present. He envisioned that the answers of the older respondent in presence of both the children and partner to alternate between the percentage of responses in the presence of children alone and partner alone. He found that the older respondents are of belief that they do not share similar outlook of issues and that their children have the same thought. This is in line with Linton and Mannheim (1952), they theorized that members of same gender and age tend to establish a sense of group unity and they have characteristics and modes of experience and thoughts (Taietz, 1962)

Using a national sample of approximately 1,200 adults, Bradburn and Sudman (1979) found there was increased item nonresponse to questions about income and mattes related to sex in the presence of spouse. Nonetheless they did not find stable and predictable effects of presence of others on issues relating to the respondents' personal and friends' illegal drug use, even though those who had a child present during the interview were unlikely to admit that they or their friends' have ever used marijuana. They deduced that there was merely weak evidence that absence of privacy impacted responses in the survey.

Using data from the 1979 and 1982 National Drug Use Survey, it was discovered that teenagers (12-17 years) reported less use of illegal drugs when privacy is comprised during interviews (Gfroerer 1985). Likewise when identifying information is required

from them, teenagers are likely underreport their present drug use (Malvin and Moskowitz 1983).

As illustrated by post-election studies in the United State, a considerable higher percentage of the people claim to have voted compared to what the official records show. University of Michigan Survey Research Center (SRC) attempted to determine the pattern and extent of this bias by undertaking validation studies in the 1964, 1976, 1978 and 1980 which allow for a comparison between official voting records and self-reported voting of the respondents. Results showed 20% to 30% of the respondents who did not vote claimed to have voted according to validation checks. A high frequency of third party presence was noted in the 1978 and 1980 election studies; the highest recorded presence of other was 56.8% in the 1970 election survey while 1980 survey had least recorded (40.6%) presence of others. Even with efforts to ensure respondents were interviewed in privacy, third parties were present in the SRC National Election surveys in 51.2% of the interviews. It is noted that the influence of third party person is impacted by the relationship of the respondent and that other person. The most recurrent "other person" during the interviews is first the respondent's spouse and secondly the respondent's child. They differentiated the ages of children present; children under six years and older children. In the analysis of 1978, validated nonvoters were unlikely to disclose they voted when their partners were present during the interview compared to when the partner is not present while validated nonvoters were highly likely to say they voted when their partner was present in the 1980 survey. Validated nonvoters were more likely to say they voted in the presence of older children than in the presence of younger children in both studies. It is argued that the presence of older children may have elicited the interviewee to provide a true response. It was noted that there is a constant predisposition to misreport less when both the child and the partner are present. This indicates that there may be a rule forbidding lying in front of children. They concluded that the inclination of many respondents to present a socially acceptable response is not highly influenced by the presence of other during interviews.

This is in agreement with Bradburn and Sudman's (1980) conclusion that third party presence have minimal effect on survey response patterns (Silver et al., 1986).

In survey of 163 married couple who were Soviet immigrants to the United States, called "Soviet Interview Project General Survey", the findings showed that there was a high agreement in the household materials (housing space income and wealth) between couples. They also noted presence of a spouse may make the respondents unable to disclose unfavorable aspects of their marriage and my influence the respondents to respond in a manner that makes their spouse happy. It was inferred that privacy had minimal impact on agreement between the couple in matters of economic status and earlier living conditions. When interviewed separately or together as a couple did not frequently lead to a pattern of increased similarity of responses between spouses on either factual or attitudinal items (Anderson & Silver, 1987).

It is noted that in the presence of spouse or other women (for example mother-in-law), females from developing countries were less likely to admit knowledge of family planning methods and ever using any contraception, the impact was stronger when the spouse was present. A general lack of privacy or the presence of someone during interviews is linked to increased probability of the respondents to be apprehensive to respond truthfully to questions concerning sexual behavior, pregnancy and abortion. (Casterline and Chidambaram 1984).

To observe the impact of spouse presence on responses to sensitive questions, Aquilino (1993) used data from the 1987-88 "National Survey of Families and Households (NSFH)" with a total of 13,017 respondents 19 years of age or over. They selected a sub-sample of 6,882 respondents (3,141 men and 3,741 women). He hypothesized that respondents interviewed with a partner present will provide a more favorable subjective evaluation of their marital relationship and will not divulge "sensitive factual information" concerning their marriage compared to those interviewed with no one present. The

questions include: measures predicting the presence of a partner (age, gender, race, employment, education, household size, housing type, status of the parents, marital status, marital companionship, duration of marriage and couple's income) and subjective assessment of marriage, events and behaviors (frequency of disagreements, probability of marriage ending, fairness, coital frequency, spouse's housework, cohabitated with current partner or with anyone else, if they have been separated etc.) Using logistic regression, they fit a model predicting the probability of spouse presence, thereafter the predictors of presence of partner were used as control variables in demonstrating the influence of partner presence on answers to sensitive interview questions. The dependent variable was coded as 1 when the partner was present more than 15 minutes during the interview and 0 if it was otherwise. Some features of marriage were added as predictors in the logistic regression model. It was expected that the couples who spend a great deal of time together may be highly like to want to share the adventure of being interviewed together. Marital companionship calculated by the regularity of time spent alone with the partner either talking or doing tasks together, and the length of marriage (the length is assumed to be linked with the tendency of couples to partake in certain activities together) were added in the model. As noted by Rubin (1976) the techniques of marital interaction especially companionship patterns may vary by social class, hence socioeconomic status (SES) was anticipated to have some influence on the likelihood of partner presence. The income of the couple and respondent's education were added as a measures of SES in the model. The employment status of both the partner and the respondent also impacts the probability of spouse being present during the interview. If the partner is employed and the respondent is not in the work force or unemployed, the respondent is likely to be interviewed during the day when the partner is working while the spouse who is unemployed is likely to be present during the interview with the employed partner. Hence the respondent and partner employment status was added in the model. It was also assumed that smaller houses with less rooms will hinder the achievement of total privacy during interviews. The probability of partner presence would be higher among those

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residing in apartment and trailers than in single-family homes. Presence of children, age, gender, race and household size were also added in the model. The independent variable was extent of partner presence. In the models of response effect, independent variables from the equation predicting the likelihood of spouse presence were included as control variables. Ordinary least squares (OLS) regression models were fit for the eight continuous dependent variables; logistic regression was used with the three categorical dependent variables. The results showed that the partner was present for more than a quarter and hour in 36% of the interviews, in 25% of the cases the partner was present during full extent of the interview. In 50% of the interviews with men, wives were present for more than a quarter and hour while husband were nearby in only 25% of the interviews with married women. During the entire duration of interviews spouses were present in 35% of the interviews with men who were married in comparison with just 16% of the interviews with married women. It was also discovered that:

- Particularly in interviews with men who are married, spouse presence is a common phenomenon in household surveys.

- Presence of partner is not a chance occurrence rather it is influenced by employment status of the couple, marital companionship, type of housing, gender of the respondent, age and race.

- Partner presence influenced answers to several sensitive items regarding marriage hence the presence of spouse is a possible fount of response effects in a survey data on marriage.

The reason for the high probability of women being present when men were interviewed is assumed to be a factor of women spending more time at home and may likely be at home during the partners' interviews. Additionally, women are more inquisitive about family surveys than husbands since in interpersonal relationship processes wives are more attuned than the their male partners (Thompson and Walker

1989). Partner's presence is more likely with age, this was linked to the propensity of older couples to spend more time together in the home compared to the younger couples. The likelihood of partner presence was reduced with the couple having teenage (13 to 18 year old) and adult children (19 years and older) residing in the same house in comparison to nonparents. Having younger children at home had no significant effect. The employment status of both the respondent and the partner were related significantly to the presence of partner. For partners who are unemployed, they are likely to listen to the interview than those who are employed as they would likely spend more time at home and not at work. Meaning respondents not employed were highly likely than those in workforce to have privacy during interviews. Income and education had highly significant negative effects on the presence of partner, respondents living in apartments (75%) and those living in trailers (60%) were more likely to have their partner presence than those living on single-family homes. It is difficult for the spouse to remain out of hearing range during the interviews when the living space is small. The presence of a partner led to a more positive responses regarding marriage, a reduced perception of marriage annulment/separation among husbands and a positive view of role fairness among wives. Partner presence on factual items was linked with a higher likely to disclose sensitive information about the marriage. On issue of cohabitating before marriage, the respondents were inclined to state that they did and they also reported more conflicts when partners were present. When spouse was present, more time spent on house chores were ascribed to them this may be due to some respondents having obtained estimates from the partner (Aquilino, 1993).

Observing the influence of privacy on self-reported illegal drug usage, a sample of 2,417 adults aged between 18 to 45 years were interviewed in the United States of America, using telephone, self-administered and interview administered interviews. The research questions included:

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1. Will the presence of someone during interviews impact the interviewees' readiness to disclose their lifetime usage of illegal drugs?
2. Does the identity of the person present affect the respondents' differently? If they have prior knowledge of the past behavior of the respondent's and what's their stake in finding out the respondent's previous drug use.
3. Does the mode of interview affect the influence of presence of someone on response inclination differently?
4. Does the influence of no privacy in interviews vary by respondents' characteristics like age, gender, education, marital status and ethnicity/race?

Independent variable was the presence of someone (relative and non-relative, child, partner and parent) while the dependent variables was their usage of any type illegal drugs (psychotherapeutic drugs, cocaine, marijuana etc.). Gender, age, education, employment status, ethnicity/race, household income and cohabitation status were added as control variables. Continuous variables in the models forecasting drug use in one's lifetime included years of education completed and age in years. Using logistic regression, two separate analysis were done to control for the household composition; one estimated the impact due to partner/spouse presence, restricting the sample to those married/cohabitating (1,118 participants). The other assessed the impact because of the presence of a parent, using only sample that lives with a parent (521 respondents). These were mostly young respondents (60% of the 521 were the age of 18 and 25 years). In line with other studies, it was found that partner presence was a regular occurrence when husbands were interviewed than when wives were interviewed. The reason for this as given earlier is that when husband are interviewed women are most likely to be in the house and are invested in knowing what their spouse are asked and what their response are. Compared to whites and Hispanic, presence of spouse was less likely among the African Americans (15% vs. 25%), but was highly likely among those with lowest family income and are least educated. This is in agreement with the result of NSFH study of Aquilino, which implies that class is inversely related to the presence of others during

interviews (Aquilino 1993). Possible reason is that compared to their wealthier counterparts, respondents from the low income group reside in smaller houses with few rooms. This hinders the interviewer to demand privacy during interviews. It's also noted that in homes with four or more members, the likelihood of having a spouse/partner present during interviews was higher than in homes with less than four members residing in the same house. The spouse may have limited free time to be present during interview as his/her attention may be occupied by others or chores in bigger households. Presence of a parent did not differ by gender, the respondents who lived with their parents and who were highly educated were less likely to have their parents present or able to hear them during interview (5%). Respondents with higher education may demand for privacy from their parents compared to less educated respondents. The parents from less income households were less likely to be present during the interview (this effect was opposite of partner/spouse presence). In dwellings with more members, presence of a parent was not common. The parent may be occupied with other members to listen in to an interview. The face to face interviews in homes will most likely be conducted in communal space or shared rooms and may be more difficult to evade other members of the household. The findings of multivariate analysis showed that the presence of someone during interview impacted the respondents' readiness to disclose their use of illegal drugs. Although in what way they affect depended on the type of person present.

In the presence of spouse, the respondents were more likely to report they have used illegal (cocaine and marijuana) and nonmedical usage of prescription drugs compared to when the interview is done in privacy (significant positive effect). Interaction of gender, age and ethnicity/race of the respondent and the presence of spouse/partner was significant, young respondents (especially 18-25 year olds) who are cohabitating/married were likely to be influenced by presence of partner/spouse. The respondents' readiness to reveal illegal drug use was significantly diminished by the presence of a parent, the respondents' lifetime usage of any illegal drugs had significant negative effects. There is a low probability of respondents disclosing behaviors that are socially unacceptable or

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illegal if someone has no knowledge of the illegal behavior is present and he/she has vested interest in finding out that behavior. In relation to their children's illegal drug use, parents meet these conditions and hence their presence led to significantly lower accounts of illegal drug use. When respondents were asked about their lifetime usage of illegal drugs and marijuana, the estimates were low when a parent was present, only 30% said they have ever used marijuana when a parent was present while 55% said they have used when a parent was not nearby. The numbers fell from 61% to 43% in the presence of a parent when the respondents self-reported their use of illegal drug (the use of pill was not influenced by presence of a parent while cocaine use dropped from 18% to 12% although the effect was not significant). The model for interaction between the respondent's characteristics (gender, age, education and ethnicity/race) and presence of a parent was not significant i.e. the influence of parent presence in the survey did not change by the respondent's characteristics on any of the dependent characteristics. Models for respondents who are cohabitating or married, the presence of other adults (other than the spouse) and children were added as control variables. The influence of the other adult present was in the direction contrary to that of the spouse meaning the impact was constantly negative on the respondent's drug use. For cocaine and pill usage, the negative coefficients are slightly significant ($p<0.10$ and $p<0.05$) respectively while for marijuana and any other prohibited drug it was not significant. This reinforces the notion that the extent and direction of effects due to the presence of someone relies on the type of person present meaning that the identity of the person present is important and vital in estimating the effects due to presence of third party presence. In the analysis of cohabitating or married respondents, child presence had no significant effects on any dependent variables, in all the models they found the regression coefficients to be nearly zero (Aquilino, 1997). These results are in line with earlier findings of Bradburn and Sudman (1979).

In another study, Aquilino et al. investigated the influence of presence of someone on alcohol and drug use among 3,169 adolescents and young adults living in urban areas of the Unite States of America. They explored two main research questions:

- Does the relationship between the respondent and the third party person present determine the probability of third party influences?
- Do different modes of interviews (computer assisted self-administered interviewing) influence the probability of the third party present affecting answers to sensitive items?

They used presence of someone as the independent variable while summary measures of marijuana, alcohol and other illegal drug use were the dependent variables. Other than just recording if someone was present, they were also required to specify which member of the household was present, at what section was the third party present and to what degree the members present were involved in the interview. Using logistic regression, respondents and some household characteristics (housing type, race/ethnicity, age, gender, education including of the mother, employment status and family income) were found to be significant correlates of third party presence. They found out that the probability of a parent being presence during interviews was lower when the respondent was employed, he/she was older and when his/her mother had higher education levels, higher degree of parent presence was related to family income and when they live in an apartment. Spouse presence was higher for male respondents and those living in an apartment or trailers. In determining the effect of presence of someone on drug use, the fore-mentioned variables were used as control variables. Presence of a parent was 10.2% and 9.3% in the alcohol and marijuana sections respectively, in other sections of illegal drug use, in 6.1% of the interviews a parent was present for < 50% of the sections and 8.9% of the interviews parent presence was for half or more of the sections. They noted that sibling presence was not a frequent occurrence, a sibling aged 6 or more was present in 2.8% and 2.7% of alcohol and marijuana sections respectively. In 2% of the cases a sibling was present in <50 percent of the time in other sections and 2.4% of cases the sibling was present in half or more of the time. The findings showed that when a parent was present, there was lower reporting of marijuana, alcohol and other prohibited drug usage, the same was observed

when a sibling was present while the interview was underway. The age of the respondent was found to be the strongest correlate of alcohol/illicit drug use and presence of a parent; it is the younger respondents that has high probability of having a parent present and unlikely to report their illegal drug use in the presence of a parent. The respondents reported less consumption of alcohol when a parent was present compared to when a parent was not there, while the same presence of a parent has no significant effect on respondent's reporting of marijuana and other prohibited drugs usage. The respondents were also unlikely to report on their usage of prohibited drugs and alcohol in the presence of their siblings versus when a sibling is absent during the interview (the negative effect was slightly significant). As noted earlier, the negative effects of parent presence on respondents' revelation of drug use is strongest for younger particularly those who are under 18 years. Presence of a parent had minimal effect on respondent who are 18 years or more disclosing their alcohol consumption while for the same age group (18 and above) marijuana use was highly reported in the presence of a parent than when the parent is absent. Among the adolescent respondents, parental presence during interviews was linked to lower admissions of marijuana, alcohol and other illegal drugs use. The findings are similar to Aquilino (1997) and Gfroerer (1985) studies. The findings imply that parent presence during interview will prompt the younger respondents to report more socially acceptable behavior on questions that are considered sensitive and those that inquire about undesirable or illegal behavior. On the contrary results found regarding older respondents and presence of a parent (negative influence) in this study, this maybe as a result of young adults being less bothered than teenagers about their parents' reactions to their drug and alcohol use.

A respondent's partner/spouse was present in 10% and 8.4% of the alcohol and marijuana section respectively. In other illegal drug use sections, a partner/spouse was present in 50% or more of the sections in 7.9% of the interviews while in 4.3% of the interviews they were present in less than 50% of the sections. There were fewer cases of child aged 6 or more present, only 3.1% and 3.3% in the alcohol and marijuana sections

respectively. For other illegal drug use a child was present in 50% or more of the sections in 2.4% of the interviews, while in 2.3% of the interviews they were present in less than 50% of the sections. Due to the few cases, they did not test for the presence of child and other predictors. Findings from regression analysis showed that there's minimal distinction between the measures for the partner present and the partner absent group. The presence of partner had no significant effect on the measure of drug use. They found no significant interaction of partner presence with respondent characteristics (gender, education, age and race/ethnicity) or with mode of Self-Administered Questionnaire (SAQ). On the presence of a child 6 years or more, they found significant negative influence on the respondents' admittance of alcohol use, no significant influence of presence of a child on respondents' admission of other illegal drug use. Their finding of no effect on responses when a partner was present is in agreement with the concept that when a factual information is required from the respondent and the third present has knowledge of the items inquired prior to the interview may hinder the respondent from concealing the information. The findings implies that social desirability bias is not enhanced by the presence of a partner when factual information that is sensitive in nature is required. The presence of children who are old enough to understand the meaning of the questions asked (children who are 6 years and older) might result to lower reporting of drug use. Unlike the partner, there is a low chance of children having comprehensive information about the respondents' drug use and the respondent will have strong incentive to conceal from their children a trait that may be considered embarrassing for example alcoholism. As divulging such a behavior, parents fear would set a bad example for their children (Aquilino et al., 2000).

Using the 1999 *Living in Ireland Survey* (LIIS) data, a study conducted by Cantillon and Newman (2005) sought to investigate if there are any differences and what are those variations between interviews that were conducted with a respondent alone in comparison to interviews done in the presence of someone. The aim of the study was to determine if there were any differences in living standards and in the management and

control of resources among adults and children residing in the same households in Ireland. The sample consisted of 1,124 couples (2,248 individuals) whereby both partners answered fully the module of the 1999 LIIS. They hypothesized that the presence of another person during an interview may lead to challenges while attempting to analyze individual data especially those pertaining to answers on matters such as deprivation, which may lead to incorrect responses if the accurate information may incriminate the partner or respondents in one way or another. For example there is a low probability that the respondents may confess to not having food for dinner or lack of new clothing items to wear when the recipient of their self or forced sacrifice is present. They also investigated the level to which the presence of someone during interview is a non-random. Adult presence was nearly in 65% of the individual interviews, whereby the third party present was either in the interview or within earshot of the interview. This occurred in 43% of the cases where a wife was interviewed and 56% of the cases a husband was interviewed. In wives' interviews, presence of adults was below the average number where the wife was impoverished and the spouse is not. This implies that the wife is likely to say she is not deprived when another adult is present (probability of reporting of deprivation is reduced) contrary to the husband response on question of deprivation. The husband is likely to say he is impoverished and his wife is not when another adult is present during the interview. that there is low probability of another adult being present when the wives are impoverished and the husbands are not. When a control variable is added for the adult presence during an interview, there was no effect of the husband's deprivation index while the control had a negative significant effect on the wife's deprivation index. The results reinforces the need to ensure interviews are conducted separately for each individual especially where respondents are asked questions associated to basic deprivation. This is fundamental especially among wives whose answers were found to be significantly influenced by the presence of an adult during interviews. As mentioned earlier, presence of spouse during interviews is not a purely a random incidence, the degree to which another person will be present during an interview is affected by the type of household in

which they reside. Using a probit model to determine the effect of personal and household aspects on the likelihood of someone being present during interview, it was found that the some household aspects that have a significant association with the likelihood of an adult being present during interviews. During interviews with wives, when either the husband or the wife is employed and highly educated, the likelihood of someone else being present is lower. For wives living in urban centers and in instances the children are present a negative influence is observed. When the household is located in urban center and household income had a significant negative effect on the likelihood of another person being present during interviews with husbands. Also the likelihood of another person being present during the husband's interview is reduced when the husband has higher education on the other hand the likelihood of someone being present during the husband's interview is higher when the wife is a professional. The findings show that any likely distortions due to adult presence as a third party during interviews is not accidental (random) (Cantillon & Newman, 2005).

Respondents from middle income countries (Brazil, Japan, Nigeria, Mexico, Lebanon, Bulgaria and Romania) were interviewed while their partners were present throughout the interviews, reported a high marital score rating in contrast to those who were interviewed in the absence of their partners and were from a high Gross National income (GNI) per capita country (Mneimneh et al., 2015).

A sample of the 1994 General Social Survey (GSS) which had a component of third part presence was used to analyze the effect of presence of someone during interviews on survey responses, the analysis was confined to married respondents and variables of interest include;

- Items concerning marriage
- Items regarding gender roles (including roles of parents and partners)
- Items on sexual behaviors and attitudes (including adultery)

- Miscellaneous items that; demonstrate gender differences; are susceptible to other reporting effects; and items that expresses the respondent's marriage indirectly.

The results showed that spouse/partner presence is linked to more backing of traditional roles for women such as when a mother is working children will be neglected and will suffer or rather than pursuing their own personal professions, women should aid the husband's career. A husband reported more conservative views towards gender roles when the wife was present during the husband's interviews. They found only one significant relationship on the impact of both young and older children on items concerning sexual matters regarding youth, child value and other items related to children. In the presence of children aged 6 years and above, 42% said premarital sex was 'always wrong' while only 33% said 'always wrong' with no such child present. Also respondents tended to rate their health less positively when someone else was present than when no one was around (Smith, 1997).

Using data from *The Integration of the European Second Generation (TIES 2007–2008) project,* Milewski and Otto (2017) examined the presence of a third party during face to face interviews of Turkish descendants and a comparison group consisting of native residence. 51% of the sample selected (N=5,870) was made up of Turkish immigrant descendants from 6 countries in Western Europe. Unlike the non-migrant comparison group, third party presence was more common among the Turkish migrant descendants, with one-third of the interviews (33%) conducted with someone present while among the natives, it was only one-fifth of the interviews (21%) that conducted in the presence of someone. Interviews with women among the Turkish descendants had more presence of a third party compared to interviews with men in the same group; when controlled for age, an interaction between presence of someone and gender among the Turkish descendant showed that, Turkish women were 1.3 more likely to have someone present during interviews compared to Turkish men. The odds of another person being present during interviews with the native comparison did not significantly vary between

either genders. Children were present only in 20% of the interviews with the second generation Turks. On the typology of the third party present, sibling or parent were most likely to be present among the Turkish group this may be due to some respondents living with their parents since the target group was second generation and are of young age. Additionally the presence of someone among the Turkish descendants may viewed as a measure of high level of social bond and the fairy robust ties between different generations within Turkish families. While partners were more likely to be present among the natives which would be in line with the jealous hypothesis, children presence only occurred in 16% of the interviews among the natives. The analysis of the whole group showed that the presence of someone was highly likely when the respondents had lower education level, they were married, stated they were raised in a religious setting and they have children residing in the same household. Unlike the native respondents, the Turks (both men and women) were unlikely to admit they accept women having pre-marital sex when someone was present than when interviewed privately, while on acceptability of men having pre-marital sex there was a small significant difference. When asked about their approval of abortion (both non-medical and medical purpose), there was minimal variation between the natives and the Turks and no significant difference between the genders within the respective groups, (consider abortion to be unacceptable when someone else is present during interview than when there is no one). Respondents who were married and are either Christian or Muslim were unlikely to disclose abortion and pre-marital sex is acceptable compared to the not religious and unmarried interviewees. Furthermore the presence of a third party was linked with slightly higher proportion of non-response (Milewski and Otto, 2017).

2.3. Hypothesis

Before setting of hypothesis, we looked at scenarios where it is expected a third party may be present. In this study we hypothesize that the likelihood of another person other than the respondent and the interviewer being present during interviews may depend on;

- Respondent's level of education
- Respondent's employment status
- Respondent's current marital status
- Age of respondent
- Cohabitation duration
- Region
- Residence (rural vs urban)
- Age of the respondents
- Household wealth status
- Interview duration (longer)
- Other members residing in the same household
- Number of rooms

To further break this down, we examined each of the type of third party person present against the fore-mentioned determinants. Likelihood of presence of persons below are expected to increase.

- **Mother-in-law**: If respondent is younger, comes from a lower wealth household, has low education, is unemployed, newly married, resides in rural area and the interview duration was longer than average.
- **Mother**: If respondent is older (because fathers or father in laws are more likely to die earlier than their spouses, and they may move in with their children to be taken care of), is from a lower wealth household, has low education, is

unemployed, resides in rural areas, newly/currently married, no other members residing in the same household and the interview duration was longer than average.

- **Young children**: Younger respondents, who have younger sibling(s), lives in rural areas, extended family reside in the same household.

- **Other males**: Respondent whose spouses are not working (and themselves too), also women who are working (because the interviewers usually have to interview working women in the evening or weekend, when spouses are also at home), lower HH wealth, older women (if they have grown up sons above 10), low education level, other members residing in the household such father in law and longer interview duration.

- **Other females**: Extended family present in the household, women who are not working, lives in the rural areas, older women (if they have grown up daughters above 10), sibling(s) of the respondents.

Hypothesis for Effects of Third Party Presence

When no one is present, the assumption was that respondents will give honest responses to the selected question items. As noted by Smith (1997), when no one is present respondents rated their health more positively than when someone else was present (Smith, 1997).

Presence of Children Under 10 Years of Age

Child presence can affect the response in both direction (i.e. have social desirability effect or not). This is because the age of the children in the sample is not homogenous. A child 6+ may understand the questions and may influence the respondent to misreport (hide the 'truth') on sensitive questions while a child 5 years and younger

may not comprehend the topic being discussed and the respondent may not feel obliged to misreport.

Its reported that people who did not vote were inclined to be honest in the presence of children, especially if the children were younger (Silver et al., 1986). Children aged 6 years or older were associated with fewer admission of alcohol consumption (Bradburn and Sudman 1979), disapproval of premarital sex (Smith, 1997) and lower reports of substance abuse (Aquilino et al., 2000). Older respondents gave traditional responses in the presence of children (Taietz, 1962).

Presence of Mother-in-law

Respondents are likely to give socially acceptable responses on all categories of interest (for instance, they are likely to give traditional/ patriarchal views on gender role items).

