Master of Advanced Studies International Health (MAS IH)

Child marriage in Nepal: A multi-method study on contributing factors, maternal health implications and reduction strategies

A thesis submitted to the Swiss Tropical and Public Health Institute, University of Basel, in partial fulfillment of the Master in Advanced Studies International Health (MAS IH)

In collaboration with FAIRMED, Nepal

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28.02.2025

I. Acknowledgments

This research was conducted in collaboration with Fairmed Headquarters in Switzerland and Fairmed Nepal. The study team consisted of four people: **Tamara Mosimann** a student of Swiss TPH (Principal Investigator and author of this study, studying Master's in International Health), **Bhuwan Baral** a Program Quality coordinator for Fairmed Nepal (CO-Principal Investigator with a Master's degree in Public Health), **Biplov Shakya** a Monitoring and Documentation Officer for Fairmed Nepal (Co-Investigator I with a Master's degree in Rural Development) and **Shobha Ram Bhandari** a Project Manager in Sindhupalchok for Fairmed Nepal (Co-Investigator II with a Master's degree in Public Health).

The author would like to express sincere gratitude to Fairmed Switzerland for making this research possible.

A warm and sincere thank you goes to **Aasritha Choudhary** who has served as a translator during data collection, has supported the team with transcription, and translation, and has double-checked codes. Gratitude is expressed to those who have supported the research during different phases: **Nirmala Sharma** country coordinator of Fairmed Nepal, **Chirianjibi Nepal** Head of programs for Fairmed Nepal and **Bharath Sundar** program officer and Monitoring and Evaluation coordinator for Fairmed Switzerland.

Additionally, the student would like to thank **Karin Gross,** Head of Unit, Professional Postgraduate Training Department of Education & Training, for acting as a student's tutor.

This research was possible because of everyone's commitment, support, and endurance, for which I, Tamara Mosimann, feel honest gratitude.

II. Abstract

Background and objectives: Child marriage remains common in Nepal, with around 33% of women currently married as children. Multiple factors contribute to child marriage, and it has various implications, including maternal health consequences. Addressing child marriage is complex. This study sought to review the existing literature on child marriage in Nepal and complement it with insights from key informant interviews.

Methods: This study employed a multi-method approach. A scoping review was undertaken to explore literature about child marriage in Nepal. The search was conducted on Ovid Medline, Embase, Web of Science, Scopus, and multiple grey literature databases like Google Scholar and OAister. Government reports were retrieved from various official websites. Additionally, semi-structured interviews were conducted with key informants from Sindhupalchok district in Bagmati province, a district with little research, focusing on reduction strategies.

Results: This multi-method study included 54 articles and 10 semi-structured interviews. Education is one of the key contributing factors to child marriage. A lack of education or low-quality education can elevate the chances of child marriage. In Sindhupalchok district, love marriage among children and a lack of parental guidance are major contributing factors. Women who were married as children are more at risk of early pregnancy and its adverse consequences. Additionally, women who married as children have lower chances of receiving adequate antenatal care, are less likely to have an institutional delivery and are less likely to be attended by a skilled birth attendant during delivery. Results from Sindhupalchok district show a high prevalence of preterm deliveries, low birth weight newborns, and later malnutrition in children. Long-lasting implications such as uterine prolapse, can result from child marriage. Education and contextualized awareness programs are key to reducing child marriage.

Conclusion: Child marriage is influenced by various factors, with education being a key determinant. Marrying before the age of 18 poses significant risks to maternal health, including early pregnancies with adverse health effects, and can lead to long-term and intergenerational health impacts. Comprehensive and multi-sectoral approaches are needed to confront child marriage.

III. List of Abbreviations

Abbreviation	Definition
ANC	Antenatal care
COREQ	Consolidated criteria for reporting qualitative research
EKNZ	Ethikkommission Norwest- und Zentralschweiz (Ethics Committee of Northern and Central Switzerland)
FCHVs	Female Community Health Volunteers
GBV	Gender-Based Violence
GDP	Gross domestic Product
NHRC	Nepal Health Research Council
NGO	Nongovernmental Organization
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PRISMA-ScR	PRISMA Extension for Scoping Reviews
SDGs	Sustainable Development Goals
SRH	Sexual Reproductive Health
STIs	Sexually transmitted Infections
UNFPA	United Nations Population Fund
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

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V. Definitions

Adolescent: WHO defines adolescence as between 10-19 years of age (WHO, 2024a)

Child marriage: “Child marriage refers to any formal marriage or informal union between a child under the age of 18 and an adult or another child.” (UNICEF, 2023a) (United Nations International Children’s Emergency Fund) In Nepal a marriage below 20 years is illegal (Government of Nepal, 2017).

Early pregnancy: In this study, "early pregnancy" refers to a pregnancy happening early in a woman's life. The included articles of the scoping review in this study use the term “early pregnancy” (Devkota et al., 2018; Wells et al., 2022). WHO (2024b) uses the term “teenage pregnancy” to describe pregnancies occurring between 15-19 years. However, in the included articles of the scoping review “early pregnancy” can also refer to a pregnancy below 15 years or up to just under 20 years. Therefore, in this study “early pregnancy” is defined as a pregnancy occurring before the age of 20.

Ethnicity/caste in Nepal: In this study, the terms ethnicity and caste will be used together as it is done in official reports of Nepal, referring to ethnicity/caste (National Statistics Office, Nepal, 2023a). This is because a single cast can include multiple ethnicities, and vice versa. A report by the (Central Bureau of Statistics Nepal, 2014) describes the complexity of the ethnicity/caste system in Nepal. In Nepal, caste generally refers to a historical social structure and is strongly linked to Hindu religious values, with nearly all Hindu groups falling under a caste. Ethnicity, on the other hand, refers to common markers such as a common name, history, and a specific territory. (Central Bureau of Statistics Nepal, 2014)

Female Community Health Volunteer: Promote healthy behaviors among women, children, families, and communities. They provide limited family planning methods, provide preventive medications (e.g., for pregnant women), counselling, treat minor conditions, and refer people to health facilities if needed. (Government of Nepal, 2022)

Health mother's groups: The group holds regular meetings. The female health community volunteers are leading the groups providing health education and raising awareness about different topics such as maternal and child health, immunization, and nutrition. (Acharya et al., 2022)

Love marriage: In this study love marriage among children is used as a term to describe self-initiated marriages involving children, where the decision to marry is based on their own choice. Often love marriages are closely associated with elopements, which means children leave their homes to marry without parental consent (Allendorf, 2013).

Maternal health: "Maternal health refers to the health of women during pregnancy, childbirth, and the postnatal period." (World Health Organization, no date). In this study, the author also includes long-term health impacts on a woman's life and intergenerational health impacts

Neonate: A child during the first 28 days of life (WHO, n.d.).

Ward: Every municipality is divided into several wards in Nepal. A ward is therefore the smallest unit of the federal system of Nepal. (Nepalog, n.d.)

Maternal waiting homes: Maternal waiting homes are accommodations for high-risk mothers or those from remote areas, located close to a health facility. Women can wait there before the due date until the contractions start to be close to the health facility. (WHO, 1996)

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1 Introduction/ Background

"The betrothal and the marriage of a child shall have no legal effect, and all necessary action, including legislation, shall be taken to specify a minimum age for marriage and to make the registration of marriages in an official registry compulsory."

(United Nations (UN), 1979, p. p.7, Article 16, 2)

More than 40 years after Article 16 of the Convention on the Elimination of All Forms of Discrimination against Women (1979), child marriage persists (UNICEF, 2023b). It violates human and children's rights (United Nations, 1948, 1989). Globally, 640 million females currently living were married before the age of eighteen years (UNICEF, 2023c).

Countries have implemented laws and measures to combat child marriage (UNICEF, 2023c). Strategies mainly focused on empowering girls and mobilizing communities (UNFPA, 2016). Most countries show decreasing child marriage trends (Cordova-Pozo et al., 2023). South Asia has made continuous progress since 1997, but other regions have made little progress (UNICEF, 2023c). Globally, child marriage is declining. Today among young women 20-24 years of age, 19% were married as children whereas ten years ago still 23% were married below 18 years (UNICEF, 2023c).

Crises around the world, including the COVID-19 pandemic, climate change, energy crisis, political instabilities, and global inflation, are increasing the burden on children's lives and can influence child marriage rates (UNICEF, 2023d). Evidence suggests rising child marriages due to the COVID-19 pandemic and the climate crisis (Pope et al., 2023; Yukich et al., 2021).

Over the past twenty years, the worldwide burden of child marriage has moved from Central and Southern Asia to Sub-Saharan Africa (Molitoris et al., 2023). Sub-Saharan Africa now has the largest proportion, followed by South Asia (UNICEF, 2023b).* Worldwide Mozambique and South Sudan have the highest percentage of young women married as children (UNICEF, 2022a).* * *Data for women aged* 20-24 and married before 18.

Child marriage is a marker of gender disparity (Arthur et al., 2017; Kennedy et al., 2020). The estimated number of alive boys and men who were child brides is about one-sixth of the number of females married as children (UNICEF, 2019).

Most childbirths worldwide occur within a marriage (Chamie, 2017). Variations exist across countries and regions. In Western countries, childbearing outside marriage is increasing (Schnor and Jalovaara, 2020). In Africa and Asia, it remains uncommon and socially unacceptable (Chamie, 2017; Kok et al., 2023). Most births below eighteen years worldwide occur within a marriage, particularly in Asia (Molitoris et al., 2023). The gap between child marriage and first birth varies but often ranges from 7 months to one year. (Fan and Koski, 2022; Molitoris et al., 2023). Therefore, marriage often serves as an entry point to sexual activity and childbearing (Molitoris et al., 2023).

Child marriage has tremendous consequences for children, young adolescents, and adults (Fan and Koski, 2022; Lebni et al., 2023; Sekine and Hodgkin, 2017). Pregnancy shortly after marriage before 18 years, when the body is still maturing, can lead to complications like miscarriage, preeclampsia, stillbirth, fetal growth restriction, preterm birth, and postnatal complications (Brosens et al., 2017; Paul, 2018). Moreover, child marriage is strongly connected to young girls dropping out of school (Lowe, 2023; Sekine and Hodgkin, 2017). For a young girl, marriage often means early motherhood, school dropout, suffering from the consequences of early marriage, and entering the vicious circle of poverty and gender inequality (Makau, 2014).

Not only are the consequences of child marriage linked to an early pregnancy and school dropout, but also to maternal health consequences. These include higher fertility rates, rapidly repeated childbirth, higher numbers of unwanted pregnancies, and more pregnancy terminations (Raj et al., 2009; Reisz et al., 2024), as well as decreased prenatal care usage (Li et al., 2021; Paul and Chouhan, 2019). Moreover, women who were child brides use antenatal care (ANC) services less frequently (Ahinkorah et al., 2022; Paul and Chouhan, 2019; Subramanee et al., 2022). Further, women married as children have lower chances of birth in a healthcare facility or with a qualified professional (Fan and Koski, 2022; Nasrullah et al., 2014; Subramanee et al., 2022).

Child marriage can have lasting health implications on women and their children. It increases the risk of hypertension (Datta et al., 2023) and of untreated hypertension later in life (Datta and Haider, 2022). Less commonly reported health consequences were found in one Indian case-control study, which identified an association between cervical cancer and marriage below 18 years (Thakur et al., 2015). Additionally, obstetric fistulas are more common in women who married as children (Singh et al., 2019).

Child marriage has several intergenerational effects. Children under five born to mothers married as minors are at higher risk for development delays and stunted growth (Mim et al., 2024). A large study from Bangladesh showed a clear increase in the under-five child mortality rate among children born to mothers who married as minors (Hossain et al., 2022). Sunder (2019) also highlights lower hemoglobin levels in children born to mothers married as children, making them more prone to anemia and lower body mass index.

Child marriage represents a type of gender-based violence (GBV) and can also lead to GBV (Clark et al., 2024; Department of Health Services, 2024; UNICEF, no date). Research shows that women married as children have higher odds of experiencing GBV from an intimate partner (Fan and Koski, 2022; Hayes and Protas, 2022; Kidman, 2017).

Child marriage is influenced by factors such as social norms, poverty, economic conditions, limited opportunities, lack of empowerment, and family concerns about girls' premarital sexual activities and pregnancy (Psaki et al., 2021). Social norms are frequently cited as a key factor (Kidman et al., 2024; Psaki et al., 2021; Thi et al., 2023). Women living in rural areas are more likely to experience child marriage compared to women living in urban areas (Isiugo-Abanihe et al., 2022; Subramanee et al., 2022). Lack of education and economic challenges are also major drivers of child marriage (Ahonsi et al., 2019; Harvey et al., 2022; Kok et al., 2023). The practice of dowry, involving the exchange of goods between the bride and the groom's family, further influences child marriage (Banerjee, 2014; Fattah and Camellia, 2022). However, contributing factors vary across countries and regions (Zahra et al., 2021).

Asia has made tremendous efforts in reducing child marriage, but the numbers remain high. On average every fourth woman in South Asia is married before the age of 18 (UNICEF, 2023b). Bangladesh is the country with the highest number of child marriages in South Asia (counting women between 20-24 years who married before 18) (UNICEF, 2023b). Nepal follows with 33% of young women between 20 and 24 years who were married before the age of 18 (UNICEF, 2023b).

The root causes of child marriage in Nepal can be multifaceted. Ranging from Nepal's hilly geography (Government of Nepal, n.d.), to diverse ethnicities (National Statistics Office, Nepal, 2023b) to social taboos against premarital sexual activities (Pradhan et al., 2018), to the practice of dowry (Jeyaseelan et al., 2015; Stroope et al., 2021) and to factors like lack of education and poverty. Nepal has been trying to combat child marriage. Maswikwa et al. (2015) show that a legal marriage age can effectively reduce child marriage rates. Child marriage has been banned in Nepal since 1963. The National Code (Muluki Ain) 2020 (1963) prohibited child marriage with parental consent below 18 years and without parental consent below 20 years (Government of Nepal, 1963). In 2017, the National Civil (Code) Act 2017 (2074) set the minimum legal age of marriage for all at 20 years, regardless of parental consent (Government of Nepal, 2017). “Sustainable Development Goal (SDG) five aims to achieve gender equality and empower all women and girls. Target 5.3 aspires to eliminate all harmful practices, such as child, early and forced marriage, and female genital mutilation“ (United Nations, n.d.). To achieve SDG Goal 5, target 5.3, the United Nations Population Fund (UNFPA) and UNICEF launched a fifteen-year global program in 2016 to end child marriage, especially in the most affected countries, including Nepal. The program is currently in its third phase. (UNFPA and UNICEF, 2018) A decreasing trend is evident. The National Demographic and Health Survey 2022 of Nepal shows that the percentage of young women between 15 and 19 years old and currently married decreased over the past twenty-six years from 43% to 21% in 2022 (Ministry of Health and Population [Nepal], New ERA, and ICF, 2023).

1.1 Research question and objectives

There is a wealth of literature available about child marriage, its contributing factors, consequences on maternal health, and its reduction strategies, particularly in South Asia and India. However, evidence specific to Nepal is limited. To our knowledge, no systematic or scoping review has solely focused on Nepal, combining child marriage, its contributing factors, maternal health consequences, and reduction strategies. Therefore, this multi-method study aims to provide an overview of the literature on child marriage in Nepal, focusing on contributing factors, maternal health consequences, and reduction strategies through a scoping review combined with key informant interviews from a district with little research, focusing on reduction strategies. This study serves as an initial investigation for a comprehensive ethnographic research to be conducted by Fairmed in Sindhupalchok district in Nepal. The findings of this study will shape the upcoming research and provide key elements. This research's primary target audience is partners working on reducing child marriage in Nepal.

Research Question: What are the factors contributing to child marriage in Nepal, its consequences on maternal health, and reduction strategies?

Overall Objective & Subobjectives: This multi-method study aims to provide an overview of the existing literature on child marriage in Nepal, its contributing factors, maternal health consequences, and strategies for reducing child marriage while combining it with semi-structured interviews with key informants.

1. Identify the factors contributing to child marriage and its consequences on maternal health, long-term health impacts, and intergenerational health impacts in Nepal.
2. Identify suggestions given by the literature to reduce child marriage in Nepal.
3. Identify contributing factors to child marriage, maternal health consequences, and reduction strategies for child marriage in Nepal through key informant interviews in Sindhupalchok district.

2 Methodology

This multi-method study contains a scoping review with a systematic search of electronic databases and grey literature, along with qualitative key informant interviews with stakeholders from the district and municipality levels of Sindhupalchok district in Nepal.

2.1 Theoretical adapted Framework

An adapted combination of the social-ecological model, first introduced by Bronfenbrenner (1979), and the conceptual framework to navigate policies and programs around child marriage by Psaki et al. (2021) has supported data collection, extraction, and analysis of results through the scoping review and the qualitative interviews. The author adapted the framework presented below.

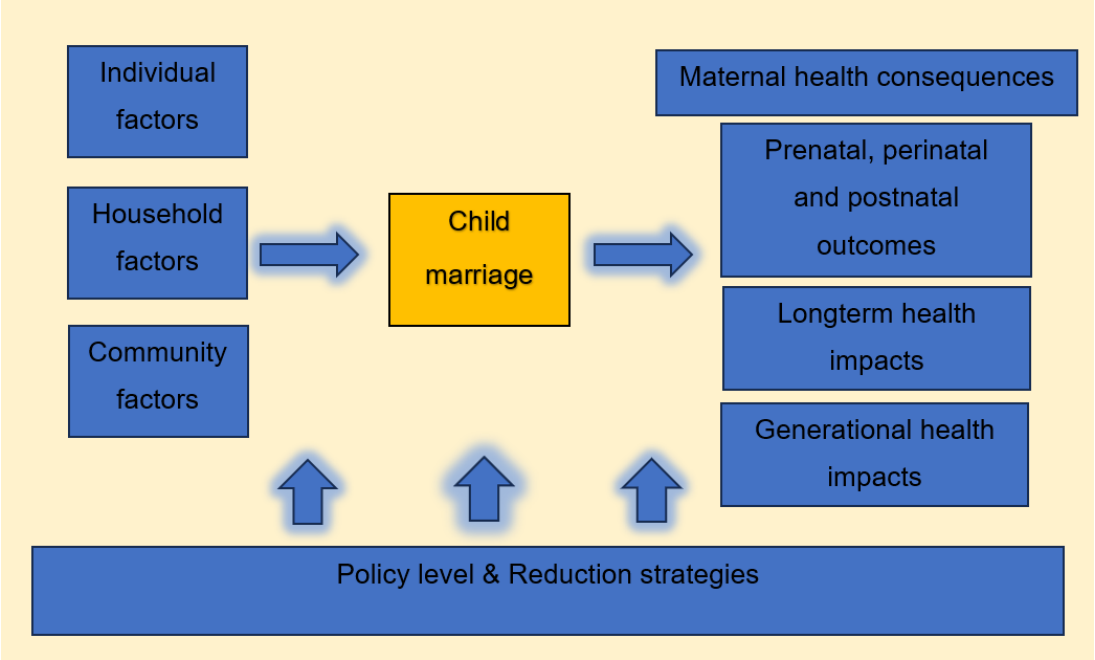

Figure 1: Conceptual framework

The author interprets this framework as follows. The left side categorizes contributing factors into individual, household, and community factors, all considered independent variables. Individual factors include personal characteristics (e.g. age, experiences, current health status, personal attitude, and habits) influencing child marriage. Household factors involve family dynamics, relationships, close friends, partners, economic status, parental education, and household traditions and values. Community factors are the outer circle influencing both household and individual levels. Community factors

include traditional beliefs, norms, practices, community relationships, availability of health services, economic conditions, and infrastructure.

The contributing factors can lead to the dependent variable child marriage and result in another dependent variable maternal health consequences. These consequences are divided into prenatal, perinatal, and postnatal outcomes, which refer to direct consequences on maternal health during pregnancy, during delivery, and after birth. Long-term health impacts are impacts on a woman's life, such as hypertension and uterine prolapse after the postpartum phase. Intergenerational impacts are impacts on children born to mothers married as children.

The independent variable policy level and reduction strategies at the bottom of the framework can influence child marriage with its drivers and consequences. It includes national, district, and municipality-level efforts to reduce child marriage, current and planned initiatives, and all the scholarly recommendations for its reduction.

2.2 Scoping Review

Scoping reviews map the available literature of various types on a certain topic, whereas systematic reviews focus on clearly defined research questions and emphasize the risk of bias across studies (Munn et al., 2022, 2018). The author chose a scoping review to overview Nepal's child marriage literature and to define a scope for future research. The scoping review was undertaken from September 2024 to October 2024. The last search on the databases was conducted on the 3rd of September, and for the grey literature databases on the 4th of October. For transparently reporting the process the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Extension for Scoping Reviews (PRISMA-ScR) were applied (Tricco et al., 2018).

2.2.1 Database Search & Selection of Studies

A systematic search on child marriage in Nepal was conducted on four databases: Ovid Medline, Embase, Web of Science, and Scopus. One search string to systematically search Medline through OVID was developed and translated to other databases by using the Polyglot search translator (see Table

1) (Bond University, n.d.). The search string was developed by using the key terms ‘child marriage’ and ‘Nepal’, along with their synonyms (see Table 2). The two concepts were combined in the final search query for each database. Specific Mesh and Emtree terms were added for the specific databases, and Boolean and proximity operators were utilized to refine the search (see Table 3). No filters were applied.

Table 1: Search Query for each database

OVID MEDLINE
(((early or child* or young or girl* or adolescent* or forced or arranged or teen*) ADJ3 (marriage* or bride* or spouse* or wife or wives or married)).tw,kf. or ((exp child/ or exp adolescent/) and (exp marriage/ or exp spouse/))) and (Nepal.tw,kf. or exp NEPAL/)
Embase
((((early OR child* OR young OR girl* OR adolescent* OR forced OR arranged OR teen*) NEAR/3 (marriage* OR bride* OR spouse* OR wife OR wives OR married)):ti,ab,kw) OR (('child'/exp OR 'adolescent'/exp) AND ('marriage'/exp OR 'spouse'/exp)) OR 'forced marriage'/exp) AND (nepal:ti,ab,kw OR 'nepal'/exp)
Web of Science
TS=(((early OR child* OR young OR girl* OR adolescent* OR forced OR arranged OR teen*) NEAR/3 (marriage* OR bride* OR spouse* OR wife OR wives OR married)) AND (Nepal))
Scopus
TITLE-ABS-KEY (((early OR child* OR young OR girl* OR adolescent* OR forced OR arranged OR teen*) W/3 (marriage* OR bride* OR spouse* OR wife OR wives OR married)) AND (nepal))

Table 2: List of search terms

Child*	**Marriage***
Early Child* Young Girl* Adolescent* Forced Arranged Teen*	Marriage* Bride* Spouse* Wife Wives Married
*The two major terms with their synonyms were combined with a proximity operator to reach all the possible variations of the two words. Truncation was used to include all possible variations of each of the terms. And combined with the context-specific search term: **Nepal**	

Table 3: List of Mesh and Emtree terms

MESH Terms	**EMTREE Terms**
Marriage Spouse Child	Child Adolescent Marriage

Adolescent Nepal	Spouse Forced Marriage Nepal
MESH Terms were used for the OVID Medline database and were removed for Embase, Web of Science and Scopus.	EMTREE terms were used for Embase and were removed for all the other databases.

Additionally, grey literature was searched systematically on Google Scholar and different grey literature databases such as OAIster and Open grey (see Table 4). For national documents and reports, targeted website browsing was conducted through Google advanced search (see Table 4).

Table 4: Search query for Google Scholar, grey literature databases, and targeted website browsing

Google Scholar*	early|child|children|young|girl|girls|adolescent|adolescents|forced|arranged|teenage|teen AROUND(3)
Open grey https://opengrey.eu	1. Child marriage AND Nepal 2. Child marriage Nepal
NDLTD Global ETD Search http://search.ndltd.org/	Child marriage AND Nepal
Journal of global health reports** https://www.joghr.org/	All these words: Child marriage, Nepal, file type: PDF
OAIster https://oaister.on.worldcat.org/	Child marriage AND Nepal
Department of Health Services – Nepal** https://dohs.gov.np	1. All these words: annual health report 2. All these words: child marriage file type: PDF
Grey matters https://greymatters.cadth.ca/	1. Child marriage 2. Marriage 3. Nepal
The DHS Program – Demographic and Health Surveys** https://dhsprogram.com	All these words: Child marriage, Nepal, file type: PDF
National Statistical Office – Nepal** https://censusnepal.cbs.gov.np	All these words: child marriage, file type: PDF
UFPA Nepal** https://nepal.unfpa.org/	All these words: Population Monograph file type: PDF
Clinical Trials.gov https://clinicaltrials.gov/	Condition disease: Child marriage Location: Nepal

**Only the first 100 results were screened.*

*** Website searched through Google Advanced search and only the first 100 results were screened.*

After applying the search string to each database shown in Table 1 and Google Scholar the retrieved results were uploaded to the free software Rayyan for managing systematic reviews. Google Scholar results were managed using the software Publish or Perish to upload them to Rayyan. Duplicates were identified by the software and manually double-checked. Results from other grey literature databases and websites were manually screened by two reviewers directly on the databases. After removing duplicates, two reviewers autonomously screened the articles by title and abstract to reduce bias. Articles not selected by both were discussed among them. Full texts were then retrieved from the selected articles. Three reviewers conducted the full-text screening. Articles not selected by all reviewers were again discussed among them. The screening process followed the inclusion- and exclusion criteria.

