



## Do family planning messages improve antenatal care utilization? Evidence from Tajikistan



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### ABSTRACT

**Objective:** We assess the effects of TV family planning messages on the frequency and timing of antenatal care utilization in Tajikistan. Instrumental variable regressions are used with Tajikistan's 2012 nationally-representative Demographic and Health Survey to address confounding bias.

**Methods:** For the continuous outcome variable, number of antenatal visits, we use the instrumental variable linear two-stage least square (2SLS). For the binary outcome variable, the first antenatal visit made during the first trimester of pregnancy, we use instrumental variable bivariate probit.

**Results:** As suggested by 2SLS results, women who had been exposed to family planning messages on TV made additional 1.2 antenatal visits. As indicated by the bivariate probit results, exposure to TV family planning messages increases the likelihood of early initiation of ANC by 11 percentage points.

**Conclusion:** Family planning messages on TV has strong direct positive impact on antenatal care utilization in Tajikistan.

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### Introduction

According to recent estimates by the Maternal Mortality Estimation Inter-Agency Group, about 289,000 women died worldwide in 2013 as a result of maternal death [1]. Approximately 95 percent of these deaths occurred in developing countries. Appropriate and timely antenatal care (ANC) is one of the most important instruments for the reduction of child and maternal morbidity and mortality [2]. Overall, ANC has four main goals: (1) the early detection of women who may be at risk for potential birth or maternal health complications; (2) acting on detections to prevent any future complications; (3) the diagnosis and treatment of any medical conditions found through early testing and assessment; and (4) to provide primary referral to any required specialists [3]. There are several main ways in which ANC contributes to maternal and child survival [4]. First, it mitigates behaviours such as the use of substances and smoking that can be harmful to the fetus. It also augments maternal health through improving nutritional intake. As well, it can help identify pregnancies with fetal anomaly or adverse health conditions. Finally, it can help inform strategies for managing adverse health conditions during pregnancy.

In light of this evidence, we make two unique contributions to the literature. Thus, for the first time, we use two instrumental variable techniques to identify the effect of mass-media campaigns for family planning on ANC utilization. The estimation of the family planning messages effect on ANC utilization is not straightforward due to significant confounding bias [5]. Confounding bias is present if there are unobservable characteristics which may simultaneously affect both ANC utilization and exposure to family planning messages. The existing theoretical and empirical literature identifies three broad groups of such confounding characteristics which are not observable to researchers: (1) favourable, (2) confidence, and (3) adverse characteristics [4,6].

Health-conscious behaviour exemplifies favourable confounding characteristics. More health-conscious women typically exhibit better health behaviours. They may have higher probability of ANC utilization and, at the same time, higher probability of seeking information about family planning. In this case, improvement in ANC utilization may simultaneously be the result of the health-consciousness of women and exposure to family planning messages. Hence, the true effect of family planning messages on ANC utilization will likely be overestimated.

Confidence characteristics reflect good health endowment, for example, having a positive assessment of own health status and encouraging experience with prior pregnancy. Women with these characteristics may delay ANC utilization and reduce the number of visits. At the same time, such women may not actively to seek

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information about family planning. In this case, improvement in ANC utilization may simultaneously be the result of the confidence characteristics of women and exposure to family planning messages. Hence, the true effect of family planning messages on ANC utilization will likely be underestimated.

Finally, adverse confounding characteristics reflect poor health, for instance, history of pregnancy complications and a problematic current pregnancy. Anticipating a complicated pregnancy, such women may seek ANC earlier and increase the number of visits, while seeking more information about pregnancy in family planning programs. In this case, improvement in ANC utilization may simultaneously be the result of the adverse characteristics of women and exposure to family planning messages. Consequently, the true effect of family planning messages on ANC utilization will also be overestimated.

However, most of the previous studies regarding the effects of family planning messages on ANC utilization used single-stage cross-sectional regressions that did not address confounding bias [7–10]. Hence, their findings should be treated with caution. In comparison, by addressing confounding bias through estimation of two instrumental variable techniques, we focus on the true effect of family planning messages on ANC utilization after taking into account the range of variables, as suggested by health research literature. In addition, in comparison with previous studies, which used a single measure of ANC utilization, we assess the effect of two dimensions of ANC, namely, early initiation and number of visits.

Our second contribution to the literature is that, for the first time, we thoroughly examine the role of family planning messages in encouraging ANC in Post-Soviet Central Asia using nationally-representative 2012 Demographic and Health Survey of Tajikistan. In comparison with other parts of the former Soviet Union, there is very little evidence regarding the topic from Central Asia, where infant and child mortality are high, while ANC utilization is low [1,11].