Presence of Mother

Respondents likely to give honest responses to questions related to gender opinions, reproductive health, financial matters and relationship with partner and socially desirable responses to attitude and behavioral question items (smoking and alcohol consumption questions can have social desirable effect or may not). We assume mothers have knowledge of factual items and the respondents will most likely be frank in the presence of her mother while the mother maybe unaware of respondent's subjective behavior and this may elicit social desirable response.

Youth and young adults between the ages of 15 to 29 in India were interviewed in the presence of their parents stated more positive attitudes towards family (Podmore et al. 1975). Parent presence also lowered respondents inclination to disclose illegal drug use (Aquilino, 1997; Aquilino et al., 2000).

Presence of Males

Respondents likely to give socially acceptable responses on all selected categories. This could be the spouse – cannot be assumed as such since it's not certain, could be anyone. It could be checked through the HH questionnaire, whoever is on the HH roster could be the potential third person; but this proportion is already very low – and the HH information would not tell us for sure; it could always be a visitor not written to the list.

Presence of Other Females

Respondents will give honest responses to questions related to gender opinions reproductive health, financial matters and relationship with partner (probably the other female has prior knowledge of these topics and there will be no motivation to conceal) while they are likely to give a social desirable response to attitude and behavioral questions especially on subjective lifestyle questions (maybe women could want to look more liberated to friends and neighbors or perhaps the reverse could also be observed appear more traditional). Presence of other people other than the respondents' partner reduced the likelihood of disclosing illegal drug use (Aquilino, 1997)

Presence of Children and Adults

The respondent are likely to give honest responses on all selected categories. When both children and spouse were present, fewer respondents gave traditional answers. (Taietz, 1962). There may be a consistent tendency to misreport less when both the spouse and child are present (Silver et al., 1986).

CHAPTER 3. METHODOLOGY

This study was a secondary data analysis of the TDHS -2013 focusing on individual women data where 10,840 women aged between 15-49 years were eligible to be interviewed but only 9,746 were interviewed. The survey was designed to be a nationally representative probability sample of 14,496 target households. The purpose of this thesis is to find out the scope and characterize the influence of third party persons on the responses to what may be considered sensitive questions which may be influenced by social desirability during TDHS -2013.

The study was based on the positivist school of thoughts, which is based on deductive or empirical reasoning, whereby we begin with broad statements or hypothesis and analyzes the possibilities to arrive at precise rational inferences (Neuman, 2014).

3.1. Data

3.1.1. Sample size and data source

Demographic and Health Surveys (DHS) are nationally representative household surveys that provide data for a wide range of monitoring and impact evaluation indicators in the areas of population, health, and nutrition ("The DHS Program Demographic and Health Survey (DHS)," n.d.). Established first by the United States Agency for International Development (USAID) in 1984, Demographic and Health Surveys (DHS) program was a continuation of World Fertility Survey and Contraceptive Prevalence Survey Project. It is conducted every five years in approximately 90 countries, core objectives include; to give the decision makers improved data which is useful to make choices on policies from an informed position, to enhance partnership and coordination in

gathering data at the national and international levels, to advance the expertise and resources of participating countries to organize and undertake surveys of high quality in the health and demography sector, to refine tools and methodology of data collection and analysis and to enhance the distribution, communication and utilization of information (USAID, 2006).

The TDHS -2013 is the fifth to be carried out in Turkey since 1993 and the tenth among demographic surveys to be carried out since 1968 by the Hacettepe University Institute of Population Studies. In order to cater for estimates required for various spheres such as each region, residential areas (urban and rural), major metropolitan cities and the country as whole; to select a sample for the TDHS -2013, a stratified cluster sampling method which was weighted and a multistage approach was utilized. The country was divided into 36 strata, with a total of 642 clusters selected (420 in urban center and 222 in rural areas). Turkey as a country has no enumeration areas defined for conducting surveys, hence a list of all households was obtained from TURKSTAT which enabled the first stage of sampling to be carried out. Out of the 14,496 targeted household, 12,640 households were found eligible, 11,796 households could be interviewed as other households were not available to be interviewed or the dwellings were vacant. This led to a response of 93%. 10,840 women were identified from the interviewed households as eligible for the women's interview out of which 9,746 could be interviewed with a response rate of 89.9% (HUIPS, 2014).

3.1.2 Questionnaire

Both the household and the women's questionnaires were adopted from the DHS model questionnaires, some changes were done to make the question items applicable to the Turkish setting. The questionnaires were developed in Turkish thereafter translated to English. This study focused on the TDHS -2013 individual women's questionnaire

targeting women of reproductive age, the information derived from this questionnaire included;

- Background characteristics
- Migration history
- Pregnancy, birth history and fertility preferences
- Knowledge and use of contraceptive methods
- Antenatal and postnatal care
- Breastfeeding and nutrition
- Immunization
- Marriage history and information on marriage
- Women's work history and status
- Basic characteristics of husbands
- Women's status
- Women's and children's anthropometry.

Additionally, the weight and height of children under 5 years and the women were taken and recorded. A pre-test was undertaken in June 2013 in 4 clusters in Ankara province and the minor changes were done to the questionnaire as a result of the pre-test (HUIPS, 2014).

3.1.3. Data Collection Process

A total of 176 applicants were selected for the fieldwork training that was conducted by the HUIPS for a period of three weeks between August and September 2013. Out of the initial 176 trainees, 128 were chosen to conduct the actual fieldwork based on their performance. The data collection commenced on the 3ʳᵈ week of September and ended on the 3ʳᵈ week of January 2014. The data collection was made up of teams each

made of a measurer, field editor(s), female interviewers and a supervisor. HUIPS academic staffs were tasked with ensuring quality in the data collection process and to offer assistance where needed (HUIPS, 2014).

3.2. Data Analysis

A number of variables were combined and several others were recoded in SPSS to assist with data analysis and make interpretation relevant and meaningful.

3.2.1. Selected Variables

Based on findings from literature review, for the determinants of presence of a third party persons the variables shown in Table 1 were selected form the TDHS-2013 women's data.

Table 1. Selected Variables in the Determinant of Third Party Presence

Variable Name	Categories
Region	West, South, Central, North, East
Type of place of residence	Urban or Rural
Age in 5-year groups	15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49
Country specific education	No education or primary incomplete, first level primary, second level primary, High school and higher.
Cohabitation duration (grouped)	0-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30+
Are you currently married	Yes or No
Wealth index	Poorest, poorer, middle, richer, richest
Number of household members (grouped)	Recoded to: 5 or less members, 6-10 members, 11-15 members, 16 or more members.
Length of interview in minutes	Recoded to: 30 and less, 31-60, 61-90, 91-95, 96, and interview completed in 2 or more visits
Working Status[1]	Not working or currently working
Total number of rooms in the house[2]	Recoded to: 1, 2, 3, 4, 5, 6, 7, and 8+ rooms

The variables were classified as follows:

Direct determinants of a third party person presence

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[1] The variable was computed from a number of variables (Total number of jobs had and if currently working in those jobs)

[2] The variable was merged to individual women data set from household data set.

- Duration of interview
- Number of household members
- Number of rooms.

Indirect determinants of a third party person presence

- Region
- Type of place of residence
- Household wealth level
- Educational level
- Time since first marriage
- Working status
- Age of the respondents.

Independent variable

The presence of third party persons was the independent variable in this study. In TDHS -2013 the interviewer was asked to record the type of third party person present at the end of the interview. They were needed to mark all the appropriate category(s), which includes;

- No one
- Presence of children under 10 years of age
- Presence of mother-in-law
- Presence of her mother
- Presence of other men
- Presence of other women.

In the DHS core questionnaire, the interviewer is required to check for the third party presence and make all efforts to ensure privacy in marriage and sexuality section and HIV&AIDS section. Additionally, in marriage and sexuality section, the section about the background of the husband and woman's work, the interviewer was required to specify the type of third party presence, as children under 10, male adults and female adults. There were additional response categories in husband's background and woman's work section, if the third party person was; "present and listening"; "present but not listening"; or "not present". (MEASURE DHS/ICF International, 2011). However, TDHS have traditionally only included the former question (the type of third party person present). The section where the third party presence was recorded is appended in appendix B.

The variables in the TDHS -2013 included:

- Presence of others- no one
- Presence of others- children under 10
- Presence of others- mother-in-law
- Presence of others- respondent's mother
- Presence of others- other males
- Presence of others- other females

To control for multiple third party persons occurrences at any given point, the variables were computed, for example presence of child vs. no one present using the "if command" (if children=0 and mother-in-law=0 and mother=0 and males=0 and other females=0) Only children=0). If children=1 and mother-in-law=0 and mother=0 and males=0 and other females=0). Only children= 1), (where 0 is no one present and 1 is presence of children only). This was done for all variables. Additionally, one other category was added; children and all adults combined. The final variables after computation included;

- Children only vs. no one present
- Mother-in-law only vs. no one present
- Mother only vs. no one present
- Other males only vs. no one present
- Other females only vs. no one present
- Adult and children present vs. no one present

The assumption here is that presence of someone at any point in the interview implies that someone is present throughout the interview.

Dependent variables

The dependent variables are divided into two major categories and each category is further divided into smaller categories under different themes:

1. **Attitude (assessments of attitudes, feelings or relationships)**
a) Gender roles;
   - Opinion on: family decision by men (recoded to; agree and disagree response categories)
   - Opinion on: husband should help (recoded to; agree and disagree response categories)
   - Opinion on: educated son better than daughter (recoded to; agree and disagree response categories)
   - Opinion on: women should not work (recoded to; agree and disagree response categories)
   - Opinion on: more women politician (recoded to; agree and disagree response categories)

- Opinion on: women should be virgin at wedding night (recoded to; agree and disagree response categories).
- Wife beating justified[3] if:
  - wife goes out without telling husband
  - wife neglects the children
  - wife argues with husband
  - wife refuses to have sex with husband
  - wife burns the food

b) Fertility preference;
- Ideal number of children (recoded to remove non-numeric responses)
- Fertility preference (recoded to; have another, undecided or no more response categories)

2. Behavior

a) Lifestyle;
- Exercises regularly (recoded to; yes or no response categories)
- Goes on holiday (recoded to; yes or no response categories)
- Goes outside for a meal (recoded to; yes or no response categories)
- Organizes home meetings (recoded to; yes or no response categories)
- Uses internet (recoded to; yes or no response categories)
- Watches women's programs on TV (recoded to; yes or no response categories)

b) Religion;
- Performs namaz (prayer) (recoded to; yes or no response categories)
- Fast (recoded to; yes or no response categories)

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[3] Wife beating variable is amalgamation of different variables (listed in the bullets) and recoded to remove I don't know response category.

- Wears a head scarf when going out (recoded to; yes or no response categories)

3. Others (reports on behavior and events)

a) Reproductive health;
- Ever had a terminated pregnancy
- Current use of family planning (recoded to; no method and any method response categories).
- Pregnancies ended in spontaneous abortion (recoded to; yes and no response categories)
- Total number of induced abortions
- Pregnancies ended in induced abortion
- Total number of induced abortions

b) Financial matters;
- Owns a house (recoded to; does not own, owns alone, own jointly response categories)
- Owns land (recoded to; does not own, owns alone, own jointly response categories)
- Has money to spend (yes or no)
- Owns a car (recoded to; does not own, owns alone, own jointly response categories).

c) Relationship with partner;
- Partner- prevent from seeing female friends (recoded to yes and never response categories)
- Partner- limit to contact with her family (recoded to yes and never response categories)

3.3. Methods

3.3.1 Sample Properties: Complex Sample

Whenever samples deviate from simple random samples, which is often the case for household surveys, and we have characteristics such as stratification, multistage selection, clustering or weighting, the samples are called complex sample. The default methods of analysis in statistical software are based on the assumptions of Simple Random Sample (SRS). For complex samples, modules have been developed since 1980s; where additional functions/packages were developed. Today, the most widely used packages, such as Stata, SAS and SPSS all have special methods for analyzing complex samples data. The major difference between analysis of complex samples data vs. SRS is that variances are usually bigger in complex designs because of clustering. Therefore confidence intervals of estimates are wider, and statistical significance is harder to reach in complex samples (what we can see as significant in an SRS analysis might not be significant under complex). When dealing with complex designs of samples (such as multistage stratified and clustered samples), complex sample option in SPSS provide specialized statistics and planning tools required to ensure the findings are valid. Using of complex samples procedures depend on the requirement of the user. The procedures include;

- Sampling Wizard, this is used to plan and undertake a study in accordance with complex design and perhaps analyzing the sample at a later time.
- Complex Sample Analysis, used to analyze data acquired through complex designs. Use of Analysis Preparation Wizard maybe required beforehand (IBM, 2006)**.**

In this study, Complex Sample Analysis Wizard is used and this required a plan file to be created in order to supply design information to Complex Samples procedures and to reuse easily.

Plan file

This contains specifications of the complex sample. There are of two types:
- Sampling plan
- Analysis Plan

Analysis Plan is used in this study, which includes the sample structure, estimation methods for each stage, and references to required variables, such as sample weights stratum variable and cluster variable (IBM, 2006). It is often the case in complex sample analysis that design and analysis approaches differ. For instance, even though multistage selection might have been used in the design, in the analysis a researcher may choose to use an "ultimate cluster" approach; which means an assumption of a single stage selection, where no subsampling was done at the cluster level and all units were sampled. Furthermore, despite without replacement selection, often with replacement selection is assumed to ease calculations. Using the analysis preparation option in the complex sample menu, an analysis plan file was created for this study using Strata (v022), Cluster (V001) and the weight variable (V005/1000000). It was assumed that clusters were selected with replacement and that all elements in the cluster were sampled (one stage selection, ultimate cluster approach).

3.3.2. Bivariate Analysis

Using the complex sample option in SPSS, bivariate analysis was undertaken to determine the relationship and the direction of the relationship (and its significance) between the presence of third party persons and:

- The determinants of third party presence (region, education, age, marital status, number of rooms in the household, total number of members residing in the household, duration of interview, duration of cohabitation).
- The selected variables of interest (concerning; gender roles, fertility preference, lifestyle, religion, reproductive health, financial matters, and relationship with partner).

Bivariate analysis in determining the association of some variables with someone being present, all cases were included in the analysis. Here the main interest was whether or not a particular person was present, regardless of them being alone or with another third person with them. For the impact of someone present on the interview questions, case where more than one person was present were left out, since as part of the objective of the study, different effect on the responses maybe be observed depending on the specific type of third person present.

For bivariate analysis, contingency tables were used under the SPSS complex samples module, which uses an F statistic which is computed from the Rao-Scott adjusted Chi-Square value. According to Heerindga, West and Berglung, Thomas and Rao (1987) showed that the Chi-Square statistic could be evaluated with a more stable test under the F distribution. (Heeringa et al., 2010) The tables were designed to yield row and column percentages, Rao-Scott adjusted F, Pearson significance, unweighted count and the total percentages. For both the variables to determine the likelihood of someone present and

the impact of a particular person present on items of interest, the bivariate analysis on the presence of mother-in-law was restricted to respondents who were currently married.

3.3.3. Logistic regression

After the bivariate analysis and generalized linear models of the association between the outcome and predicator variables, logistic regression was undertaken from the complex sample survey menu of SPSS to measure relationship among factors comprised of continuous and categorical variables with binary outcome. Presence of a third party person is not a random occurrence, respondents who are interviewed in the presence of a third party person may have different characteristics than those interviewed with no third party person around; could be residing in rural area, from low wealth household, younger vs one residing in urban area, highly educated, from higher wealth household and older. Their responses to certain interview questions is expected to differ, to comment and draw conclusions based on the difference, we needed to move a step further from bivariate analysis and conduct multivariable analysis. Logistic regression from the SPSS complex sample menu allows for both binary and multinomial outcomes (Heeringa et al., 2010). As recommended by Heeringa et al. (2010), four steps were followed in our logistic regression modelling:

Step 1: Specifying the Model

Determinants of Presence of Someone

From literature on the likelihood of presence of third party person; age of the respondents, education level, employment status, marital status, duration of cohabitation, residential area, household wealth, number of rooms in the household, duration of interview and total number of members residing in the households were used to

determinants of presence of someone. All of those were used as our predictor variables in modelling the likelihood of presence of someone (children under 10 years, mother-in-law, respondent's mother, males and other females). The predictor variables were divided into direct (duration of interview, number of household members, number of rooms) and indirect (region, Type of place of residence, household wealth level, educational level, time since first marriage, working status and age of the respondents) determinants of third party being present.

Logit $(\pi(\mathbf{x})) = B_0 + B_1 x_1 + \cdots + B_p x_p$

logit (probability of someone present)$= \propto +\beta_1 Duration\ of\ interview_{31+} + \beta_2 Duration\ of\ interview_{2+visits} + \beta_3 number\ of\ household\ members + \beta_4 number\ of\ rooms + \beta_5 region_{west} + \beta_6 region_{South} + \beta_7 region_{Central} + \beta_8 region_{North} + \beta_9 residential_{Urban} + \beta_{10} education_{no\ education/primary\ incomplete} + \beta_{11} education_{First\ level\ primary} + \beta_{12} education_{Second\ level\ primary} + \beta_{13} marriage\ status\ and\ duration_{never\ married} + \beta_{14} marriage\ status\ and\ duration_{0-4\ years} + \beta_{15} marriage\ status\ and\ duration_{5-9\ years} + \beta_{16} marriage\ status\ and\ duration_{10-14\ years} + \beta_{17} marriage\ status\ and\ duration_{15-19\ years} + \beta_{18} marriage\ status\ and\ duration_{20-24\ years} + \beta_{19} marriage\ status\ and\ duration_{25+years} + \beta_{20} marriage\ status\ and\ duration_{formerly\ married} + \beta_{21} employment_{working} + \beta_{22} HH\ wealth_{Poorest} + \beta_{23} HH\ wealth_{Poorer} + \beta_{24} HH\ wealth_{Middle} + \beta_{25} HH\ wealth_{Richer.}$

Reference categories:

- Duration of interview - 30 minutes and less

- Region - East

- Residential area - rural

- Education - high school and higher

- Marriage status and duration - 25+ years

- Employment status - not working

- Household wealth – richest.

Effects of a Third Party Presence

In modelling the impact of the presence of third party persons, the predicator variable was the presence of a specific type of third party person by themselves (children under 10, mother-in-law, respondent's mother, males and other females) with core variables controlled for. A single set of independent variables was used as this core set of variables for simplicity and comparability as used by Aquilino et al. (2012). The outcome variables were items of gender roles, fertility preference, lifestyle, religion, reproductive health, financial matters and respondent's relationship with partner. After the bivariate analysis that was ran on 33 variables, the number of these variables were reduced in such a way that about one variable remained for each theme.

Questions Related to Opinion on Gender roles, Wife Beating, Lifestyle and Religion

Here, principal component analysis was used for dimension reduction, a set of core factors are derived from a substantial number of variables. Out of six questions on gender roles and four on questions on wife beating two factors were obtained and used as variables, each one representing gender opinion questions and another wife beating

questions. On the lifestyle variables, eight variables (doing exercises, going out for meals, going for holidays, using internet, alcohol use, performing namaz, fasting and wearing headscarf when going out) out of twelve were reduced to a single variable. Organizing home meetings, watching women's programs, smoking and voting were excluded.

The Kaiser Meyer Olkin (KMO) Measure of Sampling Adequacy

Shows the proportion of variance in the variables that may be deemed to be as a result of underlying factors. High values of 1 or close are considered good, values of 0.5 or less are viewed as not useful for factor analysis (IBM, 2019).

Barlett's Test of Sphericity

Tests the hypothesis that the correlation matrix is an identity matrix. This will show the variables are unrelated, values of less than 0.05 shows factor analysis is appropriate (IBM, 2019).

The KMO values were all above minimum threshold of 0.5 (0.794 and 0.783), for Barlett's test all were significant with a p value of 0.000. This indicates that factor analysis is appropriate technique for further analysis of the data.

Total variance explained box shows the number of factors produced, all factors with eigenvalues greater than 1 were selected. In the first analysis of gender opinions and wife beating variables, 2 factors had eigenvalues of more than 1 out of a total of 9. The first one had a 24.7% and the second had 12.6% of variance, the two factors explain 37.23% of variance in all the variables.

For lifestyle and religion, two factors had eigenvalues of more than 1 out of a total of 8, the first one had a 34.979% and the second had 17.4% of variance, making it a total of 52.38% of variance. The second factor was ignored because for only two of the variables two larger loadings were obtained, all remaining factors had higher loadings on factor 1.

Looking at the component matrix, all variables related to respondent's opinion on wife beating had greater absolute values on factor 1, while all variables related to the respondent's opinion on gender (except one; family decision should be done by men) had greater absolute values on factor 2.

The factors scores were grouped to create new variables that were named based on what was envisioned they represent. The way they were created were based on percentiles, the cutoffs points were close to 50% while also making effort to not have two cases with the same factor score fall into separate categories. Three new variables were created; lifestyle, opinion on gender roles and wife beating. A similar example is the wealth index by DHS where they do PCA with binary variables of asset ownership, and create groups based factor score percentiles, 5 equal groups with %20.

Question Related to Fertility Preference

Out of two variables from the bivariate analysis, one was selected; if the respondent would have another child or is undecided or wants no more children. The variable was significant in all the presence of third party with an exception of only mother-in-law.

Questions Related to Reproductive Health

Current contraceptive use, pregnancy ended in spontaneous abortion and pregnancy ended in induced abortion were selected out of six variables under this theme. Total number of pregnancies that ended in induced or spontaneous abortion and ever had terminated pregnancies were excluded as it was thought the two selected variable is inclusive of them.

Questions Related to Financial Matters

Four variables were combined into one with mutually exclusive categories that is respondent's ownership of property and money. The categories were either owning at least one type of property/money or not owning nothing.

Questions Related to Relationship with Partner

A total of five variables measuring partner's controlling behaviors were combined into one, if there was any controlling behavior observed. The controlling behaviors included; partner prevents seeing female friends; partner limits contact with her family; partner distrust with money; insist in knowing respondent's whereabouts and partner accuses respondent of being unfaithful.

From the bivariate analysis, a total of nine variables out of thirty three were selected in the modelling the effects of a specific third party person presence.

Control Variables

Individual characteristics that were assumed to determine the likelihood presence of someone were added in the regression model as control variables. They include

- Region
- Type of place of residence
- Household wealth level
- Educational level
- Time since first marriage
- Working status
- Age of the respondents

logit (probability of a response)= $\propto + \beta_1$ *presence of someone* $+ \beta_2 region_{west} + \beta_3 region_{South} + \beta_4 region_{Central} + \beta_5 region_{North} + \beta_6 residential_{Urban} + \beta_7 education_{no\ education/primary\ incomplete} + \beta_8 education_{First\ level\ primary} + \beta_9 education_{Second\ level\ primary} + \beta_{10} marriage\ status\ and\ duration_{never\ married} + \beta_{11} marriage\ status\ and\ duration_{0-4\ years} + \beta_{12} marriage\ status\ and\ duration_{5-9\ years} + \beta_{13} marriage\ status\ and\ duration_{10-14\ years} + \beta_{14} marriage\ status\ and\ duration_{15-19\ years} + \beta_{15} marriage\ status\ and\ duration_{20-24\ years} + \beta_{16} marriage\ status\ and\ duration_{25+years} + \beta_{17} marriage\ status\ and\ duration_{formerly\ married} + \beta_{18} employment_{working} + \beta_{19} HH\ wealth_{Poorest} + \beta_{20} HH\ wealth_{Poorer} + \beta_{21} HH\ wealth_{Middle} + \beta_{22} HH\ wealth_{Richer}.$

Subpopulation

For the above selected variables, where applicable subpopulations were defined before running the regression models. They include;

- Current use of contraceptives (subpopulation - in a relationship; married, engaged etc.)
- Spontaneous induced and spontaneous abortion (subpopulation - ever married)
- Relationship with partner (subpopulation - in a relationship; married, engaged etc.)
- Fertility preference (subpopulation- ever married)

For all, the mother-in-law presence was restricted to respondents who were currently married.

Step 2: Estimation of Model Parameters and Standard Error

This step involves computing estimations of regression parameters with their standard errors in the model.

Taylor Series Linearization Method

Complex Samples use Taylor series approximation for variance estimation. Variance estimates are calculated using only between the numbers of units the first stage regardless of variance components at each level of selection (Lepkowski and Bowles 1996). Variance estimation is important because it exhibit the precision of estimators, which in turn affect the confidence intervals and the subsequent testing of hypotheses of population parameters. Based on complex sample survey data for variance, estimators must recognize the following factors: Most estimators are non-linearity; Estimators are

weighted; Sampling plan will be using stratification prior to first-stage sampling (and perhaps also at subsequent sampling stages); Elements in the sample will generally not be statistically independent due to multistage cluster sampling (Jamal et al. 2018).

Step 3: Evaluating the Model Fit

The third step involves testing the impact of each model parameters and its contribution in order to assess the general Goodness of Fit (GOF) of the model.

Wald Tests of Parameters in the Model

The major assumptions that is the basis of likelihood ratio test or F tests deployed in comparing other models is invalidated by the complex sample designs. In its place, Wald tests are utilized to test the hypothesis of parameters in a specific logistic regression model. (Heeringa et al., 2010). The output provided by SPSS includes, Wald F statistics and p-values in the logistic regression for each variable.

Goodness of Fit

The diagnostic tools and goodness of fit statistics are available in the standard logistic regression menu. They include; Hosmer– Lemeshow goodness-of-fit test, two test statistics, classification tables "comparing observed values with discrete classifications formed from the model's predicted values and the area under the receiver operating characteristic (ROC) curve". (Heeringa et al., 2010). SPSS provides Hosmer-Lemeshow statistics from the logistic regression menu.

3.3.3.1. Assumptions of Logistic Regression

The following are assumptions associated with logistic regression:

- Appropriate outcome structure. Dependent variables ought to be binary for logistic regression.
- Independence of observations.
- Absence of or little presence of multicollinearity.
- Linearity of independent variables and log odds.
- The size of the sample has to be substantial (Schreiber-Gregory, 2018).

Before undertaking logistic regression, the following assumptions were tested;

Multicollinearity

Multicollinearity happens when independent variables are strongly inter-related or correlated with each other. It is difficult to get sound estimates of effects on dependent variables when two or more variables are highly correlated with one another (Midi, Sarkar, Rana, Midi, & Rana, 2010). SPSS does not provide multicollinearity for complex or regular logistic regression. Presence or lack of multicollinearity was measured with the help of tolerance and the Variance Inflation Factor (VIF) (a reciprocal of tolerance) using collinearity diagnostics in linear regression model. According to Habshah Midi et al (2010), VIF values greater 10 may indicate multicollinearity but in models which are considered weak (mostly in logistic regression), figures greater than 2.5 may be of concern. Some suggest a value of 0.1 may point to serious collinearity while or a number less than 0.2 may show potential collinearity issue. Taken as a general rule, 0.1 or less may be cause for concern (Midi et al., 2010).