Inclusion criteria:

- Studies including results of women or girls who were married below 18 years or including results defining child marriage as below 20 years (as per definition in Nepal)
- Research focusing on Nepal or including results of Nepal
- All study types, including grey literature
- Peer-reviewed and not peer-reviewed articles
- Outcome: concerned with child marriage its contributing factors, consequences on maternal health, long-term health impacts, intergenerational health impacts, or ways to reduce child marriage

Exclusion criteria:

- Studies not available in English
- Research focusing only on boy or men marriage below 18 years
- Results not specifically to Nepal
- Research not reporting relevant results regarding child marriage its contributing factors, consequences on maternal health, or ways to reduce child marriage

The author and the two reviewers evaluated the quality of the included articles while reading them during full-text screening. While critical appraisal is crucial for

systematic reviews, it is optional for scoping reviews and should be well-explained or reasoned (Khalil et al., 2021; Tricco et al., 2018).

2.2.2 Data extraction

Every included article was given a number for a better overview (see Annex 1).To extract the data from the included research manuscripts a data extraction form was developed to help the analysis of the results. The final extraction form, after testing, included the major themes of the research question and objectives, along with the theoretical framework used in this study. The data extraction form included the author's name, year of publication, country of study, sub-national information, the geographic scope of the study, religion/ethnicity, aim of the study, study type/methodology, definition of child marriage, contributing factors, maternal health consequences, long-term and intergenerational health impacts, and reduction strategies. This form built the basis for building codes and categories and analyzing the results. The principal investigator did data extraction. The data extraction sheet is provided in supplementary file (1).

2.2.3 Analyzing and Presentation of results

The study applied content analysis to extract the data from the articles into the data extraction sheet based on predefined overarching themes. The themes were derived from both the research question and the conceptual framework, and they were reviewed and confirmed during the analysis. Codes and categories corresponding to the different themes were developed and a descriptive content summary was conducted. Statistical summaries such as frequency counts and percentages were used to synthesize the data and present the results. Frequency counts were recorded in an Excel table to track articles by themes, categories, and codes. For example, the frequency of articles mentioning lack of education as a contributing factor was counted and illustrated in figures.

2.3 Qualitative key informant semi-structured interviews

2.3.1 Study design

A qualitative study design was selected to complement the results of the scoping review and to understand the situation of child marriage in the scarcely researched district of Sindhupalchok, Nepal. 10 semi-structured interviews were conducted with key stakeholders from the district and municipal levels. The

interviews aimed to understand the contributing factors of child marriage, its maternal health consequences, and with a specific focus on strategies to reduce it. The process followed the Consolidated criteria for reporting qualitative research (COREQ) (Tong et al., 2007).

2.3.2 Study setting

According to the latest UNICEF data from 2022, 35% of young women and boys living in Nepal were married as children (UNICEF, 2022b). Nepal has 7 provinces each with several districts (United Nations, 2023). The country involves three ecological regions: Terai, Hill, and Mountain. The hill region accounts for the biggest area around 68% whereas Terai covers 17% and the mountain area 15% of the country's total size (Government of Nepal, n.d.). Due to the geography of the country, Nepal is vulnerable to natural disasters like floods, landslides, or earthquakes (Government of Nepal, 2024). The qualitative part with semi-structured interviews focused on the Sindhupalchok district in Bagmati Province. This district belongs to the mountain region and has a population of 262’624 inhabitants (National Statistics Office, Nepal, 2023a). With its geography, Sindhupalchok is especially prone to natural disasters (Bajagain et al., 2021). Sindhupalchok district was purposively selected because FAIRMED Nepal is active in this district through its projects. The data of the 2021 National Population and Housing Census Report show that around 76% of women currently living in Sindhupalchok district were married by the age of 20 years, with over half married by the age of 17 (National Statistics Office, Nepal, 2023a). In Bagmati Province, Sindhupalchok district ranks fourth highest looking at the percentage of ever-married women currently living in Sindhupalchok who were married by the age of 17, with a rate of 42% (National Statistics Office, Nepal, 2023a). Of those, 34 % were married before 14 years (National Statistics Office, Nepal, 2023a).

2.3.3 Participants / Sampling

Key informants were purposefully selected from the district and municipality levels. Data from the District Health Information Software 2 (DHIS 2) of the Health Management Information System (HMIS) of Nepal guided the selection of key informants in Sindhupalchok. Five municipalities with the highest teenage pregnancy numbers over the past four years and two with the lowest were selected. An overview of the key informants is provided in Table 5. The author,

along with the study team, selected ten key informants, acknowledging that data saturation might not be fully reached due to limitations in time and resources. However, after ten interviews it appeared that data saturation was reached. Initially, the study planned to include two district officials. However, one individual, who had recently started in their position, was unable to provide substantial insights from the Sindhupalchok context and rejected participation. Consequently, another municipal official was selected. Key informants were contacted by phone, informed about the study, and provided with the information and consent form (see Appendix 3). After the agreement to participate in the study, the information and consent form was signed before the interview. Verbal consent was obtained shortly before the interview. Every interviewee was given an identification number to ensure anonymity and confidentiality. A list of identification codes was created to make each transcript identifiable. This list is stored safely and will be destroyed after completing the study.

Table 5: Interviewees' description

Interviewees description	Location	Number of interviewees
Sindhupalchok District official	Sindhupalchok district	1
A representative from NGO working in Sindhupalchok district	Sindhupalchok district	1
Municipal officials of Sindhupalchok district (Local government representatives, representatives of Health and Women, children and senior citizen sector)	Jugal Rural Municipality; Chautara Sangachowkgadhi Municipality; Bahrabise Municipality; Tripurasundari Rural Municipality; Lisankhu Pakhar Rural Municipality	6
Representatives of health facilities	Melamchi Municipality; Helambu Rural Municipality	2

2.3.4 Preparation of data collection

The semi-structured interview guide was shaped by the adapted conceptual framework, and with the results from the scoping review. Numerous probing questions ensured the depth of the interview. The development of the interview guide was a collaborative process among the study team (interview guide see Appendix 4). The translated interview guide and the information and consent form are provided in Supplementary File (2). The final interview guide was pretested. After pretesting, some of the questions were slightly adjusted to make questions easily understandable. The data collector, a female with a bachelor's degree in Public Health, had experience conducting qualitative research for various Non-governmental organizations (NGOs) on public health and child marriage topics.

Key aspects of qualitative research were discussed beforehand among the study team.

2.3.5 Data collection & Data management

Data collection happened between the 26th of November and the 1st of December. Interviews were conducted face-to-face by the translator in Nepali at the interviewee's office. The principal investigator accompanied the translator during the entire data collection and took notes about circumstances and non-verbal communication. The co-principal investigator and the two co-investigators also joined partly and alternately the interviews. Field notes on emerging patterns were taken in Nepali by the translator. The data collectors did not know most of the interviewees. After consent, interviews were recorded with a recording device. Before recording, there was always an introduction round with all interview attendees and the respective department's representatives. The participants knew who the researchers were and what the goal of the research was. No repeated interviews were conducted. After data collection, the recordings and the information and consent form were stored safely and only available to the study team. After completion of the study, the recordings will be destroyed. The duration of the interviews varied from 30 minutes to 1.5 hours, with a mean duration of 60 minutes. The variation in the interview duration is explained by two participants having limited time. All interviews were frequently interrupted by ringing phones or people entering the room. The translator transcribed the interviews verbatim and translated them from Nepali to written English. The study team cross-checked the transcriptions to validate the process. Due to limited resources, the transcripts were not returned to the participants for feedback. Personal details were anonymized and removed after transcription.

2.3.6 Data analysis & presentation of results

The principal investigator analyzed the transcripts using thematic analysis from Braun and Clarke (2006) following its six phases. First, the written transcripts were read various times to become familiar with the data. Before coding, the principal investigator predefined themes from the semi-structured interview guide and the adapted conceptual framework which were then confirmed or revised during analysis. Each interview was then read sentence by sentence, and codes, categories, and themes were built. The codes derived from the original text were

condensed into smaller meaning units (sub-child nodes) (example of Coding tree see table 7). All transcripts and coding trees can be provided upon request. The software NVIVO 15 was used to organize the qualitative data. To ensure validity, the translator and the principal investigator discussed the codes. Variations were discussed between them. Codes, categories, and themes were reviewed by the author and the study team. The qualitative results were shared with the translator and one participant with proficient English skills for feedback. After their feedback and minor adaptations, the results were used in the research. Due to limited resources, the results were not returned to all interviewees for feedback.

2.3.7 Ethical considerations

Ethical approval was obtained by the Nepal Health Research Council (NHRC) and ethical exemption was obtained from the Ethikkommission Norwest- und Zentralschweiz (EKNZ, Ethics Committee of Northern and Central Switzerland). Ethical approvals can be provided upon request. The interviewees were comprehensively informed about the study, the data collection process, and the use of data. They signed an informed consent form prior to data collection.

3 Results

3.1 Results of Scoping Review

3.1.1 Selection of studies

The article selection process is shown in the PRISMA flow diagram (see Figure 2) and outlined below. The database search retrieved 196 hits on OVID Medline, 262 hits on Embase, 310 hits on Web of Science, 221 hits on Scopus, and was restricted to 100 hits on Google Scholar. Out of the 1089 articles retrieved from the databases, 559 duplicates were removed. 530 articles were left for title and abstract screening. Of this, 359 were excluded based on inclusion and exclusion criteria. 171 articles were sought for full-text screening, but 13 could not be retrieved in full-text despite seeking support from the library of the University of Basel. Therefore, 158 articles were screened in full-text and evaluated according to the inclusion and exclusion criteria. The two primary reasons for excluding articles were that the findings were unrelated to child marriage or did not align with the desired outcomes (see Figure 2). After full-text screening, 49 articles were included. A list of all the excluded articles is provided in Appendix 2. For the

grey literature, targeted website browsing and grey literature databases retrieved 740 articles and reports (see Table 4, 6, and Figure 2). From each grey literature database, only the first 100 results were screened, the same strategy was used for Google Scholar. Thus, 411 records were then identified for title and abstract screening. After the screening, 33 articles were left for full-text screening. Some were duplicates or could not be retrieved in full-text and were removed. 20 articles were finally screened in full-text and 5 were decided to include in the final scoping review. The final review includes 54 articles, from both databases and grey literature sources. Each included article was numbered for the scoping review (see Appendix 1).

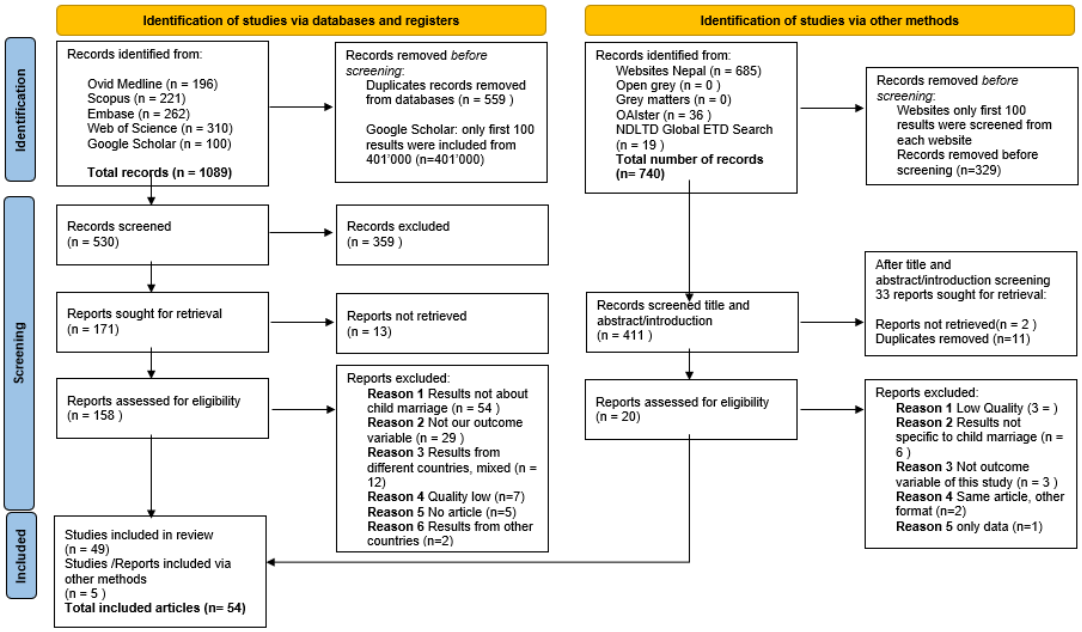

Figure 2: PRISMA flow diagram for the selection of the articles

Table 6: Retrieved Results from Websites

Name of Website	**Retrieved hits**
Journal of global health reports	6
Department of Health Services – Nepal	1. 265 (only first 100 results were included) 2. 46
The DHS Program – Demographic and Health Surveys	264 (only first 100 results were included)
National Statistical Office – Nepal	76
UFPA Nepal**	27
Clinical Trials.gov	1

3.1.2 Study characteristics

3.1.2.1 Publication year of articles

The publication year of the included studies ranged from 2001 – 2024. The majority, 74%, of the included articles were less than 10 years old. The oldest two articles were from 2001 (49) and 2004 (37).

3.1.2.2 Study designs of included articles

The most common study designs among the articles were cross-sectional, followed by qualitative and mixed-methods (see Figure 3). Some of the study designs were not clearly stated in the articles and were then identified by the author after analyzing the articles.

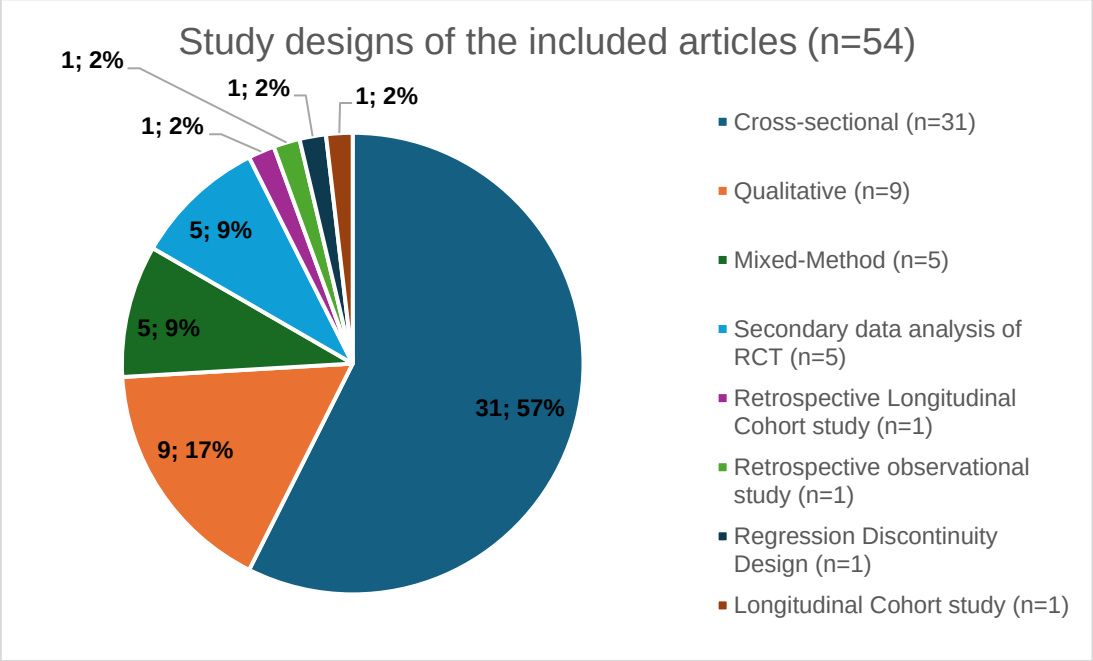

Figure 3: Study designs of the included articles (n=54)

3.1.2.3 Geographical location of articles

More than half of the articles defined one or several provinces, districts, or municipalities for their study (see Figure 4). Some did not specify any location. Several articles defined the province, but no specific district or investigated different provinces and districts in one article. Most results originated from Madesh, Lumbini, and Bagmati provinces. Dhanusha and Mahottari districts in Madesh province were the ones investigated the most.

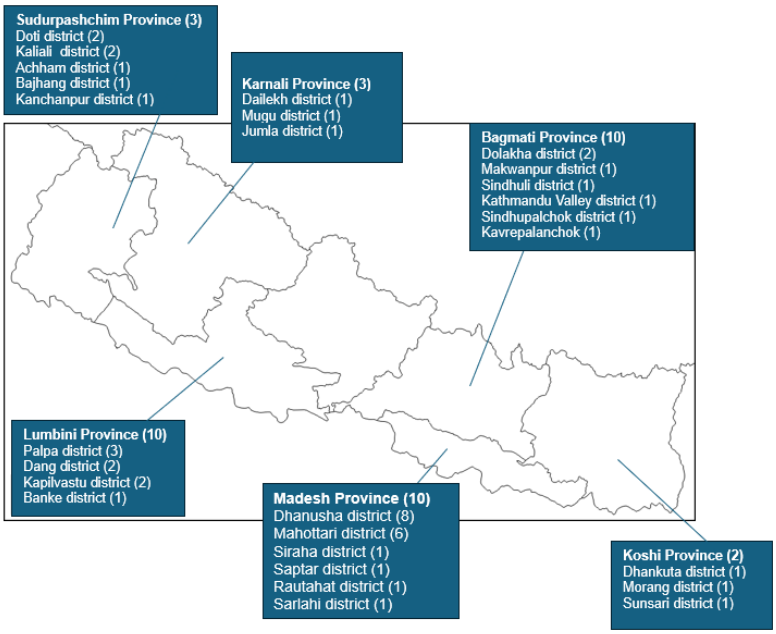

Figure 4: Overview of provinces and districts included among the included articles

3.1.2.4 Definitions used for child marriage

The included studies used multiple definitions for child marriage (see Figure 5). 35 out of 54 articles (65%) defined child marriage as below 18 years. Some defined child marriage as below 15, 16, 19, and 20 years of age. However, some articles defined child marriage in their studies and then used different age intervals or definitions for the results (18, 35, 36, 41, 42, 49). Around 13 % (7 out of 54 articles) did not define child marriage clearly. The terminology used among the different articles also varied. Terms such as early marriage, adolescent marriage, forced marriage, and in one article cohabitation under 16 years were used across the articles to refer to child marriage. Some articles used multiple terms in one article.

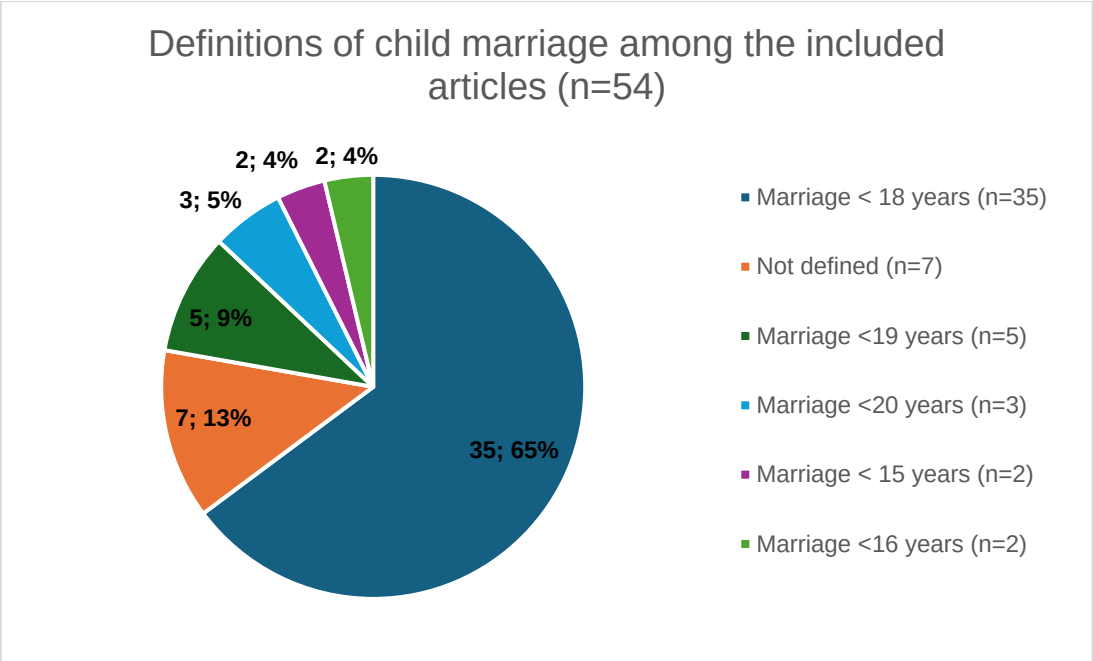

Figure 5: Definitions of child marriage among the included articles (n=54)

3.1.2.5 Analysis of the included articles

Figure 6 provides an overview of articles with specific results related to the desired outcome variables. Of the 54 articles, 37 (36%) focused on approaches or recommendations for reducing child marriage. Among these, 10 discussed strategies or included participant suggestions in the result section while 27 provided recommendations in their discussion or conclusion section. 35 out of 54 articles (35%) were investigating contributing factors and 30 out of 54 articles (30%) were concerned with maternal health consequences including long-term and intergenerational health impacts.

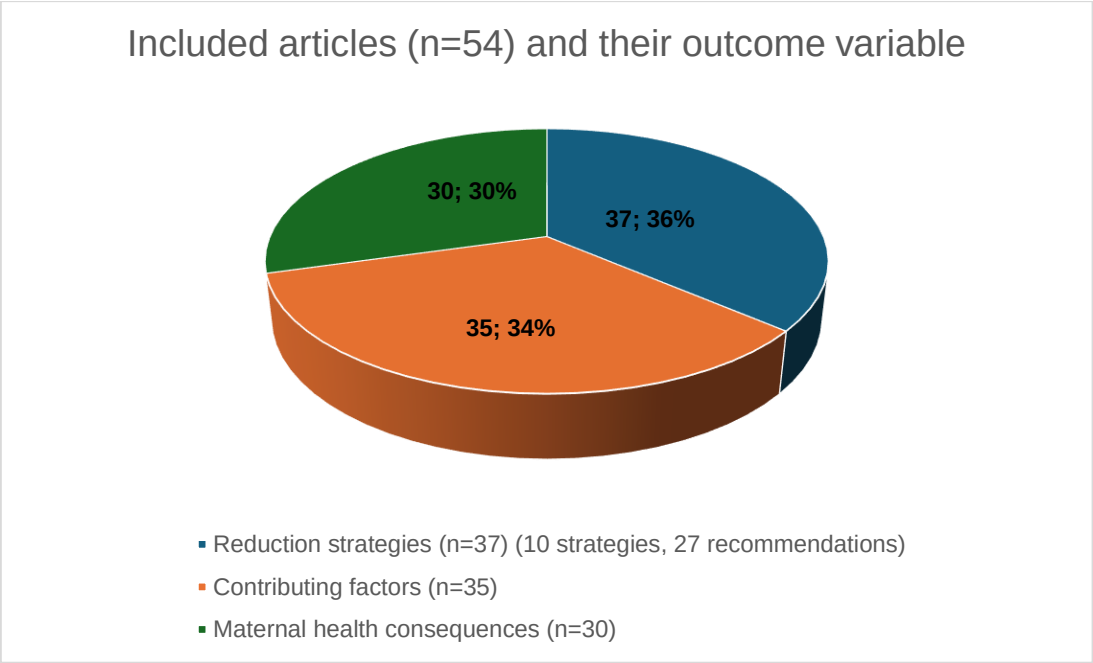

Figure 6: Included articles (n=54) and their outcome variable

3.1.3 Contributing factors

35 out of the total included 54 articles identified contributing factors. Contributing factors were analyzed according to individual (see Figure 7), household (see Figure 8), and community factors (see Figure 9). An asterisk (*) marks all studies that show significant results for a particular contributing factor.

3.1.3.1 Individual factors

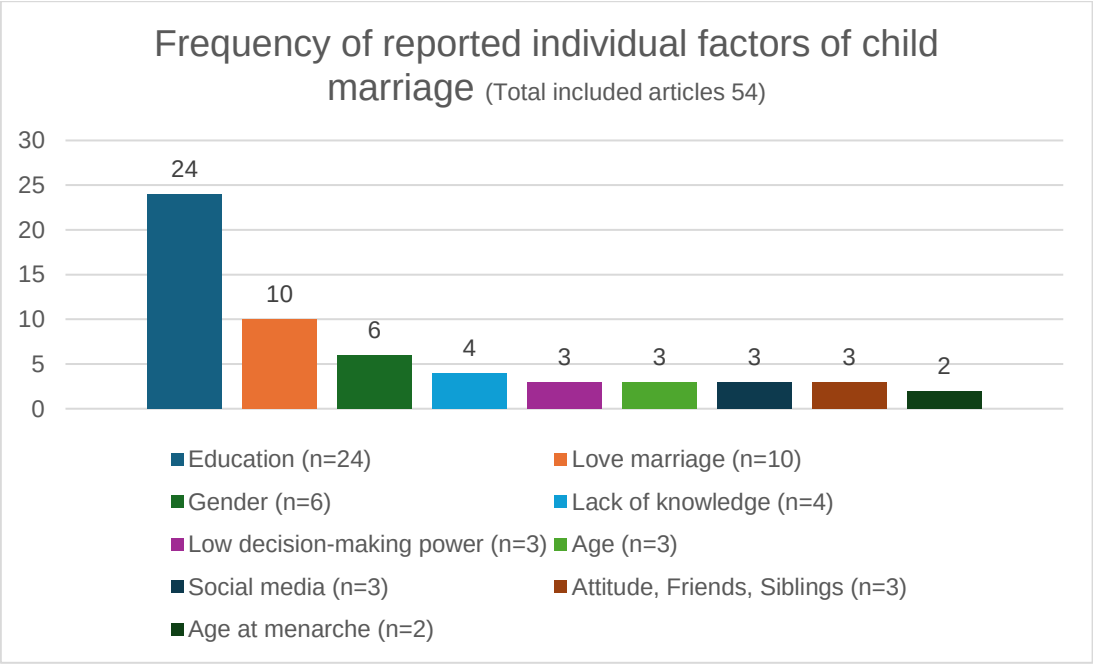

Figure 7: Frequency of reported individual factors of child marriage

Education

The majority, 24 out of 35 articles on contributing factors mentioned education (2, 3, 6*, 10, 18, 23*, 24, 27, 28, 31*, 32*, 33*, 35*, 36, 37*, 45, 46, 47*, 49, 50, 51, 52, 53, 54*). Four results came from qualitative analysis (24, 27, 36, 53), the remaining were quantitative. Less education was strongly linked to child marriage (2, 3, 6*, 10, 31*, 33*, 46, 49, 50, 51, 53). The more educated a woman was, the less likely she was to marry as a child (18, 23*, 28, 32*, 36, 37*, 47*, 52). Secondary and higher levels of education were significantly linked to lower rates of child marriage (6*). Manandhar and Joshi (2020) illustrated a significant association between illiteracy and child marriage, with a 4.69 times higher probability of child marriage in uneducated females (54*). Most participants of a qualitative study perceived a lack of education as a reason for child marriage (27). Marphatia et al. (2021) found that women's lower education was a significant cause of early marriage and not poverty (47*). However, being poor was associated with being uneducated (47*). Choe et al. (2005) found that every extra year of education after primary school significantly reduced the chances of child marriage (35*). Secondary school had a significantly stronger effect than primary school on the age of marriage (32*). This means that women who completed secondary school are less likely to marry early than those who only completed primary school (32*). A mixed-method analysis highlighted among its qualitative results that a girl's agreement to leave school can be interpreted as her readiness for marriage (24). Respondents of a qualitative study mentioned that dropping out of school increased the chances of child marriage (36). A cross-sectional study in Palpa district with 326 participants married before 20 years showed an illiteracy rate of 74% (45). Similarly, in a cross-sectional study with data from 4175 Nepalese women, education slowed down the marriage rate more than the motherhood rate (49).