As a poor landlocked transitional country in Central Asia, Tajikistan experienced a civil war that has led to prolonged political instability and economic recession, after the dissolution of the former Soviet Union. Transitional processes<sup>1</sup> were accompanied by a significant increase in maternal and child mortality [12,13]. Likewise, ANC utilization rates plummeted significantly after the initiation of the transitional process [14,15]. Currently, Tajikistan experiences a high infant mortality of 34 per 1000, and an under-5 mortality of 43 per 1000 that are higher than in other transitional countries [11]. One reason for this is inadequate rates of ANC utilization. For instance, only 52 percent of women made their first ANC visit during the first trimester of pregnancy. Likewise, while Tajikistan's Ministry of Health recommends at least seven ANC visits, overall only 53 percent of women in Tajikistan made four or more visits, the bare minimum recommended by WHO [11]. Importantly for our study, previous research on the determinants of ANC utilization in Tajikistan have concluded that lack of knowledge regarding the benefits of ANC is the key factor in explaining the low level of ANC usage [14,15].

Aiming to reverse these negative trends, the government of Tajikistan adopted a long-term National Health Strategy as well as the Strategic Plan for Reproductive Health [19]. One of the main objectives aimed at by these documents is improvement in family planning, which encompasses decision-making about desired fam-

ily size, methods of contraception, understanding the signs of pregnancy, awareness about the importance and benefits of ANC, and knowledge about sexually-transmitted diseases and HIV/AIDS [20,21]. In terms of ANC, these documents set a target to increase ANC coverage to 80 percent [19]. Increasing information, communication, and education activities was identified as the one of the most important ways to increase ANC utilization. The government of Tajikistan implemented a series of TV family planning messages to encourage ANC utilization. An example of state-sponsored family planning programs with ANC messages was a TV show called “Chi boyad kard?” (“What should be done?”). Similar efforts were also made by non-profit organizations. A succession of televised discussion programs on family planning that invited the involvement of medical experts and religious leaders were aired by the public association “Nasl” in cooperation with the Tajik Family Planning Alliance as part of its project, “Health of the Women”. International agencies also participated in delivering family planning messages. UNFPA sponsored the TV show “Safina,” which was broadcast four times per month and delivered a wide range of family planning messages [22,23]. The show was broadcast for an entire year, and received consistently favourable ratings. In addition, Tajikistan's Ministry of Health conducted information workshops for 100 representatives from national and regional levels of the media to discuss issues related to ANC and reproductive health [24]. In particular, the role played by media coverage in publicizing these issues was highlighted. Information about the workshops was widely broadcast across TV channels [20,21].

In spite of the high financial, labour, and time investments involved in planning and delivering TV family planning messages, no assessments regarding the effects of TV family planning messages on ANC utilization in Tajikistan have so far been conducted. Thus, the objective of this paper is to evaluate the effects of televised family planning messages on ANC utilization in Tajikistan using the latest nationally-representative survey.

## Data

The data for this study come from the Tajikistan Demographic and Health Survey (TjDHS) that was conducted by the Statistical Agency in the Republic of Tajikistan in 2012 with technical support and funding provided by the United States Agency for International Development, the UNFPA and UNICEF [11]. The TjDHS is the first DHS survey conducted in Tajikistan. It is a cross-sectional household survey that employs a two-stage stratified sampling technique. The TjDHS provides information on a wide range of socio-economic characteristics related to antenatal healthcare utilization and family planning, including the socio-economic characteristics of a woman and her household, her fertility intentions, number of ANC visits, the timing of her first visit, as well as her frequency of watching TV, and exposure to family planning messages on TV. The goal of the survey is to use the information collected to design and implement new strategies for improving health services for specifically-targeted women and children in Tajikistan. The sampling unit of the survey is women of reproductive age (15–45). The total sample of the TjDHS is 9656. Subsequently, the analytical sample was reduced to 2750, as the subset of questions on ANC was asked only to those women who had given birth during the five years preceding the survey. If a woman had given birth to more than one child during the five years preceding the survey, the questions asked referred only to the most recent birth.

## Definitions and measurement

In this paper, we evaluate the effects of family planning messages viewed on TV on antenatal healthcare utilization. The TjDHS

<sup>1</sup> Transitional processes in Tajikistan can be defined as the move from a centrally-planned economy to a market economy, from a totalitarian to an authoritarian society, and from a Soviet republic under the control of the central government in Moscow, to an independent country. In terms of health and healthcare, transitional processes have led to a reduction in public spending on healthcare, a reduction in the quality of healthcare, lower healthcare utilization, as well as increases in out-of-pocket formal and informal expenditures on healthcare [16–18].

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