Linearity of Logit

This can be identified by looking at the model fit and pseudo R^2 (Nagelkerke).

Pseudo R^2

These are suggested as measures of fit of logistic regression. According to Hosmer et al. (2000), the measures should not be cited in scientific papers and reports as a measure of fit although they can be used by researchers to compare the fits of alternative models (Hosmer & Lemeshow, 2000). Nagelkerke's R^2 is an adjusted version of the Cox & Snell R-square where the scale statistics is adjusted to account the 0 to 1 range (IBM, 2006). SPSS provides three Pseudo R2 statistics, they include Cox and Snell, Nagelkerke and Mcfadden. Despite the recommendation that they should not be cited, they have been reported in this thesis to give an idea about total variance explained by the models.

Hosmer and Lemeshow Test

It tests the null hypothesis that the estimation made by the model fits well with observed group membership. Cases are arranged by the order of their prediction probability, thereafter the cases are divided into groups of mostly ten. The actual group memberships and the predicted memberships is obtained, comparing the observed frequencies with the expected a chi-square statistic is computed. The fit of the model is good if the chi-square is not significant. The test can be significant even when the fit is good with samples that are large while the test may not be significant even though the fit is poor with small samples. This shortcoming has been acknowledged by Hosmer and Lemeshow (2014).

Influential Cases

These are data points that may have an extreme impact on the model fit. Cook's distance (D) statistic is used to test for this (Heeringa et al., 2010). The greater the Cook's D value is the more influential the point is. According to Tabachnick and Fidell (2001) as cited by Pallant (2005), observations that have a cook's distance greater than 1 are a potential influencers of the model (Pallant, 2005). The same was cited by Dhakal (2017), Ain et al and Sakar et al while fitting logistic regression models (Ain et al., 2016; Dhakal, 2017; Sarkar, Midi, & Rana, 2011).

Step 4: Interpretation and Deductions

Wald tests are used in drawing conclusions related to the significance of a model's independent variables (Heeringa et al., 2010).

CHAPTER 4. RESULTS

This section presents the findings of this thesis. Parallel to the research objectives stated in Chapter 1, the first subsection presents the extent of third party person presence

in TDHS-2013. In the second subsection, the presence of third party persons are examined through potential determinants, first using bivariate, and then multivariable analysis. In the third and last subsection, the effects of third party presence on the reporting of selected questions are examined; also through bivariate and multivariable analysis.

In determining the extent of presence of third party persons, what factors may predispose the likelihood of someone to be present and their influences on items related to attitude, behavioral and other selected items in the TDHS -2013, bivariate and logistic regressions were conducted. This chapter entails the results of bivariate and logistic regression analysis for the determinants of someone present and the effects of specific third party person present.

4.1. Proportion of the Type of Third Party Present

Table 2. Proportions of Specific Type of Third Party Person Present

Type of third party person	% of Total	Unweighted Count	Total Unweighted Count
Children under 10	17.2%	1721	9,712
Mother-in-law	1.6%	181	9,712
Respondent's mother	3.1%	291	9,712
Other males	1.8%	195	9,712
Other females	9.5%	1093	9,712

Using the original presence of someone variables which may include two or more different type of third party persons present simultaneously; as illustrated in Table 2, the most common type of third party person presence in the TDHS -2013 are children under

the age of 10 (17.2% N=1721) followed by females other than respondent's mother and mother-in-law (9.5% N=1093). The least occurring type of third person is the mother-in-law (1.6% N=181) and other males (1.8% N=195). The presence of respondent's mother was 3.1% (N=291) of the interviews.

Table 3. Specific Type of Third Party Person by Themselves

Third party person	% of Total	Unweighted Count	Total count
Only children under 10	16.60%	1399	8,109
Only mother-in-law	1.20%	94	6,804
Only respondent's mother	3.10%	205	6,915
Only other males	1.40%	98	6,808
Only other females	8.60%	787	7,497
Adult and Children under 10	3.70%	290	7,000

In excluding possible multiple occurrence of third party persons for the purpose of modeling the effects of specific third party presence on selected items, the variables were computed and the figures for the new variables changed slightly as seen in Table 3. Children under 10 reduced to 1399 (16.6%), other females to 787 (8.6%), respondent's mother 205 (3.10%), other males and mother-law reduced to 98 (1.4%) and 94 (1.2%) respectively. A new additional category of third party person presence was created, presence of children and adults simultaneously which was 290 (3.7%).

These new variables were used in the modeling of the impact of specific type of third person presence on selected variables of interest.

4.2. Presence of Third Party during Interviews

The levels of different people being present are presented by two groups as mentioned earlier; that is as direct and indirect determinants.

4.2.1. Bivariate Analysis

Determinants of third persons being present during interviews

Table 4 shows the proportion of third parties present by selected variables. In the analysis of mother-in-law was restricted to respondents who were currently married hence the different N values.

Region was significantly associated with the presence of children under 10, respondent's mother and other females as shown in Table 4. Presence of third party person being present was highest for the Eastern region (36.49%) and lowest in Central (25.89%). The highest proportion of children under 10 years was observed in East (20.95%) and the lowest in the North (14.12%). For respondent's mother, the highest proportion was recorded in the South (4.71%) while the lowest proportion was observed in Central (1.62%). High proportion of other females present during interview was observed in the Eastern region (15.10%) and the lowest proportion was observed in West (7.81%).

Residential area had a highly significant association with the presence of someone, respondents residing in the rural areas were more likely to have third party person present (32.12%) compared to those residing in urban areas (28.16%). Children under ten years were more common in urban (17.66%) and respondents mother (3.28%), other females were present less often in urban areas than in rural areas (8.30% in urban and 14.26% in

rural). There was no significant association between residential area and presence of other males.

Table 4. Proportion of Interviews with Third Party Persons Present by Selected Variables TDHS -2013

	Level of a Person(s) Being Present							
	Someone present	Child < 10	Mother -in-law	Mother	Male	Other female	N	N for MIL
1. Indirect								
Region								
West	**26.82%**[4]	**16.18%**	2.15%	**3.34%**	2.06%	**7.18%**	2433	1723
South	**30.92%**	**18.07%**	2.35%	**4.71%**	1.52%	**10.35%**	1321	945
Central	**25.89%**	**16.63%**	1.91%	**1.62%**	1.22%	**8.41%**	1859	1331
North	**28.04%**	**14.12%**	2.93%	**2.27%**	1.78%	**11.45%**	1436	993
East	**36.49%**	**20.95%**	3.26%	**3.34%**	2.24%	**15.10%**	2663	1819
Residence								
Urban	**28.16%**	**17.66%**	**1.90%**	**3.28%**	1.74%	**8.30%**	7134	4957
Rural	**32.12%**	**15.26%**	**4.21%**	**2.28%**	2.24%	**14.62%**	2578	1854
Age								
15-19	**20.59%**	**4.90%**	**7.05%**	**8.72%**	**0.40%**	**9.20%**	1521	132
20-24	**26.94%**	**15.91%**	**4.88%**	**3.87%**	**0.63%**	**8.86%**	1369	683
25-29	**38.55%**	**29.82%**	**3.07%**	**2.60%**	**1.84%**	**7.31%**	1456	1172
30-34	**38.48%**	**30.30%**	**2.28%**	**1.84%**	**1.23%**	**7.97%**	1541	1388
35-39	**28.68%**	**19.97%**	**1.18%**	**1.54%**	**2.37%**	**9.13%**	1474	1337
40-44	**24.05%**	**9.45%**	**1.71%**	**1.18%**	**3.41%**	**11.85%**	1273	1152
45-49	**21.88%**	**4.82%**	**1.83%**	**0.63%**	**3.78%**	**13.94%**	1078	947
Education								
No education/ Primary incomplete	**41.75%**	**24.60%**	**3.27%**	**1.49%**	**2.76%**	**18.24%**	1461	1281
First level primary	**31.18%**	**19.58%**	**2.15%**	**1.59%**	**2.30%**	**10.16%**	3438	3016
Second level primary	**27.15%**	**14.45%**	**3.54%**	**5.80%**	**1.04%**	**8.86%**	2108	929
High school and higher	**22.71%**	**13.69%**	**1.56%**	**3.42%**	**1.51%**	**5.84%**	2705	1528

[4] Percentages in **bold** indicate significance (P<0.05)

Table 4. Continued: Proportion of Interviews with Third Party Persons Present by Selected Variables TDHS -2013

	Level of a Person(s) Being Present							
	Someone present	Child < 10	Mother -in-law	Mother	Male	Female	N	N for MIL
1. Indirect								
Employment								
Not working	**30.28%**	**19.04%**	2.51%	3.02%	**1.61%**	**9.01%**	6750	4720
Working	**25.86%**	**13.13%**	2.02%	3.25%	**2.31%**	**10.56%**	2962	2190
Current Marital Status								
Never married	**17.91%**	**3.00%**	**0.00%**	**8.21%**	**0.37%**	8.96%	2517	2517[5]
Currently married	**33.64%**	**23.42%**	**2.36%**	**0.89%**	**2.47%**	9.65%	6811	6811
Formerly married	**23.96%**	**9.20%**	**0.21%**	**5.26%**	**1.03%**	10.50%	384	S384
Time since first marriage for ever married women								
0-4	**35.78%**	**25.61%**	**4.52%**	**2.34%**	**1.62%**	**7.29%**	1161	1161
5-9	**47.03%**	**40.29%**	**2.60%**	**1.50%**	**1.69%**	**7.49%**	1381	1381
10-14	**36.28%**	**29.88%**	**1.82%**	**1.18%**	**1.72%**	**7.95%**	1238	1238
15-19	**29.13%**	**18.58%**	**1.69%**	**0.51%**	**2.94%**	**10.27%**	1272	1272
20-24	**21.78%**	**8.17%**	**0.89%**	**0.80%**	**3.23%**	**10.94%**	1083	1083
25-29	**23.85%**	**6.03%**	**1.87%**	**0.11%**	**3.44%**	**15.98%**	773	773
30+	**24.52%**	**7.49%**	**1.73%**	**1.43%**	**3.26%**	**14.32%**	287	287
Wealth Index								
Poorest	**36.78%**	**19.89%**	**3.40%**	3.13%	2.31%	**16.38%**	2068	1488
Poorer	**33.60%**	**19.19%**	**3.59%**	3.20%	2.01%	**12.44%**	2170	1525
Middle	**28.65%**	**18.02%**	**2.14%**	3.12%	1.59%	**7.73%**	1963	1346
Richer	**26.07%**	**16.19%**	**2.22%**	2.65%	1.77%	**7.59%**	1813	1236
Richest	**22.59%**	**13.92%**	**0.92%**	3.36%	1.64%	**5.84%**	1698	1216

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[5] The analysis for current marital status and cohabitation duration, the N is the same for all presence of third party person since the mother-in-law model is restricted to currently married women.

Table 4 Continued: Proportion of Interviews with Third Party Persons Present by Selected Variables TDHS -2013

	Someone present	Child < 10	Mother -in-law	Mother	Male	Female	N	N for MIL
Level of a Person(s) Being Present								
2. Direct								
Interview Duration								
30 minutes and less	**19.84%**	**8.03%**	2.02%	**3.56%**	1.61%	8.35%	4235	2245
31 minutes and more	**41.61%**	**31.39%**	2.59%	**1.22%**	2.09%	10.74%	4303	1417
2visit+	**23.94%**	**8.62%**	2.24%	**6.86%**	1.52%	10.04%	1136	522
Number of HH members								
5 or less people	**26.81%**	**16.08%**	**1.97%**	3.10%	1.93%	**7.68%**	6733	4889
6-10 people	**33.78%**	**19.99%**	**3.61%**	3.18%	1.39%	**13.26%**	2636	1707
11-15 people	**44.80%**	**24.09%**	**4.08%**	1.98%	2.56%	**27.58%**	292	181
16+	**49.41%**	**26.67%**	**3.85%**	2.53%	3.67%	**28.17%**	51	34
Total	28.90%	17.20%	2.36%	3.09%	1.83%	9.49%	9712	6811
Total number of rooms in the HH								
1	**43.92%**	**31.21%**	4.58%	**9.27%**	6.79%	10.09%	69	63
2	**40.20%**	**26.20%**	3.65%	**1.71%**	2.22%	13.47%	492	421
3	**32.82%**	**22.47%**	2.07%	**1.84%**	2.28%	8.90%	2710	2324
4	**28.77%**	**18.16%**	2.29%	**1.93%**	2.17%	8.81%	3478	2933
5	**30.16%**	**20.15%**	2.86%	**0.95%**	2.06%	9.19%	580	512
6+	**23.9%**	**10.21%**	3.68%	**2.06%**	2.73%	8.48%	218	185
Total	31.00%	20.30%	2.40%	1.90%	2.30%	9.10%	7547	6438

The proportion of someone being present was high with respondents between the ages of 25 to 34 (38.55%) and lowest among the younger respondents aged 15-19 years (20.59%). The proportion of children under ten years was highest among respondents between the ages of 30-34 years (30.30%) and lowest among those between 45- 49 years old (4.82%). Mother-in-law was common among younger respondents of 15-29 years of age (3.07% -7.05%) and lowest among the older respondents aged 35-49 years (1.18%-1.83%). The presence of mother decreased with age, was highest among the younger (15-19 years) respondents (8.72%) and lowest (0.63%) among older respondents. The

proportion of presence of males was highest among the older category of respondents aged between 40-49 years (3.41-3.78%) and lowest among the younger respondents 15-24 years of age (0.40%-0.63%). The proportion of females present was higher among older respondents 40-49 years of age (11.85-13.94%) and lower among middle aged respondents 25-34 years (7.31-7.97%) (Table 4).

Education level was significantly associated with the presence of someone (Table 4), the proportion of presence of someone decreased with increasing level of education. Among respondents with no education or primary incomplete, the proportion of third party person present was 41.75% while among those with high school or more education, the proportion was 22.71%. Proportion of males and other females followed the same pattern. The proportion of the respondent's mother was opposite of all other type of third party presence i.e. was lowest among no education or primary incomplete category (1.49%) and highest among those with second level primary and high school or higher education (5.80% and 3.42% respectively).

Employment status was significantly associated with the presence of children under ten years, males and other females. The proportion of third party person presence was higher among those unemployed (30.28%) compared to those employed (25.86%), among the presence of children under ten years, the proportion followed the same pattern. In the presence of other females and males, the opposite was observed whereby the highest proportion was among respondents who were working (the proportion of other females was 10.56% among those working in contrast to 9.01% among those not working), while the proportion of males was 2.31% among those employed compared to 1.61% among those not employed (Table 4).

Marital status was significant for all the type of third party presence except other females. Presence of third part person was higher among respondents who are currently married (33.64%) compared to those formerly married (23.96%) and never married

(17.91%). For specific type of third party person present, the same pattern is observed (most common among currently married) for children under ten years (23.42%), mother-in-law (2.36%) and males (2.47%). For the presence of respondent's mother, the proportion was highest among the never married category (8.21%).

The duration of cohabitation was significant for all the type of third party presence, the proportion of third party person present was highest among the newly married. The presence of children under ten years old was lowest among respondent who were married for a long duration of time (25+ years the proportion was 6.03%-7.49%) compared to those married for less duration (for those married for 0-14 years, the proportion was 25.61%-40.29%). The proportion of mother-in-law and mother presence was higher for the newly married respondents 4.52% and 2.34% respectively. For the presence of other females and males, the proportion increased with increasing number of years the respondents has been married (Table 4).

The wealth index of the household was significantly associated with the presence of children under 10 years, mother-in-law and other females. The proportion of third party person being present decreased with increasing household wealth. Among the poorest households, the proportion of someone being present was 36.78% while among the richest households the proportion of someone present was 22.59%. Same pattern was observed for children under ten years and other females. For the presence of mother-in-law, the proportion was lowest (0.92%) for the richest households and highest (3.59%) among the poorer households (Table 4).

Interview duration was significantly associated with presence of children under 10 years and respondent's mother. The proportion of third party presence was associated with longer interview duration, it was highest (41.61%) among those interviewed for more than 30 minutes and lowest (19.84%) among those interviewed for 30 minutes or less. The proportion of children under ten years was highest (31.39%) among respondents who were

interviewed for more than 30 minutes and lowest (8.03%) among those interviewed for 30 minutes or less. The presence of respondent's mother was lowest (1.22%) among those interviewed for more than 30 minutes and highest (3.56%) among those interviewed for more than 30 minutes (Table 4).

Number of household members was significantly associated to the presence of children under ten years, mother-in-law and other females. The proportion of someone present increased with increasing number of members in a particular household. It was highest among households with sixteen and more members and lowest (26.81%) among households with 5 and less members. The proportion of children under ten years and other females present followed the same pattern, highest among households with sixteen and more members (children under ten was 26.67% and other females 28.17%) and lowest among five and less member household (children under ten was 16.08% and other females 7.68%). The proportion of mother-in-law presence differed slightly, was highest (4.08%) among eleven to fifteen member household, among households with sixteen and more members the proportion was 3.85%, the proportion was lowest (1.97%) among households with 5 and less members (Table 4).

The total number of rooms in the household was significantly associated with only the presence of children under ten years and respondent's mother. The proportion of third party being present was highest (43.92%) among households with one single room and lowest (23.9%) among households with six and more rooms. The proportion was decreasing with increasing number of rooms with an exception of households with five rooms whereby it increased and then decreased among households with six or more rooms. The presence of children under ten years followed the same pattern, the proportion of was highest (31.21%) among households with one single room and lowest (10.21%) among households with six and more rooms. The proportion of presence of respondent's mother was highest (9.27%) among households with a single room followed by households with

six and more rooms (2.06%) and lowest (0.95%) among households with 5 rooms (Table 4).

4.2.2. Checking for Model Assumptions

Multivariable analysis was conducted to find the significant determinants after bivariate analysis were concluded. First the models assumptions were checked they include; multicollinearity, linearity of logit and influential cases. As explained in the methodology section, logistic regression models were built for the presence of children under ten years, mother-in-law, respondent's mother, males and other females. This section presents the results.

i. Multicollinearity

There was no multicollinearity detected, no VIF values were higher than five for any of the variables (Table 5). Age of the respondent, their marital status and cohabitation duration had the highest VIF values (2.824 and 2.940 respectively), this is due to older women are married for a longer duration.

Table 5. Results of multicollinearity test for determinants of someone present

	Children		Mother-in-law		Mother		Males		Other Females	
	T[6]	VIF	T	VIF	T	VIF	T	VIF	T	VIF
Region	.848	1.179	.848	1.179	.848	1.179	.848	1.179	.848	1.179
Type of place of residence	.728	1.374	.728	1.374	.728	1.374	.728	1.374	.728	1.374
Country specific education	.550	1.818	.550	1.818	.550	1.818	.550	1.818	.550	1.818
Respondent's current age	.354	2.824	.354	2.824	.354	2.824	.354	2.824	.354	2.824
Working Status	.922	1.084	.922	1.084	.922	1.084	.922	1.084	.922	1.084
Marital status and cohabitation duration	.340	2.940	.340	2.940	.340	2.940	.340	2.940	.340	2.940
Wealth index	.508	1.970	.508	1.970	.508	1.970	.508	1.970	.508	1.970
Total rooms in the house	.906	1.104	.906	1.104	.906	1.104	.906	1.104	.906	1.104
Number of household members	.755	1.325	.755	1.325	.755	1.325	.755	1.325	.755	1.325
Length of interview in minutes	.961	1.040	.961	1.040	.961	1.040	.961	1.040	.961	1.040

ii. Goodness of fit

This was assessed using by Hosmer-Lemeshow test, the results was significant for children under ten and mother. P value less than 0.05 may indicate the fit may be poor but it is noted that with large sample sizes the test can be significant even when the fit is good. In the result for determinants of presence of a third party, mother-in-law, males and other females had P values greater than 0.05.

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[6] T stands for Tolerance

iii.   Influential cases

The summary results of cook's distance is shown in the Table 6. The recommended threshold of Cook's distance should not be greater than was met hence no cases were excluded from analysis.

Table 6. Results of Cook's Distance for Determinants of Third Party Presence

	N	Minimum	Maximum
Children under ten Analog of Cook's influence statistics	7,536	.00001	.04117
Mother-in-law Analog of Cook's influence statistics	7,536	.00000	.20748
Mother Analog of Cook's influence statistics	7,536	.00000	.31779
Males Analog of Cook's influence statistics	7,536	.00000	.35867
Females Analog of Cook's influence statistics	7,536	.00001	.06890
Valid N	7,536		

4.2.3. Findings from Regression Models

Two models for each dependent variable were run. The first model included indirect determinants only, in the second one direct determinants were added.

Presence of Children under 10 Years (Reference Category No One Present)

Table 7. Presence of Children; Unweighted Counts, R^2 and Classification Percent

		UC	Nagelkerke R^2	Correct Overall Percent
Indirect determinants only	Model 1	9,712	0.234	83.0%
Both direct and indirect determinants (full model)	Model 2	7,514	0.261	79.9%

Table 7 shows the unweighted counts and the R^2 for modeling the determinants of presence of children under ten years old. Based on the N, the addition of indirect determinants to the model increased the proportion of the variance explained found in the presence of children (0.261).

Table 8. Presence of Children; Wald F Statistics and P value

	Model 1		Model 2	
Variable	Wald F	P	Wald F	P
Region	1.157	.330	1.157	.330
Type of place of residence	10.279	**.001**[7]	12.138	**.001**
Wealth Index	.310	.871	.695	.596
Education level	6.864	**.000**	1.474	.222
Marital status and cohabitation duration	98.511	**.000**	36.922	**.000**
Employment status	6.612	**.011**	1.921	.167
Respondent's Age	14.322	**.000**	8.853	**.003**
Interview Duration			44.583	**.000**
Number of household members			63.064	**.000**
Total number of rooms in the HH			13.579	**.000**

Table 8 shows the Wald F statistics and the p-value for each predictor variable. In the model 1, all independent variables were significant with a p value of less than 0.01

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[7] Values highlighted bold throughout are significant at p-value <0.05

(highlighted in bold) except region and HH wealth status. In the second model with both direct and indirect possible determinants of children's presence, region remains not significant, employment status, wealth and education level loses their significance, the rest were significant (highlighted in bold).

Table 9. Parameter Estimates from Logistic Regression Model for Children's Presence

	Model 1			Model 2		
		95% CI			95% CI	
Variable	Exp (B)	Lower	Upper	Exp (B)	Lower	Upper
Region						
West	.800	.629	1.017	1.003	0.781	1.288
South	.835	.653	1.069	1.069	0.831	1.374
Central	.808	.625	1.045	1.157	0.886	1.511
North	.782	.606	1.010	0.870	0.659	1.149
East	1.000	.	.	1.000	.	.
Type of place of residence						
Urban	1.383	**1.133**	**1.687**	1.444	**1.173**	**1.777**
Rural	1.000	.	.	1.000	.	.
Household wealth level						
Lowest	1.179	.879	1.58	.848	.603	1.194
Low	1.116	.862	1.444	.932	.701	1.237
Middle	1.077	.86	1.349	1.037	.804	1.338
High	1.058	.838	1.335	1.017	.788	1.314
Highest	1.000	.	.	1.000	.	.
Educational level						
No education/Primary incomplete	1.785	**1.375**	**2.318**	1.220	.910	1.636
First level primary	1.420	**1.139**	**1.770**	1.277	**1.002**	**1.626**
Second level primary	1.264	.994	1.607	1.090	.836	1.423
High school and higher	1.000	.	.	1.000	.	.
Time since first marriage						
Never married	.230	**0.125**	**0.426**	.272	.115	.644
0-4 years	2.995	**1.842**	**4.870**	4.148	**2.410**	**7.139**
5-9 years	6.618	**4.336**	**10.103**	6.615	**4.222**	**10.365**
10-14 years	4.776	**3.282**	**6.950**	4.596	**3.056**	**6.911**
15-19 years	2.881	**2.001**	**4.148**	2.802	**1.913**	**4.103**
20-24 years	1.192	.795	1.789	1.203	.793	1.825
25 and above	1.000	.	.	1.000	.	.
Formerly married	1.316	.818	2.117	1.521	.903w	2.562

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Table 9 continued.: Parameter Estimates from Logistic Regression Model for Children's Presence

Variable	Model 1			Model 2		
	Exp (B)	95% CI		Exp (B)	95% CI	
		Lower	Upper		Lower	Upper
Working status						
Currently working	0.804	.680	.950	.877	.727	1.057
Not working	1.000	.	.	1.000	.	.
Age	.967	.950	.984	.972	.953	.990
Duration of interview						
30 min and less				1.000	.	.
31 minutes and more				2.608	**2.102**	**3.236**
+2visit				1.373	0.992	1.901
Number of HH members				1.097	**1.064**	**1.130**
Number of rooms				.835	.759	.920

All direct determinant of someone present added were significant (model 2), together with type of residence place, marital status and duration, age of the respondent (Table 9). The odds of having children present for respondents from urban was higher (OR=1.444) as opposed to those from rural areas. For marital status, duration of cohabitation and age of the respondents, the same pattern was observed as in model 1, the odds of having children under ten years present were lower for the never married (OR=.272) as opposed to those married for a longer duration. For the direct determinants, the findings showed that longer interview duration increased the odds of having children present: interviews that were conducted for more than thirty minutes as opposed to interviews conducted for thirty minutes or less (OR=2.608). An additional household member increases the odds of presence of children under ten years by1.097, keeping all other variables constant. Total number of rooms in the household was associated with decreased odds of having children under ten years old (OR=0.835).

Presence of Mother-in-law (Reference Category No One Present)

Table 10. Presence of Mother-in-law Unweighted Counts, R^2, Classification Percent and Subpopulation Size

		UC	Nagelkerke R^2	Correct Overall Percent	Subpopulation size
Indirect determinants only	Model 1	7195	0.063	97.6%	6638.212
Direct and indirect determinants (full model)	Model 2	6738	0.090	97.6%	6331.131

Table 10 shows the unweighted counts, the R^2 and the subpopulation size for modeling the determinants of presence of mother-in-law. The addition of indirect determinants to the model increased (slightly) the proportion of the variance explained found in the presence of mother-in-law (0.090). The models were restricted to those who were currently married at the survey data.

Table 11. Presence of mother-in-law; Wald F Statistics and P value

Variable	Model 1		Model 2	
	Wald F	P	Wald F	P
Region	.367	.832	.657	.622
Type of place of residence	12.135	**.001**	10.876	**.001**
Wealth Index	1.613	.171	1.699	.150
Education level	.377	.770	.137	.938
Marital status and cohabitation duration	1.881	.097	4.168	**.001**
Employment status	.091	.763	.210	.647
Respondent's Age	2.410	.122	1.714	.191
Interview Duration			.656	.519
Number of household members			18.178	**.000**
Total number of rooms in the HH			.003	.956

In model 1, only type of place of residence was significant. When direct determinants of presence of someone was added to the model, marital status and cohabitation duration was also significant (Table 11).