Love Marriage

10 out of 35 articles on contributing factors identified love marriage in childhood as a driver (16, 18, 25, 28*, 35, 36, 40, 45, 46, 53). In total, four studies were qualitative (25, 36, 40, 53), two used a mixed-method approach (18, 46), and the rest were quantitative. 8 articles highlighted the transition from arranged marriages to self-initiated love marriages among children, noting an increase in

love marriages (18, 28*, 35, 36, 40, 45, 46, 53). An increasing trend in elopements, another form of love marriage without parental consent, was also described (46). Often linked to traveling to another location for marriage (46). Before women were considered to be mature with the beginning of menstruation, but today more young women define for themselves when they are ready to marry (46). Interviewees from a qualitative study in mountain villages of Nepal emphasized the growing trend of love marriages in the Terai and hill regions (25). However, they observed no recognizable decline in child marriage rates, indicating that many love marriages still involve children (25). A quantitative study in Dudhauli municipality in Sindhuli district with a small sample size found love marriage to be the leading cause of child marriage (74%) (16). A respondent of the study emphasized that in the Danuwar community love marriage is the major cause of marrying in childhood (16). Cross-sectional results from 160 child-married participants revealed love marriage in 69% of cases (28*). A mixed-method study from Sindhupalchok and Dolaka district investigated especially the influence of earthquakes on child marriages mentioning earthquakes as a possible influencing factor on elopements to seek stability (46). Further, love marriages among children are often motivated by a desire to avoid an arranged marriage, pursue personal choice, especially when parents disapprove love marriage, concerns about societal judgment of premarital relationships or sexual activities, feeling of readiness to marry, or difficult situations at home (36, 40, 46). Thapa and Macer (2018) justified the transition from arranged to love marriage in childhood with true falling in love, wishes of the woman, and sexual desire (45).

Gender

Being female was mentioned in 6 out of 35 articles reporting about contributing factors (29*, 35, 46, 49, 50*, 52), indicating girls marry earlier than boys. The results were derived from quantitative studies, while one was a mixed-method study (46).

Lack of Knowledge

4 articles identified a lack of knowledge about child marriage, specifically the legal age of marriage, as a cause of child marriage (18, 28, 33*, 45). Three were quantitative (28, 33*, 45) and one used a mixed-method approach (18). A descriptive cross-sectional study of a rural municipality in Jumla district, Nepal

with 160 participants married as children, found that only 30% knew the legal age for marriage (28).

Low decision-making power

Limited decision-making power among women was identified as a factor contributing to child marriage in 3 studies, including 2 quantitative (33*, 45) and one qualitative (36). Women believed their parents had the right to decide, despite knowing the disadvantages of child marriage (45).

Age

The age of a woman was highlighted as a factor in 3 out of the 35 articles mentioning contributing factors of child marriage (23*, 34, 35*). The older a girl was, the more likely she was to marry, indicating that very early child marriages are less common than those occurring at older ages (23*, 34, 35*). All studies were quantitative.

Social media

Social media and media in general as contributing factors to child marriage were found to be diverse in the literature. 3 articles mentioned social media and media as drivers of child marriage (18, 45, 46) while 2 other articles contradicted these results (3, 33). Mixed-method results showed that couples who connected through social media were more likely to marry at a younger age than those in arranged marriages (46). Another mixed-method study described the misuse of media such as mobile phones and the internet as a factor influencing child marriage (18). One quantitative article from Palpa district found that respondents viewed new communication methods as enabling early marriage and increasing the number of child love marriages (45). Conversely, a cross-sectional study of 352 Madhesi women in Nepal found that mobile phones and the internet were not perceived as drivers (33). Further, quantitative results by Sekine and Carter (2019) supported these results as they also found little exposure to mass media among women married as children (3).

Attitude, Friends, Siblings

Additionally, 3 contributing factors to child marriage were described: attitude, friends, and siblings (27, 33*, 38*). A positive or neutral attitude or the hope for a better life was found to significantly contribute to child marriage, according to

mixed-methods results (38*). One quantitative study mentioned friends as a significant contributing factor (33*). Discussion with friends, who got married below 18 and their suggestions can be a possible factor contributing to getting married as a child (33*). Moreover, one qualitative study mentioned having siblings as a contributing factor because marriage would relieve the burden on parents financially and generally (27).

Age at menarche

Dependence on age at menarche and age at first marriage was outlined in 2 quantitative studies (23*, 52). The risk of child marriage decreased as the age of first menarche increased (23*). Socially, a girl must marry before her first menstruation to prevent premarital pregnancies, which could harm the family status (52).

3.1.3.2 Household factors

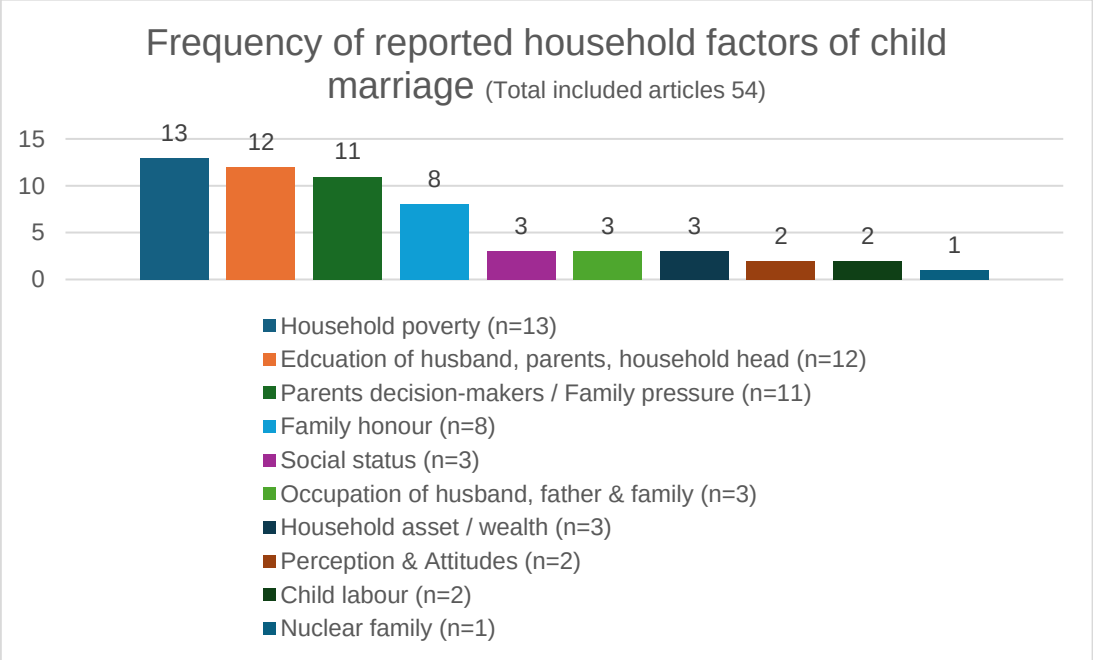

Figure 8: Frequency of reported household factors of child marriage

Household poverty

Poverty was discussed in 13 out of 35 articles on contributing factors (2, 3, 13, 27, 29*, 31*, 34*, 36, 38, 46, 50, 51, 53). Most of these articles were quantitative, with 4 qualitative (13, 27, 36, 53) and 2 mixed-methods studies (38, 46). In a few quantitative studies, poverty as a driver of child marriage was found to be low (28, 45, 47). The results of a cohort study showed that household poverty directly

impacted child marriage (34*). The likelihood of early marriage was highest not for the poorest but for the second poorest households (34*). The population composition report of the CENSUS Nepal 2021 showed that child marriage rates were twice as high among the poorest compared to the richest (50). A cross-sectional study confirmed that the number of women who were married below 19 years was higher among the poorest households and lowest in the richest households (29*). Low-income households were more likely to marry their daughters before 20 years, even though the difference to higher-income households was insignificant (38). Poverty led to higher odds of child marriages (2, 3, 31*, 51). Likewise in 3 qualitative studies, participants mentioned poverty as a driver of child marriage (13, 27, 36). Some articles outlined child marriage in regards to decreasing the financial burden if a woman is married early for economically unstable families (13, 38, 46, 53).

Education of husband, parents and household head

Out of 35 articles highlighting contributing factors to child marriage, 12 reported about the husbands' and households' education as a contributing factor (3, 10, 23*, 31*, 32*, 33*, 34*, 35*, 37*, 38*, 46*, 49). 2 were mixed-method studies (38, 46) and the remaining studies provided quantitative results. Child marriage was more common among women with a husband of lower education (3, 10, 31*). Women whose husbands had an education higher than grade 10 were 45% more likely to marry after 16 years (32*). If the head of the household was involved in school, a girl was less likely to marry early (34*). The more education in the household, the fewer chances to marry early for a girl (38*). Higher education achievement of the household head, whether female or male, was associated with decreased numbers of child marriages (46*). A father with more education was associated with his daughter marrying at a later age (23*). In a cross-sectional study, families with fathers who had only a primary education were more likely to follow early marriage traditions, while in rural areas, fathers with higher education levels may delay their sons' marriages due to more modern views (49). Lower education of parents was linked to marrying earlier (33*, 35*, 37*). Maitra (2004) highlights that the mother’s literacy had a stronger effect relative to the father's literacy regarding age at marriage (37). In contrast, Choe et al. (2005) found in their cross-sectional study in Nepal that lower levels of maternal

education in urban areas were linked to a reduced likelihood of early marriage (35). The authors explained further that in poor urban families, the daughter is needed to work (35). Contradicting Choe et al. (2001) found that mothers' education in urban areas led to a slower pace of marriage, but not in rural areas (49).

Parents as decision makers & Family pressure

Parents as decision-makers and family pressure were discussed in 11 articles out of 35 presenting results about contributing factors of child marriage (18, 23, 24, 28, 33*, 35, 36, 38, 45, 46, 49). The results were formed by 4 mixed-method studies (18, 24, 38, 46), 1 qualitative (36), and 6 quantitative studies (23, 28, 33*, 35, 45, 49). In 5 articles, parents were mentioned as the main decision-makers (18, 24, 33*, 36, 45). Marriage was often the wish of the family rather than the girls (35, 49). Marriages were arranged by parents (23, 45). Hence, women felt pressured by their families to marry (18, 28). A male decision-maker in the household was associated with higher rates of child marriages (46). In contrast, female-headed households were more prone to support child marriage (38). However, Leigh et al. (2020) argued that the decision-making power of parents regarding marriage is reducing, as well as caste and religion (46).

Family honor

8 of the included articles outlined protection of the family honor as a factor influencing child marriage (13, 18, 24, 36, 38, 44, 46, 53). Out of these, 5 were mixed-method studies (18, 24, 38, 44, 46) and 3 were qualitative studies (13, 36, 53) Child marriage as a protection to avoid sexual intercourse and pregnancy before marriage and therefore losing reputation was mentioned several times (13, 24, 44, 46, 53). Further, family honor could be harmed when a girl rejected a marriage proposal (24) or if she married someone outside her caste (36). Acharya and Welsh (2017) noted child marriage, besides protection of premarital sex, also as protection for sexual violence, and, hence, protecting the family honor (18).

Social status

Social status as an influencing factor in child marriage was described in 3 of the included articles (13, 23*, 27). Women from high socioeconomic status families were in quantitative results at higher risk of getting married as children (23*).

Religion and family honor were reasons for getting daughters married even before menarche (23*). Mahato (2016) qualitatively underlined that parents felt proud when they married their daughter to a family with a good social status (13). On the contrary, participants in a qualitative study stated low social status as a driver of child marriage (27).

Occupation of husband, father & family

The husband's, father's, and family's occupations influenced child marriage decisions in 3 quantitative out of 35 articles (23, 33*, 54). Husbands or families working as farmers were more likely to support child marriage (33*, 54). Fathers who engaged in professional jobs were more likely to delay the marriage of a daughter (23).

Household Assets / Wealth

3 articles found a relationship between household assets and child marriage (10, 23, 46). Owning land increased child marriage rates among quantitative results (10, 23). A mixed-method study shed light on the situation that after a possible earthquake, child marriage might offer access to housing, food, clothing, and other basic needs (46). Lower household assets increased the likelihood of child marriage (10).

Perception and Attitudes

Parents' attitudes contributed to child marriage, as briefly discussed in 2 articles with qualitative results (13, 18). Parents perceived their daughters as a burden and lacked awareness about child marriage (18). Some parents believed that marriage served as a protection for their daughters against sexual assault, sexual activities before marriage, unintended pregnancies, and sexually transmitted infections (STIs) such as HIV (18).

Child labor

Child labor was discussed in two articles (18, 53). Baral (2019) described in its qualitative study that child marriage was often used to get another workforce in the household, therefore child marriage could also be called child labor (53). Another mixed-method study also confirmed the need for more workforce in the household as a contributing factor to child marriage (18).

Nuclear/joint family

Family arrangements were mentioned in 1 quantitative article (33*). Women who only lived with their parents and their siblings were two times as likely to get married as a child compared to women who lived with their extended family together (33*).

3.1.3.3 Community factors

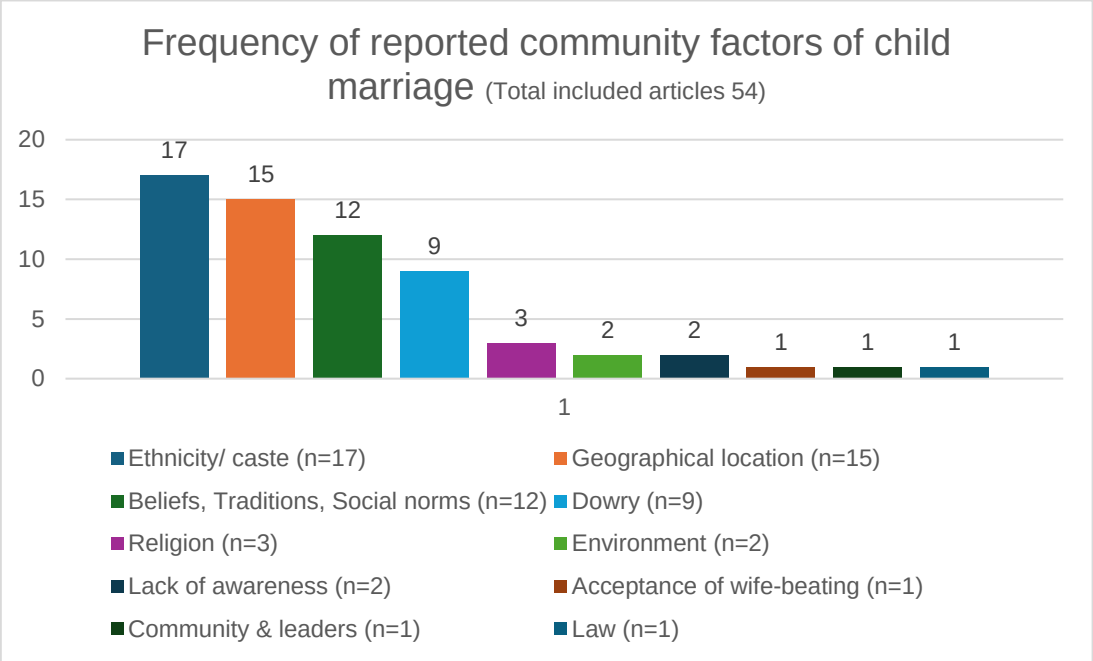

Figure 9: Frequency of reported community factors of child marriage

Ethnicity /caste

Out of 35 articles discussing contributing factors, 17 drew attention to the difference in child marriage rates among different ethnicities/castes (2, 3, 10, 13, 18, 20, 23*, 28, 31, 32*, 35, 37*, 39, 46, 50, 51*, 52). Most studies were quantitative, while 2 were mixed-method (18, 46) and 1 was qualitative (13). Belonging to certain ethnicities/castes can increase the risk of child marriage (2, 3, 28, 51*). The articles mentioned different ethnicities/castes with higher and lower rates of child marriages. These results were derived from various study designs, including the perceived opinions of participants. The articles used multiple criteria to define higher and lower numbers. Dalit ethnicity/caste showed higher numbers of child marriages compared to other ethnicities/castes indicated in 6 articles (10, 13, 18, 31, 46, 51*). Madesh ethnicity/caste with a high number of women married as children, was mentioned by six different sources (18, 20,

32*, 50, 51*, 52). Muslim communities were also highlighted as having higher rates of child marriage (10, 13, 18, 35), along with Brahmin (23*, 37*), Hindu (32*, 37*), Magar (46), and Tharu / Choudhary (23, 35) communities. Additionally, Terai (31) Tamang (46), and other Janjati (13) communities showed higher numbers. Higher numbers of child marriages among Madhesi populations are explained by low socioeconomic status and lack of education (50). Acharya and Welsh (2017) further explained the higher numbers by deeply rooted traditions of early marriage and efforts to minimize the burden of dowry (18). Moreover, higher numbers among various ethnicities/castes were explained by marginalized communities, illiteracy, and poverty (18, 23, 46). Ethnicities/castes with lower reported numbers of child marriages in the articles were Nevar (35, 37*, 52), Magar/Gurung (23*, 35), hill Indigenous women (32*), and Rai/Limbu (35). Aryal (2007) identified several factors contributing to the lower risk of child marriage among the Gurung/Magar ethnicity/caste, including fewer cultural restrictions, a growing economy, and better access to urban areas (23). Contrary to previous qualitative findings that identified higher rates of child marriage among the Tamang ethnicity/caste (46). A cross-sectional study reported lower child marriage rates among urban Tamang (35). Further ethnicities/castes with lower child marriage numbers are hill Brahman (52), Kami/ Dmain (23*), urban Brahmin (35), and urban Chhetri/Thakuri (35). Marphatia et al. (2023) found in their analysis from the Dhanusha and Mahottari districts that the mid-caste was more likely to marry early than the advantaged caste, but concluded that caste does not play a major role (39). Of 125 ethnicity/caste groups from the CENSUS Nepal 2011, 47 engaged in child marriage (52).

Geographical location

Out of 35 articles on contributing factors, 15 mentioned geographical location as a factor in child marriage (2, 3, 6*, 13, 23, 29*, 32*, 34, 35, 37*, 48, 49, 50, 51*, 52). One study was qualitative (13) and the remaining were quantitative. 10 found that rural areas had a higher risk of child marriage than urban areas (2, 3, 6*, 13, 34, 35, 49, 50, 51*, 52). Women from rural areas who had moved to urban areas also had higher rates of child marriage (35, 49). 8 articles reported a lower age of marriage in the Terai region (2, 3, 35, 37*, 48, 49, 50, 52). The child marriage rate in the Terai region was 15 times higher than in the mountainous region (52).

Within the Terai region, the central Terai had the highest numbers (52). Sah (2008) argued that one possible reason could be the highly prevalent practice of dowry in this region or marriage migration (48). Women originally from the Terai region, even though they were not living there, had higher odds of child marriages (48). Choe et al. (2001) illustrated that the effect of the pace of marriage on the ecological region is stronger than on motherhood (49). A cross-sectional study with a sample size of 11,967 on adolescent marriage (marriage before the age of 19) found higher rates of adolescent marriage in the western mountain, central Terai, and mid-western hill regions, and lower percentages in other areas (29*). Also, Pandey (2017) confirmed 46% higher odds of marriage before 20 years in the far western regions (32*). In the hill regions, age at marriage was higher (23) and lower in mountainous regions (37*, 52). The 2021 CENSUS Nepal showed the lowest numbers of child marriages in Bagmati province whereas Madesh and Karnali had the highest (50). Illiteracy was explained as a factor contributing to the high rates of child marriage in Madesh province (50). Dhansuha and Rautahat district in Madesh province also showed the highest prevalence of child marriage (50). Two articles confirmed Madesh as having the highest rates, with higher prevalence in the northern provinces 3,4, and 6 (35, 51).

Beliefs, traditions & social norms

Beliefs, traditions, and social norms as contributing factors to child marriage were mentioned in 12 of 35 articles reporting contributing factors (13, 18, 23, 24, 25, 27, 38, 44*, 45, 46, 52, 53). Among these, 4 were qualitative (13, 25, 27, 53), 5 used mixed-methods (18, 24, 38, 44, 46) and 3 were quantitative (23, 45, 52). A mixed-method study among different countries stated that norms and beliefs were crucial to child marriage (44). Among participants, 42% answered that their own beliefs allowed child marriage (44). Participants also saw a woman's responsibility as being a wife and mother (44*). A qualitative study by Paudel et al. (2018) with 42 qualitative interviews with females and their families and 10 interviews with healthcare professionals and other stakeholders touched on multiple aspects of beliefs, traditions, and perceptions about child marriage in Mugu district of Nepal (25). The construct of Gharbar was explained as a major driver of child marriage by the participants of the study (25). Gharbar was the belief that a girl was deemed secure and established once she married, gave

birth, and had a surviving child, ideally male (25). The participants described a traditional practice called Tike Bibaha that involved a consensus between the bride's and groom's families when the girl was around 7 years old (25). At the age of 11, a cultural ceremony was held to mark the readiness to leave the home for the girl (25). Participants described that this tradition was shifting into another practice called Bhagi Bibaha, which happened also before the legal age of marriage in Nepal, but in early adulthood (25). It did not necessarily include a formal ceremony, the girl immediately went to the man's home and the practice was kept secret to avoid punishment (25). In this practice, dowry played less of a role (25). Participants of the qualitative study also mentioned the belief that marriage was seen as a test of femininity (25). Further, traditions, beliefs, perceptions, and social norms in the communities are presented below. First of all, child marriage was perceived as a social norm (27). Not considered a cause for concern (25, 53). Social norms valued women less and viewed them as belonging to their husband's family (18). Traditional gender norms prohibited premarital pregnancy (46). Society perceived that parents or the father should decide on the marriage (18, 45). The tradition of giving a virgin to the family of the future husband further supported child marriage (52). Consequently, women were expected to marry and care for their husband's parents, where their real home was believed to be (27). In a mixed-method study conducted across nine districts of Nepal, Bhattarai et al. (2022) identified several sociocultural norms influencing marriage (38). These included the fear of marrying someone from a different caste, the belief that the first marriage proposal should not be rejected, the idea that a father's illness could be cured through marriage, and a guru's assertion that marrying between the ages of 18 and 25 brought bad luck (38). Additionally, Hindus believed that after the first menstruation began a young woman should donate her virginity to receive more advantages (23). Paudel et al. (2018) mentioned a slightly different belief in which women should be married best before first menstruation to receive more God's blessing (25). A mixed-method analysis of a program in Nepal to reduce child marriage called CARE Tipping Point Initiative, drew attention to the perceptions of the society on the roles of men and women and their possible influence on child marriage. In the study area, it was believed that a man should have a job and go to school while a woman's

role was to handle housework (24). One article also confirmed the social norm that women are responsible for the household (46). Different beliefs contribute to child marriage. Some believed that dying without a grandchild meant not going to heaven (44, 52). Others thought parents had to ensure their children were settled, meaning they were married (44). It was believed that investing in girls is wasting resources as described by interviewees (13). Moreover, society believed that unmarried girls should not go out alone or speak to a boy, as it could affect their reputation and lead to marriage (24).
In conclusion, patriarchalism and discriminatory mentalities contributed to child marriage rates (53).

Dowry

Out of 35 articles reporting on contributing factors, 9 outlined dowry as a factor in child marriage (13, 18, 23, 25, 33*, 36, 38, 46, 53). 2 quantitative (23, 33), 4 qualitative (13, 25, 36, 53), and 3 mixed-method studies (18, 38, 46). The higher the woman's age, the more expensive the dowry became, making child marriage a way to save money (52, 53). More education and higher age required more dowry (13, 36). 2 articles found that dowry played a less important role than before and was not mandatory anymore (25, 46). However, expectations about dowry still existed (46). To avoid the financial burden of dowry, economically disadvantaged families married off their daughters early (13, 18, 36, 38).

Religion

3 articles mentioned religion as a contributing factor (31, 38*, 54*). In a cross-sectional study, Hindu women had a 2.5 times higher risk of getting married early than other religions (54*). Sah et al. (2014) quantitatively revealed that Hinduism had higher child marriage rates compared to Buddhism and Christianity (31). However, the difference was insignificant (31). A mixed-method study across nine districts found child marriage most prevalent among Muslims and least among Christians (38). The religion of the household head significantly influenced the age of marriage, with Hindu households more likely to engage in child marriage compared to Buddhist and Christian households (38*). Prevalence among Muslims was slightly higher than Hindus, but insignificant (38).

