論文の内容の要旨

論文題目　A mixed methods study on effects and a mechanism in the relationship between child marriage and reproductive health outcomes in Nepal
（ネパールにおける児童婚のリプロダクティブヘルスアウトカムへの効果とそのメカニズムについての混合研究）

氏名　　関根　一貴

Introduction

Access to family planning is recognized globally as a serious public health and human rights issue. Family planning improves women's health and saves lives by reducing high-risk pregnancies, unintended pregnancies, and associated unsafe abortions. However, an estimated 214 million women had an unmet need for family planning in low- and middle-income countries in 2017. For example, while Nepal has made impressive progress in family planning through increasing modern contraceptive use, half of all pregnancies in the country were unintended. The adolescent fertility rate remains high at 88 per 1000 women.

Evidence suggests that child marriage may play a role in reproductive health. Despite the minimum legal marriage age of 20 years, approximately 40 % of Nepali women aged 20-24 had been married before they reached 18. In the country, almost all adolescent pregnancies and childbirths occur within the context of child marriage. However, the effect of child marriage on reproductive health outcomes appears inconclusive in previous research due to residual confounding and inconsistency of study findings. Moreover, the causal effects of child marriage on reproductive health outcomes are unclear in the literature.

Researchers have noted a number of barriers that hinder married adolescent girls from using contraceptive methods and postponing childbearing. However, a shortcoming of previous qualitative research is narrow focuses on individual levels without examining interactions among factors at different levels. Few in-depth investigations have been conducted to promote the nuanced understanding of a complex interplay of multilayered barriers that hinder contraceptive use. Therefore, it is necessary to identify a host of the factors that impede contraceptive use and promote early pregnancy.

The overarching aim of this PhD thesis was to identify the effects of child marriage on reproductive health outcomes and the underlying process of decision-making regarding contraceptive use among women married as children. This was achieved through two objectives:

1. To examine whether child marriage has effects on unmet needs for modern contraception and unintended pregnancy (Study I);
2. To determine the multilevel factors that influence contraceptive use and childbearing decisions in Nepal and examine relationships among emergent factors (Study II).

Methods

This thesis used an explanatory sequential mixed methods design. The triangulation of quantitative and qualitative studies was designed to provide a richer, more comprehensive explanation of to what extent and how child marriage impacts reproductive health of married adolescent girls in Nepal. Results from the qualitative study were used to make the final interpretation of what was found in the quantitative analyses and draw overall conclusions. In particular, in-depth accounts from the qualitative study were used to illustrate the quantitative results and put meat on the bones of dry quantitative findings.

Study I used secondary data from the Nepal Demographic and Health Survey 2016, a nationally representative population survey. The sample consisted of 7,833 women aged 15-49 years who were married for more than five years. The outcome variables were unmet needs for modern contraception and unintended pregnancy. The treatment variable was a formal marriage or informal union before the age of 18, which represented non-randomized self-selection into treatment and control groups. Applying propensity score matching, women married before the age of 18 were matched with similar women who were married at 18 or above to reduce selection bias. In addition, sensitivity analysis was undertaken to assess the robustness of estimated treatment effects to an unmeasured confounder.

Study II drew on qualitative data collected in an urban municipality and a rural municipality in Bara district, Nepal, through in-depth interviews and key informant interviews and triangulated results. The participants included a total of 60 people (e.g., 20 married adolescent girls, 20 husbands, 20 mothers-in-law) for in-depth interviews and 10 (e.g., four health care providers, four health coordinators, three female community health volunteers) for key informant interviews. Those who met inclusion criteria were purposively recruited with the help of local research assistants and used convenience sampling (i.e., door-to-door visits). The interviews focused on the knowledge, attitudes, beliefs, perceptions, and experiences that pertain to contraceptive use and childbearing. Topic guides were developed based on the socio-ecological model, literature reviews, and the research team's field observations. The data was analyzed using a directed approach to content analysis. Both Study I and II were approved by the Research Ethics Committee of the Graduate School of Medicine, the University of Tokyo.