Table 12. Parameter Estimates from the Logistic Regression Model for Mother-in-law Presence

Variable	Model 1			Model 2		
	Exp (B)	95% CI		Exp (B)	95% CI	
		Lower	Upper		Lower	Upper
Region						
West	1.131	0.678	1.887	1.321	0.763	2.286
South	0.944	0.521	1.708	.960	0.490	1.878
Central	0.836	0.485	1.439	.905	0.505	1.621
North	1.062	0.577	1.956	1.080	0.523	2.232
East	1.000	.	.	1.000	.	.
Type of place of residence						
Urban	0.485	**0.322**	**0.730**	.487	**0.317**	**0.748**
Rural	1.000	.	.	1.000	.	.
Household wealth level						
Lowest	1.798	0.637	5.075	1.641	0.523	5.154
Low	2.601	**1.040**	**6.506**	2.577	0.999	6.648
Middle	1.800	0.722	4.491	1.759	0.686	4.512
High	2.193	0.921	5.223	2.094	0.861	5.094
Highest	1.000	.	.	1.000	.	.
Educational level						
No education/Primary incomplete	1.619	0.638	4.107	1.264	0.485	3.292
First level primary	1.284	0.622	2.650	1.239	0.589	2.604
Second level primary	1.310	0.665	2.582	1.242	0.616	2.504
High school and higher	1.000	.	.	1.000	.	.
Time since first marriage						
0 never married	.000	.000	.000	.000	.000	.000
0-4 years	1.464	0.473	4.532	2.154	0.656	7.076
5-9 years	0.928	**0.361**	**2.386**	1.091	**0.408**	**2.914**
10-14 years	0.743	**0.300**	**1.842**	0.764	**0.298**	**1.958**
15-19 years	0.762	**0.339**	**1.715**	0.726	**0.314**	**1.677**
20-24 years	0.412	**0.168**	**1.011**	0.277	**0.110**	**0.695**
25 and above	1.000	.	.	1.000	.	.
formerly married	.000	.000	.000	.000	.000	.000

Table 12 Continued. Parameter Estimates from the Logistic Regression Model for Mother-in-law Presence

Variable	Model 1			Model 2		
	Exp (B)	95% CI		Exp (B)	95% CI	
		Lower	Upper		Lower	Upper
Working status						
Currently working	0.937	0.613	1.432	0.901	0.575	1.412
Not working	1.000	.	.	1.000	.	.
Age	0.968	0.929	1.009	0.972	0.931	1.015
Duration of interview						
30 min and less				1.000	.	.
31 minutes and more				0.894	0.592	1.348
2+ visits				1.279	0.647	2.526
Number of HH members				1.193	**1.100**	**1.294**
Number of rooms				1.006	0.820	1.234

The results showed in Table 12 indicate that living in urban areas as opposed to rural areas decreased the odds of having mother in law present in both models. Being married for 20 to 24 years as opposed to 25+ years decreased the odds (OR=0.272) of having mother-in-law present, being newly married (0 to 4 years) as opposed to being married for many years (25+ years) increased the odds of having mother-in-law by 2.154 times. For every one unit increase in number of rooms the odds of presence of mother-in-law increased by 1.006 times.

Presence of Mother (Reference Category No One Present)

Table 13. Presence of Mother; Unweighted Counts, R² and Classification Percent

		UC	Nagelkerke R^2	Correct Overall Percent
Indirect determinants only	Model 1	9712	0.157	96.9%
Direct and indirect determinants (full model)	Model 2	7514	0.152	98.1%

Table 13 shows the unweighted counts and the R^2 values for the determinants of presence of mother models. The addition of indirect determinants to the model did not increase the proportion of the variance explained found in the presence of mother.

Table 14. Presence of Mother; Wald F Statistics and P value

Variable	Model 1		Model 2	
	Wald F	p	Wald F	p
Region	5.638	**0.000**	3.379	**0.010**
Type of place of residence	5.242	**0.023**	0.041	0.841
Wealth Index	0.747	0.560	0.911	0.458
Education level	0.689	0.560	0.841	0.472
Marital status and cohabitation duration	12.081	**0.000**	8.602	**0.000**
Employment status	1.096	0.296	0.261	0.609
Respondent's Age	0.378	0.539	0.047	0.828
Interview Duration			0.227	0.797
Number of household members			0.001	0.974
Total number of rooms in the HH			0.750	0.387

In the only indirect determinants of presence of mother (model 1), region, type of place of residence and marital status and duration were significant. The direct determinants were not significant when added (model 2) only region and marital status and duration remained significant as shown in Table 14.

Table 15. Parameter Estimates from Logistic Regression Model for Mother's Presence

Variables	Model 1			Model 2		
	Exp (B)	95% CI		Exp (B)	95% CI	
		Lower	Upper		Lower	Upper
Region						
West	1.107	.710	1.725	1.413	0.767	2.603
South	1.659	**1.068**	**2.578**	1.946	**1.101**	**3.441**
Central	0.548	0.336	0.892	0.597	**0.294**	**1.211**
North	0.791	0.466	1.341	1.328	0.647	2.725
East	1.000	.	.	1.000	.	.
Type of place of residence						
Urban	1.520	**1.061**	**2.179**	1.053	0.634	1.749
Rural	1.000	.	.	1.000	.	.
Household wealth level						
Lowest	1.078	0.603	1.927	0.742	**0.338**	**1.630**
Low	0.848	0.506	1.423	0.633	**0.317**	**1.262**
Middle	0.853	0.507	1.434	0.627	**0.313**	**1.257**
High	0.734	0.459	1.175	0.565	**0.294**	**1.089**
Highest	1.000	.	.	1.000	.	.
Educational level						
No education/Primary incomplete	1.026	0.554	1.897	1.078	**0.371**	**3.133**
First level primary	1.301	0.760	2.227	1.615	0.754	3.458
Second level primary	1.318	0.867	2.003	1.514	0.764	3.001
High school and higher	1.000	.	.	1.000	.	.
Time since first marriage						
never married	13.818	**3.570**	**53.480**	21.202	**5.575**	**80.629**
0-4 years	2.636	0.649	10.709	3.854	0.825	18.008
5-9 years	2.270	0.597	8.628	2.968	0.734	12.003
10-14 years	1.428	**0.386**	**5.277**	1.763	**0.458**	**6.787**
15-19 years	0.731	**0.174**	**3.064**	0.820	**0.190**	**3.549**
20-24 years	0.913	**0.155**	**5.396**	0.968	**0.164**	**5.722**
25 and above	1.000	.	.	1.000	.	.
formerly married	9.491	**2.906**	**30.996**	7.080	**1.986**	**25.235**

Table 15 Continued. Parameter Estimates from Logistic Regression Model for Mother's Presence

Variables	Model 1			Model 2		
	Exp (B)	95% CI		Exp (B)	95% CI	
		Lower	Upper		Lower	Upper
Working status						
Currently working	1.195	0.855	1.671	1.127	0.711	1.787
Not working	1.000	.	.	1.000	.	.
Age	0.990	0.960	1.022	1.004	0.971	1.038
Duration of interview						
30 min and less				1.000	.	.
2 31 minutes and more				1.023	0.566	1.848
3 +2visit vs				1.245	0.651	2.379
Number of HH members				0.998	0.883	1.128
Number of rooms				0.872	0.638	1.191

The results showed in Table 15 indicate that living in urban areas as opposed to rural areas increased the odds of having mother present in both models (urban; model 1 OR=1.520, model 2 OR=1.053). In model 1 with only indirect determinants, living in the North (OR=0.791) and Central (OR=0.548) regions as opposed to residing in the East decreased the odds of having mother present. Living in the West (OR=1.107) and South (OR=1.659) regions as opposed living in East region increased the odds of having mother present. In model 2 with both direct and indirect determinants, only living in Central (OR=0.597) as opposed to the East decreased the odds of having a mother present. In both models never being married increased the odds (model 1 OR =13.818 and model 2 OR=21.202) of having a mother present as opposed to being married for long duration (25+). Being married for 15 to 19 and 20-24 years as opposed to 25+ years decreased the odds of having a mother present in both models; (model 1; 15 to 19 years OR=0.731, 20 to 24 years OR=0.913: model 2; 15 to 19 years OR=0.820, 20 to 24 years OR=0.968).

Presence of Males (Reference Category No One Present)

Table 16. Presence of Males; Unweighted Counts, R^2 and Classification Percent

		UC	Nagelkerke R^2	Correct Overall Percent
Indirect determinants only	Model 1	9712	0.064	98.2%
Direct and indirect determinants (full model)	Model 2	7514	0.038	97.8%

The unweighted counts and the R^2 values for modeling the determinants of presence of males are displayed in Table 16. Based on the N, the addition of direct determinants did not improve the model.

Table 17. Presence of Males; Wald F Statistics and P value

	Model 1		Model 2	
Variable	Wald F	P	Wald F	p
Region	2.248	0.064	2.339	0.055
Type of place of residence	0.021	0.885	0.002	0.960
Wealth Index	0.685	0.603	0.492	0.742
Education level	0.302	0.824	0.327	0.806
Marital status and cohabitation duration	3.000	**0.005**	1.419	0.197
Employment status	2.191	0.140	2.562	0.110
Respondent's Age	9.222	**0.003**	7.021	**0.008**
Interview Duration			0.311	0.733
Number of household members			0.776	0.379
Total number of rooms in the HH			0.152	0.697

In model 1, respondent's age, marital status and cohabitation duration were significant. In the second model only age retained significance (Table 17).

Table 18. Parameter Estimates from Logistic Regression Model for Male Presence

Variable	Model 1			Model 2		
	Exp (B)	95% CI		Exp (B)	95% CI	
		Lower	Upper		Lower	Upper
Region						
West	0.859	0.554	1.334	0.867	0.537	1.398
South	0.596	**0.335**	**1.058**	0.575	**0.299**	**1.102**
Central	0.508	0.304	0.847	0.515	0.293	0.908
North	0.640	**0.360**	**1.136**	0.502	0.263	0.955
East	1.000	.	.	1.000	.	.
Type of place of residence						
Urban	1.029	0.699	1.513	0.989	0.645	1.517
Rural	1.000	.	.	1.000	.	.
Household wealth level						
Lowest	1.756	0.810	3.808	1.710	0.764	3.828
Low	1.615	0.810	3.221	1.470	0.715	3.023
Middle	1.249	0.633	2.462	1.258	0.619	2.558
High	1.266	0.684	2.345	1.341	0.717	2.508
Highest	1.000	.	.	1.000	.	.
Educational level						
No education/Primary incomplete	0.810	**0.397**	**1.652**	0.755	**0.349**	**1.636**
First level primary	0.785	**0.453**	**1.361**	0.762	**0.432**	**1.344**
Second level primary	0.944	0.540	1.651	0.898	0.489	1.649
High school and higher	1.000	.	.	1.000	.	.
Time since first marriage						
never married	0.298	0.109	0.814	0.436	**0.155**	**1.225**
0-4 years	1.203	0.109	0.814	1.192	**0.424**	**3.353**
5-9 years	1.034	**0.474**	**3.053**	1.102	**0.455**	**2.666**
10-14 years	0.916	**0.454**	**2.354**	0.945	**0.436**	**2.049**
15-19 years	1.310	**0.428**	**1.958**	1.300	0.694	2.436
20-24 years	1.233	0.722	2.376	1.057	0.549	2.037
25 and above	1.000	.	.	1.000	.	.
formerly married	0.382	**0.145**	**1.009**	0.442	**0.166**	**1.176**

Table 18 continued. Parameter Estimates from Logistic Regression Model for Male Presence

Variable	Model 1			Model 2		
	Exp (B)	95% CI		Exp (B)	95% CI	
		Lower	Upper		Lower	Upper
Working status						
Currently working	1.305	0.916	1.861	1.374	0.930	2.031
Not working	1.000	.	.	1.000	.	.
Age	1.051	**1.018**	**1.086**	1.049	**1.012**	**1.087**
Duration of interview						
30 min and less				1.000	.	.
31 minutes and more				0.862	0.560	1.326
2+ visits				1.013	0.562	1.825
Number of HH members				1.045	0.947	1.153
Number of rooms				0.962	0.791	1.169

The findings shown in Table 18 indicate the odds of male presence is expected to increase by 1.051 for model 1 and 1.049 factor for model 2 when age increases by one year keeping everything constant. In model 1, the odds of presence of males decreased for those never married (OR=0.298), formerly married (OR=0.382), being married for 10 to 14 years (OR=0.916) as opposed to those married for 25+ years. Being married increased for 15 to 19 years increased the odds for having male presence by 1.233 times as opposed to being married for 25+ years.

Presence of Other Females (Reference Category No One Present)

Table 19. Presence of Other Females; Unweighted Counts, R^2 and Classification Percent

		UC	Nagelkerke R^2	Correct Overall Percent
Indirect determinants only	Model 1	9712	0.058	90.5%
Direct and indirect determinants (full model)	Model 2	7514	0.075	90.8%

Table 19 shows the unweighted counts and the R^2 values for the determinants of presence of other males. The addition of indirect determinants to the model increased the proportion of the variance explained found in the model (0.075).

Table 20. Presence of Other Females; Wald F Statistics and P value

Variable	Model 1		Model 2	
	Wald F	P	Wald F	P
Region	3.852	**0.005**	2.210	0.068
Type of place of residence	1.178	0.279	0.489	0.485
Wealth Index	3.406	**0.010**	2.294	0.059
Education level	7.326	**0.000**	3.377	**0.019**
Marital status and cohabitation duration	2.240	**0.031**	1.294	0.253
Employment status	5.862	**0.016**	3.932	**0.048**
Respondent's Age	1.125	0.290	6.898	**0.009**
Interview Duration			2.595	0.076
Number of household members			30.439	**0.000**
Total number of rooms in the HH			1.366	0.243

In model 1; region, wealth index, education level, employment status, marital status and cohabitation duration were significant. When direct determinants were added, number of household members, age became significant together with education level and employment status were significant (Table 20).

Table 21. Parameter Estimates from Logistic Regression Model for Other Female Presence

Variable	Model 1			Model 2		
	Exp (B)	95% CI		Exp (B)	95% CI	
		Lower	Upper		Lower	Upper
Region						
West	.603	.464	.783	.695	.512	.943
South	.770	.587	1.008	.891	.671	1.183
Central	.702	.541	.910	.691	.508	.941
North	.810	.582	1.127	.923	.650	1.311
East	1.000	.	.	1.000	.	.
Type of place of residence						
Urban	.891	.722	1.099	.928	.752	1.145
Rural	1.000	.	.	1.000	.	.
Household wealth level						
Lowest	1.718	**1.198**	**2.463**	1.283	.869	1.892
Low	1.597	**1.165**	**2.190**	1.319	.931	1.869
Middle	1.088	.772	1.532	.905	.622	1.318
High	1.190	.884	1.601	.933	.657	1.325
Highest	1.000	.	.	1.000	.	.
Educational level						
No education/Primary incomplete	2.108	**1.515**	**2.934**	1.829	**1.214**	**2.755**
First level primary	1.387	**1.042**	**1.845**	1.353	.945	1.937
Second level primary	1.394	**1.028**	**1.890**	1.561	**1.057**	**2.305**
High school and higher	1.000	.	.	1.000	.	.
Time since first marriage						
never married	.822	.495	1.365	.956	.560	1.634
0-4 years	.603	.495	1.365	.715	.411	1.243
5-9 years	.603	.370	.982	.744	.471	1.175
10-14 years	.610	.388	.936	.696	.463	1.046
15-19 years	.756	.417	.890	.844	.603	1.183
20-24 years	.708	.547	1.045	.746	.544	1.022
25 and above	1	.	.	1.000	.	.
formerly married	.817	.519	1.287	1.082	.672	1.742

Table 21 Continued. Parameter Estimates from Logistic Regression Model for Other Female Presence

Variable	Model 1			Model 2		
	Exp (B)	95% CI		Exp (B)	95% CI	
		Lower	Upper		Lower	Upper
Working status						
Currently working	1.260	**1.044**	**1.520**	1.233	**1.002**	**1.519**
Not working	1.000	.	.	1	.	.
Age	0.967	0.95	0.984	1.026	**1.006**	**1.045**
Duration of interview						
30 min and less				1.000	.	.
31 minutes and more				1.161	0.946	1.426
+2visit				1.427	**1.024**	**1.987**
Number of HH members				1.120	**1.076**	**1.166**
Number of rooms				0.951	.874	1.035

In model 2 (Table 21): for a one year increase in age, the odds of presence of other females increased by a factor 1.026; also an additional member in a household increased the odds of presence of other females increased by a factor 1.20. In both models: lower education level increased the odd of other females presence; no education or primary incomplete as opposed to high school or higher (model 1 OR=2.108; model 2 OR=1.829); first level of primary education as opposed to high school or higher (model 1 OR=1.387; model 2 OR=1.353); second level primary education opposed to high school or higher (model 1 OR=1.394; model 2 OR=1.561), keeping everything constant; being employed as opposed to being unemployed increased the odds of having other females present (model 1 OR=1.260; model 2 OR=1.233).

4.3. Effects of Third Party Presence on Survey Questions

4.3.1. Results of Bivariate Analysis

Table 22. Selected Indicators by Presence of Children, Mother-in-law and Mother

		Child present	Mother present	No one present	Mother-in-law present	No one present for MIL[7]
Attitudes	**1. Gender roles**					
	Agrees family decisions should be made by men	10.38%	8.72%	8.83%	26.50%	10.12%
	Agrees that husband should help	**70.37%**	82.82%	**77.48%**	**54.00%**	**74.83%**
	Agrees educated son better than daughter	9.63%	8.51%	9.15%	12.11%	10.03%
	Agrees women should not work	54.38%	51.55%	51.41%	57.50%	52.31%
	Agrees more women politician	80.49%	81.93%	83.18%	**66.07%**	**85.46%**
	Agrees women should be virgin at wedding night	**78.84%**	70.53%	**74.72%**	83.02%	78.15%
	Number of cases (unweighted)	1248	185	6132	83	4009
	Agrees wife beating is justified	**14.13%**	15.82%	**11.63%**	18.58%	13.54%
	Number of cases (unweighted)	1399	204	6709	93	4414
	2. Fertility preference					
	Fertility preference					
	Have another	**42.16%**	**83.27%**	**51.69%**	42.35%	32.20%
	Undecided	**3.71%**	**1.47%**	**2.67%**	6.48%	3.25%
	No more	**54.14%**	**15.25%**	**45.63%**	51.17%	64.55%
	Number of cases (unweighted)	1399	205	6707	93	4413
	Ideal number of children	**2.87**	**2.33**	**2.66**	2.88	2.81

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[7] For the presence of mother-in-law, the denominator is different than other persons; the analysis was restricted to those currently married. Hence the proportions of interviews without third party persons is presented separately for mother-in-law.

Table 22 continued. Selected Indicators by Presence of Children, Mother-in-law and Mother

		Child present	Mother present	No one present	Mother-in-law present	No one present for MIL
Behaviour	**3. Lifestyle**					
	Does sports regularly	**24.69%**	39.76%	**41.19%**	**23.74%**	**36.49%**
	Goes on holiday	**35.84%**	46.07%	**47.86%**	**26.78%**	**43.58%**
	Goes outside for a meal	**57.67%**	55.96%	**61.97%**	**39.83%**	**62.89%**
	Organizes home meetings	41.81%	**31.99%**	45.15%	40.20%	48.67%
	Uses internet	**36.93%**	**68.29%**	**51.89%**	**22.60%**	**40.07%**
	Watches women's programs on TV	**56.10%**	44.38%	**51.08%**	67.87%	58.15%
	Smokes	24.59%	15.32%	22.68%	**12.93%**	**24.26%**
	Drinks alcohol	**5.14%**	8.14%	**9.04%**	2.97%	7.31%
	votes in elections	94.70%	**86.19%**	93.35%	99.05%	97.32%
	Number of cases (unweighted)	1335	107	5714	83	4321
	4. Religion					
	Performs namaz (yes)	72.45%	**21.47%**	71.36%	79.89%	77.14%
	Fasts (yes)	**92.31%**	**83.55%**	**89.74%**	92.21%	90.30%
	Wears a head scarf when going out (yes)	**70.30%**	**39.92%**	**56.35%**	78.91%	67.26%
	Number of cases (unweighted)	1397	205	6649	91	4409
Others	**5. Reproductive Health**					
	Has had a terminated pregnancy	**29.83%**	**6.85%**	**24.06%**	45.93%	34.80%
	Uses any contraceptive method	**75.03%**	**10.06%**	**47.84%**	54.76%	73.54%
	Has had pregnancies that ended in spontaneous abortion	**22.27%**	**2.80%**	**14.92%**	33.23%	22.09%
	Total number of spontaneous abortion	1.48	1.48	1.45	**1.17**	**1.46**
	Has had pregnancies that ended in induced abortion	8.22%	**3.66%**	**10.19%**	16.29%	14.16%
	Total number of induced abortion	1.43	**1.13**	**1.52**	**1.27**	**1.51**
	Number of cases (unweighted)	1399	205	6706	93	4411

Table 22 continued. Selected Indicators by Presence of Children, Mother-in-law and Mother

	Child present	Mother present	No one present	Mother-in-law present	No one present for MIL
6. Financial Matters					
Owns a house alone or jointly					
Does not own	**85.94%**	**92.54%**	**81.91%**	**89.65%**	**77.50%**
Alone only	**3.31%**	**4.71%**	**4.93%**	**1.78%**	**5.93%**
Jointly ownership	**10.75%**	**2.75%**	**13.16%**	**8.58%**	**16.57%**
Owns land alone or jointly					
Does not own	**93.92%**	95.60%	**92.40%**	90.99%	90.84%
Alone only	**1.39%**	1.98%	**2.49%**	4.01%	3.18%
Jointly ownership	**4.69%**	2.41%	**5.11%**	5.01%	5.98%
Has money to spend	**18.67%**	28.60%	**31.99%**	**12.03%**	**24.36%**
Has a Car					
Don't have	89.64%	**94.84%**	**88.49%**	92.43%	84.52%
Jointly own	6.94%	**2.19%**	**7.52%**	2.94%	10.45%
single ownership	3.42%	**2.97%**	**3.99%**	4.64%	5.03%
Number of cases (unweighted)	1390	205	6663	93	4412
7. Relationship with Partner					
Partner prevents from seeing female friends	9.27%	**14.50%**	**7.79%**	8.96%	5.66%
Partner limits to contact with her family	6.79%	12.55%	5.87%	6.44%	4.15%
Number of cases (unweighted)	1346	61	4954	93	4413
Total	100%	100%	100%	100%	100%

Others (vertical label spanning section 6)

The number of Unweighted Count (UC) given in the table for each third party presence are the lowest.

Presence of children, UC ranges from 1248 to 1399; presence of mother ranges from 107 to 205; no one present 6132 to 6689; presence of mother-in-law 83 to 93, absence of mother-in-law 4009-4397

Table 23. Selected Indicators By Presence of Males, Other Females, Adults and Children

		Males present	Other females present	Adults and children	No one present
Attitudes	**1. Gender roles**				
	Agrees decisions should be made by men family decision by men	**18.36%**	**18.05%**	**14.38%**	**8.83%**
	Agrees husband should help	71.67%	**70.90%**	60.05%	**77.48%**
	Agrees educated son better than daughter	15.31%	**13.69%**	11.46%	9.15%
	Agrees women should not work	50.28%	**63.55%**	64.19%	51.41%
	Agrees more women politicians	89.15%	79.91%	79.23%	83.18%
	Agrees women should be virgin at wedding night	80.28%	**86.61%**	87.32%	74.72%
	Number of cases (unweighted)	92	714	356	6123
	Agrees wife beating is justified	**27.04%**	18.57%	23.84%	11.63%
	Number of cases (unweighted)	98	786	288	6709
	2. Fertility preference				
	Fertility preference				
	Have another	**20.48%**	**43.10%**	**41.67%**	**51.69%**
	Undecided	**5.28%**	**2.09%**	**3.55%**	**2.67%**
	No more	**74.24%**	**54.82%**	**54.79%**	**45.63%**
	Number of cases (unweighted)	98	785	290	6707
	Ideal number of Children (mean)	2.63	**3.00**	**3.14**	**2.66**
Behaviour	**3. Lifestyle**				
	Does sports regularly	40.39%	**26.89%**	**24.39%**	**41.19%**
	Goes on holiday	49.81%	30.67%	**28.31%**	**47.86%**
	Goes outside for a meal	63.56%	**42.79%**	**47.19%**	**61.97%**
	Organizes home meetings	**31.89%**	**40.45%**	15.94%	20.40%
	Uses internet	**37.51%**	**34.35%**	**31.44%**	**51.89%**
	Watches women's programs on TV	**67.63%**	52.12%	51.28%	51.08%
	Smokes	29.39%	**16.03%**	21.07%	22.68%
	Drinks alcohol	9.45%	**5.64%**	**2.91%**	**9.04%**
	votes in elections	93.82%	93.77%	95.17%	93.35%
	Number of cases (unweighted)	93	659	262	5714

Table 23 continued. Selected Indicators By Presence of Males, Other Females, Adults and Children

		Males present	Other females present	Adults and children	No one present
Behaviour	**4. Religion**				
	Performs namaz (yes)	76.22%	72.65%	73.61%	71.36%
	Fasts (yes)	91.05%	92.51%	92.29%	89.74%
	Wears a head scarf when going out (yes)	59.36%	**71.52%**	**69.15%**	**56.35%**
	Number of cases (unweighted)	98	776	289	4497
Others	**5. Reproductive Health**				
	Has had a terminated pregnancy	**35.07%**	**32.01%**	**30.20%**	**24.06%**
	Uses any contraceptive method	**60.15%**	**42.11%**	**59.41%**	**47.84%**
	Has had pregnancies that ended in spontaneous abortion	17.19%	**20.84%**	**24.02%**	**14.92%**
	Total number of spontaneous abortion	1.85	1.56	1.47	1.45
	Has had pregnancies that ended in induced abortion	**20.45%**	11.26%	6.90%	10.19%
	Total number of induced abortion	1.47	1.44	**1.1**	**1.52**
	Number of cases (unweighted)	98	787	289	6706
	6. Financial Matters				
	Owns a house alone or jointly				
	Does not own	87.56%	82.18%	87.98%	81.91%
	Alone only	7.61%	5.68%	3.25%	4.93%
	Jointly ownership	4.83%	12.14%	8.77%	13.16%
	Owns land alone or jointly				
	Does not own	92.22%	90.87%	**96.23%**	**92.40%**
	Alone only	5.56%	3.09%	**0.48%**	**2.49%**
	Jointly ownership	2.22%	6.04%	**3.29%**	**5.11%**
	Has money to spend	28.07%	**23.10%**	**20.70%**	**31.99%**

Table23 continued. Selected Indicators By Presence of Males, Other Females, Adults and Children

		Males present	Other females present	Adults and children	No one present
Others	**Has a Car**				
	Don't have	92.69%	90.72%	93.28%	88.49%
	Jointly own	2.85%	5.78%	4.21%	7.52%
	single ownership	4.46%	3.50%	2.52%	3.99%
	Number of cases (unweighted)	98	787	289	6663
	7. Relationship with Partner				
	Partner prevents from seeing female friends	8.76%	**10.91%**	**12.27%**	**7.79%**
	Partner limits to contact with her family	6.79%	7.90%	7.63%	5.87%
	Number of cases (unweighted)	91	597	262	4954
	Total	100%	100%	100%	100%

The number of Unweighted Count (UC) given in the table for each third party presence are the lowest.