Environment

Environmental impacts were cited in 2 of the included articles (46, 51*). Leigh et al. (2020) studied child marriage using a mixed-method approach in earthquake-affected Sindhupalchok and Dolakha districts, Nepal (46). The factors driving child marriage remained unchanged during a crisis (46). However, numerous drivers, such as lack of education through damaged infrastructure and economic instabilities, even gained more weight (46). Child marriage could be used as a way to secure basic needs initiated by parents or by children themselves (46). In another quantitative article, dry weather and less rainfall were linked to higher levels of child marriage (51*).

Lack of awareness

The community's lack of awareness was highlighted in 2 studies (13, 18), one qualitative (13), and one mixed-method article (18). Mahato (2016) noted that limited access to media within the community can contribute to child marriage (13).

Acceptance of wife beating

1 quantitative article demonstrated that marriage below 15 years was significantly more common among communities in which beating a wife was more accepted (51*).

Community & Leaders

The community and leaders, such as social and religious leaders, neighbors, seniors, and relatives, were mentioned as drivers of child marriage in qualitative interviews of 1 article (36).

Law

The inappropriate enforcement of the existing law was discussed in 1 mixed-method study as a driver (18).

3.1.3.4 Conclusion of contributing factors

The range of factors discussed in this section highlight the multifaceted nature of child marriage. Figure 10 shows the 6 most frequently cited contributing factors across individual, household, and community factors. The causes of child marriage are challenging and interconnected, encompassing issues such as

poverty, caste, social status, gender roles, discrimination, and parental support (40).

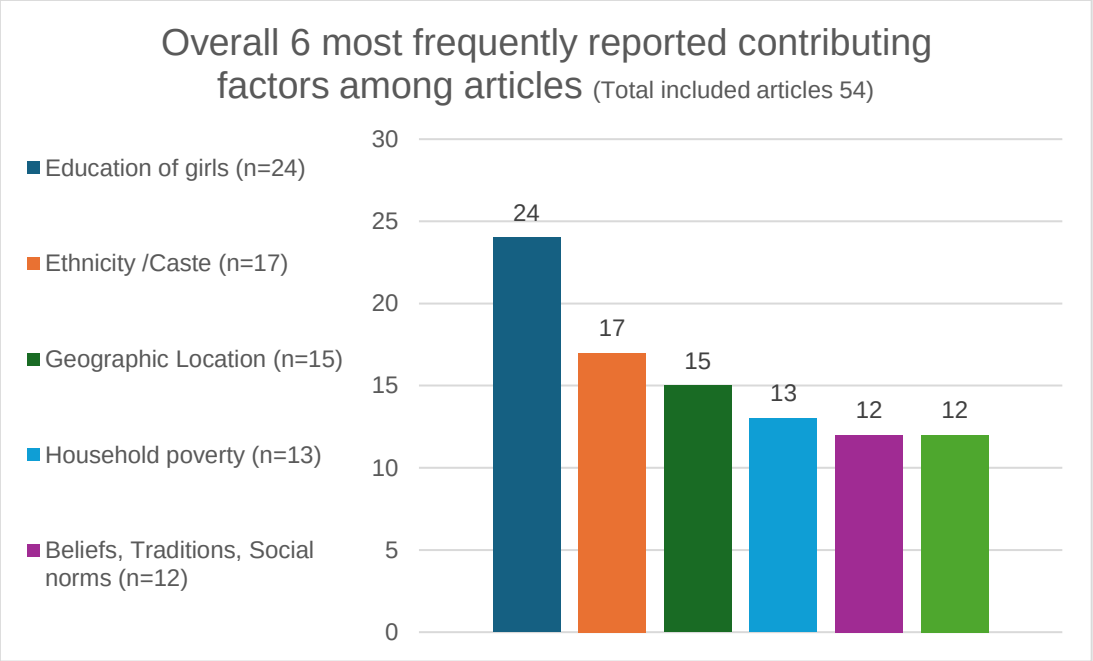

Figure 10: Overall the 6 most frequently reported contributing factors among articles

3.1.4 Maternal health consequences

Of the 54 included articles in the scoping review, 30 examined the consequences on maternal health, including its long-term and intergenerational impacts. Maternal health consequences are divided into prenatal (see Figure 11), perinatal (see Figure 12), and postnatal (see Figure 13) consequences, along with long-term and intergenerational health impacts (see Figure 14 & 15). In the following section, article numbers marked with an asterisk (*) indicate significant results for a specific consequence. Throughout the section on maternal health consequences, comparisons are made with women who married later in life, unless stated otherwise.

3.1.4.1 Prenatal

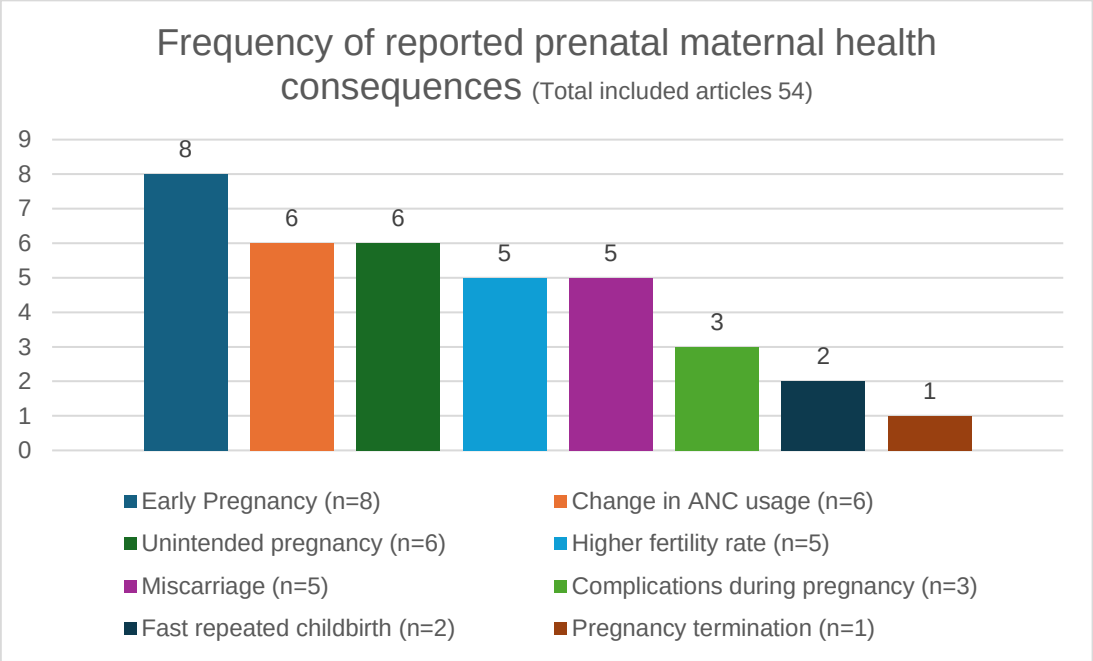

Figure 11: Frequency of reported prenatal maternal health consequences

Early Pregnancy /Childbirth

8 out of 30 articles reporting on maternal health consequences reported on the consequence of early pregnancy and childbirth resulting from child marriage (8, 10, 13, 27, 40, 43*, 45, 49). 4 studies were quantitative (10, 43*, 45, 49) and 4 were qualitative (8, 13, 27, 40). Marrying before 16 years was significantly associated with a pregnancy before 20 years (43*). A qualitative study from Dang District with women married under the age of 18, illustrated the pressure women felt to become pregnant soon after marriage (8). Aryal et al. (2020) confirmed the pressure women felt to give birth soon after marriage (40). Another qualitative study from Kathmandu Valley also reported a high perceived number of early pregnancies and the expectation to have children shortly after marriage (27). Respondents from a cross-sectional study, all married below 20 years, confirmed that most of them gave birth before 20 (45). However, Wells et al. (2022) found that in younger women, the age of first childbirth varies more compared to women marrying at 16 or 17 years who gave birth shortly after (10).

Change in ANC utilization

Child marriage and its influence on ANC were described in 6 quantitative articles out of 30 (3*, 4*, 5*, 6*, 7*, 45). Antenatal care utilization of women married as children was shown to be less compared to women married after 18 (3*, 5*, 6*).

Thapa and Macer (2018) found very low attendance rates of ANC among women married below 20 years (45). Godha et al. (2016) found broadly lower ANC attendance with lower age at first marriage (7*). However, among women who married ≤14, this study showed higher ANC usage compared to those married between 15 and 17 years (7*). Similar cross-sectional findings also showed higher ANC attendance among women married ≤14 (4*). In this study, women who married for the first time <19 years in Nepal had higher attendance rates than those who married after (4*). The authors explained that these contradictory results could be attributed to the widespread practice of child marriage which often ends in an early pregnancy, creating a greater need for reproductive healthcare (4).

Unintended pregnancy

Unintended pregnancy as a consequence of child marriage was debated in 6 articles (2*, 5*, 18, 28*, 31, 42*). A cross-sectional study with a sample size of 7833 participants showed that unintended pregnancies were significantly higher among women married as children compared to women married in adulthood (2*). Likewise, two quantitative studies reported significantly higher rates of unintended pregnancies among women married as children (5*, 42*). Moreover, participants from a mixed-method study mentioned unwanted pregnancy as a consequence of child marriage (18). Unwanted pregnancy occurred in 22.2% out of 160 participants married as children in a descriptive cross-sectional study (28*). An additional cross-sectional study of Dhankuta municipality showed higher but insignificantly higher unwanted pregnancy rates among women married as children (31).

Higher Fertility rate

5 of 30 articles on maternal health consequences showed that child marriage increased fertility rates (2, 13, 14*, 37*, 52). Among these, one was qualitative (13). Women married as children had 3.6 times higher chances of having 2 or more children than those married in adulthood (14*).

Miscarriage

Miscarriage as a consequence of underage marriage was reported in 5 of the included articles (18, 27, 28, 45, 54), including one mixed-method study and one

qualitative study. Miscarriage was found to be more common among women married as children (54). Miscarriage as a consequence of early child marriage was also outlined by participants of two included articles (27, 45). The main stated reasons leading to miscarriage were bleeding and hard labor (45). Respondents from Acharya and Welsh (2017) noted unsafe abortion as a consequence of child marriage (18). Miscarriage in women married as children occurred in 12% of women in a cross-sectional study with 160 participants (28).

Complications during pregnancy

Complications during pregnancy were outlined in 3 articles (18, 27, 28). A qualitative study highlighted complications due to physical immaturity (27). According to mixed-method results, child marriage could support the occurrence of a risky pregnancy (18). In a cross-sectional study, 21% out of 160 participants who married before 18 years experienced pregnancy complications (28).

Fast repeated childbirth

2 articles described increased fast repeated childbirth for women who married below 18 years as a consequence of child marriage, including 1 quantitative (5*) and one qualitative (25) study. Paudel et al. (2018) have attributed the occurrence of numerous closely spaced pregnancies to the preference for having a son (25).

Pregnancy termination

The significantly higher likelihood of pregnancy termination for women who married as children was highlighted in 1 cross-sectional study of the included articles (5*).

3.1.4.2 Perinatal

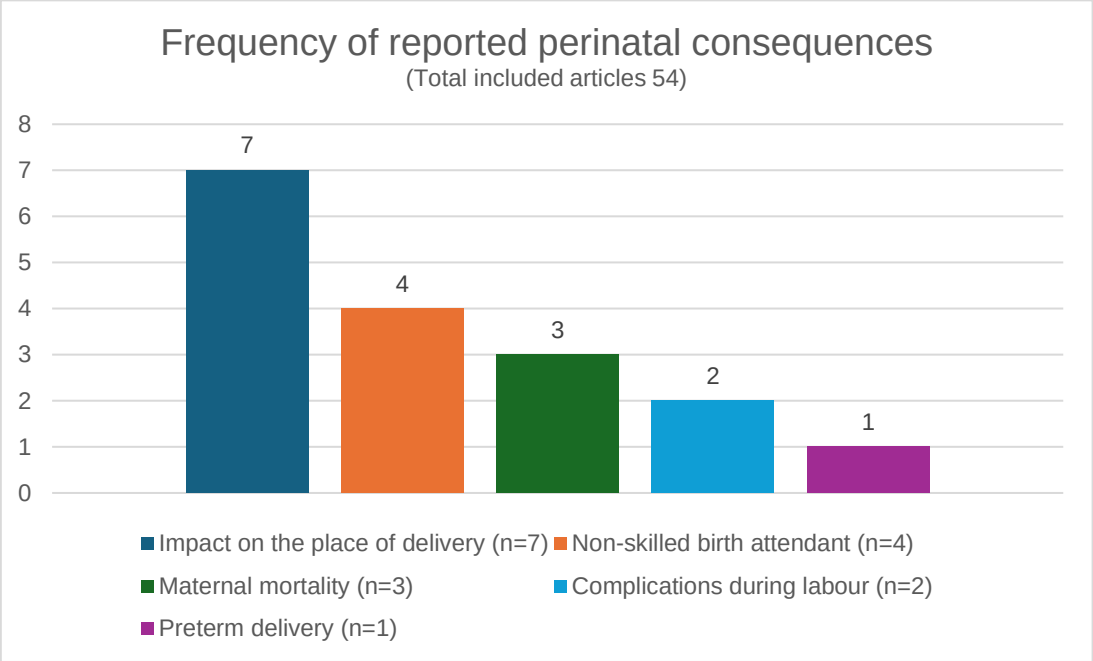

Figure 12: Frequency of reported perinatal consequences

Impact on the place of delivery

7 out of the 30 articles explaining maternal health consequences of child marriage reported the effects on the place of delivery (3*, 4*, 5*, 6*, 7*, 9*, 45), all quantitative. Women who married as children had lower rates of giving birth in healthcare facilities compared to women who married later (3*, 5*, 6*, 7*). Women who married at 18 or older were twice as likely to give birth in a healthcare facility compared to those who married at 14 or younger (7*). The majority of respondents from a study with 126 participants who were married below 20 years reported having a home delivery (45). In contrast, Namasivayam et al. (2012) found that women married below 19 years had higher chances of delivering in a healthcare facility compared to women marrying later (4*). These findings were justified, similar to the higher ANC results mentioned earlier, with the widespread norm of early marriage and, therefore, a known higher need for maternal health care services (4). Likewise, a cross-sectional study showed that married women between 15-19 years had higher rates of institutional deliveries than those married 20-24 years (9*).

Non-Skilled attendance at delivery

Marrying as a child was associated with a lower probability of giving birth with a skilled birth attendant in four quantitative research articles, compared to those

marrying after 18 years (3*, 5*, 6, 7*). Significant results between child marriage and unskilled birth attendants at delivery were seen in three articles (3*,5*,7*).

Maternal mortality

Maternal mortality was reported in 3 of the 30 articles about maternal health consequences (13, 18, 27). A qualitative study reported higher maternal mortality rates due to bleeding and seeking care late (27). Survey respondents confirmed the occurrence of maternal mortality among young women (18). Key informants outlined maternal mortality as a consequence of child marriage due to immaturity of the body, poor nutritional status, and lack of access to health facilities (13). The reported causes of maternal mortality were prolonged labor, eclampsia, sepsis, postpartum hemorrhage, HIV infections, and malaria (13).

Complications during labor

Complications during labor were indicated in 2 articles (18, 28). Respondents from a mixed-method study in western Nepal, who were married as children, experienced vaginal tears, heavy bleeding, and prolonged labor, which the authors of that study identified as consequences of child marriage (18). A cross-sectional study also found labor complications in about 17% of 160 participants (28).

Preterm Delivery

One analysis of data from a randomized controlled trial in lowland Nepal with a large sample size described the risk of preterm delivery due to child marriage (1*). The results showed that women who were pregnant for the first time (primigravida) and married at 14 years or below were significantly at higher risk of having a preterm delivery compared to women who married as adults (1*). No significant risk was found for women with more than one child (multigravida) (1). These results were independent of the age at first pregnancy, meaning early pregnancy did not significantly affect preterm delivery risk (1). Even though, around 40% of women who married at 14 or below in the study had their first pregnancy in adulthood (1). Miller et al. (2022) concluded that the factors associated with child marriage and preterm delivery are different from the factors linked to early childbearing (1).

Postnatal

7 out of 30 articles that reported on maternal health consequences reported about postnatal consequences of child marriage (see Figure 13) (3*, 12*, 18, 25, 27, 28, 45).

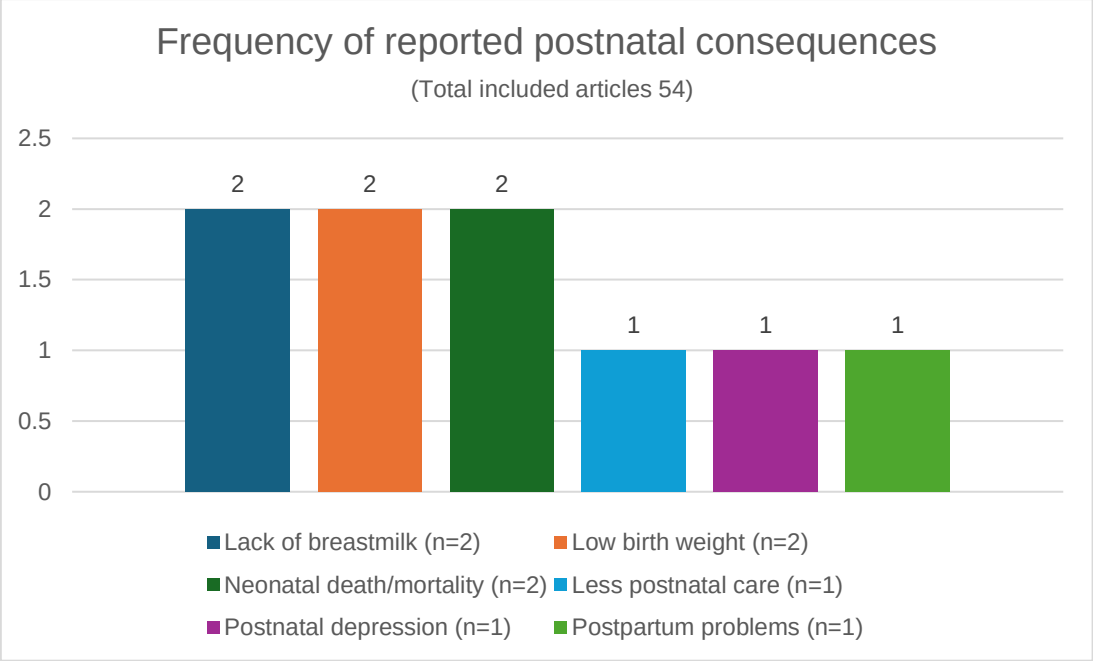

Figure 13: Frequency of reported postnatal consequences

Lack of adequate breast milk and low birth weight were reported as a consequence of child marriage by respondents from one quantitative study with 126 participants (45) and one mixed-method study (18). Furthermore, neonatal mortality was described in one qualitative study with a large sample size (12'674) (12*) and one qualitative study (25). Women who were married by the age of 15 had three times higher odds of neonatal death compared to those marrying after 20 (12*). Likewise, women married later than 15 years but still under 20 years had significantly higher chances of neonatal death compared to those marrying after 20 years (12*). Additionally, a qualitative study revealed that early marriage and perinatal death were often seen as normal, influenced by the belief in Gharbar, which views a girl's security as dependent on marriage, childbirth, and having an alive child with a preference for a boy (25). The study also noted that often those marriages were not registered officially to avoid legal sanctions (25). A cross-sectional study from Nepal revealed that women married as children were 20% less likely to receive postnatal care than those married later (3*). Higher rates of postnatal depression were noted in semi-structured interviews (27).

Problems during the postpartum period were reported among women married as children in a quantitative study (28).

3.1.4.3 Long-term health impacts

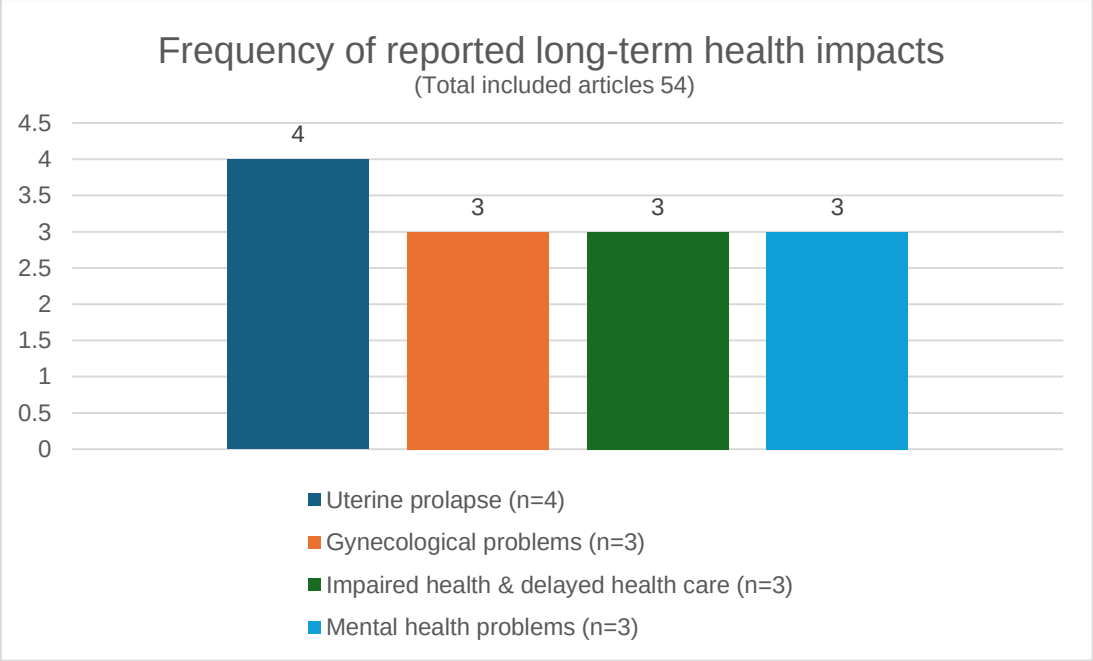

Figure 14: Frequency of reported long-term health impacts

Out of 30 articles discussing maternal health consequences, including long-term health impacts, 8 specifically addressed 4 different long-term health impacts (see Figure 14) (13, 15, 17, 18, 27, 28, 40, 54).

Uterine prolapse

Uterine prolapse was reported in 4 out of 8 articles that discussed long-term health impacts (15, 17, 18, 27). In a qualitative study conducted in eastern Nepal, interviewees identified cultural risk factors, including child marriage and the subsequent pressure to have children soon after, as contributing factors to uterine prolapse (17). Furthermore, respondents indicated that women were married early because their labor was needed by their husbands' family, which contributed to an increased risk of developing uterine prolapse (17). Uterine prolapse as a consequence of child marriage was also outlined by interview respondents (27). Further, in a mixed-method study participants viewed uterine prolapse as a consequence of child marriage (18). A cross-sectional study on the occurrence and associated factors of uterine prolapse with a sample size of 303 women found that 109 of them had a uterine prolapse and of those 96% were married

before 20 years (15). The authors concluded a strong association between age at marriage and uterine prolapse (15).

Gynecological problems

Gynecological problems were described in 3 articles (13, 18, 54). In a cross-sectional study from rural Nepal with 358 women, slightly more than half married as children, 62% of those in early marriages reported experiencing gynecological problems (54). Further, interviewees viewed STIs as a consequence of child marriage (13, 18), and a few key informants mentioned cervical cancer (13).

Impaired Health & delayed healthcare

3 of the included studies discussed impaired health and delayed health care (27, 28, 40). A cross-sectional in Jumla district showed that 31% of women married as children reported that their health had worsened due to heavy work and birth (28). Respondents in a qualitative case study also reported experiencing negative health effects, including physical, psychological, and reproductive or sexual health issues (40). According to qualitative findings, lack of knowledge, agency, and adherence to social norms could ultimately delay access to healthcare (27).

Mental health problems

Mental health problems after child marriage were discussed in 3 articles, including 2 qualitative studies (13, 27) and one cross-sectional study with 358 women (54).

3.1.4.4 Intergenerational health impacts

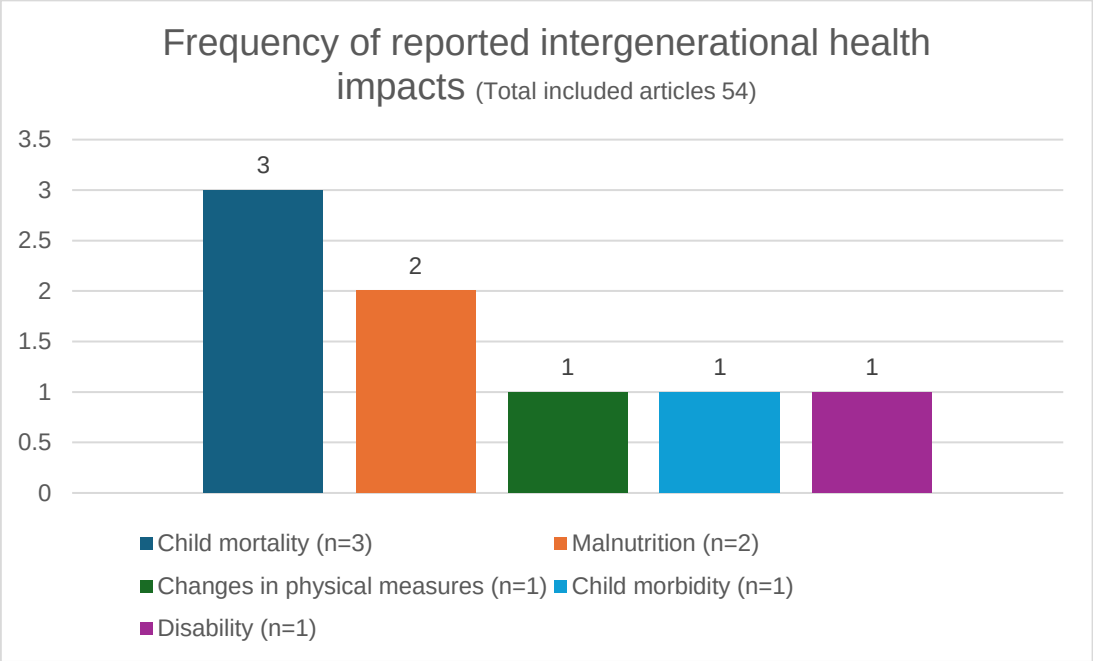

Figure 15: Frequency of reported intergenerational health impacts

Out of a total of 30 included articles discussing maternal health consequences, including intergenerational health impacts, 6 reported intergenerational health impacts (10, 11*, 12*, 13, 18, 41*) (see Figure 15).