Results

In Study I, the matching method achieved adequate overlap in the propensity score distributions and balance in measured covariates between treatment and control groups with the same propensity score. After matching, the standardized percentage bias between the two groups was less than 10 % for nearly all covariates. Propensity score matching analysis showed that the risk of unmet needs for modern contraception and unintended pregnancy among women married as children was a 14.3 percentage point (95 % CI 10.3, 18.2) and a 10.1 percentage point (95 % CI 3.7, 16.4) higher, respectively, than among women married as adults. Given the following gamma values for unmet needs for modern contraception (gamma = 1.5), and unintended pregnancy (gamma = 2.0), sensitivity analysis indicated that the estimated effects were robust to unmeasured covariates.

Married adolescent girls faced a wide range of barriers across different levels. The barriers

were identified across the intrapersonal, interpersonal, community, and organizational levels. Barriers at the intrapersonal level were reluctance to seek family planning information and services, the fear of and misconceptions about side effects of contraceptives, low awareness about the risks involved in adolescent pregnancy, and a lack of access to information. Barriers at the interpersonal level were limited autonomy in making decisions about family planning, restricted mobility, power imbalances between spouses, and mothers-in-law's influence. Barriers at the community level were the fear of infertility and abandonment, the stigmatization of childless married couples, normative gender roles, and social pressures to give birth soon after marriage, which emerged as root causes of contraceptive nonuse. Barriers at the organizational level were a lack of privacy and confidentiality, and the unfriendliness of healthcare providers.

Discussion and conclusions

Using observational data, the propensity score matching analysis showed that child marriage was associated with a higher risk of unmet needs for modern contraception and unintended pregnancy among married women aged 15-49 in Nepal. The results of the balancing test indicated that successful matching of the propensity scores achieved exchangeability between the treated and control groups conditional on the measured covariates.

The women who participated in the qualitative study were not empowered to make independent decisions about contraceptive use. Patriarchal norms and power imbalances between spouses made married adolescent girls hesitate or refrain from talking to their husbands about family planning and limited their decision-making power regarding contraception. Social pressures to have a child soon after marriage drove the fear of infertility, abandonment, and the stigmatization of childless married couples, which impeded the married adolescent girls' access to family planning services. Mothers-in-law and religion exerted considerable influence over couples' decisions regarding contraceptive use. Limited access to information about the benefits and methods of family planning contributed to fear of the side effects of contraceptives and low awareness about the risks involved in adolescent pregnancy. Supply-side barriers (e.g., a lack of privacy and confidentiality, the unfriendliness of healthcare providers) may have rendered women reluctant to seek contraceptives.

To my best knowledge, this is the first mixed methods study to focus on child marriage. While there have been studies that identified the associations between child marriage and reproductive health in the low- and middle-income countries, this thesis is the first study to assess the effect of child marriage on reproductive health outcomes by using propensity score matching. The matching method was instrumental in significantly reducing selection bias and imbalances between control and treatment groups. It is also one of the first qualitative studies to identify the multilevel, interacting factors that influence contraceptive use and childbearing among married adolescent girls. It extended the evidence base by illustrating the multidimensionality and interaction of the factors that limit women's family planning knowledge, undermine their autonomy in decision making, reduce contraceptive use, and increase the risk of adolescent pregnancy.

I used a joint display as a visual means to integrate and represent mixed methods results.

The integrated results of the quantitative and qualitative studies supported each other, suggesting complementary relationships between these studies. A broader and deeper perspective of the impact of child marriage on reproductive health outcomes and rights was achieved through triangulation. Together, combined results of the two studies shed light on the adverse impacts of child marriage on the risk of unmet needs for modern contraception and unintended pregnancy. They also confirm that the decision to postpone childbearing is not merely the personal choice of an individual or a couple, highlighting the importance of targeting families and communities.

The results have policy implications. A holistic approach should be adopted to reduce the multidimensional vulnerabilities faced by women married as children. Interventions to inform and empower girls should be intensified to increase knowledge and understanding of the importance of preventing adolescent or unintended pregnancy, and to reduce unmet needs for contraception. Men and boys must be engaged to challenge and transform gender norms and stereotypes relating to childbearing and family planning and to address negative effects that these norms and stereotypes can have on women, girls, families, and communities. Community support and collective actions are needed to address the root causes that have been identified in this study. Reproductive health programs and interventions should take account of the context and aim to reinforce women's reproductive rights and gender equality. Adopting human rights-based approaches to adolescent sexual and reproductive health is essential to ensure women's autonomy in exercising their reproductive rights by determining when to have a child and how many children to have.