Presence of males, UC ranges from 92 t0 98; presence other females ranges from 659 to 787; no one present 4997 to 6702; presence of adults and children 256-290.

There were a total of 33 variables selected for the bivariate analysis and the proportions of each third party person was calculated from the significant associations (summary of significant association is attached in appendix C). The highest associations was among presence of other females, adults and children combined (61%) and children under ten years was (57%). The lowest was among mother-in-law (39%) and (males was 27%).

1. **Attitude Questions**

    a) Gender Roles

Seven question items were selected under gender roles (as mentioned in section 3.2.1), in all the 6 types of third party presence; and 19 out of 42 bivariate associations were significant. Respondent's opinion on family decision made by men was significantly associated with the presence of; males, other females and adult plus children together. In the presence of males, 18.36% said they agree that family decision is to be made by men. When other females (other than respondent's mother or mother-in-law) were present, 18.05% said they agree. In the presence of adults and children combined, the proportion of those that agreed was 14.38%. When no one is present 8.83% agreed with the statement (Table 23).

Respondent's opinion on husband should help was significantly associated with the presence of; children under ten years old, mother-in law, other females and adult plus children together. When no one was present 77.48% agreed that husbands should help, among presence of other females, 70.90% said they agreed with the statement. In the presence of children under ten years, 70.37% said they agreed, 60.05% said they agreed in the presence of both adults and children, 54.00% said they agreed in the presence of mother-in-law.

Respondent's opinion on educated so better than daughter was significantly associated with only presence of other females. 13.69% agreed with the statement in the presence of other females while 9.15% of those interviewed in the presence of no one said they agreed (Table 23).

The issue of agreeing with the statement women should not work was significantly associated with presence of; other females and adult and children together. In the presence of adults and children combined 64.19% agreed with the statement, in the presence of other females 63.55% agreed while 51.41% of those interviewed in the presence of no one agreed with the statement (Table 23).

Respondent's opinion on more women politicians was only significantly associated with the presence of mother-in-law. Higher proportion 85.46% agreed in the presence of no one while 66.07% agreed with the statement in the presence of mother-law (Table 22).

Respondent's opinion on women should be virgins on the wedding night was significantly associated with the presence of; children under ten years old, other females, adults and children together. Higher proportion agreed with the statement in the presence of adults and children together (87.32%), other females (86.61%) (Table 23), children under ten years of age (78.84%), compared to those interviewed in the presence of no one (74.72%) (Table 22).

Wife beating is justified was significantly associated with the presence of; children under ten years old, males, other females, adults and children together. Higher proportion disagreed in the presence of no one (88.37%), children under ten years of age (85.87%) (Table 22) (Table 22), other females (81.43%), adults and children together (76.16%) and males (72.96%) (Table 23).

b) Fertility Preference

Two question items were selected under fertility preference group (as explained in section 3.2.1), in all the 6 types of third party presence; and 9 out of 12 bivariate associations were significant. Having more children was significantly associated with all

presence of third party persons except mother-in-law. In the presence of children under ten years, 54.14% said they do not want more children, 42.16% said they would have another and 3.71% reported they were undecided. In the presence of respondent's mother, higher proportion 83.27% said they would have another child and lower proportion 15.25% said no more (Table 22). In the presence of males 74.24% said they don't want more children, 20.48% said they would have another. In the presence of other females, 54.82% said they don't want more children while 43.10% said they would have another. In the presence of adults and children under ten years together, 54.79% said they don't want more children and 41. 67% said they would have another. In contrast to respondents interviewed in the presence of no one, 51.69% would have another and 45.63% don't want more children (Table 23).

Ideal number of children was significantly associated with the presence of; children under ten years old, respondent's mother, other females, adults and children together. The mean was higher in the presence of adults and children together (3.14), other females (3.00) (Table 23), children under ten years old (2.87) while in the presence of respondent's mother, the mean was lower (2.33), compared to the presence of no one (the mean was 2.66) (Table 22).

2. Behavior

c) Lifestyle

Nine question items were selected under lifestyle (as mentioned in section 3.2.1), in all the 6 types of third party presence; and 28 out of 54 bivariate associations were significant The question of doing sports was significantly associated with the presence of; children under ten years, mother-in-law, other females, adults and children together.

Lower proportion reported they don't do sports regularly in the presence of children under ten years (24.69%), mother in law (23.74%) (Table 22), other females (26.89%) and adults and children (24.39%) (Table 23).

The issue of going on holiday was significantly associated with the presence of; children under ten years, mother-in-law, adults and children together. Lower proportion reported they don't go on holiday regularly in the presence of children under ten years (35.84%), mother in law (26.87%) (Table 22) and adults and children (28.31%) (Table 23).

The question of going outside for a meal was significantly associated with the presence of; children under ten years, mother-in-law, other females, adults and children together. Higher proportion reported they do this activity in the presence of children under ten years (57.67%). Lower proportion said yes they do this activity in the presence of adults and children combined (47.19%), other females (42.79%), mother in law (39.83%). Higher proportions reported to go outside for meals among those interviewed in the presence of no one (62.89% for mother-in-law not present and 61.97% for the rest) (Table 22 and Table 23).

Organizing home meetings was significantly associated with the presence of; respondent's mother, males and other females. Lower proportion reported they organize home meetings in the presence of respondent' mother (31.99%), males (38.89%) and other females (40.45%).

Use of internet regularly was significantly associated with presence of all type of third party persons. Lower proportion reported they use internet regularly in the presence of children under ten years old (36.93%), mother-in-law (22.60%) (Table 22), males (37.51%), other females (34.35%), adults and children (31.44%). In the presence of

respondent' mother higher proportion reported using internet (68.29%) and in 51.89% reported they use internet when no one was present (Table 23).

Watching women's programs on TV was only significantly associated with the presence of children under ten years and males. Higher proportion reported they do watch the women's programs in the presence of children under ten years (56.10%), males (67.63%) (Table 22) and in the presence of no one (51.08%) (Table 23).

Reporting of smoking was significantly associated with the presence of mother-in-law and other females. Lower proportion reported they smoke in the presence mother-in-law (12.93%) and in the presence of other females (16.03%).

Reporting alcohol consumption was significantly associated with the presence of; children under ten years, other females, adults and children together. Lower proportion reported alcohol usage in the presence of children under ten years (5.14%) (Table 22), other females (5.64%), adults and children combined (2.91%) (Table 23).

Voting in elections was significantly associated with only the presence of respondent's mother. Higher proportion said they vote in elections (86.19%) in the presence of respondent's mother (Table 22).

d) Religion

Three question items were selected under religion (as explained in section 3.2.1), in all the 6 types of third party presence; and 7 out of 18 bivariate associations were significant. Performing namaz (daily Islamic prayers) was significantly associated with only the presence of respondent's mother. Fasting was significantly associated with the presence of children under ten years and respondent's mother while wearing of scarf when

going out significantly associated with the presence of children under ten years, respondent's mother, other females, adults and children together. In the presence of respondent's mother 21.47% said they perform the prayers. On the question of fasting, higher proportion said yes they fast in the presence of; children under ten years (92.31%), respondent's mother (83.55%). Higher proportion acknowledge that they wear a head scarf when going out in the presence of children under ten years (70.3%) (Table 22), other females (71.52%), adults and children together (69.15%) (Table 23). In the presence of respondent's mother, lower proportion said they wear a head scarf when going out (39.92%) (Table 22).

3. Other Variables

e) Reproductive Health

Six question items were selected under reproductive health, in all the 6 types of third party presence; and 22 out of 36 bivariate associations were significant. Reporting ever terminated pregnancy (miscarriage or abortion) was significantly associated with presence of all type of third party persons except mother-in law. Lower proportion reported they have had a terminated pregnancy in the presence of; males (35.07%), other females (32.01%), adults and children (30.20%), children under ten years old (29.83%), respondent' mother (6.85%).

Current use of contraceptives was significantly associated with the presence of all type of third party persons. Higher proportion reported they are currently using a method of contraception in the presence of; children under ten years old (75.03%), males (60.15%), mother-in-law (54.76%), adults and children (59.41%). Lower proportion reported they

are using any method in the presence of no one (47.84%), other females (42.11%), respondent' mother (10.06%).

Reporting of spontaneous abortions (miscarriages) was significantly associated with presence of all type of third party persons except presence of males. Lower proportion reported they have had spontaneous abortion in the presence of; mother-in-law (33.23%), adults and children (24.02%), children under ten years old (22.27%), other females (20.84%) and respondent' mother (2.08%).

The total number of spontaneous abortions were significantly associated with the presence of mother-in-law. The mean was lower (1.17) when the mother-in law was present compared to when no one was present (1.46).

Reporting induced abortions was significantly associated with presence of respondent's mother and males. Lower proportion reported they have had pregnancies that ended in induced abortion in the presence of males (20.45%) and respondent's mother (3.66%).

The total number of induced abortions were significantly associated with the presence of; mother-in-law, respondent's mother, adult and children together. The mean was lower when the mother-in law (1.27), respondent's mother (1.13), adult and children (1.10) was present compared to when no one was present (1.52) (Table 23).

f) Financial Matters

Four question items were selected concerning financial matters, in all the 6 types of third party presence; and 10 out of 24 bivariate associations were significant. The proportion of women reporting to owning a house was significantly associated with presence of; children under ten years, mother-in-law and respondent's mother. Lower

proportions stated they own a house alone in the presence of; children under ten years (3.31%), mother-in-law (1.78%), respondent's mother (4.93%).

Owning land was significantly associated with presence of children under ten years, adult and children together. Lower proportion stated they own a house alone in the presence of; children under ten years (1.39%), adult and children (0.48%) (Table 23).

Reporting having money to spend was associated significantly with the presence of; children under ten years, mother-in-law, other females, adults and children together. Lower proportion admitted to having money to spend in the presence of other females (23.10%) adult and children together (20.70%), children under ten years (18.67%) and mother-in-law (12.03%),

Reporting owning a car was significantly associated with only the presence of respondent's mother. Lower proportion (2.97%) stated they own the car alone.

g) Relationship with Partner

Two question items were selected, in all the 6 types of third party presence; and 3 out of 12 bivariate associations were significant Partner preventing respondent from seeing family friends was significantly associated with presence of respondent's mother, other females, adult and children together. Lower proportion reported they have been prevented from seeing their female friends in the presence of respondent's mother (14.50%) (Table 22), other females (10.91%), adult and children (12.27%) and in the presence of no one (7.79%) (Table 23).

Partner limiting respondent contact with her family was not significant in any of the type of third party person present.

4.3.2. Checking for Model Assumptions

As for determinants, multivariate analysis was done after the bivariate analysis to find significant effects of third party persons on selected variables. Models assumptions were checked.

i. Multicollinearity

No VIF values higher than 10 were detected by the multicollinearity test (results for all variables attached in appendix D). The highest VIF values were recorded the models built on wife beating and opinion on gender roles for the control variable marital status and cohabitation duration.

ii. Goodness of Fit

This was assessed using by Hosmer-Lemeshow test, for the variables of interest all were significant with an exception of impact of female presence on partner's controlling behavior. The p-value was 0.087. As noted by Hosmer-Lemeshow the test may be significant even when the fit is good with large samples size.

iii. Influential cases

With the exception of fertility preference variable (it is a multinomial variable), all other variables were run through the standard logistic regression menu to check for influential values. The maximum value was 0.173. For fertility preference variable, the Cook's Distance was obtained from the linear regression menu, the maximum value was 0.003. Using the 4/n rule, we get 0.001 (4/5368).

4.3.3. Findings from Regression Models

Dependent Variable: Current Contraceptive Use (Reference Category: No Method)

Table 24. Effect of Presence of a Specific Third Party Person on Reporting Current Contraceptive Use; Unweighted Counts, R^2, Classification Percent and Subpopulation size

Type of third party present	UC	Nagelkerke R^2	Correct Overall Percent	Subpopulation size
Children under ten years	8,109	0.332	77.9%	6,391.951
Mother-in-law	4,798	0.135	74.8%	4,488.149
Mother	6,915	0.371	77.2%	5,130.788
Males	6,808	0.360	76.9%	5,156.842
Other females	7,497	0.355	76.6%	7,558.448
Adult and children	7,000	0.352	76.6%	5,303.070

Table 24 shows the unweighted counts, the R^2 and the subpopulation size for modeling the effects of a specific type of third party presence on respondents' current use of contraceptives. The models were restricted to those who were currently married for the effect of presence of mother-in-law and for all the other independents variables, the analysis was restricted to only those who were in a relationship or ever married.

Table 25. Effect of Presence of a Specific Third Party Person on Reporting
Current Contraceptive Use Model with Wald F Statistics and P Value

	Child<10		Mother-in-law		Mother	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	18.308	**0.000**	2.441	0.119	0.861	0.354
Region	6.208	**0.000**	6.296	0.000	6.468	0.000
Residential area	0.278	0.598	0.149	0.700	0.471	0.493
Education level	2.291	0.078	3.457	0.017	1.358	0.256
Employment status	0.211	0.646	0.024	0.877	0.381	0.537
Marital status and cohabitation duration	66.418	0.**000**	39.065	0.000	59.328	0.000
Wealth index	3.415	**0.009**	1.161	0.328	1.659	0.159
Respondent's age	15.693	**0.000**	20.747	0.000	14.848	0.000
	Males		Other females		Adult and children	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	4.960	**0.027**	9.944	**0.002**	0.747	0.388
Region	6.814	**0.000**	7.512	**0.000**	5.865	0.000
Residential area	0.596	0.441	.001	0.975	0.309	0.579
Education level	1.444	0.230	2.195	0.089	1.995	0.115
Employment status	.611	0.435	0.880	0.349	0.842	0.360
Marital status and cohabitation duration	58.493	**0.000**	61.326	**0.000**	57.209	0.000
Wealth index	1.472	0.210	2.104	0.080	1.886	0.113
Respondent's age	19.469	**0.000**	20.850	**0.000**	17.673	0.000

Table 25 present the results of Wald F statistics and p vales of each third party presence (in the column) and the control variables. Presence of children under ten years, males and other females were significant in modelling the impact of presence of specific type of third party person on current contraceptive use. Region, household wealth status, age of the respondents, marital status and cohabitation were highly significant.

Table 26. Parameter Estimates from Logistic Regression Model for Effect of Children, Males and Other Females in Reporting Current Contraceptive Use

Any method	**Child<10** EXP (B)	95% C I Lower	Upper	**Males** EXP (B)	95% C I Lower	Upper	**Females** EXP (B)	95% C I Lower	Upper
Presence of person in the column	1.519	**1.254**	**1.842**	1.719	**1.065**	**2.775**	1.447	**1.149**	**1.822**
Presence of no one	1.000	.	.	1.000	.	.	1.000	.	.

Table 26 shows the odds ratio and confidence intervals of presence children under ten years, males and other females. The full table with odds ratio and confidence intervals of control variables is presented in appendix E. Findings indicated that presence of someone relative to no one present increased the odds of reporting use of any method of contraception as opposed to no method all other factors held constant; presence of males (OR=1.719), children under ten years (OR=1.519); other females (OR=1.447).

Dependent Variable: Fertility preference (Reference Category: No more children)

Table 27. Effect of presence of a specific third party person on reporting fertility preference; Unweighted Counts, R^2, Classification Percent and Subpopulation size

Type of third party presence	UC	Nagelkerke R^2	Correct Overall Percent	Subpopulation size
Children under ten years	8,106	0.500	78.5%	6,040.148
Mother-in-law	4,795	0.560	81.8%	4,485.835
Mother	6,912	0.545	80.8%	4,762.530
Males	6,805	0.547	80.7%	4,807.407
Other females	7,492	0.540	80.9%	5,171.400
Adult and children	6,997	0.535	80.4%	4,950.167

Unweighted counts, the R^2 and the subpopulation size for modeling the effects of a specific type of third party presence on respondents' preference of having another child are displayed on Table 27. The models were restricted to those who were currently married

for the effect of presence of mother-in-law and for all the other independents variables, the analysis was restricted to only those who were ever married.

Table 28. Effect of Presence of A Specific Third Party Person on Reporting Fertility Preference Model With Wald F Statistics and P Value

	Child<10		Mother-in-law		Mother	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	12.746	**0.000**	2.183	0.114	0.160	0.852
Region	2.387	**0.017**	2.256	0.024	2.107	0.035
Residential area	3.407	**0.034**	4.390	0.013	3.585	0.029
Education level	1.503	0.177	.991	0.431	1.839	0.091
Employment status	4.832	**0.009**	4.724	0.010	3.634	0.028
Marital status and cohabitation duration	28.053	**0.000**	27.951	0.000	22.054	0.000
Wealth index	0.480	0.870	.407	0.916	0.374	0.934
Respondent's age	40.467	**0.000**	17.187	0.000	40.667	0.000
	Males		Other females		Adult and children	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	1.412	0.245	0.524	0.593	4.080	**0.018**
Region	2.066	0.039	1.897	0.060	2.339	**0.019**
Residential area	3.494	0.032	3.393	0.035	2.592	0.076
Education level	1.430	0.203	1.373	0.225	1.649	0.133
Employment status	3.302	0.038	2.809	0.062	3.132	**0.045**
Marital status and cohabitation duration	21.472	0.000	23.537	0.000	22.815	**0.000**
Wealth index	0.456	0.887	0.463	0.882	0.445	0.894
Respondent's age	37.947	0.000	41.119	0.000	40.033	**0.000**

Presence of children under ten years and combination of presence of all adults and children were significant in determining the impact of third party presence on respondents'

fertility preference (Table 28). Region, employment status, age, marital status and cohabitation duration were significant for both children, adult and children presence. Type of residential area was only significant in modelling the effect of presence of children on fertility preference.

Table 29. Parameter Estimates From Logistic Regression Model for Effect of Presence of Children, Adult And Children Combined on Reporting Fertility Preference

	Child<10			Adult & children		
Have another child	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Presence of person in the column	0.614	0.502	0.752	0.558	0.361	0.864
Presence of no one	1.000	.	.	1.000	.	.
Undecided						
Presence of person in column	0.587	0.403	0.855	0.480	**0.209**	**1.104**
Presence of no one	1.000	.	.	1.000	.	.

Findings showed (Table 29) that presence of someone relative to no one present reduced the odds of respondent reporting they will have another child or are undecided as opposed to reporting they want no more children. The odds of reporting having another child as opposed to having no more: in the presence of children was 0.614; in the presence of adults and children the odds was 0.558. The odds of those reporting they were undecided as opposing to having no more children reduced further: in the presence of children was 0.587; in the presence of adults and children the odds was 0.209. The full table with odds ratio and confidence intervals of control variables is presented in Appendix F.

Dependent Variable: Spontaneous Abortion (Reference Category: No)

Table 30. Effect of presence of a specific third party person on reporting spontaneous abortion; Unweighted Counts, R^2, Classification Percent and Subpopulation size

Type of third party presence	UC	Nagelkerke R^2	Correct Overall Percent	Subpopulation size
Children under ten years	8,108	0.040	77.9%	6,042.252
Mother-in-law	4,797	0.038	77.7%	4,487.224
Mother	6,914	0.036	78.2%	4,764.635
Males	6,807	0.036	78.2%	4,809.512
Other females	7,496	0.041	77.5%	5,175.481
Adult and children	6,999	0.036	77.9%	4,952.272

Table 30 shows the unweighted counts, the R^2 and the subpopulation size for modeling the effects of a specific type of third party presence on respondents' pregnancies that ended in spontaneous abortion. The models were restricted to those who were currently married for the effect of presence of mother-in-law and for all the other independents variables, the analysis was restricted to only those who were ever married.

Table 31. Effect of Presence of a Specific Third Party Person on Reporting Spontaneous Abortion Model with Wald F Statistics And P Value

	Child<10		Mother-in-law		Mother	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	2.856	0.092	6.231	**0.013**	0.904	0.343
Region	3.717	0.006	2.220	0.067	3.051	0.017
Residential area	4.154	0.042	2.269	0.133	3.441	0.065
Education level	2.238	0.084	1.525	0.208	2.990	0.031
Employment status	.587	0.444	1.243	0.266	0.363	0.547
Marital status and cohabitation duration	4.897	0.000	3.291	**0.007**	2.937	0.008
Wealth index	1.377	0.242	0.204	0.936	0.291	0.884
Respondent's age	0.043	0.835	0.066	0.797	0.011	0.918

	Males		Other Females		Adult and Children	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	1.103	0.295	3.728	0.054	2.532	0.113
Region	3.141	0.015	2.599	**0.036**	3.128	0.015
Residential area	3.165	0.076	1.417	0.235	3.328	0.069
Education level	2.368	0.071	2.509	0.059	1.913	0.127
Employment status	0.477	0.490	0.650	0.421	0.097	0.756
Marital status and cohabitation duration	2.955	0.008	3.199	**0.005**	3.098	0.006
Wealth index	0.376	0.826	0.245	0.913	0.391	0.815
Respondent's age	0.013	0.909	0.018	0.894	0.001	0.973

Mother-in-law and other females were significant in modelling the impact of third party presence on pregnancies that ended in spontaneous abortion (Table 31). Marital status and duration of cohabitation was significant in both the presence of mother-in-law and other females, region was only significant for other females.

Table 32. Parameter Estimates from Logistic Regression Model for Effect of Presence of a Specific Third Party Person Reporting Spontaneous Abortion

	MIL			**Females**		
	EXP (B)	95% C I Lower	Upper	EXP (B)	95% C I Lower	Upper
Presence of person in column	2.086	**1.168**	**3.724**	1.287	.995	1.666
Presence of no one	1.000	.	.	1.000	.	.

Findings indicated that presence of someone relative to no one present increased the odds of reporting they have had pregnancies that ended in spontaneous abortion as opposed to no pregnancies that have ended in spontaneous abortion; mother-in law (OR=2.086) and other females (OR=1.287) (Table 32). The full table with odds ratio and confidence intervals of control variables is presented in Appendix G.

Dependent Variable: Induced Abortion (Reference Category No)

Table 33. Effect of Presence of a Specific Third Party Person on Reporting Induced Abortion; Unweighted Counts, R^2, Classification Percent and Subpopulation size

Type of third party presence	UC	Nagelkerke R^2	Correct Overall Percent	Subpopulation size
Children under ten years	8,105	0.155	86.5%	6,038.969
Mother-in-law	4,794	0.144	85.8%	4,483.940
Mother	6,911	0.151	85.1%	4,761.352
Males	6,804	0.148	85.0%	4,806.229
Other females	7,493	0.143	85.0%	5,172.198
Adult and children	6,995	0.153	85.5%	4,948.576

Table 34. Effect of Presence of a Specific Third Party Person on Reporting Induced Abortion Model with Wald F Statistics and P Value

	Child<10		Mother-in-law		Mother	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in the column	0.000	0.990	2.546	0.112	0.001	0.974
Region	2.588	0.037	1.330	0.259	1.898	0.111
Residential area	0.108	0.743	0.004	0.949	0.011	0.916
Education level	0.381	0.766	0.626	0.598	0.352	0.788
Employment status	6.919	0.009	8.211	0.004	6.534	0.011
Marital status and cohabitation duration	11.409	0.000	7.881	0.000	7.123	0.000
Wealth index	2.275	0.061	1.703	0.149	2.884	0.023
Respondent's age	5.045	0.025	1.936	0.165	4.680	0.031
	Males		Other Females		Adult and Children	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in the column	0.604	0.438	0.421	0.517	0.980	0.323
Region	1.640	0.164	2.017	0.092	1.887	0.113
Residential area	0.013	0.911	0.284	0.594	0.011	0.918
Education level	0.359	0.783	0.265	0.850	0.315	0.814
Employment status	6.782	0.010	3.782	0.053	5.478	0.020
Marital status and cohabitation duration	7.546	0.000	8.768	0.000	8.712	0.000
Wealth index	3.066	0.017	4.421	0.002	3.402	0.010
Respondent's age	3.895	0.049	4.326	0.038	3.174	0.076

Table 33 shows the unweighted counts, the R^2 and the subpopulation size for modeling the effects of a specific type of third party presence on respondents' pregnancies that ended in induced abortion. The models were restricted to those who were currently married for the effect of presence mother-in-law and for all the other independents variables, the analysis was restricted to only those who were ever married. None of the presence of someone predictor variables were significant as displayed in Table 34.

Dependent Variable: Owns At Least a Property or Money (Reference Category; Do not own)

Table 35. Effect of Presence of a Specific Third Party Person on Reporting Ownership of At Least One Property; Unweighted Counts, R^2, Classification Percent and Subpopulation size

Type of third party presence	UC	Nagelkerke R^2	Correct Overall Percent	Subpopulation size
Children under ten years	8,075	0.235	68.2%	
Mother-in-law	4,781	0.222	67.2%	4473.407
Mother	6,889	0.231	67.4%	
Males	6,782	0.226	67.2%	
Other females	7,469	0.229	67.5%	
Adult and children	6,973	0.230	67.4%	

The unweighted counts, the R^2 and the subpopulation size for modeling the effects of a specific type of third party presence on respondents' reporting ownership of money and or at least one property (car, land or house) (Table 35). The models were restricted to those who were currently married for presence of mother-in-law effect.