Child mortality

Child mortality was highlighted in 3 articles (12*,13,18). Women who married by the age of 15 had two times higher odds of under-five mortality for their children compared to those marrying at or after 20 years (12*). Additionally, women who married later than 15 but still as children or adolescents had significantly higher chances of under-five mortality (12*). Participants in two qualitative studies viewed child marriage as a cause of child mortality (13, 18).

Malnutrition

2 of the included articles reported malnutrition for children born to mothers who married as children (10, 41*). Quantitative results, though not statistically significant, but independent of the effects of early pregnancies, showed that marriages before the age of 17 forecasted neonatal stunting compared to later marriages (10). A cross-sectional study revealed marriage before 15 years as a significant predictor of undernutrition (stunting and underweight) in children below

5 years old (41*). The prevalence of stunting was slightly higher than the prevalence of underweight (42.4%/ 33.4%) (41*).

Changes in physical measures

Changes in physical measures were quantitatively discussed in one article(10). Wells et al. (2022) analyzed physical measures and compared their association with child marriage and early pregnancy. Neonates born to mothers married as children had slightly lower lengths and head circumferences, but higher weights (10). However, these differences were insignificant in adjusted models (10). Infants born to mothers married between 10-13 had a lower length for their age (10). While child marriage affects physical measures in newborns and infants, the differences were statistically insignificant (10).

Child morbidity

1 mixed-method article reported on child morbidity (18). Low birth weight from child marriage increased the risk of infections and developmental delays, which could result in increased child morbidity (18).

Disability

One quantitative study investigated the link between disability and child marriage (11*). Child marriage before 16 years was significantly correlated with disability in childhood (11*).

3.1.4.5 Conclusion of Maternal Health Consequences

Child marriage and maternal health were negatively associated (7, 45). Women married before 14 years showed poorer reproductive health behaviors (5). A multi-country study in South Asia linked low usage of maternal healthcare among girl brides to limited empowerment and societal restrictions on leaving the house (6). A qualitative study highlighted barriers such as heavy domestic work, limited autonomy, and insufficient pregnancy knowledge (8). Other challenges included a lack of transportation, distant facilities, financial hardship and difficult living circumstances (8, 45).

3.1.5 Reduction strategies

This section is divided into reduction strategies discussed in the results part of the included articles and in recommendations done by the authors of the included articles after conducting the research.

3.1.5.1 Strategies suggested by the literature

Out of the 54 included articles in the scoping review, 10 emphasized in their results an approach or idea on how to reduce child marriage in Nepal (16, 19, 20*, 21, 22, 26, 27, 30*, 39*, 46). Articles marked with an asterisk (*) reported significant results.

Prediction Model

Dietrich et al. (2022) developed a model in their retrospective observational study to predict child marriage in different countries, with 70% accuracy for Nepal. The model analyzed Demographic and Health Survey data and geo-referenced data (e.g., nighttime light, weather conditions) to identify trends in child marriage. It relied on regional variables such as local economic conditions (nighttime light), weather shocks (drought, flood), population density, economic activity, and education. Since it did not use household-level data, the authors believed it can help policymakers target regions and design interventions to reduce child marriage rates (19).

Education

6 articles addressed in their results education as a possible mitigation strategy for child marriage (16, 20*, 27, 30*, 39*, 46). In rural lowland Nepal, women who completed at least nine years of schooling tended to marry at an older age (39*). However, according to the authors, there were only slight variations in the age of first marriage with different levels of education (39). Therefore, Marphatia et al. (2023) suggested that increasing the level of education alone would not increase the age of marriage substantially, and further research was needed to identify the root causes (39). A cross-sectional analysis conducted in Bangladesh, India, Nepal, and Pakistan found that in Nepal primary education only protected marriages below 14 years (30*). Secondary education was found to be protective across ages below 18 but was more protective for marriages between 16-17 years of age (30). No significant effects were observed unless at least four years

of secondary education had been completed (30*). The authors concluded that education is important, but would, as a sole strategy, be insufficient to eliminate child marriage (30). They further suggested focusing on women's empowerment to tackle child marriages (30). Women were more likely to delay marriage until 18 or older if they completed at least 9 years of school (20*). Completing an education of 11 years or more had an even more significant effect (20*). The husband's education with 11 or more years of education showed a weak significant correlation with the wife marrying at 18 or later (20*). The authors suggested that efforts must be made to ensure that children stay in school until higher secondary education (20). Further, interviewees of two studies suggested that education, awareness, and work opportunities could reduce or eliminate child marriage (27, 46). In a cross-sectional study conducted in Sindhuli district, Nepal, 32.6% of participants believed that counseling children could prevent child marriage (16).

Law

(Batyra and Pesando, 2021) investigated the effectiveness of laws on the minimum age at marriage in different countries and concluded that although after the implementation of the law in Nepal the number of child marriages declined, it remains an ineffective strategy (21). The effectiveness of the law implementation in this study was inconsistent and depended on the statistical model and analysis (21). The authors suggested better law enforcement, monitoring legal punishments for disobeying the law, and monitoring effectiveness (21). Further, laws for the minimum age at marriage must be accompanied by capacity building and choosing a contextualized approach focusing on poverty and persisting social norms (21).

Program

CARE, an international NGO, focused its Tipping Point initiative on reducing child and forced marriages in Nepal by organizing weekly group activities for children and monthly meetings for their parents (26). Over 16 months, it addressed social norms, gender inequality, and sexual and reproductive health and rights (26). The program showed no significant effect in the randomized controlled trial except for sexual and reproductive knowledge and increased scores of group membership (26). Similarly, the qualitative analysis of CARE's Tipping Point Program showed

little change (22). Participants mostly gained knowledge, and some reported slow changes in social norms, behavioral shifts, and increased agency (22). However, according to the authors, most changes were already in progress (22). The authors concluded that CARE's Tipping Point Program did not effectively tackle the underlying causes or reduce the risk of child marriage (22). The study emphasized that programs should address structural barriers like poverty and limited education while meeting the needs of the most vulnerable (22). The authors of the randomized control trial highlighted that future programs should focus on multi-sectoral programs that address poverty, women's low empowerment, and gender norms within communities, tailored to different age groups (26).

3.1.5.2 Recommendations done by the authors

In the conclusion or discussion sections of the 54 included articles, 25 articles provided recommendations by the authors on ways to reduce child marriage (3, 6, 8, 18, 23, 24, 28, 29, 31, 32, 33, 35, 36, 37, 38, 40, 44, 45, 46, 47, 49, 50, 51, 52, 54). In two of the included articles, the respondents gave recommendations on how to reduce child marriage (13, 53). The most frequently mentioned recommendations are summarized in Figure 16.

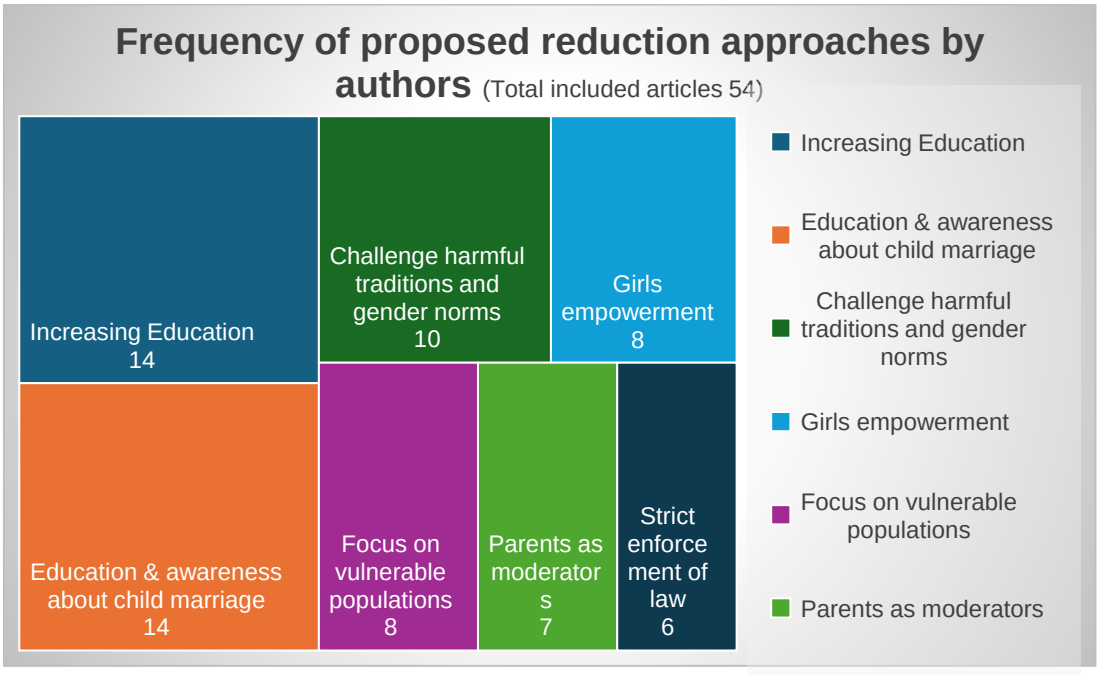

Figure 16: Frequency of proposed reduction approaches by authors

The authors of a qualitative case study concluded that only forbidding child marriage is insufficient (40). Therefore, they, like many other authors of the included articles, pledged for stricter enforcement of the law (6, 18, 33, 40, 45, 46). The adverse effects of child marriage should be underscored in national strategies and programs (3, 40). Marriage registration needs to be the norm (46).

Addressing child marriage requires approaches that engage traditional, religious, and community leaders to confront deeply rooted harmful practices linked to gender discrimination and societal norms (3, 18, 23, 33, 36, 38, 40, 44, 45, 54). The social, cultural, and traditional root causes must be understood and targeted (38, 44, 52). Multi-faceted approaches are needed (32, 33, 35, 36, 44, 54). Education and awareness programs about child marriage for different target groups such as girls, adolescents, parents, families, relatives, husbands, religious leaders, community leaders, priests, and the government should be launched (3, 8, 18, 23, 29, 32, 33, 35, 36, 40, 44, 45, 51, 54). Mobilization through mass media programs can be a strategy (23, 29, 45). Focusing programs on girls' empowerment is pivotal (18, 24, 35, 36, 40, 45, 50, 54). Engaging men and boys in programs to reduce child marriage is crucial (24, 40, 46). Parents can serve as gatekeepers in combating child marriage (18, 24, 32, 33, 36, 49, 54). Peer education and collaboration between stakeholders can further support program implementation (45). In programs, the emphasis should lie on the ones most vulnerable to child marriage (e.g. rural, poo, Terai, Madhesi women) (31, 32, 33, 35, 49, 50, 51, 54). Increasing the level of education for girls to reduce child marriage was stated by 14 authors (6,18, 23, 29, 31, 32, 33, 35, 36, 37, 38, 40, 45, 49). Marphatia et al. (2021) even suggested to provide free education for all (47). Further, focusing on supporting and engaging females in economic activities can reduce child marriage (24, 40, 45, 49), as well as income-generating activities for households (18). Additional measures suggested include controlling access to mobile phones to prevent love marriages (18) and providing legal and psychological support for victims of child marriage (40). Furthermore, providing financial support to poor families was recommended if poverty was identified as a contributing factor (52). Ultimately, strong commitment and action from the leaders of Nepal are necessary, rather than just studying. (28, 46).

3.1.5.3 Conclusion Reduction Strategies

In conclusion, respondents from two qualitative studies suggested similar strategies to reduce child marriage in Nepal (13, 53). Both emphasized that prohibiting marriage under 20 is insufficient without strict law enforcement and community support (13, 53). Effective strategies included illegalizing dowries, keeping children in school, supporting vulnerable families, and raising awareness (13, 53). They also advocated involving parents, community and religious leaders, offering financial incentives for girls' education, and providing economic support and behavior change programs for families (13, 53).

3.2 Results of qualitative key-informant interviews

Ten key informants who agreed to participate in this study were interviewed, providing insights on contributing factors, health impacts, and reduction strategies in Sindhupalchok district of Nepal. The section begins with the roles of the participants. After that, six themes identified through thematic analysis will be presented. Table 7 shows how codes, categories, and themes were built. The 6 themes are: Framework of child marriage, Child marriage in Nepal - an overview, Contributing factors, General impacts, Health impacts, and Reduction strategies.

Table 7: Example of coding tree

Themes	**Categories**	**Codes**	**Paraphrased meaning units**	**Original text**
Health impacts	Intergenerational impact	General impaired health Subcode: physical	Compromised Immunity	Their immunity is compromised and catch cold quite often.
Contributing factors	Love marriage	Peer pressure	Imitation	There is imitation of one another.
Reduction strategies	Mitigation of adverse health impacts after child marriage	Counseling	Delaying first pregnancy	We counsel them on delaying the pregnancy even though they are already married.

3.2.1 Roles of participants

The interviewees were **3** municipal officials, including two health sector representatives and one from the women, children, and senior citizen sector, **2** health facility representatives, **3** local government representatives, **1** Sindhupalchok district official, and **1** NGO representative working in Sindhupalchok. There were 6 female and 4 male respondents. The 10 key

informants worked in 7 different municipalities of Sindhupalchok district in Nepal: Melamchi Municipality, Chautara Sangachowkgadhi Municipality, Bahrabise Municipality, Helambu Rural Municipality, Lisankhu Pakhar Rural Municipality, Tripura Sundari Rural Municipality and Jugal Rural Municipality. Their experience in the current position was between 1 and 15 years.

3.2.2 Framework of Child Marriage

The following section shows how the participants conceptualized child marriage and which terminologies they employed.

6 participants defined child marriage in Nepal as a marriage occurring below 20 years of age, while two set the threshold at 18, one at 19, and another at 16. Two respondents also mentioned the previous gender disparity in the legal marriage age before it was changed to 20 years for all.

"(…)before Nepali people recognized child marriage as marriage under the age of 18 years. Nepal had categorized child marriage as under 16 years for female and 18 years for male. At present, marriage under the age of 20 years is recognized as child marriage in Nepal." (Participant 8)

During the interview, a few participants used different definitions and seemed uncertain about the differentiation between Nepal's definition and the internationally recognized definition set by WHO.

"Our constitution recognizes marriage before the age of 20 years as child marriage. So, the marriage done before the age of 20 years is child marriage. It may be voluntary or enforced by the families. That is child marriage for us. The definition of WHO and Nepal government is a little different. In one the marriage under 16 years is child marriage and in the other, the marriage under the age of 18 years is child marriage. (…) It is a little controversial so we will not go into it. But marriage under 20 years of age is child marriage." (Participant 10)

Participants further described that the legal age of child marriage in Nepal and the definition of child marriage in the communities of Nepal do not always align.

"Our nation recognizes child marriage as the marriage done before the age of 20 years. There is no legal recognition for marriages under 20 years but in our

communities, marriage before the age of 18 years is child marriage. However, legally it is 20 years under.» (Participant 9)

The majority of the participants utilized the term child marriage while a few also used the term early marriage.

3.2.3 Child marriage in Nepal – an overview

Child marriage still exists significantly in Nepal. Some respondents recognized a slight decrease but expected faster declines. Legal consequences were stated as a possible reason for the decrease. Increasing trends of child marriage were mentioned due to child love marriages. The problem of child marriage in Sindhupalchok district was described as significant. The following areas within Sindhupalchok district were defined as having a higher prevalence of child marriage: Tripura Sundari Rural Municipality, Panchpokhari Thangpal Rural Municipality, Helambu Rural Municipality, and remote wards in Melamchi and Chautara. Two participants described the problem in Helambu Rural Municipality as more significant. Participants highlighted some new developments impacting child marriage, including the shift from enforced to self-initiated (love marriage), the accessibility to technologies, reduced gender discrimination, the changes in lifestyle with more free time for children, and the migration trend to urban areas or foreign countries.

“Before, child marriage was enforced by the parents and at present, it is done by the adolescents by their will. They make friends by the age of 12/14/16 years of age. (…) Most of them are involved in affairs by that age. When it is not recognized legally [child marriage], it is still in practice.” (Participant 10)

Few (2 out of 10) respondents mentioned that boys engage in child marriage similarly to girls, while some (3 out of 10) emphasized that males were less involved.

“We have observed the practice between similar aged girls and boys. The boys are under the age of 20 years as well.” (Participant 8)

3.2.4 Contributing factors

Contributing factors to child marriage highlighted by the respondents are divided into individual, household, and community factors (see Figure 17).

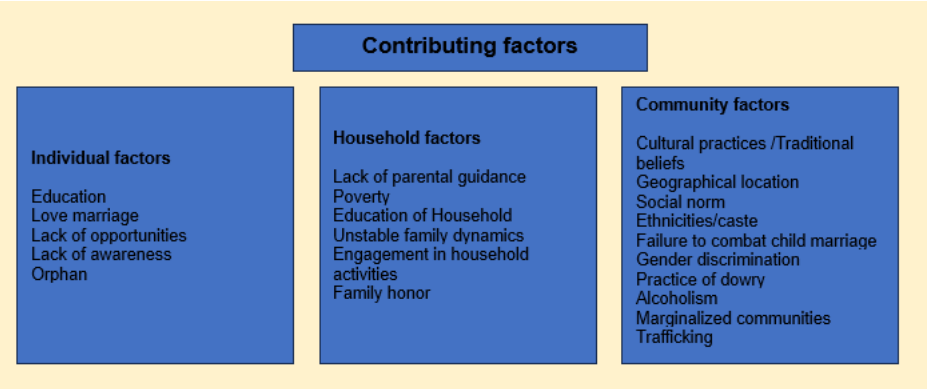

Figure 17: Overview of contributing factors (qualitative part)

3.2.4.1 Individual factors

All participants described education and love marriage as individual contributing factors.

Education

Education was described as key. Participants emphasized that a lack of education and a lack of quality education leads to increased rates of child marriage and can result in poverty with additional financial burdens. In turn, poverty can lead to not sending girls to school. Without sufficient education, girls do not develop an understanding of child marriage and lack knowledge. One participant described school dropout as a reason for child marriage.

Love marriage

Participants agreed that the trend of self-initiated love marriages among children is high in Sindhupalchok. Most emphasized that love marriages happen due to immaturity. The girls can't decide about right and wrong. Participants perceived girls as naïve and unaware of the consequences of their actions. Besides immaturity, respondents stressed the influence of technology as a significant driver of child love marriage. Young people communicate on social media like TikTok, Facebook, WhatsApp, and Viber, get interested in each other, and fall in love. Resulting from this, young people are distracted by social media and spend less time studying, which impairs their education. Another aspect discussed is that children see their peers marrying online and feel inspired. A few participants highlighted the positive effects of technology. Social media could be utilized to spread useful messages about child marriage and its consequences, and can therefore also help to reduce child marriage. One participant emphasized:

“People blame the social media but child marriage was practiced when there was no social media as well.” (Participant 7)

Interviewees underscored that due to a changed lifestyle, children are less engaged in household activities and have less parental guidance, as parents work outside the home. As a result, children have more free time, which they mostly spend on social media. One interviewee also described the improved living standard and its possible link to child marriage as follows:

“As per the trend see, it depends on their [children] patience level and as I have said earlier, the struggle for basic needs of life is not as challenging as it used to be in the past times. People with determination will choose education and job opportunities while those without the determination will opt for marriage.” (Participant 5)

Participants viewed personal choice as a reason behind child love marriage. Children are curious about sexual activities, get inspired by their peers, want to imitate them, and feel pressured by them at the same time. Respondents saw child love marriage as a way to escape tensions and scarce resources at home while seeking for more love and improved living standards elsewhere. One participant from a rural municipality mentioned that young people need to migrate for education:

“(…)They need to move in the lower regions for studies and they rent a room and are separated from their families. They are influenced by the peer groups and engage in such activities [love affairs].” (Participant 2)

Another interviewee also pointed out the correlation between going to school and love affairs, as school is a place where young people meet and engage with each other.

<u>Lack of awareness – Lack of opportunities - Orphan</u>

A few participants further discussed lack of awareness about the legal age of marriage (2 out of 10), lack of work opportunities (2 out of 10), and being an orphan (1 out of 10) as contributing factors.

3.2.4.2 Household factors

Lack of parental guidance

The majority of the respondents (9 out of 10) expressed a lack of parental guidance as a contributing factor to child marriage. Parents fail to address sensitive topics during their children's adolescence and fail to pass their values to them. Resulting from a lack of awareness about the importance of the topic of marriage. Participants raised the concern that parents are absent and therefore important guidance is missing.

"One thing is, that child marriage is also dependent on the parents. The time that should be provided by the parents to their children for guidance and care taking matters when it comes to issues of child marriage. (…)For example, I am a local representative and I was not able to give proper time to my children. As a local representative, I conducted and I participated in many programs relating to this [child marriage]. But, my own daughter got married before the legal age. She eloped and I explored the reasons and came to the conclusion that if I had given her the time required, it would have been avoided [child marriage]. (…) I am required to allot time for the social development, but sometimes I think if I had given that time to my children, that [child marriage] would have been avoided. (…) So I think, one of the reasons that child marriage is still increasing is the lack of time given by the parents to their children (…)." (Participant 4)

Poverty

Many respondents (7 out of 10) described poverty as a contributing factor to child marriage. Parents see daughters as a burden and marry them off early. With insufficient resources, families may also be unable to send their children to school.

Education of household

Some interviewees (3 out of 10) noted the importance of parental and family education, highlighting that in households with lower education, child marriage is more likely.

Unstable family dynamics

3 interviewees viewed family dynamics characterized by stress, reduced love, and conflicts as emotionally demanding and leading to self-initiated child marriage, in search of a better household environment and peace.

Engagement in household activities

2 participants noted that another reason for child marriage can be if girls need to engage in household activities besides going to school, resulting in distraction from studying, which affects their education adversely and can lead to child marriage.

Family honour

One participant mentioned child marriage due to preserving family honor.

"As observed and experienced, when a girl and a boy are close, the society thinks that they are in love. It is influenced by their peer groups as well. Even when they are just friends, such things [a boy and a girl publicly interacting with each other] influence their belief that they may be more than friends, girlfriend/boyfriend. That promotes child marriage as well. When there are such rumors, the family gets the daughter married to save face." (Participant 3)

3.2.4.3 Community factors

Cultural practices/ Traditional beliefs

Participants mostly agreed (9 out of 10) that child marriage in their region is not influenced by cultural practices or traditional beliefs. Some have heard of such practices in other parts of Nepal, such as interfamily marriages at an early age and devoting daughters to a monastery. Respondents said traditional beliefs were a strong driver of child marriage in the past, but not as significant at present. Nevertheless, few participants noted some still-existing beliefs in their regions:

"There is a belief that if they [girls] are married early, the baby will grow quickly as well. Like they give birth to a baby at 16 years and by the time they are 32, they will have a child aged 16 years and engage in earning. Things like that. And they will remain young with a child. (…) The child will be 16 years when the mother is 32 and they will look similar. (…). They will think that if their children are married at a young age, they can have children and still be young when the children grow up. "(Participant 2)

Further, the belief that marrying before menarche brings good karma to the family was described. Two participants explained a tradition typical for Sindhupalchok district, which they believed to be the most influential to child marriage and another contributing factor to child love marriage.

“Specific to this region, there is a tradition of organizing and participating in many fares. It is seasonal and as per the community groups like Lhosar [celebration of new year with gatherings] and others in the Tamangs [caste/ethnicity group]. People from different places meet there and engage in the fun activities, spend a lot of time there and from there as well, they engage in love affairs and elope. It involves the engagement of the people under 20 years of age and that is seen here.” (Participant 9)

Geographical location

Many participants (8 out of 10) stressed the geographical location as a driver of child marriage. They noted higher rates of child marriages in remote areas and upper hilly regions and less in urban areas. Participants associated remote areas and hilly regions with less education and fewer income-generating opportunities. The western region, including the Terai region, was described as a highly prevalent area. In addition to Sindhupalchok, Khotang district, and Karnali Province were noted as having a higher prevalence than other regions.

Social norm

Child marriage is accepted and normalized by society (7 out of 10). Society lacks awareness of child marriage consequences by viewing child marriage as a social norm.

“ (…)by saying that this thing [child marriage] happens in other families as well and they feel it is okay (…)” (Participant 5)

Ethnicities/castes

During the interviews, participants mentioned that certain ethnicities/castes had higher or lower rates of child marriage. Janajati, Musar, Tamang, and Thami ethnicity/caste were observed with higher numbers. Sherpa and Newar ethnicity/caste were listed for marrying later. Some interviewees mentioned that

the Brahmin/Chettri ethnicity/caste had higher rates of child marriage, while others reported lower rates within this group.

Failure to combat child marriage

6 participants reported that a top-down approach, which does not involve communities with higher child marriage rates, along with poor law enforcement, lack of efforts, and lack of collaboration between sectors, fails to combat child marriage and tackle its root causes.

Gender discrimination

Gender discrimination as a direct contributing factor to child marriage was only stated once. However, during the interviews, few respondents emphasized the decreasing, but still existing tendency to prefer a son rather than a daughter or to prefer better schools for boys than for girls.