Table 36. Effect of Presence of Specific Third Party Person on Reporting Ownership of At Least One Property Model With Wald F Statistics and P Value

	Child<10		Mother-in-law		Mother	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	14.812	**0.000**	5.404	**0.021**	15.926	**0.000**
Region	8.017	0.**000**	7.957	**0.000**	9.100	**0.000**
Residential area	0.581	0.446	1.757	0.186	.006	0.939
Education level	35.004	**0.000**	17.804	**0.000**	33.831	**0.000**
Employment status	341.371	**0.000**	131.321	**0.000**	333.044	**0.000**
Marital status and cohabitation duration	8.518	**0.000**	0.598	0.702	7.678	**0.000**
Wealth index	30.446	**0.000**	23.058	**0.000**	23.944	**0.000**
Respondent's age	23.457	**0.000**	3.617	0.058	20.204	**0.000**

Table 36 continued. Effect of Presence of Specific Third Party Person on Reporting Ownership of At Least One Property Model With Wald F Statistics and P Value

	Males		Other females		Adult and children	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	6.704	**0.010**	3.535	0.061	4.727	**0.030**
Region	8.388	**0.000**	10.493	0.000	8.914	0.**000**
Residential area	0.025	0.873	0.349	0.555	0.006	0.938
Education level	31.247	**0.000**	35.124	0.000	34.735	**0.000**
Employment status	305.822	**0.000**	311.940	0.000	304.553	**0.000**
Marital status and cohabitation duration	8.077	**0.000**	9.154	0.000	8.042	**0.000**
Wealth index	26.942	**0.000**	28.191	0.000	25.347	**0.000**
Respondent's age	19.241	**0.000**	23.644	0.000	19.517	**0.000**

The p-values and Wald f statistics of predictor variables, only the presence of other females was not significant (Table 36). All the control in the presence of; children under ten years, mother-in-law, males, adults and children combined variables with an exception of type of residential area were significant. In the presence of mother marital status and duration was also not significant.

Table 37. Parameter Estimates from the Logistic Regression Model for Effect of Presence of Children, Mother-In-Law and Mother on Reporting Ownership of At Least One Property

Owns at least one property	Child<10 EXP (B)	95% C I Lower	95% C I Upper	MIL EXP (B)	95% C I Lower	95% C I Upper	Mother EXP (B)	95% C I Lower	95% C I Upper
Presence of person in column	0.723	0.612	0.853	0.513	0.292	0.903	0.453	0.307	0.670
Presence of no one	1.000	.	.	1.000	.	.	1.000	.	.

	Males EXP (B)	95% C I Lower	95% C I Upper	Adult and children EXP (B)	95% C I Lower	95% C I Upper
Presence of person in column	0.495	0.290	0.845	0.671	0.468	0.963
Presence of no one	1.000	.	.	1.000	.	.

Results (Table 37) showed that presence of someone relative to no one present reduced the odds of reporting ownership of money or property as opposed to not owning anything at all: presence of children (OR=0.723); presence of adult plus children combined (OR=0.671); presence of mother-in-law (OR=0.513); presence of males (OR=0.495) and mother (OR=0.453). The full table with odds ratio and confidence intervals of control variables is presented in Appendix H.

Dependent Variable: Life style (Reference Category; Relatively Conservative Lifestyle)

Table 38. Effect of Presence of Specific Third Party Person on Reporting Life Style Choice; Unweighted Counts, R^2, Classification Percent and Subpopulation

Type of third party presence	UC	Nagelkerke R^2	Correct Overall Percent	Subpopulation size
Children under ten years	8018	0.506	78.3%	
Mother-in-law	4728	0.489	78.0%	4422.038
Mother	6828	0.494	77.7%	
Males	6719	0.503	77.9%	
Other females	7400	0.510	78.2%	
Adult and children	6914	0.505	78.1%	

The unweighted counts, the R^2 and the subpopulation size for modeling the effects of a specific type of third party presence on respondents' lifestyle choice (more conservative or more liberal lifestyle) are displayed in Table 38. The models were restricted to those who were currently married for presence of mother-in-law effect**.**

Table 39. Effect of Presence of Specific Third Party Person on Reporting Life Style Choice Model with Wald F Statistics and P Value

	Only child<10		Mother-in-law		Mother	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	5.349	**0.021**	0.004	0.948	0.235	0.628
Region	21.046	**0.000**	14.578	0.000	19.001	0.000
Residential area	2.853	0.092	4.638	0.032	6.589	0.011
Education level	91.058	0.000	53.484	0.000	91.272	0.000
Employment status	4.044	**0.045**	6.094	0.014	2.334	0.128
Marital status and cohabitation duration	13.152	**0.000**	3.312	0.006	10.882	0.000
Wealth index	103.542	**0.000**	53.900	0.000	60.501	0.000
Respondent's age	0.440	0.508	4.312	0.039	0.606	0.437
	Males		Other Females		Adult and children	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	1.247	0.265	1.678	0.196	0.002	0.968
Region	19.848	0.000	19.336	0.000	18.830	0.000
Residential area	5.685	0.018	4.491	0.035	6.134	0.014
Education level	88.477	0.000	88.458	0.000	93.552	0.000
Employment status	2.531	0.113	1.806	0.180	2.623	0.106
Marital status and cohabitation duration	10.143	0.000	11.040	0.000	10.272	0.000
Wealth index	73.187	0.000	76.982	0.000	82.238	0.000
Respondent's age	0.212	0.645	0.118	0.731	0.440	0.508

Only presence of children under ten years was significant (Table 39).

Table 40. Parameter Estimates From Logistic Regression
Model For Effect of Presence of Children on Reporting
Lifestyle Choice

| More liberal lifestyle | Child<10 | | |
| | EXP | 95% C I | |
	(B)	Lower	Upper
Presence of children	0.805	0.669	0.968
Presence of no one	1.000	.	.

Findings showed (Table 40) that presence of children under ten years of age as opposed to no one present reduced the odds (0.805) of respondents reporting they live a more liberal lifestyle. The full table with odds ratio and confidence intervals of control variables is presented in appendix I.

Dependent Variable: Opinion on Gender Roles (Reference Category: Do not hold traditional views)

Table 41. Effect of Presence of Specific Third Party Person on Reporting Opinions about Gender Roles; Unweighted Counts and R^2

Type of third party presence	UC	Nagelkerke R^2	Correct Overall Percent	Subpopulation size
Children under ten years	6857	0.197	74.10%	
Mother-in-law	4086	0.222	73.2%	3842.337
Mother	5866	0.200	75.6%	
Males	5785	0.207	75.5%	
Other females	6365	0.211	74.7%	
Adult and children	5944	0.206	75.2%	

The unweighted counts, the R^2 and the subpopulation size (Table 41) for modeling the effects of a specific type of third party presence on respondents' reporting of opinion on gender roles (such as husbands should help, decision should be made by men, women

should not work etc.). The models were restricted to those who were currently married for presence of mother-in-law effect.

Table 42. Effect of Presence of Specific Third Party Person on Reporting Opinions about Gender Roles Models with Wald F Statistics and P Value

	Child<10		Mother-in-law		Mother	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	6.360	**0.012**	5.345	**0.021**	1.294	0.256
Region	1.784	0.132	0.584	0.674	2.679	0.032
Residential area	12.572	**0.000**	13.193	**0.000**	16.824	0.000
Education level	38.375	**0.000**	24.205	**0.000**	38.910	0.000
Employment status	1.719	0.191	1.039	0.309	1.114	0.292
Marital status and cohabitation duration	4.098	**0.000**	3.339	**0.006**	3.782	0.001
Wealth index	15.300	**0.000**	10.828	**0.000**	11.493	0.000
Respondent's age	4.448	**0.036**	1.145	0.285	7.981	0.005
	Males		Other females		Adult and children	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	6.266	**0.013**	5.666	**0.018**	4.451	**0.036**
Region	2.510	**0.042**	4.239	0.002	2.046	0.088
Residential area	14.131	**0.000**	14.866	**0.000**	17.068	**0.000**
Education level	35.613	**0.000**	39.709	**0.000**	41.383	**0.000**
Employment status	1.324	0.251	0.761	0.384	1.068	0.302
Marital status and cohabitation duration	4.077	**0.000**	4.495	**0.000**	4.001	**0.000**
Wealth index	12.260	**0.000**	14.194	**0.000**	11.958	**0.000**
Respondent's age	8.542	**0.004**	9.448	**0.002**	9.818	**0.002**

Table 42 shows the p-values and Wald f statistics of predictor variables, only the presence of respondent's mother was not significant. Residential area, education level, wealth status, marital status and cohabitation duration (not significant for mother-in-law) as control variables were significant for the presence of someone. Region was only significant in the presence of males.

Table 43. Parameter Estimates from Logistic Regression Model for Effect of Presence of Specific Third Party Person on Respondents Reporting Opinion on Gender Roles

Traditional opinions	Child<10			Mother-in-law		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Presence of person in column	1.309	**1.061**	**1.614**	2.097	**1.117**	**3.939**
Presence of no one	1.000	.	.	1.000	.	.

Traditional opinions	Males			Females			Adult and children		
	EXP (B)	95% C I		EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper		Lower	Upper
Presence of person in column	1.793	**1.133**	**2.837**	1.279	**1.044**	**1.567**	1.459	**1.026**	**2.076**
Presence of no one	1.000	.	.	1.000	.	.	1.000	.	.

Findings showed that the presence of someone as opposed to having no one present increased the odds of respondents saying they hold traditional opinions: children under ten years (OR=1.309); other females (OR=1.279); males (OR=1.793); adults and children (OR=1.459); Mother-in-law (OR=2.097) (Table 43). The full table with odds ratio and confidence intervals of control variables is presented in appendix J.

Dependent Variable: Wife Beating (Reference Category: Approves)

Table 44. Effect of presence of a specific third party person on reporting wife beating justified; unweighted counts and R^4

Presence of someone	UC	Nagelkerke R^2	Correct Overall Percent	Subpopulation size
Children under ten years	6857	0.156	66.3%	
Mother-in-law	4086	0.181	66.5%	3842.337
Mother	5866	0.155	67.1%	
Males	5785	0.162	67.3%	
Other females	6365	0.165	67.1%	
Adult and children	5944	0.162	66.8%	

Table 44 shows the unweighted counts, the R^2 and the subpopulation size for modeling the effects of a specific type of third party presence on respondents' opinions on if wife beating is justified for any of reasons (such as if wife: goes out without telling the husband; burns food; neglects children; argues with husband; refuses to have sex with the husband). The models were restricted to those who were currently married for the presence of mother-in-law effect.

Table 45. Effect of Presence of Specific Third Party Person on Reporting Wife Beating Model with Wald F Statistics and P Value

	Child<10		Mother-in-law		Mother	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	4.940	**0.027**	6.249	**0.013**	0.756	0.385
Region	3.358	**0.010**	1.058	0.378	3.719	0.006
Residential area	6.185	**0.013**	2.630	0.106	7.327	0.007
Education level	29.369	**0.000**	20.277	**0.000**	33.569	0.000
Employment status	3.015	0.083	0.836	0.361	2.351	0.126
Marital status and cohabitation duration	3.032	**0.004**	2.612	**0.025**	2.891	0.006
Wealth index	13.645	**0.000**	12.700	**0.000**	11.393	0.000
Respondent's age	4.300	**0.039**	0.860	0.355	5.624	0.018
	Males		Other Females		Adult and children	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in column	2.683	0.102	4.561	**0.033**	6.287	**0.013**
Region	3.543	0.008	4.927	**0.001**	3.205	**0.013**
Residential area	6.052	0.014	7.544	**0.006**	8.048	**0.005**
Education level	30.694	0.000	33.212	**0.000**	33.845	**0.000**
Employment status	2.971	0.086	2.117	0.147	2.686	0.102
Marital status and cohabitation duration	3.083	0.004	3.589	**0.001**	3.001	**0.005**
Wealth index	11.988	0.000	12.617	**0.000**	11.009	**0.000**
Respondent's age	6.665	0.010	7.351	**0.007**	6.432	**0.012**

Presence of children under ten years, mother-in-law, other females, adults and children combined were significant in modelling the impact of presence of specific type

of third party person on respondents' opinions on wife beating is justified for any of reasons mentioned earlier (Table 45). Education level, wealth status, marital status and cohabitation duration were significant for all the above named third party presence. Age, region and residential type were significant for all except for the presence of mother-in-law.

Table 46. Parameter Estimates from Logistic Regression Model for Effect of Presence of Specific Third Party Person on Reporting Wife Beating

Doesn't approve wife beating	Child<10			Mother-in-law		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Presence of person in column	0.800	0.657	0.975	0.472	0.261	0.852
Presence of no one	1.000	.	.	1.000	.	.
Doesn't approve wife beating	Females			Adult and children		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Presence of person in column	0.788	0.633	0.981	0.675	0.496	0.919
Presence of no one	1.000	.	.	1.000	.	.

Results (Table 46) showed that presence of someone opposed to having no one present reduced the odds of respondents reporting they do not approve wife beating for any reason (increased the odds of approving in the presence of others same as gender opinion, more traditional): children under ten years (OR=0.800); other females (OR=0.788); adults and children (OR=0.675); Mother-in-law (OR=0.472). The full table with odds ratio and confidence intervals of control variables is presented in Appendix K.

Dependent Variable: Partner's Controlling Behavior (Reference Category: Husband Does Not Control)

Table 47. Effect of Presence of Specific Third Party Person on Reporting Partner's Behavior; Unweighted Counts And R^2

Type of third party presence	UC	Nagelkerke R^2	Correct Overall Percent	Subpopulation size
Children under ten years	6354	0.076	64.6%	6391.951
Mother-in-law	4798	0.064	65.6%	4488.149
Mother	5068	0.085	64.6%	5130.788
Males	5098	0.084	64.6%	5156.842
Other females	5607	0.082	64.3%	5554.779
Adult and children	5268	0.082	64.3%	5303.070

Table 47 shows the unweighted counts, the R^2 and the subpopulation size for modeling the effects of a specific type of third party presence on partner's controlling behavior such partner limiting contact with family or prevents seeing female friends etc. The models were restricted to those who were currently married for the effect of presence mother-in-law and for all the other independents variables, the analysis was restricted to only those who were in a relationship or ever married. None of the presence of someone predictor variables were significant as displayed in Table 48.

Table 48. Effect Of Presence Specific Third Party Person on Reporting Partner's
Controlling Behavior Model with Wald F Statistics and P Value

	Child<10		Mother-in-law		Mother	
	Wald F	P	Wald F	P	Wald	P
Presence of person in the	0.096	0.757	0.001	0.974	0.079	0.779
Region	3.947	0.004	4.297	0.002	2.274	0.061
Residential area	0.940	0.333	2.879	0.091	3.077	0.080
Education level	1.230	0.299	0.580	0.629	0.572	0.634
Employment status	0.048	0.826	1.684	0.195	0.129	0.720
Marital status and	14.316	0.000	3.205	0.008	11.70	0.000
Wealth index	5.634	0.000	6.971	0.000	6.723	0.000
Respondent's age	24.127	0.000	3.832	0.051	15.03	0.000
	Males		Other Females		Adult and	
	Wald F	P	Wald F	P	Wald F	P
Presence of person in the	2.776	0.097	0.040	0.842	2.584	0.109
Region	2.009	0.093	2.482	0.044	1.775	0.134
Residential area	2.632	0.106	2.835	0.093	1.838	0.176
Education level	0.317	0.813	0.688	0.560	0.749	0.524
Employment status	0.057	0.812	0.000	1.000	0.206	0.650
Marital status and	12.466	0.000	12.887	0.000	12.540	0.000
Wealth index	7.125	0.000	6.982	0.000	6.101	0.000
Respondent's age	15.034	0.000	18.618	0.000	15.400	0.000

CHAPTER 5. DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the discussions of the study are presented in a logical manner, following the four study objectives and the presentation of results and findings in Chapter 4. The chapter begins with presentation of major findings, and finishes with concise conclusions and recommendations obtaining therefrom.

The approach used in this study was to compare the responses of those who interviewed in the presence of someone to those who were interviewed alone. Hypothesis were set for two subtopics, where the first one was identifying the determinants of the likelihood of someone to be present (through determinants that were defined as direct and indirect in this study). The second step of hypothesis setting involved identifying the effects of specific type of third party presence on selected variables.

5.1. Major Findings

The most common type of third party person present in the TDHS -2103 were children under the age of ten, followed by other females who are neighbors, friends and relative and then the respondent's mother, in that order. The least occurring was the mother-in-law and other males. Children presence as the most frequently occurring type of third party person is consistent with the findings of other researchers, including Silver (1987). The presence other females and respondents mother being the most occurring type of third party person (after children) could be because the issue of confidentially among closer family ties (mother) may not be a big deal culturally, women may not mind other women overhearing them talk about marriage or reproductive health. For the other females, their presence could be attributed to interacting with neighbors more often since

women are mostly at home and in charge of domestic labor (women labor force participation in Turkey being low at 33.04% [Turkish Statistical Institute, 2018]).

5.1.1 Findings on Determinants of Presence of a Third Party Person

Presence of third parties was highest for the Eastern region compared to other regions. This could be largely attributed to household size mean being largest in the Eastern region. In addition, the Eastern region is the least developed in the country and may thus have more persons unemployed (Güçlü, 2017). The region variable was also significantly associated with the presence of children, mother and other females. The highest proportion of children, was observed in East, according to the TDHS -2013 report, the total fertility rate in the Eastern is highest among all the other regions, this could account for the high proportions observed (HUIPS, 2014).

The results show that third party presence was more common in rural than in urban areas: this can be attributed to higher proportion of extended families in the rural areas than urban in the further analysis of the TDHS -2013 (Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, 2014). Children and respondent's mother presence occurred more in urban than in rural areas, this is opposite of our hypothesis. We hypothesized the presence of children would be higher in rural as total fertility rate is higher there (HUIPS, 2014). Presence of mother-in-law and other females occurred more in rural than in urban, they were hypothesized to be higher in rural as they could be residing in the same households or neighbours and most likely to be curious of what the for example daughter-in-law has to say.

Age was significantly associated with presence of third party persons, proportion of other female presence was highest among older respondents (40+ years). Presence of males increased with increasing age of the respondents. This is as hypothesized, older

respondents may have daughters who are above ten years and will be categorized as other females (or sons over ten years categorized as other males) in the list of third party presence. The proportion of children under 10 was highest among middle aged respondents (25 to 34 years) and lowest among older respondents (45 to 49 years). Presence of mother-in-law was common among younger respondents (15 to 29 years). This is in line with our hypothesis, this could be a reflection if patriarchal control and the presence of mother-in-law ensures nothing inappropriate is revealed and she is aware of what is being asked. Presence of respondent' mother decreased with age, as noted by Aquilino et al (2000) probability of a parent being present during interviews was lower when the respondent was older.

Educational level was significantly co-related to all the type of third party presence. Education level was inversely proportional to presence of third party persons: as education level increased the proportion of someone present decreased (presence of children, males and other females). This finding is in agreement with postulations by other authorities, including Aquilinio (1993), Casterline and Chidambaram (1984), Milewski and Otto (1984), who all observed that the likelihood of third party presences decreases with increasing education level, respondents with higher education may demand for privacy unlike those with lower education (Aquilino, 1997). Interestingly, presence of respondent's mother and mother-in-law was higher among second level primary complete compared to those with no education or primary incomplete.

Employment status was significant for the presence of children, males and other females. The proportion of presence of children was higher among the unemployed as expected, the respondent may be the primary care giver to the children. The opposite was observed among the presence of males and other females (higher among the employed). The TDHS interviews are normally conducted in the evenings to cater for the employed women, the partner (other males) may is also likely to be present during the interview (HUIPS, 2014).

Presence of someone was more common among respondents who were married, this was observed for children, mother-in-in law and males (as expected). The presence of respondent's mother was more common among the never married and formerly married category. This could be due to the reason that the never married are young and probably still considered as children (young) by their parents hence the need to have the interview monitored. The duration of marriage was significantly related to all the type of third party presence, the proportions of children were higher among those married for 5-9 years. Presence of mother-in-law and respondent's mother was highest among the newly married (0-4 years) as hypothesized, males and females presence was highest among those married for 25+ years (proportion increased with increasing duration of cohabitation).

Decreasing wealth status increased the proportion of third party presence (children, other females and mother-in-law). It was noted by Aquilino (1993) that parents from less income households were less likely to be present during the interview, as low income household were associated with fewer rooms in the house and the respondent may likely to be interviewed in a shared room making it difficult to insist for privacy (Aquilino, 1993).

Higher proportion of presence of children was associated with longer interview duration. Proportion of respondent's mother was highest among households that were visited 2 or more times and those that were interviewed for 30 minutes or more. As cited by Milewski and Otto (2017), Hartman (1994) discovered that the longer duration of interview increases the likelihood of a third party being present.

The proportion of third party presence (children, and other females) increased with increasing number of members in a particular household. Mother-in-law followed the same pattern but decreased when household had 16 or more members. Aquilino found that dwellings with more members, presence of a third party (parent and spouse) was not

common (inversely related). He noted that third party persons may be occupied with other duties and other household members to interfere with interview (Aquilino, 1993, 1997).

The proportion of someone being present decreased with increasing number of rooms, presence of children followed the same pattern, and presence of respondent's mother was highest among single room housing followed by houses with 6+ plus rooms. This is because it is difficult to insist for privacy in a single room and the interview was most likely conducted in a shared room with third party persons present.

Summary of Findings from Multivariable Models for the Determinants of Different Persons' Present

Presence of Children under Ten Years

The odds of having children present during the interview increased in urban areas and decreased for never-married women, controlling for the direct determinants; which were all significant.in the rural areas, extended family members are likely to be present to mind the children while the respondent is interviewed or the children due the nature of rural towns, could be outside playing in the course of the interview duration. Direct determinants of children present were as expected, increasing number of rooms in the home, household members and interview duration increased the odds of having children present.

Presence of Mother-in-law

The model was restricted to respondents who were currently married. Type of residential area, and number of rooms in the household, marital status and cohabitation

duration significantly contributed to the model determining the presence of mother-in-law. As the number of rooms increases the odds of having a mother-in-law increased.

Controlling for direct determinants, the odds of having mother-in-law present during the interviews were higher in urban areas and for newlyweds.

Presence of Mother

Odds of having respondent's mother present increased in North, South, and West regions while living in the Central region reduced the odds of having mother present. To be never married, formerly married and married for few years (0 to 10 years) increased the odds of having a mother present, being married for longer duration (15-24 years) decreased the odds a mother being present.

Presence of Males

Age of the respondent significantly contributed to both models determining the odds of male presence, marital status and cohabitation duration were only significant in the first model with indirect determinants. The level of presence of males being low can be explained by having few significant variables. As the age of the respondent increased, the odds of male presence increased. In the first model, being never married or formerly married decreased the odds of male presence.

Presence of Other Females

Number of household members, age of the respondents, education level significantly contributed to the model determining the presence of other females. Wealth

index was significant in model one but lost significance in model two, this implies that wealth was only significant probably because it is what determines how many rooms are there in a household and household members. Increase in respondent's age and household members increased the odds of female presence, lower education levels increased the odds of having other females present during interviews. Being in the workforce increased the odds of presence of other females, for respondents who were employed, interviews were conducted in the evenings this could result other females (maybe a daughter who is over ten years or a babysitter) to be present when interview is conducted.

5.2.2. Effects of Specific Type of Third Party Person Presence

Among different types of third persons, the presence of other females was the most significant type in terms of its association with sensitive questions, this implies having a non-family member around is the most influential thing. The presence of males showed the least number of significant associations, which could be related to the fact that males are seldom present during interviews. According to the findings, opinions on gender, fertility preference and contraception use were the most sensitive questions. Presence of mother-in-law and mother impacted the responses to questions the most while presence of children had minimal effect.

Attitude Questions

Questions Related to Gender Roles

Adults and children presence was significantly associated with five out of seven of the variables measuring respondents' opinions on gender roles while presence of respondents mother was only significantly associated with one variable. Lower proportion

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of the respondents disagreed with wife beating is justified for any reason, disagreed with family decision should be done by men or that educated son is better than daughter (opposing traditional gender norms) in the presence of third party persons. Lower proportion agreed that husband should help in the presence of third party person. Higher proportion agreed with women should be virgins at wedding night (this is widely agreed upon (73%) by women in the TDHS -2013) in the presence of third party person. Lower proportion agreed more women should be politicians but this was only significant for mother-in-law presence, this implies that mother-in-law reinforces patriarchal norms to be observed. Their opinion on women should not work had the opposite response, higher proportion agreed in the presence of a third party person, it was hypothesized that in the presence of third party person (other than mother-in-law and male) higher proportion would disagree with traditional norms. Whenever the bivariate association was significant, it led to increased approval of traditional norms in the presence of a third party person.

In modeling the impact of third party persons on respondents' opinion on gender roles, all third party presence were significant except for mother-in-law. Presence of third party persons increased the proportion of respondents giving traditional (social desirable) responses. This is as hypothesized; presence of mother and other females will elicit socially desirable response to attitude question. Presence of children, mother-in-law, other females, adults and children combined were significant on respondents' justification of wife beating. Presence of third party persons increased the odds of approval of wife beating. We expected that presence of third party person will increased the odds of disapprovals especially in the presence of other females and children.

Questions Related to Fertility Preference

All third party presence were significantly associated with respondents' will to have another child and their ideal number of children, except for mother-in-law. Presence of a third party influenced the respondents answers, although the direction was opposite of what was expected and depended on the type of third party person present. In all the presence of a third party persons (with exception of respondent's mother), higher proportion did not want to have another child. In the presence of respondent's mother, very high proportion reported that they want to have another child (83.27%), this was as expected as presence of a parent is hypothesized to elicit socially acceptable response (Aquilino, 1997; Aquilino et al., 2000).

Only presence of children and combination of presence of all adults and children were significant in the model predicting the impact of third party presence on respondents' fertility preference. It was observed that the presence of third party person reduced the odds of respondent saying they want to have another child, the odds were even smaller for those who reported that they are undecided. This was in agreement with our hypothesis, we expected in the presence of children alone or combination of adults and children will elicit less social desirable responding.

Questions of Behaviors

Lifestyle Variables

Nine variables were used to measure respondents' life style choices, presence of children and other females were significantly associated with six out of nine, presence of mother-in-law, adults plus children combined were associated with five, the rest of third party presence were associated with only three of the life style variables. The presence of

a third party was significantly associated with higher reporting of going out for a meal in the presence of mother-in-law. For the rest of third party presence, the proportions were lower. The presence of others was also associated with lower levels of reporting internet use, except for the presence of respondent's mother. Her presence was associated with higher reporting of internet use. The findings may indicate that respondents exaggerate their social life to interviewers, when no one was present to confirm or object.

Only presence of children was significant in the logistic regression modeling the impact of specific type of third party presence on lifestyle choice. Presence of children reduced the odds of respondents reporting they live a more liberal lifestyle. In this context, living a more liberal lifestyle includes reporting positive in; voting, going out for meals, alcohol use, going on holiday etc.

Religion Variables

Three variables were used to measure the religiosity of the respondents, performing Islamic prayers, fasting and wearing of a head scarf when going outside. The variables reporting of these behaviours were significantly associated with presence of children (two out of three) and respondents' mother (all three). Higher proportion reported they fast and wear head scarf in the presence of children, perhaps trying to set an example to the child. This was expected, we hypothesized that presence of children could lead to less social desirable responding. Presence of mother had an effect on the response given although we expected the effect to be opposite of what was observed. Lower proportion reported they pray fast and wear head scarf when mother was present this is contrary to the findings of De Jong et al (2017). They found that third party presence was associated with increased reporting of religiosity in Turkey (De Jong et al. 2017). This conflicting finding could be explained by the ideas of put forward by Aquilinio (1993), he noted that if a factual information is required and the third party person present is aware of the answer

then the respondent will be compelled to say the truth. We assume that the mother present knew if the daughter prays or not hence her presence elicited a different response.