Practice of dowry

The practice of dowry was discussed twice during the interviews. Participants explained that the dowry system does not play a big role in their municipalities, but more in the western part and the Terai region.

Alcoholism

2 participants raised alcoholism as a possible contributing factor, although currently decreasing. In communities where alcoholism is common, parents promise their children to each other while being intoxicated, which can lead to child marriage later.

Marginalized communities – Trafficking

Marginalized communities and trafficking as reasons for child marriage were voiced once.

3.2.5 General impacts

The impacts of child marriage can be vast. The majority of respondents discussed the burden it places on the country and society (8 out of 10). Health complications resulting from child marriage increase the demand for resources. At the same time, productive human resources are reduced due to health issues like malnutrition or preterm deliveries, while population growth continues to rise. Child

marriage impacts the socioeconomic burden of the country, as one participant noted:

“Until and unless, there is a concept of right age for pregnancy and child birth, this challenge [child marriage] will prevail. The socioeconomic status of Nepal will also not improve.” (Participant 6)

Child marriage can also have direct financial impacts on women and their families. Many women and couples who marry young are not yet financially stable. Due to limited opportunities, some seek work abroad, which can lead to polygamy and increased cases of separation and divorce.

“She had told us that she is 14 years, but no, she was 13 years. There were only the husband and the wife in their house. Their parents were off to India for earning. The in-laws came during the time of the child birth and she had a pre-mature delivery but she’s okay now.” (Participant 2)

Higher chances of divorce were discussed by 6 out of 10 participants, prompting multiple marriages.

Education is deprived. Women often discontinue their education after marriage, and children born to mothers who married young are more likely to have impaired cognitive development, limiting their ability to learn. Interviewees believed these patterns are repeated as children tend to copy their parents and marry early. Additionally, less usage of family planning methods and increased gender-based violence were each mentioned once.

One participant summarized the general impacts as follows:

“Because of this, they are living a compromised quality of life.” (Participant 5)

3.2.6 Health impacts

Various factors influence health in child marriage. Most participants identified immaturity as a key factor (9 out of 10). Mental immaturity can lead to a lack of knowledge of how to care for a child or an inability to understand the importance of certain preventive measures. Infections in children due to poor hygiene practices were discussed twice. Additionally, women married as children often

lack decision-making abilities. Physical immaturity among young married women can lead to increased health problems.

“One is they might not be fully mature physically and their organs will not have developed properly and they will have problems with the delivery.” (Participant 10)

Interviewees viewed women married as children as financially unstable and dependent. Their education is limited and so are opportunities. As a result, they may struggle to afford proper nutrition for themselves and their children, which negatively affects health. The social pressure they feel to give birth soon after marriage was indicated by two participants. Further, stigma from society due to early marriage and impaired nutritional status in young women impacts health. An overview of the mentioned health impacts by respondents is found below in Figure 18.

Figure 18: Overview of health impacts (qualitative part)

3.2.6.1 Maternal health consequences

In general, participants highlighted increased risks for a mother and a child during pregnancy, birth, and after birth.

Prenatal consequences

Early pregnancy as a consequence of child marriage was mentioned by 8 out of 10 participants connecting it with physical immaturity and increased risks.

“Early marriages lead to early pregnancy. “ (Participant 1)

Higher rates of complications during pregnancy were associated with child marriage. Further, anemia, abortion, intrauterine growth restriction (IUGR), and lower ANC attendance were noted among a few participants. High fertility rates with closely spaced pregnancies among women married as children were mentioned by several participants. The desire for a male child, which is less compared to before but still exists, can further support high fertility rates. Increased mental health challenges, unplanned pregnancies, miscarriages, and bleeding during pregnancy were each mentioned only once by the interviewees.

Perinatal consequences

The majority of respondents (8 out of 10) indicated increased complications during birth among women married as children, often associated with their immaturity.

“There is a difference when the childbirth/delivery is done in a normal time and childbirth resulted from the early pregnancy. The challenges are high. There are many complications and the rates go higher with early pregnancy. So, if the pregnancy and the childbirth (deliveries) happen at the normal times, the ratio of complicated cases will automatically decrease.” (Participant 1)

According to the interviewees, these complications include an increased tendency for more cesarean sections and instrumental deliveries. Repeatedly stressed were preterm deliveries and maternal deaths.

“If the girl is not fully developed before the conception, there are associated risks of maternal death and harmful effects on the fetus.” (Participant 5)

Moreover, mental health challenges can increase while coping with various situations during delivery. Further, stillbirths, prolonged labours, and postpartum haemorrhages were seen to increase in women married as children. One respondent highlighted increased associated problems while delivering outside of health facilities.

"*If they don't go to the hospitals, there will be other associated problems." (Participant 3)*

Postnatal consequences

Low birth weight as a postnatal consequence after child marriage was underlined by 7 out of 10 participants.

"And the other thing is, when the woman less than 20 years gets married and gives birth to children, they cannot nurture the children well, which will lead to neonatal mortality and birth of low weight babies (…)." (Participant 9)

Increased neonatal mortality and morbidities such as asphyxia and infections were associated with child marriage. Few respondents further outlined postpartum depression and difficulties with breastfeeding due to physical and emotional immaturity.

3.2.6.2 Long-term health impacts

Uterine prolapse as a long-term health impact was discussed by 9 out of 10 participants. They viewed the association between uterine prolapse and child marriage as resulting from physical and mental immaturity in terms of not knowing about preventive practices. Uterine prolapse can further result in incontinence. Child marriage was associated with increased mental health conditions.

"And there may be long-term psychological problems." (Participant 1)

Other long-term health impacts emphasized by the respondents were gynecological problems in particular infections, STIs, pelvic inflammatory disease, and pelvic cancer. Malnutrition in mothers was highlighted once. A following pregnancy has an increased likelihood of being high risk because of previous complications resulting from early pregnancy. General impaired health and delayed health care seeking were emphasized each once.

3.2.6.3 Intergenerational health impacts

"*That is a risky area [referring to intergenerational impacts of child marriage] as it cannot be confirmed that the baby born will be healthy and they might be mentally challenged and it might have an intergenerational effect." (Participant 7)*

9 out of 10 participants emphasized the impact of malnutrition on children born to women who were married as children. Malnutrition was often linked to delayed child development, which can result in less productive adults who are unable to contribute to the country's growth. Children born to mothers married as children generally have impaired physical health and mental health, which was repeatedly discussed. Their morbidity is higher. The majority also emphasized delays in physical and mental development.

“The children do not develop in terms of physical and mental growth.”(8769)

Higher rates of disabilities and increased child mortality were both discussed once.

3.2.6.4 Continuous cycles of child marriage

6 participants described continuous cycles caused by child marriage. These cycles interrelate and reinforce one another. Child marriage can cause poverty, impaired education, malnutrition, compromised health, and an economic burden for the country and in turn, perpetuate child marriage.

Child marriage leads to higher fertility rates, increasing the economic burden for families. To reduce this burden, families marry off their girls early again and the cycle repeats in future generations. Increased fertility rates can lead to higher population growth, which places a burden on the country. In turn, child marriage leads to limited education for girls. Impaired education can lead to both poverty and child marriage.

The following described continuous cycle of child marriage is illustrated in Figure 19. Child marriage often leads to early pregnancy, which increases the likelihood of preterm delivery. Preterm deliveries, in turn, raise the chances of having low birth-weight babies, resulting in more complications during pregnancy and childbirth. This places a greater burden on the healthcare system. Babies with low birth weight are more prone to malnutrition and may suffer from compromised physical and mental health. As a result, they may grow into individuals with reduced capabilities, limiting their ability to contribute to the workforce and hindering the country’s overall growth. Furthermore, individuals with

compromised health are more likely to receive less education, perpetuating the cycle of child marriage for themselves and their children.

“The child goes in to malnutrition cycle associated with early pregnancy. There are financial implications and a malnourished mother often gives birth to a malnourished baby. There is a risk for pre-term baby and low weight baby. In the future, the mental and physical health of the baby is compromised. It affects the society as it is a loss to the society as well.» (Participant 1)

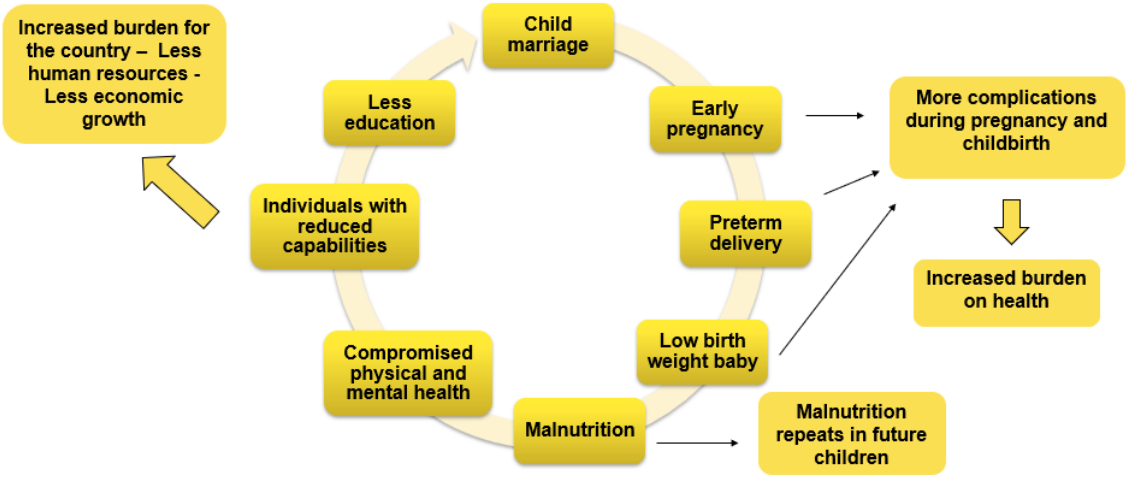

Figure 19: Continuous cycle of child marriage

3.2.7 Reduction strategies

Reduction strategies are divided into past efforts (see Figure 20), current efforts (see Figure 21), planned efforts, proposed strategies (see Figure 22), stakeholders, challenges in reducing child marriage, and mitigation strategies for adverse health impacts after marriage.

3.2.7.1 Past efforts

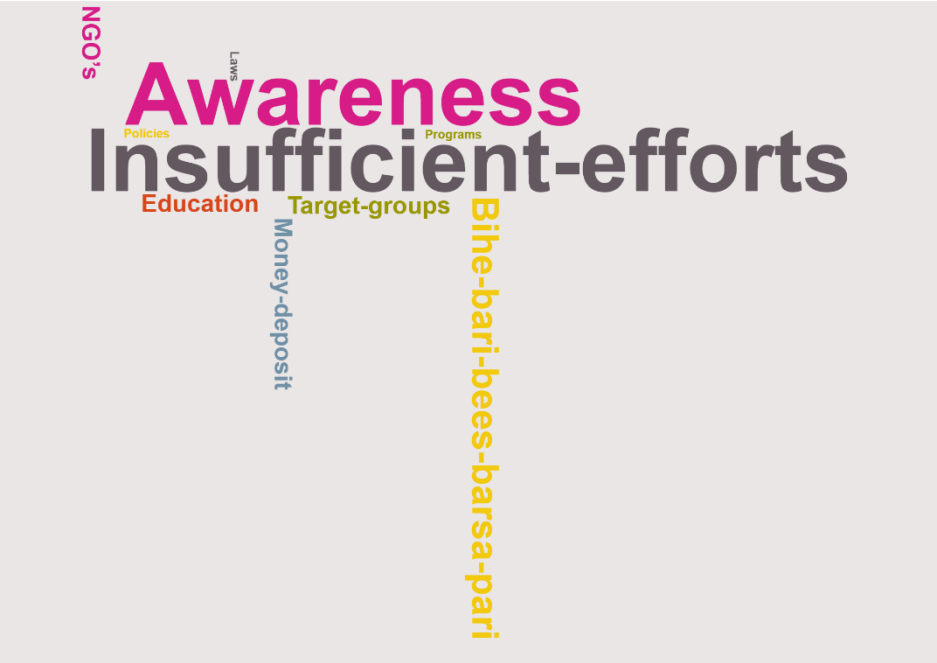

Figure 20: Frequency of codes for past efforts in word cloud

The majority of the participants explained past efforts done by NGOs and government structures, but stressed that child marriage still exists today. They believed the efforts were insufficient and carried out with the wrong approach (7 out of 10).

"The programs are done in each ward, but we don't think child marriage has reduced as much as it should have. (…)Yes, we raised this issue [child marriage] at the province level and they told us that they will do something about it but nothing has been done so far." (Participant 7)

Few concrete past efforts were listed. Along with the existing laws and policies, participants described awareness programs that utilized celebrities, female health community volunteers (FCHVs), discussion sessions, or street dramas. The slogan for awareness raising, "BIHE BARI BEES BARSA PARI" (marriage only after the age of 20), was emphasized by three respondents. Adolescent-friendly services and school health programs were also implemented. One participant described a previous campaign:

"Once, it was in the Bagmati province. There was a campaign to educate the daughters and daughter in law. It was for free of cost." (Participant 3)

Two participants explained a past initiative where a bank account and health insurance were opened at birth with a certain amount of money, which the girl could access if not married by 20. This strategy was considered effective and was suggested to continue. Moreover, one participant explained about an art competition in the past for child marriage reduction:

"It was an art competition surrounding the theme of child marriage. (…)The program was fruitful as the discussion was done. An awareness program was done, and they were oriented about the laws and regulations. The students participated actively and explored about the laws and regulations. The risks and effects of child marriage were discussed. (…)" (Participant 8)

3.2.7.2 Current efforts

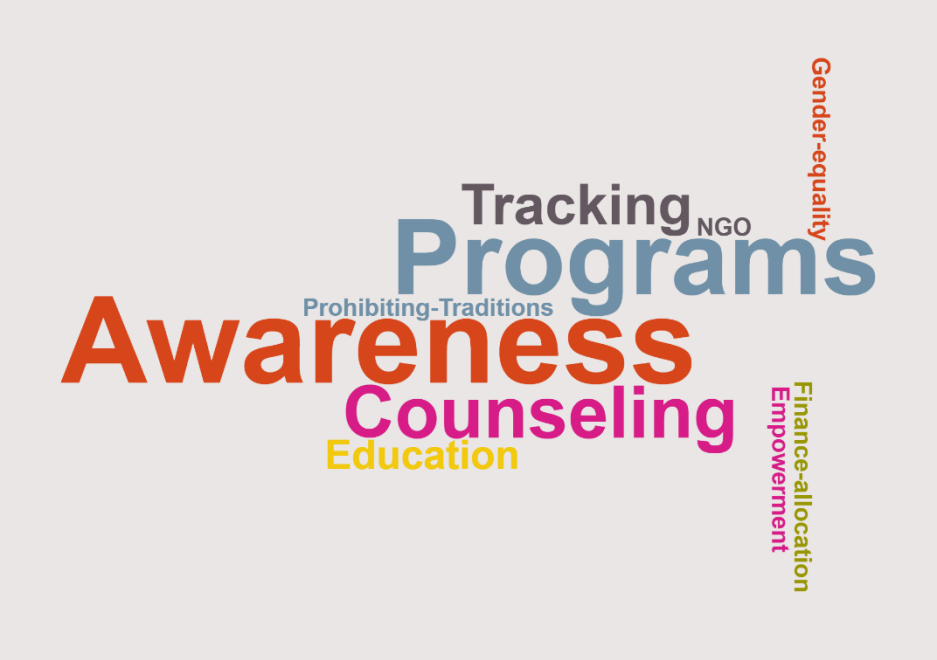

Figure 21: Frequency of codes for current efforts in word cloud

4 respondents admitted not being well informed about current or past efforts to combat child marriage at the district or national level.

Respondents mentioned programs that address child marriage on different federal levels, focusing on nutrition, adolescent health, and gender-based violence. However, only a few programs were explained specifically:

"In Sindhupalchok, in this municipality, there is a program to declare child-friendly local government and wards. (…) One of the important criteria is zero child

marriage. If we have any case of child marriage, that will disrupt the process. We are very aware and concerned about the problem of child marriage. (…)It will be done annually and for that, the child marriage should be zero (…)Unless the situation is zero, we cannot declare the wards as child-friendly. (…)The Nepal government has the policy of declaring the local levels as child-friendly. " (Participant 8)

Further, an iron and folic acid program and a program for GBV was described:

"Yes, there is an IFA [Iron and folic acid] program which relates to the adolescent girls as well. It is also linked to the child marriage. The IFA is distributed for the development of their organs and to prevent iron deficiency in the adolescent females. We aware them about child marriage and consequences of early pregnancy." (Participant 5)

" (…) this is the time for the 16 days' campaign against gender violence and in this campaign, we orient about gender violence, sexual violence. We have started this campaign in the medium secondary schools as well. The rates of child marriage are high in the medium secondary school level. These campaigns and programs are conducted in the schools, and areas within the communities. These programs are effective somehow." (Participant 4)

Finances are allocated to the reduction. Two respondents described a program for free education.

"We have a hostel here with us which was made by the Chinese government. We provide them free tuition and accommodation till they reach grade 12. We have around 300 students here and we have the capacity of 600 students. The budget is allotted from the province and we add the additional budget if required. There are two separate hostels for the boys and girls." (Participant 7)

One participant spoke about an NGO working to reduce child marriage by collaborating with stakeholders, providing emergency support to children and parents, and helping children in childcare homes. Additionally, NGOs and health personnel do counseling. Awareness programs are conducted in collaboration with the police, health mothers' groups, FCHVs, children's networks, and schools. School health education was frequently mentioned. Some awareness programs

were described to happen annually. To improve gender equality and increase opportunities, there is a rule that at least 33% of positions in the public service sector need to be covered by women. Interviewees stated that in some districts, harmful traditions are prohibited. Participants explained that FCHVs and child networks in municipalities help to track child marriage cases.

3.2.7.3 Planned efforts

None of the participants mentioned concrete planned efforts to reduce child marriage except the annual awareness programs. However, as one participant stated, there is a call from the community:

" (…)the wards and the municipalities request project for programs related with child marriage reduction. There is a demand from the community as well. (…) small group of intervention can make a long lasting impact as well." (Participant 3)

3.2.7.4 Challenges

Respondents highlighted challenges in child marriage mitigation. Marriage and birth registration were indicated as the most challenging among all the participants. Respondents stated that marriage registration below 20 years or 18 years is impossible. Therefore, exact numbers of child marriages don't exist. However, numbers for children born to mothers below 20 years exist, which is often used as an indirect indicator of child marriages. Nevertheless, these numbers might be unreliable as parents may avoid registering the birth due to fear of mistreatment or legal consequences. Consequently, child marriage numbers might seem to decrease because they are unregistered or couples increase their age to get registered. Migration further complicates exact numbers as people often move before or after marriage, or birth. For birth registration respondents gave conflicting responses. Some stated that birth registration can be done for children born to underage mothers, and some explained that birth registration can't be done when the marriage is unregistered. Interviewees voiced concerns that if birth registration is possible in any case, it might send a wrong message indicating that child marriage is acceptable and further encourages child marriages. The dilemma associated with birth registration for children born

from illegal marriages was discussed. These cases are usually kept hidden instead of reported.

“What would be the proper legal treatment? The baby is born in most of the cases, and to jail the father of the baby wouldn’t seem right. He might be accused for forced act on the woman or case of child marriage and that is punishable. What would be proper then?» (Participant 8)

Further challenges in reducing child marriage are the non-existing roads, which make certain communities hard to reach. An ineffective education system and poverty are hindering child marriage reduction.

Respondents highlighted that even though some efforts to reduce child marriage are made, they don’t show much impact. The few existing programs and policies are poor. Respondents emphasized a lack of programs and policies regarding child marriage. They stated that political leaders emphasize the importance, but no concrete actions follow.

“The political leaders mention it during the speech only. As there are representatives of different communities in the ward. They certainly know of such practices in the community but do not address the issue well.” (Participant 6)

Respondents stated that local governments need more attention and resources from the central government in addressing child marriage, as they are at the roots of the problem and have better insights. Improved collaboration is important as change takes time. Long-term impacts are often overlooked and not considered in relation to the urgency of the problem.

3.2.7.5 Proposed reduction strategies

Figure 22: Frequency of Codes for proposed reduction strategies

All the participants had several ideas on how to reduce child marriage better. 9 out of 10 participants highlighted education to reduce child marriage rates. The importance of education must be promoted. The education system should be more effective in providing crucial quality education, including health education. Participants emphasized that free or at least affordable education should be provided. For that, schools need to be accessible with roads and transportation systems. Respondents highlighted the usefulness of sensitizing young people in dealing with social media and technologies and their dangers. Many participants discussed centralizing or decentralizing program development and planning. However, participants had different opinions. Some highlighted the importance of programs and policy-making at a central level. In contrast, others emphasized the importance of programs and policy-making at a local level to address local needs. Participants agreed that implementation should be done at a local level. The provincial level should allocate the budget specifically to child marriage reduction. The importance of contextualized strategies that apply a bottom-up approach to grasp the needs of the community was stressed. Leaders of programs and initiatives aiming to reduce child marriage should be the ones evolving from the vulnerable communities. Programs should target gender inequalities, aiming to

increase the % of females in public services. Respondents emphasized the need to invest in education, skill-building, and employment opportunities to empower women and support their independence. Awareness was also discussed as a key to child marriage reduction. The level of awareness must be as high as people understand child marriage is wrong. Awareness programs conducted annually are insufficient. They proposed to conduct it more frequently with updated information. Programs should target households, schools, and the most marginalized and remote communities. Legal consequences also need to be targeted by awareness programs. Child marriage should be recognized as a social crime as stated by one interviewee. It was suggested that alongside awareness raising, individual counseling on the consequences of child marriage can be provided by FCHVs. Respondents explained that although the law prohibits marriage below 20 years, its enforcement is poor. They called for stricter enforcement of the existing law. Many believed that with more rigorous law enforcement, child marriage can be drastically reduced. For this to happen, cases need to be reported. Another idea was to revise the law to clarify the marriage and birth registration process. Due to unclear regulation of the law, one participant suggested setting the age to 18 years in Nepal instead of 20. One participant proudly stated that their department takes the law seriously and cases are actively followed up. Participants suggested that a multifaceted approach involving multiple interventions over time, rather than a single action, is essential in child marriage reduction. This should address root causes, challenge social norms, and involve various sectors. Behavioral change requires time and continuous effort. Emphasis should be placed on peer education and role modeling to drive meaningful and lasting change.

“The law alone is not enough. If education is also taken along with the law, it might be possible to reduce the child marriage.” (Participant 9)

Mother's groups were proposed as a way to reduce child marriage. Additional suggestions included stopping dowry, guest restriction during weddings, and stopping the issuance of birth certificates for children born to underage mothers. Traditional practices such as large gatherings could be accompanied by health and counseling posts to make people aware of the risk of child marriage during such practices. One respondent concluded:

“But still, I think the elimination of child marriage is a serious matter and this [child marriage] is a very critical problem. We have to be accountable for the reduction of child marriage. “ (Participant 4)

3.2.7.6 Stakeholders

Nearly everyone could serve as a stakeholder in child marriage reduction according to the interviewees: Women, girls, men, boys, families, FCHVs, health professionals, schools, teachers, and communities.

“Directly, there might be few stakeholders but indirectly everyone is a stakeholder for this issue. (…) Everyone is responsible for the reduction of child marriage. The health workers and health post in-charge. (…).” (Participant 6)

Political leaders at national and local levels serve as stakeholders. Different ministries with their respective divisions and sections were mentioned as important partners for child marriage reduction: Ministry of Health, Ministry of Women, Children and Senior Citizens, Ministry of Social Development, Ministry of Agriculture and Livestock Development, Ministry of Water Supply, Ministry of Law, Justice and Parliamentary Affairs. The police may also play a role as a stakeholder in law enforcement. Further, children's groups, children's clubs, media, NGOs, and organizations could serve as stakeholders. Child marriage reduction is likely to be effective when all stakeholders collaborate.

3.2.7.7 Strategies to mitigate adverse health impacts

Participants proposed several strategies to mitigate adverse health impacts after child marriage. Awareness and counseling through different stakeholders were emphasized the most (7 out of 10). Counseling on the importance of delaying the first pregnancy, along with promoting family planning, is important. Further, counseling on immunization, the general health impacts of child marriage, nutrition, and mental health were highlighted. One participant explained about a program that addressed husbands to inform them about maternal and child health topics. A good example should be set in the communities. To seek health care, including family planning early enough, services must be accessible, affordable, and available. This means that roads are available and a referring system is in place. After reaching the respective services, young girls should find services shaped to their needs in the form of adolescent-friendly services. They should be

treated confidentially, with dignity, and respect without judgment. To ease the barrier to reaching health care, incentive programs can be introduced, as has already been done in certain areas.

“There is one thing, the government provides safe motherhood incentive for compliance with 8 ANC visits and institutional delivery. A sum of Rs. 3800 is provided to the mothers. They are also provided with nutrition incentives.” (Participant 4)

Nutrition programs, maternal waiting homes, and screening programs for developmental delays and uterine prolapse were stated to mitigate impacts on health. One participant described offering a set amount of free surgeries each year for uterine prolapse cases. Interviewees stressed that for a good collaboration stakeholders need to be aware of the challenges of child marriage and allocate resources accordingly. Respondents also explained that raising awareness and providing counseling about continuing education are important, as well as creating opportunities for girls' education and employment. Girls need to be kept busy by engaging them in activities after school. International commitments, like the SDGs aiming to reduce maternal mortality, can also help to reduce the health impacts of child marriage.

4 Discussion

4.1 Discussion of the most important findings.

The following section discusses the main findings of the scoping review and key informant interviews (overview of main findings see Figure 23). The study consists of 54 articles and 10 semi-structured interviews with key informants from Sindhupalchok district of Nepal providing evidence on contributing factors of child marriage, health impacts, and reduction strategies. Among the 54 articles, only one specifically presented results from Sindhupalchok district.