Other Selected Variables

Reproductive Health

Six questions were selected under the reproductive health section, presence of respondents' mother, mother-in-law and adults plus children combined had four or more significant association. Difference in response was observed on respondents reporting current contraceptive use and total number of spontaneous and induced abortion. In the presence of children, other males and adults plus children combined; higher proportion reported they are using a method of contraception. In presence of respondent's mother and mother-in-law, higher proportion reported they are not using any method of contraception. In the presence of a third party person (mother-in-law, mother adults and children combined), the mean number reported of induced and spontaneous abortions were higher.

Presence of children, males and other females had significant effect on current contraceptive use. Presence of third party person increased the odds of reporting the use of contraceptive all other factors held constant.

Mother-in-law and other female presence increased the odds of reporting spontaneous abortions. This can be explained by the notion that when factual items are required from the respondents and the third party present is aware of the topic under interview then the respondents will give honest response (Aquilino, 1993). None of the presence of third party person predictor variables were significant for reporting induced abortion. This implies that induced abortion may not be a very sensitive topic.

Financial Matters

Among the four questions analyzed (ownership of a house, a car, monetary savings or an income of her own), presence of children was significant associated with three; mother-in-law, mother, adults plus children combined were with two, while presence of other females was only significantly associated with one. Reporting of car ownership was not significant for all TPP except for respondent's mother, lower proportion reported single ownership (ownership of car is hard to hide).

Reporting ownership of property or money was highly significant with all types of third party presence, except for other females. It was found that third party presence reduced the odds of reporting ownership of at least one property or money (people may tend to hide their valuables).

Relationship with Partner

Reporting of partner preventing the respondent to see her female friends was significantly associated with the presence of respondent's mother, other females and adults plus children combined. Higher proportions reported partner prevents from seeing female friends in the presence of third party person.

None of the presence of someone predictor variables were significant in the regression models built for partner's controlling behaviors such partner limiting contact with family or prevents seeing female friends (all controlling variables were used).

5.2. Conclusion

This study sought to scope: factors that determine the presence of third party persons; the extent of the presence of third party persons in the TDHS -2013; to establish if their presence influences the respondents' responses on survey questions of interest and to determine the extent of that influence. It is also explored the effects of different third party persons presence; i.e. children, mother-in law, mother, males, other females, adult and children combined. The study first presented the levels of third party presence, determinants of them being there, and finally the effects of these presences on different groups of sensitive questions. Children were by far the most common occurring type of third party persons followed by other females (17.2% and 9.5%, respectively). Compared to the previous literature, third party presence was high in the TDHS -2013, 36% of the interview was conducted in the presence of a third party. Bivariate and logistic regression analysis were conducted restricting some models to applicable subpopulation group.

Determinants of third party persons were in large part as hypothesized, variations rose with the different type of third party persons. Highest proportions of third party presence were recorded among respondents; residing in the East, rural areas, with lower education, unemployed, from lower household wealth status, when controlled for the number of rooms and household members. Direct determinants were as expected although they were significant for three out of five third party presence, they increased the odds of having someone present. Marital status and cohabitation duration was highly associated with predicting the presence of third party person. Shorter cohabitation duration increased the odds of having children (for the newly wed, the children are likely to be young and has to be around the mother as findings from the TDHS -2013 indicate few women take their children to pre-school or baby sitters), respondent's mother and mother-in-law present.

Effects of third party presence to respond in a socially desirable manner was not as extensive as expected. The effect of third party presence and the direction depended on the type of third party person. This is in agreement with earlier studies that the impact is specific to the type of third party present (Aquilino, 1997; Smith, 1997). Nine logistic regression models were fitted for each third party presence, the models were controlled for indirect determinants of third party presence. Presence of children was the most significant while the respondent's mother was the least significant. Presence of third party persons increased the odds of respondents: giving more traditional response on gender opinions; desire to have more children; reporting use of any contraceptive use and that they have ever had spontaneous abortion. The presence of third party person increase the odds of respondents saying they: approve wife beating; live a more liberal life style (drink alcohol, use internet, go for holidays etc.) and reduced the odds of reporting ownership of at least one property or money. Respondents' opinion on gender and contraceptive use were affected most by the presence of third party in the TDHS -2013 while relationship with partner section was the least affected.

Other than the study conducted by Milewski and Otto (2017) whereby they examined the presence of third party persons among second generation Turkish people in Europe, no any other such study was undertaken among Turkish resident. Findings in this study indicate that the level of presence of third party persons is relatively high in Turkey even though the interviewers are instructed during training to ensure privacy.

Effects of presence of third party persons was observed more on topics related to opinions on gender roles, fertility preference and contraceptive use in this study. More efforts should be put in these sections to ensure total privacy. Other males appeared infrequently in the TDHS -2013 and had no much effect on the responses on the selected questions, presence of respondent mother and mother-in-law had the most significant effects on the responses to sensitive question items.

In conclusion, third party presence is not a chance occurrence, it appears due to some direct and indirect factors related to the respondents. Their effects depended on the questions asked, the type of third party presence was important in four instances where different type elicited different responses. These results are consistent with earlier findings although most studies focused on the presence of partner/spouse (Aquilino (1993 and 2000), Anderson and Silver (1987)), children and parents (Taitez (1984), Aquilino (1997), Mileweski and Otto (2017)).

5.3. Recommendations

The TDHS -2013 requires the interviewer to mark (from a given list) the type of third party that was present at the end of the interview. This does not clearly point at what stage of the interview was the third party present and leaves room for speculation when trying to model the effect of their presence on the interview questions. It is advised that the question of third party presence to be asked in all sections or rather in sections that may be deemed sensitive, such as opinions on gender roles, fertility preference and contraceptive use to ensure effect of third party presence can be correctly estimated.

From the list given, the age of the child present is pre-recorded as less than 10 years old. Literature specifies the age category of children as a third party presence to be less than six years or six years and more (Silver et al., 1986). It is believed that children under the age of six may be too young to comprehend what is being discusses in interviews while older than age six is old enough to understand the topics and response given by respondents. It is therefore advised, in the THDS to differentiate the age categories of the children present (0-5, 6-9 years and older children) during the interviews. This will make it simpler to compare the findings with literature.

Literature has shown that presence of partner/spouse elicit different kind of response compared to other third party presence, the TDHS -2013 questionnaire lumps all male presence in to one category (presence of other males). This could be the respondents' older sons, husband or father. It would be enriching to know exactly what type of 'other male' was present and understand the direction of effect they elicit compared to other type of third party presence.

The presence of other females is an all-encompassing group, it may be a relative, a neighbour or just a random visitor. The TDHS can differentiate these categories of females ad all these categories may elicit different responses.

Extra efforts should be spent to ensure privacy especially on gender opinion section of TDHS -2013 by interviewers, this section was found to be highly affected by third party presence. It could also be useful to provide interviewers information on the effects of third party presence during interviewer training, so that they can mitigate this through insistence on privacy while in the field.

5.4. Limitations

Difficulties in getting to grips with nuances in human behavior – cultures are varied, and so are culturally-sensitive topics and how they are viewed as "sensitive" by different persons. Therefore there is a risk of omitting some questions which would be evaluated as "sensitive" by respondents, but is unnoticed by researcher.

It is also very difficult to understand the exact nature of the influence as it depends a lot on the inter-personal relationship between the respondent and the interloper ("third party persons").

The presence of a children category is only listed for children under ten years, this combines both young children under the age of 6 who may not understand the question and hence may have no effect as a third party present and children 6 years and older who have a clear understanding of the questions which may lead to social desirability influence. Additionally, it cannot be verified for how long was the third party person present and at which section since the question for the presence of someone is asked towards the end of the interview in the TDHS -2013. In the case of multiple people present during the interview, different people with different effects might be at work at different sections of the interview. This is mitigated by excluding such cases.

Technical limitation is that the number of interviews with adults (with exception of females other than respondent's mother-in-law and mother) present were not very high in TDHS -2013, which might lead to low statistical power for assessing the differences to responses between interviews with or without third parties present.

In the DHS core questionnaire, in marriage and sexuality section and the section about the background of the husband and woman's work, the interviewer was required to specify the type of third party presence, if it was children under 10, male adults and female adults. There were additional response categories in husband's background and woman's work section, if the third party person was; "present and listening"; "present but not listening"; or "not present". However, TDHS have traditionally only included the former question (the type of third party person present) at the end of the interview. This led to the assumption that the presence of a third party was throughout the interviewer, it could be that they were present at the beginning and left or just arrived towards the end of the interview. The TDHS could utilize the DHS core questionnaire format of inquiring who was present at what section.

A final limitation lies in our assumptions. Since we do not know the "true values" to any response; for any difference we observe, we assumed that either the presence affects

the response in a socially desirable manner or that it leads to more honest responding. Although there is literature supporting our point of view, a certain degree of arbitrariness is unavoidable.

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APPENDIX A

PRESENCE OF OTHERS QUESTIONS IN THE DHS WOMEN CORE QUESTIONNAIRE

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
627	In total, with how many different people have you had sexual intercourse in your lifetime? IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE. IF NUMBER OF PARTNERS IS 95 OR	NUMBER OF PARTNERS IN LIFETIME ………………….. DON'T KNOW ……………….. 98	
628	PRESENCE OF OTHERS DURING THIS SECTION	NO YES CHILDREN <10 …...1 2 MALE ADULTS…...1 2 FEMALE ADULT….1 2	
629	Do you know of a place where a person can get condoms?	YES…………………………..1 NO …………….…..….……2	632

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APPENDIX A CONTINUED

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
823	Do you own this or any other house either alone or jointly with someone else?	ALONE ONLY . . . . 1 JOINTLY ONLY . . .. 2 BOTH ALONE AND JOINTLY... 3 DOES NOT OWN 4	
824	Do you own any land either alone or jointly with someone else?	ALONE ONLY . . . . 1 JOINTLY ONLY . . .. 2 BOTH ALONE AND JOINTLY... 3 DOES NOT OWN 4	
825	PRESENCE OF OTHERS AT THIS POINT (PRESENT AND LISTENING, PRESENT BUT NOT LISTENING, OR NOT PRESENT)	PRES./ PRES./ NOT NOT LISTEN. PRES. LISTEN. CHILDREN < 10......1 2 3 HUSBAND ....1 2 3 OTHER MALES ......1 2 3 OTHER FEMALES...1 2 3	

APPENDIX B

PRESENCE OF OTHERS IN THE TDHS -2013 WOMEN'S QUESTIONNAIRE

796A	PRESENCE OF OTHERS DURING THE INTERVIEW. CIRCLE ALL APPROPRIATE ALTERNATIVES.	NO ONE ....A CHILDREN UNDER 10 .... B MOTHER IN LAW .... C HER MOTHER ....D OTHER MEN .... E OTHER WOMEN ....F	
796B	WAS THE INTERVIEW INTERRUPTED? IF YES, FOR HOW MANY MINUTES APPROXIMATELY?	NO .... 000 MINUTES 1	
796C	IN YOUR OPINION, WHAT IS THE RELIABILITY OF THE RESPONSES?	POOR .... 1 FAIR .... 2 GOOD .... 3 VERY GOOD 4	
796D	WHAT LANGUAGE WAS USED DURING THE INTERVIEW?	TURKISH.. 1 KURDISH.. 2 ARABIC.. 3 OTHER 7 (SPECIFY)	800
796E	WAS AN INTERPRETER USED DURING THE INTERVIEW?	YES ....1 NO 2	

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APPENDIX C

SUMMARY OF SIGNIFICANT VARIABLES IN BIVARIATE ANALYSIS

1. Significant Association of Determinants of Third Party Presence

	Someone present	Child < 10	Mother -in-law	Mother	Male	Female
1. Indirect						
Region	✓	✓		✓		✓
Residence	✓	✓	✓	✓		✓
Age	✓	✓	✓	✓	✓	✓
Education	✓	✓	✓	✓	✓	✓
Employment						
Employment Status	✓	✓			✓	✓
Marital Status	✓	✓	✓	✓	✓	
Cohabitation Duration	✓	✓	✓	✓	✓	✓
Wealth Index	✓	✓	✓			✓
2. Direct						
Interview Duration	✓	✓		✓		
Number of HH Members	✓	✓	✓			✓
Number of Rooms	✓	✓		✓		

2. SUMMARY OF SIGNIFICANT ASSOCIATIONS OF THIRD PARTY PERSON EFFECTS

Variables of interest			Child<10 present	Mother-in-law present	Mother present	Males present	Other females present	Adults and Children present
Attitudes	**Gender roles**	Opinion on: family decision by men				✓	✓	✓
		Opinion on: husband should help	✓	✓	✓		✓	✓
		Opinion on: educated son better than daughter					✓	
		Opinion on: women should not work					✓	✓
		Opinion on: more women politician		✓				
		Opinion on: women should be virgin at wedding night	✓				✓	✓
		Wife beating is justified	✓			✓	✓	✓
	Fertility preference	Have another child	✓		✓	✓	✓	✓
		Ideal number of Children	✓		✓		✓	✓
Behavior	**Lifestyle**	Sports regularly	✓	✓			✓	✓
		Goes on holiday	✓	✓				✓
		Goes outside for a meal	✓	✓			✓	✓
		Organize home meetings			✓	✓	✓	
		Use internet	✓	✓	✓	✓	✓	✓
		Watch women's programs on TV	✓			✓		
		Smoke		✓			✓	

SUMMARY OF SIGNIFICANT ASSOCIATIONS OF THIRD PARTY PERSON EFFECTS CONTINUED

Variables of interest			Child<10 present	Mother-in-law present	Mother present	Males present	Other females present	Adults and Children present
Others	Religion	Alcohol drinks	✓				✓	✓
		vote in elections			✓			
		Perform namaz			✓			
		Fast	✓		✓			
		Wears a head scarf when going out	✓		✓		✓	✓
	Reproductive Health	Ever had a terminated pregnancy	✓		✓	✓	✓	✓
		Current contraceptive use	✓	✓	✓	✓	✓	✓
		Pregnancies ended in spontaneous abortion	✓	✓	✓		✓	✓
		Total number of spontaneous abortion		✓				
		Pregnancies ended in induced abortion			✓	✓		
		Total number of induced abortion		✓	✓			✓
	Financial Matters	Owns a house alone or jointly	✓	✓	✓			
		Owns land alone or jointly	✓					✓
		Do you have a money to spend	✓	✓			✓	✓
		Has a Car			✓			
	Relationship with Partner	Partner- prevent from seeing female friends			✓		✓	✓
		Partner- limit to contact with her family						

APPENDIX D

MULTICOLLINEARITY RESULTS FOR ALL SELECTED VARIABLES OF INTEREST.

	Current contraceptive use		Pregnancy ended in spontaneous abortion		Pregnancy ended in induced abortion		Property or money ownership		Partner's controlling behavior	
	T	VIF	T	VIF	T	VIF	T	VIF	T	VIF
Presence of children under 10	.982	1.018	.982	1.018	.982	1.018	.982	1.018	.948	1.055
Region	.881	1.135	.881	1.135	.881	1.136	.881	1.135	.891	1.122
Type of place of residence	.750	1.334	.750	1.334	.750	1.334	.750	1.334	.741	1.350
Country specific education	.596	1.678	.596	1.678	.596	1.679	.596	1.678	.600	1.667
Respondent's current age	.284	3.522	.284	3.522	.284	3.521	.284	3.522	.328	3.046
Working Status	.926	1.080	.926	1.080	.926	1.080	.926	1.080	.927	1.078
marriage status duration	.273	3.669	.272	3.670	.272	3.670	.273	3.669	.324	3.085
Wealth index	.555	1.800	.556	1.800	.556	1.800	.555	1.800	.525	1.904

	Fertility preference		wife beating		opinion on gender roles		Lifestyle	
	T	VIF	T	VIF	T	VIF	T	VIF
Presence of children under 10	.982	1.018	.981	1.019	.981	1.019	.982	1.018
Region	.881	1.135	.880	1.136	.880	1.136	.880	1.136
Type of place of residence	.750	1.334	.756	1.323	.756	1.323	.750	1.333
Country specific education	.596	1.678	.599	1.670	.599	1.670	.597	1.675
Respondent's current age	.284	3.520	.280	3.573	.280	3.573	.283	3.535
Working Status	.926	1.080	.928	1.078	.928	1.078	.925	1.082
marriage status duration	.273	3.667	.269	3.718	.269	3.718	.272	3.682
Wealth index	.556	1.800	.555	1.802	.555	1.802	.558	1.792

MULTICOLLINEARITY RESULTS CONTINUED

	Current contraceptive use		Pregnancy ended in spontaneous abortion		Pregnancy ended in induced abortion		Property or money ownership		Partner's controlling behavior	
	T	VIF	T	VIF	T	VIF	T	VIF	T	VIF
presence of mother-in-law	.993	1.007	.993	1.007	.993	1.007	.993	1.007	.989	1.011
Region	.887	1.127	.887	1.127	.887	1.128	.887	1.127	.902	1.109
Type of place of residence	.737	1.357	.737	1.356	.737	1.357	.737	1.357	.723	1.382
Country specific education	.595	1.681	.595	1.681	.594	1.682	.595	1.681	.598	1.673
Respondent's current age	.268	3.731	.268	3.731	.268	3.730	.268	3.731	.317	3.153
Working Status	.931	1.074	.931	1.074	.931	1.074	.931	1.074	.938	1.066
marriage status duration	.256	3.910	.256	3.911	.256	3.911	.256	3.910	.311	3.211
Wealth index	.561	1.784	.561	1.783	.561	1.783	.561	1.784	.526	1.900

	Fertility preference		wife beating		opinion on gender roles		Lifestyle	
	T	VIF	T	VIF	T	VIF	T	VIF
presence of mother-in-law	.993	1.007	.995	1.005	.995	1.005	.992	1.008
Region	.887	1.127	.887	1.128	.887	1.128	.886	1.128
Type of place of residence	.737	1.357	.744	1.343	.744	1.343	.737	1.356
Country specific education	.595	1.682	.598	1.672	.598	1.672	.596	1.677
Respondent's current age	.268	3.728	.265	3.776	.265	3.776	.267	3.747
Working Status	.931	1.074	.933	1.072	.933	1.072	.930	1.075
marriage status duration	.256	3.908	.253	3.960	.253	3.960	.255	3.923
Wealth index	.561	1.783	.561	1.782	.561	1.782	.563	1.775

MULTICOLLINEARITY RESULTS CONTINUED

	Current contraceptive use		Pregnancy ended in spontaneous abortion		Pregnancy ended in induced abortion		Property or money ownership		Partner's controlling behavior	
	T	VIF	T	VIF	T	VIF	T	VIF	T	VIF
Presence of Mother	.982	1.018	.982	1.018	.982	1.018	.982	1.018	.987	1.013
Region	.886	1.129	.886	1.128	.886	1.129	.886	1.129	.901	1.110
Type of place of residence	.742	1.348	.742	1.347	.742	1.348	.742	1.348	.733	1.365
Country specific education	.594	1.684	.594	1.684	.593	1.685	.594	1.684	.593	1.687
Respondent's current age	.277	3.609	.277	3.609	.277	3.609	.277	3.609	.326	3.068
Working Status	.932	1.073	.932	1.073	.932	1.073	.932	1.073	.939	1.065
marriage status duration	.265	3.777	.265	3.777	.265	3.777	.265	3.777	.322	3.109
Wealth index	.564	1.774	.564	1.773	.564	1.773	.564	1.774	.529	1.892

	Fertility preference		wife beating		opinion on gender roles		Lifestyle	
	T	VIF	T	VIF	T	VIF	T	VIF
Presence of Mother	.982	1.018	.980	1.020	.980	1.020	.983	1.018
Region	.886	1.128	.887	1.127	.887	1.127	.886	1.129
Type of place of residence	.742	1.348	.749	1.336	.749	1.336	.742	1.347
Country specific education	.594	1.685	.599	1.671	.599	1.671	.595	1.680
Respondent's current age	.277	3.607	.269	3.713	.269	3.713	.276	3.619
Working Status	.932	1.073	.933	1.071	.933	1.071	.930	1.075
marriage status duration	.265	3.774	.258	3.878	.258	3.878	.264	3.784
Wealth index	.564	1.773	.565	1.769	.565	1.769	.566	1.765

MULTICOLLINEARITY RESULTS CONTINUED

	Current contraceptive use		Pregnancy ended in spontaneous abortion		Pregnancy ended in induced abortion		Property or money ownership		Partner's controlling behavior	
	T	VIF	T	VIF	T	VIF	T	VIF	T	VIF
Presence of Males	.993	1.007	.993	1.007	.993	1.007	.993	1.007	.995	1.005
Region	.887	1.128	.887	1.127	.887	1.128	.887	1.128	.902	1.109
Type of place of residence	.741	1.349	.742	1.348	.741	1.349	.741	1.349	.730	1.370
Country specific education	.590	1.695	.590	1.695	.590	1.696	.590	1.695	.591	1.692
Respondent's current age	.268	3.737	.268	3.737	.268	3.737	.268	3.737	.320	3.128
Working Status	.931	1.074	.931	1.074	.931	1.074	.931	1.074	.938	1.066
marriage status duration	.255	3.919	.255	3.920	.255	3.920	.255	3.919	.314	3.186
Wealth index	.561	1.781	.562	1.781	.562	1.781	.561	1.781	.527	1.896

	Fertility preference		wife beating		opinion on gender roles		Lifestyle	
	T	VIF	T	VIF	T	VIF	T	VIF
Presence of Males	.993	1.007	.993	1.007	.993	1.007	.993	1.007
Region	.887	1.127	.887	1.127	.887	1.127	.887	1.128
Type of place of residence	.741	1.349	.746	1.340	.746	1.340	.742	1.348
Country specific education	.590	1.696	.593	1.686	.593	1.686	.591	1.692
Respondent's current age	.268	3.735	.264	3.782	.264	3.782	.267	3.752
Working Status	.931	1.074	.932	1.073	.932	1.073	.930	1.076
marriage status duration	.255	3.917	.252	3.965	.252	3.965	.254	3.932
Wealth index	.562	1.781	.561	1.783	.561	1.783	.565	1.771

MULTICOLLINEARITY RESULTS CONTINUED

	Current contraceptive use		Pregnancy ended in spontaneous abortion		Pregnancy ended in induced abortion		Property or money ownership		Partner's controlling behavior	
	T	VIF	T	VIF	T	VIF	T	VIF	T	VIF
Presence of other females	.973	1.027	.973	1.027	.973	1.027	.973	1.027	.972	1.028
Region	.874	1.144	.874	1.144	.874	1.145	.874	1.144	.889	1.124
Type of place of residence	.734	1.362	.735	1.361	.735	1.361	.734	1.362	.726	1.378
Country specific education	.582	1.717	.582	1.717	.582	1.718	.582	1.717	.585	1.711
Respondent's current age	.262	3.810	.262	3.810	.262	3.810	.262	3.810	.316	3.168
Working Status	.935	1.069	.935	1.069	.935	1.070	.935	1.069	.942	1.062
marriage status duration	.250	3.997	.250	3.997	.250	3.997	.250	3.997	.309	3.235
Wealth index	.552	1.813	.552	1.813	.552	1.813	.552	1.813	.521	1.920

	Fertility preference		Wife beating		Opinion on gender roles		Lifestyle	
	T	VIF	T	VIF	T	VIF	T	VIF
Presence of other females	.973	1.027	.970	1.031	.970	1.031	.973	1.027
Region	.874	1.145	.874	1.144	.874	1.144	.874	1.145
Type of place of residence	.734	1.362	.739	1.354	.739	1.354	.735	1.361
Country specific education	.582	1.718	.586	1.706	.586	1.706	.582	1.717
Respondent's current age	.263	3.807	.261	3.836	.261	3.836	.261	3.824
Working Status	.935	1.070	.937	1.068	.937	1.068	.934	1.071
marriage status duration	.250	3.993	.248	4.027	.248	4.027	.249	4.009
Wealth index	.552	1.812	.552	1.813	.552	1.813	.554	1.805

MULTICOLLINEARITY RESULTS CONTINUED

	Current contraceptive use		Pregnancy ended in spontaneous abortion		Pregnancy ended in induced abortion		Property or money ownership		Partner's controlling behavior	
	T	VIF	T	VIF	T	VIF	T	VIF	T	VIF
presence of adult and children	.986	1.014	.986	1.014	.986	1.014	.986	1.014	.982	1.018
Region	.880	1.137	.880	1.136	.880	1.137	.880	1.137	.893	1.120
Type of place of residence	.743	1.346	.743	1.345	.743	1.346	.743	1.346	.732	1.367
Country specific education	.589	1.698	.589	1.697	.589	1.698	.589	1.698	.592	1.689
Respondent's current age	.269	3.713	.269	3.713	.269	3.713	.269	3.713	.319	3.131
Working Status	.934	1.071	.934	1.071	.933	1.071	.934	1.071	.940	1.064
marriage status duration	.257	3.892	.257	3.893	.257	3.893	.257	3.892	.313	3.193
Wealth index	.556	1.797	.557	1.796	.557	1.796	.556	1.797	.524	1.910

	Fertility preference		wife beating		opinion on gender roles		Lifestyle	
	T	VIF	T	VIF	T	VIF	T	VIF
presence of Adult and children	.986	1.014	.984	1.016	.984	1.016	.986	1.014
Region	.880	1.137	.880	1.137	.880	1.137	.879	1.137
Type of place of residence	.743	1.346	.749	1.336	.749	1.336	.744	1.345
Country specific education	.589	1.698	.592	1.689	.592	1.689	.590	1.694
Respondent's current age	.269	3.711	.266	3.760	.266	3.760	.268	3.728
Working Status	.933	1.071	.935	1.070	.935	1.070	.932	1.073
marriage status duration	.257	3.890	.254	3.938	.254	3.938	.256	3.905
Wealth index	.557	1.797	.556	1.800	.556	1.800	.559	1.789

APPENDIX E

PARAMETER ESTIMATES MODEL FOR EFFECT OF CHILDREN, MALES AND OTHER FEMALES ON CURRENT CONTRACEPTIVE USE

Any method	Only child<10			Males			Females		
	EXP (B)	95% C I		EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper		Lower	Upper
presence of someone(in the column)	1.519	**1.254**	**1.842**	1.719	**1.065**	**2.775**	1.447	**1.149**	**1.822**
presence of no one	1.000	.	.	1.000	.	.	1.000	.	.
Region									
West	1.418	**1.122**	**1.792**	1.446	**1.131**	**1.848**	1.483	**1.184**	**1.858**
South	1.232	.975	1.557	1.160	.906	1.484	1.184	.932	1.504
Central	1.710	**1.380**	**2.119**	1.840	**1.451**	**2.334**	1.806	**1.445**	**2.256**
North	1.446	**1.146**	**1.824**	1.463	**1.142**	**1.875**	1.494	**1.188**	**1.879**
East	1.000	.	.	1.000	.	.	1.000	.	.
Type of place of residence									
Urban	1.049	.878	1.252	1.081	.887	1.317	1.003	.828	1.216
Rural	1.000	.	.	1.000	.	.	1.000	.	.
Country specific education									
No education/Primary incomplete	.699	.508	.963	.732	.523	1.025	.661	.476	.919
First level primary	.957	.772	1.188	.930	.722	1.198	.864	.683	1.093
Second level primary	.906	.707	1.162	.847	.640	1.121	.827	.633	1.080
High school and higher	1.000	.	.	1.000	.	.	1.000	.	.
Employment Status									
not working	.966	.831	1.122	.939	.800	1.101	.931	.801	1.082
Working	1.000	.	.	1.000	.	.	1.000	.	.