The definitions and terminologies for child marriage are various among the study. The majority of included articles considered child marriage to occur below 18 years, while other articles set the age at below 15, 16, 19, or 20 years, or lacked a clear definition. The two oldest articles used the definition below 15, while newer studies focused on child marriage below 18 years. Some articles inconsistently

applied different definitions and age intervals for their results. Similarly, respondents defined child marriage differently, while most of them defined it in Nepal as a marriage below 20 years. However, some described it as below 16, 18 or 19. It occurred that different international and national definitions led to confusion among them. Efevbera and Bhabha (2020) have called for a standardized mutually agreed-upon language in global public health research on child marriage to reduce inconsistencies and ensure no key aspects are overlooked.

The results show multiple drivers of child marriage. Education is a significant factor. The more education a woman has, the less likely she is to marry as a child, with an even stronger effect with increasing levels of education. The qualitative results highlighted the lack and the quality of education as key factors, with more children attending school. Several studies from South Asia and Africa have also confirmed that education was a key factor (Gebeyehu et al., 2023; Kamal et al., 2015; Liczbińska et al., 2023; Scott et al., 2021; Singh et al., 2023; Zegeye et al., 2021). This study's results also show that the husband's education and the household education level play an important role. The less education a household has, the more likely a woman is to marry as a minor, a finding consistent with other studies (Kamal et al., 2015; Pourtaheri et al., 2023; Zegeye et al., 2021).

Besides education, love marriage among children was a crucial factor among the participants of Sindhupalchok district. All the respondents emphasized that love marriage was a significant contributing factor to child marriage. Participants in this study described how people's lifestyles had changed. Children now attend school, meet their peers, and are less involved in household activities while parents often work outside of the house or abroad. This results in more free time for children, which they mostly spend with new technologies and social media, where they fall in love with their peers. In combination with a lack of parental guidance due to the absence of parents, the likelihood of child marriage is increased. Love marriage was seen as a trend among children. They get inspired by seeing others marrying, feel the pressure from their peers, and do the same. However, children are not yet mature enough to decide for themselves. The rising trend of love marriages was also observed among the included articles but was not among the major contributing factors. The scoping review highlighted social

pressure to marry early, fear of an arranged marriage, child marriage as a social norm, and societal disapproval of premarital sex and pregnancy as reasons behind child love marriage. Marriage can also be seen as a way to improve living conditions or to escape a difficult family environment. Thus, “love marriage” may be misleading, as not all self-initiated marriages happen out of pure love. Literature on love marriages and self-initiated marriages under 18 is limited. A report from UNICEF and UNFPA has confirmed rising trends in such marriages, often driven by social norms, pressure, and difficult situations at home (UNICEF & UNFPA, 2022). The transition from an arranged marriage to a love marriage was also shown by a qualitative study from South Asia with 60 interviewees (Diamond-Smith et al., 2020). A study from India has shown that 18% of self-arranged marriages occur at a median age of 16 years and tend to have better outcomes than arranged marriages (Jejeebhoy and Raushan, 2022).

Together with love marriage technologies like social media were stressed. This research revealed mixed findings on the influence of media on child marriage. Three articles and most respondents mentioned technologies and social media as reasons for child marriage. Results of the scoping review showed that couples who met on social media marry earlier than through an arranged marriage. They meet online, fall in love, marry, and inspire others to do the same. Controversy, two articles found minimal media exposure among women married as children, and one participant emphasized that child marriage existed before social media. Respondents from Sindhupalchok district also emphasized the positive impact of technology in raising awareness. Literature outside of Nepal has supported the idea that media is a protective factor. Results from India, Bangladesh, Ghana, and Iraq have found mass media as a protective factor against child marriage (Saleheen et al., 2021; Singh et al., 2023). In a systematic review of literature from 14 different countries, lack of access to media was interpreted as a contributing factor to child marriage (Pourtaheri et al., 2023). The author explains the conflicting result of the scoping review compared to other literature on the under-researched topic of child love marriage.

Education, love marriages, and a lack of parental guidance were the most highlighted factors among participants. Ethnicity/caste emerged as one of the major drivers of child marriage in the scoping review and was less important in

Sindhupalchok. Multiple articles described differences in child marriage rates across different ethnicities/castes. Higher numbers for certain groups came from different sample sizes and study types, including estimates or perceptions of prevalence. Therefore, this makes the results less meaningful and explains conflicting results. Dalit, Madhesi, and Muslim ethnicities/castes had higher numbers of child marriages in this study due to marginalization, illiteracy, and poverty. The last CENSUS report has confirmed that Madhesh Province has the highest illiteracy rate, where most of the Madhesi ethnicity/caste live (National Statistics Office, Nepal, 2023a). A Ministry of Finance report has shown the lowest Gross Domestic Product (GDP) growth in Madhesh province, indicating poverty (Ministry of Finance, Nepal, 2022). Furthermore, a recent report has identified Madhesi, Dalit, and Muslim communities as the most marginalized in Nepal (Rai, 2019). A historical analysis of patterns of child marriage in India has confirmed that caste has a significant impact (Singh et al., 2023). Differences in child marriage rates among different ethnicities have also been observed in a systematic review and meta-analysis of Ethiopian literature (Gebeyehu et al., 2023) and in research from Mali and Nigeria (Mobolaji et al., 2020; Zegeye et al., 2021).

The ethnicity/caste findings of this study align with another important factor: geographical location. Women from the Terai region, where predominantly Madhesi and partly Dalit ethnicity/caste live (Bennett et al., 2008), were found more likely to marry early. Additionally, child marriage was higher in the hill regions, and lower in mountain regions. An analysis from Mali and a systematic review among different countries have confirmed differences in child marriage rates among different geographical regions (Pourtaheri et al., 2023; Zegeye et al., 2021). Several other studies have supported the findings of this study that women in rural areas are more likely to marry as children (Gebeyehu et al., 2023; Islam, 2022; Kamal et al., 2015; Melesse et al., 2021; Scott et al., 2021).

Other factors from the scoping review, such as parents as decision-makers, family honor and pressure, social status, and dowry, appeared to be less important among respondents from Sindhupalchok. The author of this multi-method study concludes that the emerging trends from the qualitative findings in

Sindhupalchok have been insufficiently explored among the articles of the scoping review.

Child marriage was emphasized as a social norm in this study. Factors like social status, family honor, lack of awareness, and pressure related to the socially unacceptable behavior of premarital sexual activities and pregnancy further reinforced this norm. Striking was that nearly all the respondents agreed that traditional beliefs and cultural practices no longer play a major role in Sindhupalchok district, whereas the results of the scoping review showed that these beliefs and practices were still important. Many of these beliefs and traditions narrate gender norms. Even though gender inequality was directly emphasized only a few times as a contributing factor, it was evident in norms such as the preference for a son, pregnancy after marriage, and dedication of a woman to the household. Associating a woman with household activities deprives her of education. Results also show that girls are proportionally more involved in child marriage than boys. Beliefs and norms influencing child marriage have also been identified in other research (Cislaghi et al., 2019; Naved et al., 2022; Sripad et al., 2024).

While poverty remained an important factor in child marriage, it was also noted as a less influential factor in some included studies. Even though poverty might play less of an important role, it interrelates with multiple contributing factors of this study, directly or indirectly: education of girls and families, love marriage, occupation of families, geographical location, and dowry. The results indicate that poverty is linked to lower education, a major contributing factor identified in this study. Children from poor families are less likely to attend school. Wei et al. (2021) have confirmed that education is reducing poverty. Child marriage is considered practical because it reduces the financial burden on a girl's family and lowers dowry costs. Melesse et al. (2021) have confirmed higher rates of child marriage among the poorest in 37 sub-Saharan African countries. Results from Bangladesh have corroborated these findings (Billah et al., 2023). Dowry played a minor role in Sindhupalchok district compared to the findings of the scoping review all over Nepal. However, a large qualitative study has revealed that dowry still plays a big role in marriage (Diamond-Smith et al., 2020). Two studies from India have further confirmed the importance of dowry among adolescent girls

(Pallikadavath and Bradley, 2019; Srivastava et al., 2021). Additionally, this study shows that families with lower-paid jobs and farmers are more likely to marry off children at a younger age, often due to poverty. Poor families tend to be less educated and live in remote areas. Poverty may also drive children to pursue love marriages to improve their living conditions.

Health impacts are described similarly across the results, but the emphasis varied between the scoping review and the qualitative section. Early pregnancy and uterine prolapse were common. The scoping review focused more on changes in ANC rates, the influence on the place of delivery, and the reduced presence of skilled birth attendants at delivery. In contrast, the qualitative results highlighted increased delivery complications, preterm delivery, low birth weight, and malnutrition.

Respondents in this study described more diverse and specific health impacts than the scoping review, linking them to Nepal’s broader context. The qualitative findings revealed that child marriage places a significant burden on Nepal, leading to a reduced workforce and increased health challenges. It often leads to preterm births, low birth weight, malnutrition, and developmental delays. This compromises health and decreases the ability to contribute to the country's growth. The interrelating repeating continuous cycles of child marriage with poverty, impaired education, malnutrition, and compromised health were frequently emphasized. A global report, Wodon et al., (2017) has demonstrated the increased economic burden on countries due to increased fertility rates and population growth.

Regarding maternal health consequences, early pregnancy was found to be one of the major consequences of child marriage, resulting from the pressure women feel to give birth soon after marriage. Early pregnancy bears several risks for mothers and children such as abortion, preterm birth, prolonged labor, hemorrhage, low birth weight, and increased risk of malformation (Gurung et al., 2020; Shrestha et al., 2022). Studies from Asia and Africa have confirmed the increased risk of early pregnancy (Adedini et al., 2022b; Kamal, 2012; Nhampoca and Maritz, 2022). Among the included articles, the consequences of early

pregnancy and early marriage were often not specifically separated, which makes a clear separation challenging.

The scoping review found lower ANC care usage among women married as children, which was emphasized only once by qualitative results. Using ANC is crucial to reducing maternal morbidity (Nam et al., 2022; WHO, 2016). A study from 20 sub-Saharan African countries also revealed lower ANC usage among women married as children (Adedini et al., 2022a). The later commencement of ANC in pregnancy among women married below 18 years has also been confirmed by Mouhoumed and Mehmet (2021). However, two included studies showed conflicting results revealing that women who married below 14 and below 19 had higher chances to utilize ANC services than those married in adulthood (4, 7). The authors of those articles attributed the contradictory results to a high prevalence of child marriage and awareness of early pregnancy risks (4, 7). These opposing findings have remained uncorroborated by other literature (Delprato and Akyeampong, 2017; Elnakib et al., 2022).

The evidence for some scoping review results, like those on miscarriage and pregnancy termination, was limited. Results mainly relied on participants' perceptions, complications faced by women, and studies with small sample sizes. These findings were either emphasized only once or not mentioned at all in the qualitative data. However, other studies have confirmed that child marriage has increased the chances of having a miscarriage/stillbirth (Kamal and Hassan, 2015; Santhya et al., 2010) and have also revealed higher rates of pregnancy termination (Kamal, 2012; Kamal and Hassan, 2015).

This study shows that women who married before adulthood have lower odds of delivering in a healthcare facility. While several articles of the scoping supported this finding, only one participant confirmed it. A reason for that could be that institutional deliveries in Bagmati province are relatively high and much lower in other parts of Nepal (Ministry of Health and Population [Nepal], New ERA, and ICF, 2023). Professional care during pregnancy, delivery, and after birth is crucial (WHO, 2018). Contradictory to that and likewise, for ANC usage, two included studies showed higher rates of institutional deliveries for women married at a younger age with the same explanation mentioned for ANC usage (4,9).

Research from South Asia has shown that child brides have lower rates of institutional deliveries (Santhya et al., 2010; Uddin et al., 2019). Women married as children in this study showed a lower to significantly lower probability of having a skilled birth attendant at birth, an aspect not discussed by any participants. Giving birth with a skilled birth attendant is crucial to ensure the health of women and newborns during delivery (WHO, 2018). Adedini et al. (2022b) have revealed significantly lower odds of births with a skilled birth attendant for women married as children across 31 Sub-Saharan African countries. Similarly, results from Bangladesh have confirmed significantly lower rates of deliveries with a skilled birth attendant for women married as children (Uddin et al., 2019).

The elevated risk of preterm delivery was frequently mentioned among the qualitative results and was significantly confirmed through one source in the scoping review. A study from rural Bangladesh has further supported this finding (Huang et al., 2021). While interviewees of this study repeatedly stressed increased complications during delivery, the scoping review showed limited evidence. The scoping review results were mainly based on studies with small sample sizes. However, other research has supported the findings of increased complications during pregnancy and childbirth (Lebni et al., 2023; Lee et al., 2023).

In the scoping review, postnatal consequences were less studied in Nepal than prenatal and perinatal consequences. Research outside of Nepal has also shown limited focus on postnatal consequences. In this scoping review, higher neonatal death rates and lower postnatal care usage among women married as children were the only significant results. A study from Sub-Saharan Africa and Southwest Asia has confirmed that women married as children were less likely to receive postnatal care (Delprato and Akyeampong, 2017). Other results in the scoping review about postnatal consequences derived from studies with small sample sizes and were mentioned in only one or two articles. Most of the interviewees, however, emphasized low birth weight as a consequence of child marriage, a finding supported by the review. A higher risk for neonatal mortality and low birth weight has also been reported by Irani and Latifnejad Roudsari (2019) and Raj and Boehmer (2013).

The articles provided limited insight into the long-term health impacts, with no significant results, while qualitative results showed various long-term impacts. Uterine prolapse was most commonly reported, especially among participants. The findings on uterine prolapse were based on qualitative results of included studies, one cross-sectional study involving 303 participants, and responses from nine key informants, all linking uterine prolapse to child marriage. Evidence on uterine prolapse from outside this study is limited. A review by Khadgi and Poudel (2018) has linked early marriage and uterine prolapse, emphasizing the role of gender discrimination, early pregnancies, multiple births, and heavy work. Additionally, research from Egypt has shown an association between early marriage and uterine prolapse (Hamed and Yousef, 2017). A study from Ethiopia with 422 participants has shown a 75% lower probability of uterine prolapse for women married after 18 years (Badacho et al., 2022). A study from Nepal has identified factors other than child marriage that contribute to uterine prolapse (Lien et al., 2012). In a study with 50 participants, age at first birth has not been linked to uterine prolapse (Gautam et al., 2012), although cases have been noted in women under 20 years (Shrestha et al., 2015). Evidence on further long-term health impacts was limited. The results occurred from studies with small sample sizes or were mentioned only once by participants of this study. Nevertheless, respondents of this study listed the gynecological problems in more depth referring to infections, STIs, pelvic inflammatory diseases, and pelvic cancer. A review across different countries has aligned with the findings of a higher likelihood of STIs and cervical cancer (Irani and Latifnejad Roudsari, 2019).

Research from South Asia, Ethiopia, Niger, and Iran have confirmed the results of this study of increased mental health challenges and difficulties in accessing healthcare (Datta et al., 2022; John et al., 2019; Lebni et al., 2023). Vikram et al. (2023) have conducted a study in India that identifies a higher risk for non-communicable diseases like hypertension and diabetes after child marriage, with stress from child marriage and early motherhood being contributing factors. Further, Datta and Tiwari (2023) and Tiwari et al. (2023) have confirmed a higher risk of hypertension among young women.

This study shows that child marriage correlates with an increased risk of intergenerational health impacts. The scoping review found significant risks for

stunting, underweight, child mortality, and disability, though supported by only one source. Nearly all respondents emphasized malnutrition, and many highlighted impaired health and developmental delays as key intergenerational impacts. Research in sub-Saharan Africa, involving 37,558 mother-child pairs, has also found similar impacts on child development and child health, particularly stunting (Efevbera et al., 2017).

The author excluded GBV, contraception, and sterilization from the scoping review, as they were not considered direct health impacts. However, GBV can affect mental health. Literature frequently links child marriage to increased gender-based violence (Adhikari, 2018; Oshiro et al., 2011; Pandey, 2016). Further, women married as children are less likely to utilize contraception and have higher sterilization rates early in life (2, 5) and (Yaya et al., 2019).

What is striking about reduction strategies is that increased education was frequently mentioned to address child marriage, aligning with education as a key contributing factor. Notably, the scoping review emphasized the significance of a specific number of years in education, particularly at the secondary level, while respondents stressed the importance of providing quality education. Results from India have confirmed that age at marriage increases with higher education levels (Borkotoky and Unisa, 2015). In the scoping review, few studies on child marriage reduction were found, and none showed promising success. Qualitative results of this research showed that respondents had numerous ideas on reducing child marriage. Aside from education, the issue of centralizing or decentralizing program development was frequently raised. Some respondents called for more national government guidance, while others emphasized the effectiveness of local-level program planning. Contextualized strategies and a bottom-up approach were further important for the participants.

Participants of this study were more reluctant and less detailed in describing current or past efforts to reduce child marriage. Likewise, the scoping review found fewer studies on reduction strategies compared to drivers and consequences. The qualitative results showed that efforts were not perceived as effective as they should be. Most efforts focused on awareness raising, while some concentrated on providing free education.

The main challenge in reducing child marriage, raised by the respondents, was the law. The study showed that although the law prohibits child marriage before 20 years, its enforcement is poor. Additionally, participants highlighted the challenges the law brings, such as the inability to register child marriage, leading to inaccurate data, inviting people to lie and fake documents. Proofing that child marriage is a social norm. Participants also shared conflicting emotions when registering a baby born to a child bride, unsure of how to handle the situation given that the act was illegal. Further, there were conflicting opinions about whether a birth can be registered without a marriage certificate, indicating that childbirth outside marriage is not yet socially accepted. Nevertheless, birth registration is a human right (UN, n.d.).

Moreover, the authors of the included studies and the participants call for multi-sectoral approaches with an effective, affordable, and accessible education system, stricter law enforcement, and contextualized community-led awareness programs for girls, women, families, community and religious leaders. These programs should aim to empower girls, focus on vulnerable populations, and challenge harmful traditions and gender norms.

The reduction strategies of this study align with those outside of Nepal. A scoping review across African countries has highlighted efforts in sexual and reproductive health education and female empowerment, focusing on education, laws, and stricter enforcement (Greene et al., 2023). To keep girls in school, cash transfers have been described as an effective measure to cover household expenses (Greene et al., 2023). Further literature has confirmed that cash transfers, in-kind donations, and incentives efficiently delay marriage (Lee-Rife et al., 2012; Malhotra and Elnakib, 2021). Increased empowerment and economic opportunities for girls can reduce child marriage (Lee-Rife et al., 2012; Malhotra and Elnakib, 2021). Programs focusing on norms and discrimination at a community level have emerged as newer strategies in the past decade (Greene et al., 2023).

The findings of this study suggest a contextual, multi-sectoral approach to addressing child marriage, with a focus on improving the education level of society and raising awareness. This study also highlights gaps in the literature.

The trend of love child marriages, along with postpartum, long-term, and intergenerational health impacts, is under-researched in Nepal. Additionally, only a few reduction strategies have been proposed in the literature. The author recommends that future research focus on these under-researched aspects.

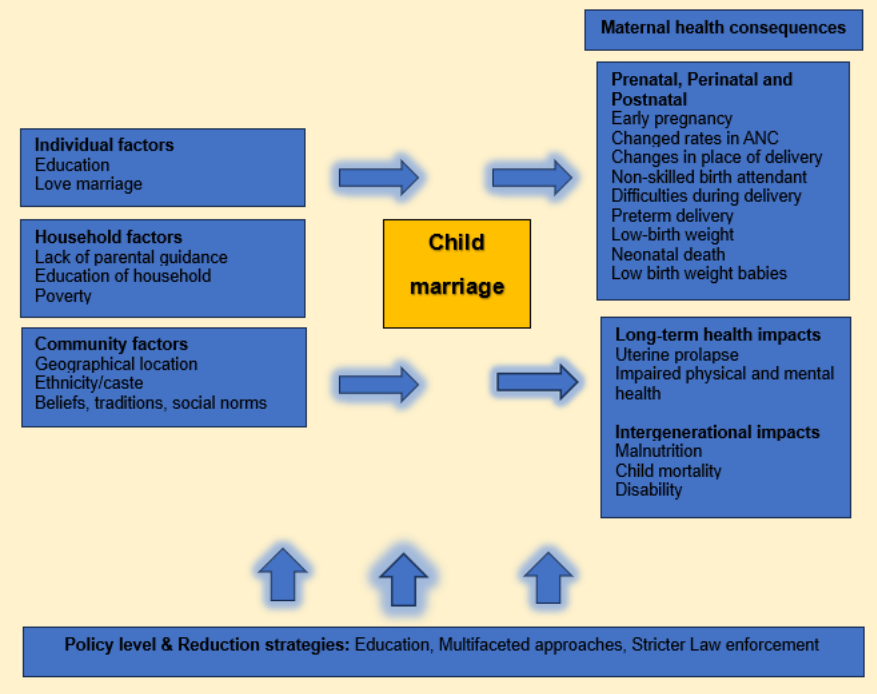

Figure 23: Overview of main findings

4.2 Strengths and Limitations

This multi-method study provides a comprehensive overview of child marriage in Nepal by combining a scoping review of various sources and study designs with qualitative data. The findings validate the ones of the scoping review while adding more context details with new trends and explanations. Additionally, this research highlights gaps and provides recommendations for future research and actors. However, limitations exist.

One of the main limitations of this research is that the included articles use different definitions of child marriage, which makes comparing the results challenging. The consequences of child marriage are often closely linked to early pregnancy, making them difficult to separate, and they are frequently studied together rather than independently. Only a few of the included studies distinguish between the consequences of early pregnancy and child marriage. This fact makes it difficult to know about the real child marriage consequences. Overall,

scoping reviews are less focused on quantitative or analytical synthesis. This study includes numerous cross-sectional results, qualitative findings, grey literature, or studies with small sample sizes, which provide weak scientific evidence. In addition, not all results show a significant correlation with child marriage. This fact makes comparing the results difficult. Additionally, the scoping review design limits evaluation by not applying critical appraisal to assess the quality of the research, and it includes articles with different methodologies. The main limitation of the qualitative part is that it contains only a few key-informant interviews from Sindhupalchok district. Therefore, these results may not apply to other parts of Nepal. Additionally, the qualitative results rely on the perceptions, experiences, and expertise of a few individuals, introducing potential bias. The research depended on translating the interview guide and interviews. Even though they were cross-checked it can bring some bias. Further, the translator was not involved from the beginning of the study and therefore lacked a deep understanding of the study proposal. To minimize this limitation the translator was provided with all the necessary documents in advance. At last, the study team has worked closely with some of the interviewees which can also introduce bias.

5 Recommendations

Based on the findings, the author and the study team formulated recommendations.

For researchers:

- A standardized definition and terminology for child marriage among researchers can help measure effects, compare results, and establish a common language
- The effects of child marriage should be researched separately from those of early pregnancy, to gain a clearer understanding of the full impact of child marriage.
- More high-quality research is needed to emphasize the adverse health impacts of child marriage especially postnatal, long-term, and intergenerational impacts, as well as effective mitigation strategies.
- Evolving contributing factors such as love marriage and the influence of social media need to be investigated.

For decision-makers and implementers:

- A common terminology and definition for child marriage can support communication and impact evaluation.
- A multi-sectoral approach, including various stakeholders, with contextualized programs derived from the community aiming to tackle social and gender norms, along with providing financial aid or income-generating opportunities for girls and families, is recommended.
- The multi-sectoral approach should involve both the education and legal sectors. The education system must provide high-quality, affordable, and accessible education up to higher levels. Additionally, stricter law enforcement is necessary, with all stakeholders consistently following legal procedures.
- To address self-initiated/ child love marriage, programs should prioritize girls' knowledge, empowerment, and counseling, and offer services to prevent child marriage.

6 Conclusions

Child marriage has immense consequences for women and future generations. A lack of a consistent definition and terminology for child marriage exists among researchers and key informants. Various factors contribute to child marriage. Education is a key factor. Both lack of education and low-quality education increase the likelihood of child marriage. Love marriage among children plays a crucial role in Sindhupalchok district. The consequences of child marriage on health are extensive, ranging from early pregnancy to more complications during pregnancy and delivery to increased maternal and child morbidity and mortality. Child marriage can lead to lasting consequences, including uterine prolapse in women and developmental delays or malnutrition in future offspring. Consequently, tackling child marriage is complex. Multi-sectoral approaches are needed. Quality education is essential in addressing child marriage. Awareness programs must be contextualized and community-driven, focusing on the most vulnerable groups. Education, awareness, stricter law enforcement, and economic opportunities can challenge deep-rooted social and gender norms.

7 Funding

This study was funded by FAIRMED Switzerland.

8 Conflict of interest

The author of this study declares no conflict of interest.

9 Supplementary files

Supplementary files mentioned in the research are available upon request.