PARAMETER ESTIMATES CURRENT CONTRACEPTIVE USE CONTINUED

Any method	Only child<10			Males			Females		
	EXP (B)	95% C I		EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper		Lower	Upper
Marital status and cohabitation duration									
never married	.001	.000	.005	.001	.000	.005	.002	.001	.008
0-4 years	.258	.154	.431	.180	.105	.310	.167	.100	.280
5-9 years	.719	.459	1.126	.606	.375	.979	.562	.357	.885
10-14 years	1.332	.911	1.948	1.250	.841	1.860	1.183	.797	1.757
15-19 years	1.873	**1.341**	**2.617**	1.763	**1.242**	**2.502**	1.619	**1.154**	**2.272**
20-24 years	1.841	**1.379**	**2.458**	1.784	**1.328**	**2.398**	1.700	**1.284**	**2.251**
25+ years	1.000	.	.	1.000	.	.	1.000	.	.
formerly married	.066	.039	.111	.068	.040	.114	.061	.037	.101
Wealth index									
Poorest	.589	.435	.797	.664	.476	.927	.656	.482	.894
Poorer	.756	.570	1.003	.740	.542	1.012	.769	.567	1.041
Middle	.841	.642	1.100	.816	.615	1.083	.862	.649	1.146
Richer	.885	.705	1.110	.850	.666	1.084	.913	.715	1.167
Richest	1.000	.	.	1.000	.	.	1.000	.	.
Respondent's age	.964	.947	.982	.957	.938	.976	.957	.939	.975

APPENDIX F

PARAMETER ESTIMATES MODEL FOR EFFECT OF PRESENCE OF CHILDREN, ADULT AND CHILDREN COMBINED ON FERTILITY PREFERENCE

Have another child	Only child<10			Adult & children		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
presence of someone	.614	.502	.752	.558	.361	.864
presence of no one	1.000	.	.	1.000	.	.
Region						
West	.733	.550	.977	.661	.464	.942
South	.806	.592	1.097	.672	.460	.982
Central	.883	.648	1.205	.764	.530	1.100
North	.632	.467	.856	.569	.398	.815
East	1.000	.	.	1.000	.	.
Type of place of residence						
Urban	1.396	**1.075**	**1.812**	1.410	**1.048**	**1.898**
Rural	1.000	.	.	1.000	.	.
Country specific education						
No education/Primary incomplete	.855	.599	1.220	.820	.561	1.199
First level primary	.849	.664	1.086	.905	.685	1.196
Second level primary	.727	.566	.933	.740	.532	1.030
High school and higher	1.000	.	.	1.000	.	.
Employment Status						
not working	.772	.639	.934	.797	.644	.986
Working	1.000	.	.	1.000	.	.
Marital status and cohabitation duration						
0-4 years	158.384	**66.345**	**378.109**	173.230	**64.842**	**462.798**
5-9 years	38.661	**17.128**	**87.265**	38.703	**14.981**	**99.990**
10-14 years	17.855	**7.904**	**40.335**	19.682	**7.709**	**50.253**
15-19 years	7.559	**3.462**	**16.505**	8.116	**3.271**	**20.140**
20-24 years	4.217	**1.832**	**9.707**	4.860	**1.865**	**12.660**
25+ years	1.000	.	.	1.000	.	.
formerly married	17.678	**7.907**	**39.520**	19.186	**7.726**	**47.646**

PARAMETER ESTIMATES FOR FERTILITY PREFERENCE CONTINUED

Have another child	Only child<10			Adult & children		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Wealth index						
Poorest	1.084	.748	1.572	.969	.637	1.475
Poorer	.972	.728	1.298	.898	.651	1.239
Middle	1.039	.790	1.366	.963	.717	1.293
Richer	1.099	.864	1.398	.950	.742	1.217
Richest	1.000	.	.	1.000	.	.
Respondent's age	.908	.889	.928	.898	.876	.920

Undecided	Only child<10			Adult & children		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Presence of a person in the column	.587	.403	.855	.480	.209	1.104
Presence of no one	1.000	.	.	1.000	.	.
Region						
West	.449	.266	.757	.481	.270	.859
South	.451	.256	.794	.430	.231	.801
Central	.705	.410	1.211	.449	.244	.829
North	.607	.356	1.034	.541	.297	.985
East	1.000	.	.	1.000	.	.
Type of place of residence						
Urban	1.041	.619	1.751	1.308	.687	2.488
Rural	1.000	.	.	1.000	.	.
Country specific education						
No education/Primary incomplete	.505	**.223**	**1.141**	.355	.150	.841
First level primary	.817	**.524**	**1.274**	.777	**.480**	**1.260**
Second level primary	.723	**.420**	**1.244**	.549	**.275**	**1.097**
High school and higher	1.000	.	.	1.000	.	.
Employment Status						
not working	.686	.490	.961	.700	.477	1.027
Working	1.000	.	.	1.000	.	.

PARAMETER ESTIMATES FOR FERTILITY PREFERENCE CONTINUED

Undecided	Only child<10			Adult & children		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Marital status and cohabitation duration						
0-4 years	67.267	**7.218**	**626.835**	43.953	**4.838**	**399.345**
5-9 years	66.599	**8.046**	**551.236**	48.089	**5.992**	**385.951**
10-14 years	48.462	**6.274**	**374.353**	34.330	**4.459**	**264.313**
15-19 years	8.583	.961	76.656	6.490	.713	59.109
20-24 years	5.160	**.586**	**45.406**	4.212	**.472**	**37.619**
25+ years	1.000	.	.	1.000	.	.
formerly married	25.802	**3.006**	**221.444**	15.281	**1.728**	**135.092**
Wealth index						
Poorest	.712	**.334**	**1.518**	.964	**.380**	**2.442**
Poorer	.670	**.391**	**1.148**	.618	**.331**	**1.154**
Middle	.959	.589	1.561	.892	.527	1.509
Richer	.944	.601	1.482	.787	**.472**	**1.313**
Richest	1.000	.	.	1.000	.	.
Respondent's age	.940	.909	.973	.921	.886	.958

APPENDIX G

PARAMETER ESTIMATES MODEL FOR EFFECT OF PRESENCE OF MOTHER-IN-LAW AND OTHER FEMALES ON SPONTANEOUS ABORTION REPORTING

Has ever spontaneous abortion	Mother-in-law			Females		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
presence of person in column	2.086	1.168	3.724	1.287	.995	1.666
presence of no one	1.000	.	.	1.000	.	.
Region						
West	.785	.619	.996	.793	.636	.988
South	.896	.675	1.190	.834	.639	1.089
Central	.726	.569	.927	.712	.573	.886
North	.942	.688	1.291	.909	.686	1.206
East	1.000	.	.	1.000	.	.
Type of place of residence						
Urban	1.193	.947	1.503	1.132	.922	1.388
Rural	1.000	.	.	1.000	.	.
Country specific education						
No education/Primary incomplete	1.177	.823	1.681	1.317	.915	1.895
First level primary	1.011	.757	1.350	1.093	.823	1.453
Second level primary	.835	.612	1.139	.851	.628	1.155
High school and higher	1.000	.	.	1.000	.	.
Employment Status						
not working	1.116	.919	1.355	1.073	.904	1.272
Working	1.000	.	.	1.000	.	.
Marital status and cohabitation duration						
0-4 years	.321	.162	.636	.350	.191	.641
5-9 years	.478	.268	.852	.543	.328	.898
10-14 years	.734	.475	1.133	.736	.502	1.080
15-19 years	.699	.497	.982	.734	.544	.991
20-24 years	.700	.512	.958	.718	.545	.945
25+ years	1.000	.	.	1.000	.	.
formerly married				.526	.354	.782

PARAMETER ESTIMATES FOR SPONTANEOUS ABORTION REPORTING CONTINUED

Has ever spontaneous abortion	Mother-in-law			Females		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Wealth index						
Poorest	1.108	.750	1.638	1.085	.754	1.560
Poorer	1.144	.818	1.600	1.134	.838	1.536
Middle	1.146	.807	1.626	1.098	.798	1.511
Richer	1.154	.814	1.635	1.149	.839	1.574
Richest	1.000	.	.	1.000	.	.
Respondent's age	.997	.970	1.024	1.002	.979	1.025

APPENDIX H

PARAMETER ESTIMATES EFFECT OF PRESENCE OF CHILDREN, MOTHER-IN-LAW, MOTHER, MALES, ADULTS AND CHILDREN ON OWNERSHIP OF AT LEAST ONE PROPERTY

Children and Mother-in-law

Owns at least one property	Child<10			Mother-in-law		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
presence of a person in column	0.723	0.612	0.853	0.513	0.292	0.903
presence of no one	1	.	.	1	.	.
Region						
West	0.749	0.612	0.918	0.624	0.492	0.792
South	0.91	0.718	1.153	0.957	0.718	1.276
Central	0.699	0.563	0.867	0.653	0.508	0.84
North	0.575	0.467	0.709	0.527	0.405	0.686
East	1	.	.	1	.	.
Type of place of residence						
Urban	0.935	0.786	1.112	0.865	0.697	1.073
Rural	1	.	.	1	.	.
Country specific education						
No education/Primary incomplete	0.406	0.312	0.529	0.404	0.29	0.562
First level primary	0.442	0.368	0.53	0.439	0.348	0.555
Second level primary	0.535	0.447	0.642	0.493	0.371	0.656
High school and higher	1	.	.	1	.	.
Employment Status						
Not working	0.324	0.288	0.366	0.377	0.319	0.446
Working	1	.	.	1	.	.

LOGISTIC REGRESSION MODEL FOR OWNERSHIP OF AT LEAST ONE PROPERTY CONTINUED

Children and Mother-in-law

Owns at least one property	Child<10			Mother-in-law		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Marital status and cohabitation duration						
Never married	1.466	1.002	2.145	NA	NA	NA
0-4 years	1.04	0.701	1.544	0.808	0.469	1.391
5-9 years	1.006	0.733	1.38	0.728	0.467	1.136
10-14 years	0.899	0.656	1.232	0.768	0.517	1.139
15-19 years	0.953	0.724	1.255	0.834	0.623	1.116
20-24 years	0.972	0.747	1.265	0.923	0.705	1.209
25+ years	1	.	.	1	.	.
formerly married	2.426	1.691	3.481	NA	NA	NA
Wealth index						
Poorest	0.258	0.199	0.334	0.217	0.155	0.304
Poorer	0.339	0.268	0.428	0.297	0.218	0.404
Middle	0.485	0.397	0.593	0.381	0.29	0.5
Richer	0.515	0.429	0.618	0.445	0.352	0.563
Richest	1	.	.	1	.	.
Respondent's age	1.034	1.02	1.048	1.023	0.999	1.047

LOGISTIC REGRESSION MODEL FOR OWNERSHIP OF AT LEAST ONE PROPERTY CONTINUED

Mothers, Males, Adults and Children

Owns at least one property	Mother EXP (B)	95% C I Lower	95% C I Upper	Males EXP (B)	95% C I Lower	95% C I Upper	Adult & children EXP (B)	95% C I Lower	95% C I Upper
presence of a person in column	0.453	0.307	0.67	0.495	0.29	0.845	0.671	0.468	0.963
presence of no one	1	.	.	1	.	.	1	.	.
Region									
West	0.74	0.611	0.897	0.759	0.626	0.92	0.744	0.618	0.897
South	0.897	0.714	1.127	0.918	0.724	1.165	0.89	0.713	1.11
Central	0.7	0.562	0.871	0.703	0.564	0.876	0.698	0.566	0.86
North	0.54	0.436	0.67	0.561	0.453	0.694	0.55	0.447	0.678
East	1	.	.	1	.	.	1	.	.
Type of place of residence									
Urban	1.007	0.839	1.209	0.985	0.821	1.183	0.993	0.83	1.188
Rural	1	.	.	1	.	.	1	.	.
Country specific education									
No education/Primary incomplete	0.398	0.3	0.528	0.417	0.314	0.553	0.392	0.297	0.517
First level primary	0.417	0.343	0.508	0.429	0.354	0.521	0.427	0.353	0.516
Second level primary	0.536	0.447	0.644	0.54	0.447	0.653	0.544	0.451	0.655
High school and higher	1	.	.	1	.	.	1	.	.
Employment Status									
Not working	0.307	0.27	0.349	0.327	0.288	0.37	0.321	0.283	0.365
Working	1	.	.	1	.	.	1	.	.

LOGISTIC REGRESSION MODEL FOR OWNERSHIP OF AT LEAST ONE PROPERTY CONTINUED

Males, Adults and Children

Owns at least one property	Mother			Males			Adult & children		
	EXP (B)	95% C I		EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper		Lower	Upper
Marital status and cohabitation duration									
never married	1.281	0.875	1.874	1.303	0.888	1.913	1.315	0.896	1.93
0-4 years	0.965	0.656	1.42	0.963	0.653	1.421	0.975	0.662	1.436
5-9 years	0.813	0.583	1.133	0.799	0.573	1.114	0.844	0.605	1.176
10-14 years	0.827	0.592	1.155	0.835	0.603	1.156	0.805	0.578	1.123
15-19 years	0.85	0.645	1.12	0.845	0.639	1.119	0.84	0.642	1.1
20-24 years	0.903	0.693	1.175	0.898	0.693	1.165	0.912	0.705	1.18
25+ years	1	.	.	1	.	.	1	.	.
formerly married	2.137	1.493	3.059	2.25	1.561	3.243	2.228	1.552	3.198
Wealth index									
Poorest	0.269	0.202	0.36	0.252	0.189	0.337	0.262	0.197	0.348
Poorer	0.364	0.286	0.462	0.342	0.271	0.433	0.351	0.277	0.445
Middle	0.528	0.42	0.663	0.521	0.417	0.649	0.528	0.422	0.659
Richer	0.537	0.437	0.661	0.523	0.427	0.64	0.541	0.441	0.663
Richest	1	.	.	1	.	.	1	.	.
Respondent's age	1.033	1.018	1.048	1.033	1.018	1.048	1.034	1.019	1.049

APPENDIX I

PARAMETER ESTIMATES FROM THE LOGISTIC REGRESSION MODEL FOR EFFECT OF PRESENCE OF CHILDREN UNDER TEN YEARS ON LIFESTYLE CHOICE

More liberal lifestyle	Child<10		
	EXP (B)	95% C I	
		Lower	Upper
presence of children	.805	.669	.968
presence of no one	1.000	.	.
Region			
West	2.212	1.735	2.821
South	3.087	2.315	4.118
Central	1.197	.912	1.571
North	1.570	1.183	2.083
East	1.000	.	.
Type of place of residence			
Urban	1.224	.967	1.550
Rural	1.000	.	.
Country specific education			
No education/Primary incomplete	.090	.061	.132
First level primary	.199	.162	.243
Second level primary	.396	.319	.492
High school and higher	1.000	.	.
Employment Status			
Not working	.836	.702	.996
Working	1.000	.	.

PARAMETER ESTIMATES ON LIFESTYLE CHOICE CONTINUED

More liberal lifestyle	Children		
	EXP (B)	95% C I	
		Lower	Upper
Marital status and cohabitation duration			
never married	4.391	2.666	7.230
0-4 years	1.685	.976	2.908
5-9 years	1.438	.964	2.144
10-14 years	1.597	1.087	2.347
15-19 years	1.565	1.117	2.194
20-24 years	1.130	.797	1.603
25+ years	1.000	.	.
formerly married	2.661	1.810	3.913
Wealth index			
Poorest	.048	.034	.069
Poorer	.085	.064	.111
Middle	.149	.117	.189
Richer	.308	.238	.400
Richest	1.000	.	.
Respondent's age	1.005	.990	1.021

APPENDIX J

PARAMETER ESTIMATES FROM THE LOGISTIC REGRESSION MODEL FOR EFFECT OF PRESENCE OF A SPECIFIC THIRD PARTY PERSON ON RESPONDENTS' OPINION ON GENDER ROLES

Approving traditional norms	Child<10			MIL		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
presence of someone	1.309	1.061	1.614	2.097	1.117	3.939
presence of no one	1	.	.	1	.	.
Region						
West	0.865	0.722	1.035	0.898	0.676	1.191
South	0.796	0.645	0.982	0.82	0.606	1.109
Central	0.846	0.699	1.023	0.878	0.674	1.143
North	0.991	0.792	1.24	0.994	0.704	1.405
East	1	.	.	1	.	.
Type of place of residence						
Urban	0.726	0.608	0.867	0.675	0.546	0.835
Rural	1	.	.	1	.	.
Country specific education						
No education/Primary incomplete	4.952	3.628	6.76	5.51	3.608	8.413
First level primary	2.62	2.048	3.353	2.619	1.825	3.76
Second level primary	1.705	1.297	2.241	1.689	1.126	2.534
High school and higher	1	.	.	1	.	.
Employment Status						
not working	1.119	0.945	1.323	1.102	0.914	1.328
Working	1	.	.	1	.	.

PARAMETER ESTIMATES ON RESPONDENTS' OPINION ON GENDER ROLES CONTINUED

Approving traditional norms	Child<10			MIL		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Marital status and cohabitation duration						
never married	0.442	0.288	0.678			
0-4 years	0.531	0.351	0.804	0.516	0.271	0.982
5-9 years	0.588	0.419	0.825	0.698	0.423	1.149
10-14 years	0.549	0.398	0.758	0.579	0.374	0.896
15-19 years	0.536	0.406	0.706	0.563	0.402	0.788
20-24 years	0.827	0.626	1.094	0.847	0.608	1.178
25+ years	1	.	.	1	.	.
formerly married	0.519	0.348	0.774			
Wealth index						
Poorest	3.21	2.328	4.426	3.496	2.364	5.171
Poorer	2.298	1.717	3.074	2.546	1.745	3.715
Middle	1.858	1.418	2.434	2.161	1.499	3.114
Richer	1.368	1.042	1.796	1.464	1.08	1.984
Richest	1	.	.	1	.	.
Respondent's age	0.984	0.97	0.999	0.988	0.965	1.011

PARAMETER ESTIMATES ON RESPONDENTS' OPINION ON GENDER ROLES CONTINUED

Males, Females Adults and Children

Approving traditional norms	Males			Females			Adult & children		
	EXP (B)	95% C I		EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper		Lower	Upper
presence of someone	1.793	1.133	2.837	1.279	1.044	1.567	1.459	1.026	2.076
presence of no one	1	.	.	1	.	.	1	.	.
Region									
West	0.8	0.643	0.995	0.781	0.642	0.95	0.843	0.684	1.039
South	0.728	0.568	0.934	0.686	0.556	0.847	0.77	0.607	0.977
Central	0.764	0.615	0.95	0.764	0.631	0.926	0.791	0.648	0.966
North	0.913	0.696	1.199	0.891	0.7	1.134	0.944	0.728	1.225
East	1	.	.	1	.	.	1	.	.
Type of place of residence									
Urban	0.683	0.559	0.834	0.7	0.584	0.84	0.673	0.557	0.813
Rural	1	.	.	1	.	.	1	.	.
Country specific education									
No education/Primary incomplete	5.268	3.786	7.331	5.111	3.717	7.028	5.536	4.024	7.616
First level primary	2.757	2.094	3.631	2.693	2.059	3.521	2.871	2.189	3.768
Second level primary	1.743	1.303	2.332	1.663	1.245	2.222	1.712	1.287	2.278
High school and higher	1	.	.	1	.	.	1	.	.
Employment Status									
not working	1.104	0.932	1.308	1.071	0.917	1.252	1.095	0.921	1.301
working	1	.	.	1	.	.	1	.	.

PARAMETER ESTIMATES ON RESPONDENTS' OPINION ON GENDER ROLES CONTINUED

Males, Females Adults and Children

Approving traditional norms	Males			Females			Adult & children		
	EXP (B)	95% C I		EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper		Lower	Upper
Marital status and cohabitation duration									
never married	0.384	0.242	0.609	0.388	0.247	0.608	0.398	0.252	0.63
0-4 years	0.413	0.259	0.66	0.421	0.271	0.653	0.42	0.266	0.661
5-9 years	0.593	0.409	0.861	0.601	0.419	0.863	0.603	0.418	0.87
10-14 years	0.517	0.361	0.739	0.528	0.374	0.745	0.526	0.37	0.748
15-19 years	0.532	0.397	0.713	0.52	0.393	0.688	0.544	0.405	0.732
20-24 years	0.811	0.597	1.101	0.793	0.591	1.064	0.834	0.614	1.132
25+ years	1	.	.	1	.	.	1	.	.
formerly married	0.547	0.364	0.824	0.555	0.38	0.809	0.566	0.379	0.846
Wealth index									
Poorest	3.122	2.208	4.413	3.091	2.235	4.274	2.84	2.035	3.963
Poorer	2.504	1.841	3.405	2.489	1.868	3.317	2.229	1.653	3.006
Middle	1.903	1.423	2.545	1.894	1.421	2.524	1.729	1.3	2.3
Richer	1.443	1.083	1.923	1.44	1.099	1.887	1.321	0.99	1.762
Richest	1	.	.	1	.	.	1	.	.
Respondent's age	0.977	0.962	0.993	0.977	0.963	0.992	0.976	0.961	0.991

APPENDIX K

PARAMETER ESTIMATES FROM THE LOGISTIC REGRESSION MODEL FOR EFFECT OF PRESENCE OF A SPECIFIC THIRD PARTY PERSON ON WIFE BEATING JUSTIFIED

	Child			MIL		
Doesn't approve		95% C I			95% C I	
	EXP (B)	Lower	Upper	EXP (B)	Lower	Upper
Presence of person in column	0.8	0.657	0.975	0.472	0.261	0.852
presence of no one	1	.	.	1	.	.
Region						
West	1.198	0.998	1.438	1.056	0.811	1.375
South	1.428	1.148	1.777	1.216	0.924	1.6
Central	1.249	1.028	1.519	1.098	0.852	1.416
North	1.051	0.854	1.293	0.917	0.677	1.241
East	1	.	.	1	.	.
Type of place of residence						
Urban	1.235	1.045	1.459	1.192	0.963	1.474
Rural	1	.	.	1	.	.
Country specific education						
No education/Primary incomplete	0.267	0.2	0.357	0.234	0.162	0.34
First level primary	0.455	0.374	0.555	0.442	0.332	0.589
Second level primary	0.609	0.494	0.751	0.574	0.413	0.797
High school and higher	1	.	.	1	.	.
Employment Status						
not working	0.881	0.763	1.017	0.919	0.767	1.102
Working	1	.	.	1	.	.
Marital status and cohabitation duration						
never married	2.131	1.408	3.226			
0-4 years	1.775	1.184	2.662	1.73	0.984	3.042
5-9 years	1.478	1.056	2.068	1.222	0.785	1.904
10-14 years	1.654	1.212	2.257	1.539	1.051	2.254
15-19 years	1.54	1.184	2.004	1.491	1.098	2.025
20-24 years	1.333	1.021	1.742	1.348	0.995	1.827
25+ years	1	.	.	1	.	.
formerly married	1.818	1.261	2.62			

PARAMETER ESTIMATES ON WIFE BEATING JUSTIFIED CONTINUED

Doesn't approve	**Child**			**MIL**		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Wealth index						
Poorest	0.382	0.291	0.501	0.304	0.216	0.427
Poorer	0.493	0.393	0.617	0.416	0.306	0.566
Middle	0.617	0.503	0.758	0.523	0.382	0.715
Richer	0.762	0.623	0.933	0.672	0.522	0.865
Richest	1	.	.	1	.	.
Respondent's age	1.016	1.001	1.032	1.01	0.989	1.032

Doesn't approve	Females			Adult & children		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Presence of person in column	0.788	0.633	0.981	0.675	0.496	0.919
presence of no one	1	.	.	1	.	.
Region						
West	1.272	1.05	1.54	1.231	0.997	1.519
South	1.524	1.242	1.869	1.424	1.14	1.779
Central	1.265	1.042	1.537	1.299	1.058	1.594
North	1.058	0.848	1.32	1.061	0.835	1.347
East	1	.	.	1	.	.
Type of place of residence						
Urban	1.282	1.073	1.531	1.296	1.083	1.552
Rural	1	.	.	1	.	.
Country specific education						
No education/Primary incomplete	0.249	0.187	0.332	0.241	0.179	0.323
First level primary	0.429	0.349	0.528	0.42	0.342	0.516
Second level primary	0.603	0.49	0.741	0.598	0.488	0.732
High school and higher	1	.	.	1	.	.

PARAMETER ESTIMATES ON WIFE BEATING JUSTIFIED CONTINUED

Doesn't approve	Females			Adult & children		
	EXP (B)	95% C I		EXP (B)	95% C I	
		Lower	Upper		Lower	Upper
Employment Status						
not working	0.898	0.777	1.039	0.88	0.754	1.026
working	1	.	.	1	.	.
Marital status and cohabitation duration						
never married	2.291	1.491	3.521	2.217	1.403	3.503
0-4 years	2.023	1.316	3.111	2.085	1.315	3.305
5-9 years	1.399	0.987	1.983	1.376	0.95	1.993
10-14 years	1.672	1.213	2.305	1.709	1.221	2.392
15-19 years	1.624	1.242	2.125	1.507	1.129	2.011
20-24 years	1.39	1.054	1.833	1.331	0.993	1.785
25+ years	1	.	.	1	.	.
formerly married	1.715	1.207	2.436	1.63	1.121	2.37
Wealth index						
Poorest	0.41	0.313	0.536	0.413	0.313	0.545
Poorer	0.485	0.387	0.609	0.523	0.415	0.66
Middle	0.644	0.522	0.794	0.667	0.534	0.834
Richer	0.729	0.589	0.903	0.755	0.607	0.939
Richest	1	.	.	1	.	.
Respondent's age	1.022	1.006	1.037	1.022	1.005	1.039