Supplementary file 1: Data extraction file

Supplementary file 2: Translated interview guide and information and consent form

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Vikram, K., Visaria, A., Ganguly, D., 2023. Child marriage as a risk factor for non-communicable diseases among women in India. Int. J. Epidemiol. 52, 1303–1315. https://doi.org/10.1093/ije/dyad051
Wei, W., Sarker, T., Żukiewicz-Sobczak, W., Roy, R., Alam, G.M.M., Rabbany, M.G., Hossain, M.S., Aziz, N., 2021. The Influence of Women's Empowerment on Poverty Reduction in the Rural Areas of Bangladesh: Focus on Health, Education and Living Standard. Int. J. Environ. Res. Public. Health 18, 6909. https://doi.org/10.3390/ijerph18136909
Wells, J.C.K., Marphatia, A.A., Cortina-Borja, M., Manandhar, D.S., Reid, A.M., Saville, N.M., 2022. Associations of maternal age at marriage and pregnancy with infant undernutrition: Evidence from first-time mothers in rural lowland Nepal. Am. J. Biol. Anthropol. 178, 557–573. https://doi.org/10.1002/ajpa.24560
WHO, 2024a. Adolescent health [WWW Document]. Adolesc. Health. URL https://www.who.int/health-topics/adolescent-health#tab=tab_1 (accessed 10.21.24).
WHO, 2024b. Adolescent pregnancy [WWW Document]. Adolesc. Pregnancy. URL https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy (accessed 2.15.undefinedAD).
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WHO, n.d. Newborn health [WWW Document]. URL https://www.who.int/westernpacific/health-topics/newborn-health#:~:text=A%20newborn%20infant%2C%20or%20neonate,at%20highest%20risk%20of%20dying. (accessed 11.25.25).
Wodon, Q., Male, C., Nayihouba, A., Onagoruwa, A., Savadogo, A., Yedan, A., Edmeades, J., Kes, A., John, N., Murithi, L., Steinhaus, M., Petroni, S.,

2017. Economic impacts of child marriage : global synthesis report. Minist. Educ.
World Health Organization, no date. Maternal health [WWW Document]. URL https://www.who.int/health-topics/maternal-health#tab=tab_1 (accessed 5.20.24).
Yaya, S., Odusina, E.K., Bishwajit, G., 2019. Prevalence of child marriage and its impact on fertility outcomes in 34 sub-Saharan African countries. BMC Int. Health Hum. Rights 19, 33. https://doi.org/10.1186/s12914-019-0219-1
Yount, K.M., Durr, R.L., Bergenfeld, I., Sharma, S., Clark, C.J., Laterra, A., Kalra, S., Sprinkel, A., Cheong, Y.F., 2023. Impact of the CARE Tipping Point Program in Nepal on adolescent girls' agency and risk of child, early, or forced marriage: Results from a cluster-randomized controlled trial. SSM - Popul. Health 22, 101407. https://doi.org/10.1016/j.ssmph.2023.101407
Yukich, J., Worges, M., Gage, A.J., Hotchkiss, D.R., Preaux, A., Murray, C., Cappa, C., 2021. Projecting the Impact of the COVID-19 Pandemic on Child Marriage. J. Adolesc. Health, The Diversity and Complexity of Child Marriage 69, S23–S30. https://doi.org/10.1016/j.jadohealth.2021.07.037
Zahra, F., Austrian, K., Gundi, M., Psaki, S., Ngo, T., 2021. Drivers of Marriage and Health Outcomes Among Adolescent Girls and Young Women: Evidence From Sub-Saharan Africa and South Asia. J. Adolesc. Health Off. Publ. Soc. Adolesc. Med. 69, S31–S38. https://doi.org/10.1016/j.jadohealth.2021.09.014
Zegeye, B., Olorunsaiye, C.Z., Ahinkorah, B.O., Ameyaw, E.K., Budu, E., Seidu, A.-A., Yaya, S., 2021. Individual/Household and Community-Level Factors Associated with Child Marriage in Mali: Evidence from Demographic and Health Survey. BioMed Res. Int. 2021, 5529375. https://doi.org/10.1155/2021/5529375

Remarks on artificial intelligence:

- ChatGPT was used to rephrase some sentences and to find word variations.
- Word clouds created with https://wordclouds.ethz.ch/.

11 ANNEX

11.1 APPENDIX 1: List of included studies

1	Miller, F.A., Marphatia, A.A., Wells, J.C., Cortina-Borja, M., Manandhar, D.S., Saville, N.M., 2022. Associations between early marriage and preterm delivery: Evidence from lowland Nepal. Am. J. Hum. Biol. Off. J. Hum. Biol. Counc. 34, e23709. https://doi.org/10.1002/ajhb.23709	(Miller et al., 2022)
2	Sekine, K., Carandang, R.R., Ong, K.I.C., Tamang, A., Jimba, M., 2021. Identifying the causal effect of child marriage on unmet needs for modern contraception and unintended pregnancy in Nepal: a cross-sectional study using propensity score matching. BMJ Open 11, e043532. https://doi.org/10.1136/bmjopen-2020-043532	(Sekine et al., 2021)
3	Sekine, K., Carter, D.J., 2019. The effect of child marriage on the utilization of maternal health care in Nepal: A cross-sectional analysis of Demographic and Health Survey 2016. PloS One 14, e0222643. https://doi.org/10.1371/journal.pone.0222643	(Sekine and Carter, 2019)
4	Namasivayam, A., Osuorah, D. C., Syed, R., & Antai, D. (2012). The role of gender inequities in women's access to reproductive health care: a population-level study of Namibia, Kenya, Nepal, and India. *International journal of women's health*, *4*, 351–364. https://doi.org/10.2147/IJWH.S32569	(Namasivayam et al., 2012)
5	Godha, D., Hotchkiss, D.R., Gage, A.J., 2013. Association between child marriage and reproductive health outcomes and service utilization: a multi-country study from South Asia. J. Adolesc. Health Off. Publ. Soc. Adolesc. Med. 52, 552–558. https://doi.org/10.1016/j.jadohealth.2013.01.021	(Godha et al., 2013)
6	Kamal, S.M.M., Ulas, E., 2022. Child marriage and its association with Maternal Health Care Services utilisation among women aged 20-29: a multi-country study in the South Asia region. J. Obstet. Gynaecol. J. Inst. Obstet. Gynaecol. 42, 1186–1191. https://doi.org/10.1080/01443615.2022.2031929	(Kamal and Ulas, 2022)
7	Godha, D., Gage, A.J., Hotchkiss, D.R., Cappa, C., 2016. Predicting Maternal Health Care Use by Age at Marriage in Multiple Countries. J. Adolesc. Health Off. Publ. Soc. Adolesc. Med. 58, 504–511. https://doi.org/10.1016/j.jadohealth.2016.01.001	(Godha et al., 2016)
8	Maharjan, B., Rishal, P., Svanemyr, J., 2019. Factors influencing the use of reproductive health care services among married adolescent girls in Dang District, Nepal: a qualitative study. BMC Pregnancy Childbirth 19, 152. https://doi.org/10.1186/s12884-019-2298-3	(Maharjan et al., 2019)
9	Shahabuddin, A., De Brouwere, V., Adhikari, R., Delamou, A., Bardají, A., Delvaux, T., 2017. Determinants of institutional delivery among young married women in Nepal: Evidence from the Nepal Demographic and Health Survey, 2011. BMJ Open 7, e012446. https://doi.org/10.1136/bmjopen-2016-012446	(Shahabuddin et al., 2017)
10	Wells, J.C.K., Marphatia, A.A., Cortina-Borja, M., Manandhar, D.S., Reid, A.M., Saville, N.M., 2022. Associations of maternal age at marriage and pregnancy with infant undernutrition: Evidence from first-time mothers in rural lowland Nepal. Am. J. Biol. Anthropol. 178, 557–573. https://doi.org/10.1002/ajpa.24560	(Wells et al., 2022)
11	Haworth, E.J.N., Tumbahangphe, K.M., Costello, A., Manandhar, D., Adhikari, D., Budhathoki, B., Shrestha, D.K., Sagar, K., Heys, M., 2017. Prenatal and perinatal risk factors for disability in a rural Nepali birth cohort. BMJ Glob. Health 2, e000312. https://doi.org/10.1136/bmjgh-2017-000312	(Haworth et al., 2017)
12	Pandey, S., Karki, Y.B., Murugan, V., Mathur, A., 2017. Mothers' Risk for Experiencing Neonatal and Under-Five Child Deaths in Nepal: The Role of Empowerment. Glob. Soc. Welf. 4, 105–115. https://doi.org/10.1007/s40609-016-0047-3	(Pandey et al., 2017)
13	Mahato, S., 2016. Causes and Consequences of Child Marriage: A Perspective. Int. J. Sci. Eng. Res. 7, 698–702. https://doi.org/10.14299/ijser.2016.07.002	(Mahato, 2016)
14	Upadhyay, H.P., Bhandari, K.R., 2017. Factors Associated with Children Ever Born: A Case Study of Somadi Village Development Committee of Palpa District, Nepal. Adv. J. Soc. Sci. 1, 15–29. https://doi.org/10.21467/ajss.1.1.15-29	(Upadhyay and Bhandari, 2017)
15	Paneru, D., 2013. A study of prevalence and associated factors of Uterus Prolapse in Doti District of Nepal. Indian J. Public Health Res. Dev. 4, 53–57. https://doi.org/10.5958/j.0976-5506.4.3.077.	(Paneru, 2013)
16	Magar, E.B., Gupta, M., Parajuli, A., Chaudhary, R., Pandey, A., Bhattarai, S., 2023. Child Marriage: Knowledge, Factors, Consequences and Utilization of Maternal Services among Early Married Women. J. Nepal Health Res. Counc. 21, 259–264. https://doi.org/10.33314/jnhrc.v21i02.4307	(Magar et al., 2023)

17	Radl, C.M., Rajwar, R., Aro, A.R., 2012. Uterine prolapse prevention in Eastern Nepal: the perspectives of women and health care professionals. Int. J. Womens Health 4, 373–382. https://doi.org/10.2147/IJWH.S33564	(Radl et al., 2012)
18	Acharya, P., Welsh, B., 2017. Early and Forced Child Marriages in Rural Western Nepal. J. Underrepresented Minor. Prog. 1, 95–110. https://doi.org/10.32674/jump.v1i1.38	(Acharya and Welsh, 2017)
19	Dietrich, S., Meysonnat, A., Rosales, F., Cebotari, V., Gassmann, F., 2022. Economic development, weather shocks and child marriage in South Asia: A machine learning approach. PloS One 17, e0271373. https://doi.org/10.1371/journal.pone.0271373	(Dietrich et al., 2022)
20	Marphatia, A.A., Saville, N.M., Amable, G.S., Manandhar, D.S., Cortina-Borja, M., Wells, J.C., Reid, A.M., 2019. How Much Education Is Needed to Delay Women's Age at Marriage and First Pregnancy? Front. Public Health 7, 396. https://doi.org/10.3389/fpubh.2019.00396	(Marphatia et al., 2019)
21	Batyra, E., Pesando, L.M., 2021. Trends in child marriage and new evidence on the selective impact of changes in age-at-marriage laws on early marriage. SSM - Popul. Health 14, 100811. https://doi.org/10.1016/j.ssmph.2021.100811	(Batyra and Pesando, 2021)
22	Clark, C.J., Jashinsky, K., Renz, E., Bergenfeld, I., Durr, R.L., Cheong, Y.F., Kalra, S., Laterra, A., Yount, K.M., 2023. Qualitative endline results of the tipping point project to prevent child, early and forced marriage in Nepal. Glob. Public Health 18, 2287606. https://doi.org/10.1080/17441692.2023.2287606	(Clark et al., 2023)
23	Aryal, T.R., 2007. Age at first marriage in Nepal: differentials and determinants. J. Biosoc. Sci. 39, 693–706. https://doi.org/10.1017/S0021932006001775	(Aryal, 2007)
24	Morrow, G., Yount, K.M., Bergenfeld, I., Laterra, A., Kalra, S., Khan, Z., Clark, C.J., 2023. Adolescent boys' and girls' perspectives on social norms surrounding child marriage in Nepal. Cult. Health Sex. 25, 1277–1294. https://doi.org/10.1080/13691058.2022.2155705	(Morrow et al., 2023)
25	Paudel, M., Javanparast, S., Dasvarma, G., Newman, L., 2018. A qualitative study about the gendered experiences of motherhood and perinatal mortality in mountain villages of Nepal: implications for improving perinatal survival. BMC Pregnancy Childbirth 18, 163. https://doi.org/10.1186/s12884-018-1776-3	(Paudel et al., 2018)
26	Yount, K.M., Durr, R.L., Bergenfeld, I., Sharma, S., Clark, C.J., Laterra, A., Kalra, S., Sprinkel, A., Cheong, Y.F., 2023. Impact of the CARE Tipping Point Program in Nepal on adolescent girls' agency and risk of child, early, or forced marriage: Results from a cluster-randomized controlled trial. SSM - Popul. Health 22, 101407. https://doi.org/10.1016/j.ssmph.2023.101407	(Yount et al., 2023)
27	Seta, R., 2023. Child marriage and its impact on health: a study of perceptions and attitudes in Nepal. J. Glob. Health Rep. 7, e2023073. https://doi.org/10.29392/001c.88951	(Seta, 2023)
28	Shahi, P., Tamang, P., Simkhada, P., Rawat, K., 2019. Child Marriage-Knowledge, practice and its attributed consequences among early married women in Jumla, Nepal. Asian Pac. J. Health Sci. 6, 140–148. https://doi.org/10.21276/apjhs.2019.6.1.21	(Shahi et al., 2019)
29	Guragain, A.M., Paudel, B.K., Lim, A., Choonpradub, C., 2017. Adolescent Marriage in Nepal: A Subregional Level Analysis. Marriage Fam. Rev. 53, 307–319. https://doi.org/10.1080/01494929.2016.1157560	(Guragain et al., 2017)
30	Raj, A., McDougal, L., Silverman, J.G., Rusch, M.L.A., 2014. Cross-sectional time series analysis of associations between education and girl child marriage in Bangladesh, India, Nepal and Pakistan, 1991-2011. PloS One 9, e106210. https://doi.org/10.1371/journal.pone.0106210	(Raj et al., 2014)
31	Sah, R., Gaurav, K., Baral, D., Subedi, L., Jha, N., Pokharel, P., 2014. Factors affecting Early Age Marriage in Dhankuta Municipality, Nepal. Nepal J. Med. Sci. 3. https://doi.org/10.3126/njms.v3i1.10354	(Sah et al., 2014)
32	Pandey, S., 2017. Persistent nature of child marriage among women even when it is illegal: The case of Nepal. Child. Youth Serv. Rev. 73, 242–247. https://doi.org/10.1016/j.childyouth.2016.12.021	(Pandey, 2017)
33	Karki, R., Gupta, M., Kaphle, M., 2024. Prevalence and Risk Factors of Child Marriage Among Madhesi Women in Nepal's Terai Region. J. Fam. Reprod. Health 18, 94–100. https://doi.org/10.18502/jfrh.v18i2.15932	(Karki et al., 2024)
34	Bajracharya, A., Amin, S., 2012. Poverty, marriage timing, and transitions to adulthood in Nepal. Stud. Fam. Plann. 43, 79–92. https://doi.org/10.1111/j.1728-4465.2012.00307.x	(Bajracharya and Amin, 2012)
35	Choe, M.K., Thapa, S., Mishra, V., 2005. Early marriage and early motherhood in Nepal. J. Biosoc. Sci. 37, 143–162. https://doi.org/10.1017/s0021932003006527	(Choe et al., 2005)
36	Bhandari, N.R., 2019. Early Marriage in Nepal: Prospects for Schoolgirls. J. Int. Womens Stud. 20, 88–97.	(Bhandari, 2019)

37	Maitra, P., 2004. Effect of socioeconomic characteristics on age at marriage and total fertility in Nepal. J. Health Popul. Nutr. 22, 84–96.	(Maitra, 2004)
38	Bhattarai, P.C., Paudel, D.R., Poudel, T., Gautam, S., Paudel, P.K., Shrestha, M., Ginting, J.I., Ghimire, D.R., 2022. Prevalence of Early Marriage and Its Underlying Causes in Nepal: A Mixed Methods Study. Soc. Sci. 11, 177. https://doi.org/10.3390/socsci11040177	(Bhattarai et al., 2022)
39	Marphatia, A.A., Saville, N.M., Manandhar, D.S., Cortina-Borja, M., Wells, J.C.K., Reid, A.M., 2023. The role of education in child and adolescent marriage in rural lowland Nepal. J. Biosoc. Sci. 55, 275–291. https://doi.org/10.1017/S0021932022000074	(Marphatia et al., 2023)
40	Aryal, L., Pandey, B., KC, E., Chaudhary, J.K., Chinnal, S., Bajgain, D., Danuwar, S., 2020. Redefining The Early And Child Marriage And Reconsidering Its Elimination In Nepal Through Absolute Criminalization. Women's Rehabilitation Center (WOREC), Kathmandu, Nepal.	(Aryal et al., 2020)
41	Tiwari, I., Acharya, K., Paudel, Y.R., Sapkota, B.P., Kafle, R.B., 2020. Planning of births and childhood undernutrition in Nepal: evidence from a 2016 national survey. BMC Public Health 20, 1788. https://doi.org/10.1186/s12889-020-09915-8	(Tiwari et al., 2020)
42	Adhikari, R., Soonthorndhada, K., Prasartkul, P., 2009. Correlates of unintended pregnancy among currently pregnant married women in Nepal. BMC Int. Health Hum. Rights 9, 17. https://doi.org/10.1186/1472-698X-9-17	(Adhikari et al., 2009)
43	Devkota, H.R., Clarke, A., Shrish, S., Bhatta, D.N., 2018. Does women's caste make a significant contribution to adolescent pregnancy in Nepal? A study of Dalit and non-Dalit adolescents and young adults in Rupandehi district. BMC Womens Health 18, 23. https://doi.org/10.1186/s12905-018-0513-4	(Devkota et al., 2018)
44	Jailobaeva, K.B., Kraft, K., Barrett, H., Niyonkuru, P., Lim, D., Marin, A., Cossa, E., 2024. The Role of Faith in Child Marriage: Empirical Evidence from Mozambique, Nepal, and the Philippines. Rev. Faith Int. Aff. 22, 39–54. https://doi.org/10.1080/15570274.2024.2375847	(Jailobaeva et al., 2024)
45	Thapa, B., Macer, D., 2018. Bases of Early Marriage & Consequences on the Wellbeing of Mother and Child in Jhirubas, Palpa, Nepal. Eubios J. Asian Int. Bioeth. 28, 51–64.	(Thapa and Macer, 2018)
46	Leigh et al., J., 2020. Child Marriage in Humanitarian Settings in South Asia: Study Results from Bangladesh and Nepal. [WWW Document]. UNFPA APRO UNICEF ROSA. URL https://www.unicef.org/rosa/reports/child-marriage-humanitarian-settings-south-asia (accessed 10.16.24).	(Leigh et al., 2020)
47	Marphatia, A.A., Saville, N.M., Manandhar, D.S., Cortina-Borja, M., Wells, J.C.K., Reid, A.M., 2021. Quantifying the association of natal household wealth with women's early marriage in Nepal. PeerJ 9, e12324. https://doi.org/10.7717/peerj.12324	(Marphatia et al., 2021)
48	Sah, N., 2008. How useful are the demographic surveys in explaining the determinants of early marriage of girls in the Terai of Nepal? J. Popul. Res. 25, 207–222. https://doi.org/10.1007/BF03031949	(Sah, 2008)
49	Choe, M.K., Thapa, S., Achmad, S., 2001. Early Marriage and Childbearing in Indonesia and Nepal [WWW Document]. East-West Cent. URL https://www.eastwestcenter.org/publications/early-marriage-and-childbearing-indonesia-and-nepal (accessed 10.25.24).	(Choe et al., 2001)
50	National Statistics Office, Nepal, 2024. National Population and Housing Census 2021 Population Composition of Nepal [WWW Document]. Natl. Popul. Hous. Census 2021 Popul. Compos. Nepal. URL https://censusnepal.cbs.gov.np/results/files/result-folder/Final_Population_compostion_12_2.pdf (accessed 10.17.24).	(National Statistics Office, Nepal, 2024)
51	MacQuarrie, K.L.D., Juan, C., Fish, T.D., 2019. Trends, inequalities, and contextual determinants of child marriage in Asia. DHS Analytical Studies No. 69. Rockville, Maryland, USA: ICF. [WWW Document]. URL https://dhsprogram.com/publications/publication-as69-analytical-studies.cfm (accessed 10.25.24).	(MacQuarrie et al., 2019)
52	Central Bureau of Statistics Nepal, 2014. Population Monograph of Nepal Volume II (Social Demography) [WWW Document]. Nepal UNFPA. URL https://nepal.unfpa.org/sites/default/files/pub-pdf/Population%20Monograph%20V02.pdf (accessed 10.17.24).	(Central Bureau of Statistics Nepal, 2014)
53	Baral, S., 2019. Ending the practice of child marriages in Nepal: viewpoints and suggestions from children's rights activists [WWW Document]. Cent. East South-East Asian Stud. Lund Univ. URL https://lup.lub.lu.se/luur/download?func=downloadFile&recordOId=8996930&fileOId=8996931 (accessed 10.25.24).	(Baral, 2019)

54	Manandhar, N., Joshi, S.K., 2020. Health Co-morbidities and Early Marriage in Women of a Rural Area of Nepal: A Descriptive Cross-Sectional Study. JNMA J. Nepal Med. Assoc. 58, 780–783. https://doi.org/10.31729/jnma.5205	(Manandhar and Joshi, 2020)

11.2 APPENDIX 2: List of excluded studies in alphabetical order

Acharya, K., Paudel, Y.R., Silwal, P., 2019. Sexual violence as a predictor of unintended pregnancy among married young women: evidence from the 2016 Nepal demographic and health survey. BMC Pregnancy Childbirth 19, 196. https://doi.org/10.1186/s12884-019-2342-3
Adhikari, R., 2018. Child Marriage and Physical Violence: Results from a Nationally Representative Study in Nepal. J. Health Promot. 6, 49–59. https://doi.org/10.3126/jhp.v6i0.21804
Ahearn, L.M., 1994. Consent and coercion: Changing marriage practices among Magars in Nepal [WWW Document]. Univ. Mich. URL https://deepblue.lib.umich.edu/handle/2027.42/129417 (accessed 10.10.24).
Allendorf, K., 2019. Parents' Valuation of Approving a Child's Spouse in a Context of Marital Change. J. Fam. Issues 40, 2097–2122. https://doi.org/10.1177/0192513X19849634
Allendorf, K., Thornton, A., Mitchell, C., Young-DeMarco, L., Ghimire, D.J., 2017. Early Women, Late Men: Timing Attitudes and Gender Differences in Marriage. J. Marriage Fam. 79, 1478–1496. https://doi.org/10.1111/jomf.12426
Amigó, M.F., Gurung, S., 2022. The transformational possibilities of a peer education program to address child marriage in Nepal. Dev. Pract. 32, 890–900. https://doi.org/10.1080/09614524.2021.1937572
Anand, E., Unisa, S., Singh, J., 2017. INTIMATE PARTNER VIOLENCE AND UNINTENDED PREGNANCY AMONG ADOLESCENT AND YOUNG ADULT MARRIED WOMEN IN SOUTH ASIA. J. Biosoc. Sci. 49, 206–221. https://doi.org/10.1017/S0021932016000286
Andersen, K.L., Khanal, R.C., Teixeira, A., Neupane, S., Sharma, S., Acre, V.N., Gallo, M.F., 2015. Marital status and abortion among young women in Rupandehi, Nepal. BMC Womens Health 15, 17. https://doi.org/10.1186/s12905-015-0175-4
Aryal, R.H., 1991. Socioeconomic and cultural differentials in age at marriage and the effect on fertility in Nepal. J. Biosoc. Sci. 23, 167–178. https://doi.org/10.1017/s0021932000019192
Atteraya, M.S., Murugan, V., Pandey, S., 2017. Intersection of Caste/Ethnic Affiliation and Poverty Among Married Women in Intimate Partner Violence: the Case of Nepal. Glob. Soc. Welf. 4, 81–90. https://doi.org/10.1007/s40609-016-0056-2
Awasthi, M.S., Awasthi, K.R., Thapa, H.S., Saud, B., Pradhan, S., Khatry, R.A., 2018. Utilization of Antenatal Care Services in Dalit Communities in Gorkha, Nepal: A Cross-Sectional Study. J. Pregnancy 2018, 3467308. https://doi.org/10.1155/2018/3467308
Baer Chan, A., 2015. The Social Institution and Inscription of Child Marriage in the Terai Region of Nepal [WWW Document]. Indep. Study Proj. ISP Collect. URL https://digitalcollections.sit.edu/isp_collection/2097
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11.3 APPENDIX 3: Information and consent form

Informed consent form for key-informant interviews in Nepal

Participant ID: _ _

Study title: Child marriage in Nepal: A multi-method study on contributing factors, maternal health implications and reduction strategies

Principal Investigator: Tamara Mosimann

Responsible for interviews: Principal investigator and Co-Investigator Biplov Shakya and Shobha Ram Bhandari

Organization: FAIRMED, Nepal & Swiss Tropical and Public Health Institute

This informed consent form is for local officials and representatives who are invited to participate in this research.

I Part: Information about the Study

Introduction /Purpose of study - The main purpose of this study is a master thesis. Tamara Mosimann as a principal investigator is aiming to obtain a Master of Advanced Studies in International Health from Swiss Tropical and Public Health Institute and the University of Basel. The study is conducted in collaboration with FAIRMED which has been working in Nepal since 2011. The purpose of this research is to explore the factors of child marriage, its consequences on maternal health and possible reduction strategies in Nepal, which can guide future projects or efforts to tackle child marriage in Nepal. The research will contain two parts, a systematic search of the literature and interviews with stakeholders. We want to learn from the interviews about the reasons behind child marriage in Nepal, how it affects mothers' health, and what is being done to reduce child marriage.

Voluntary participation – **right to withdraw at any time** - Your participation in this research is entirely voluntary. It is your choice whether to participate or not. If you decide to participate, you can change your mind anytime and you can withdraw whenever you want. There is no obligation to answer questions and you can always skip questions you do not wish to answer. If you choose not to participate or to withdraw, this will not affect you in any way. You do not have to give us a reason for not responding to any question, or for refusing to take part in the interview.

Process of the interview / duration - This research will involve around 10 interviews with local officials and representatives from the district and municipality level as well as from health institutions of Sindhupalchok. One interview will take 45 – 60 minutes. The interview will be recorded. During the interview, two investigators will be present the Principal Investigator and a Co-Investigator. No other person will be attending the interview. The interview will be recorded and kept confidential. No one else outside the research team will have access to the

recording. After transcription the recording will be deleted. No one will be identified by name during the recording.
Sharing the results - Nothing that you tell us during the interview will be shared with anybody outside the research team, and nothing will be attributed to you by name. The knowledge that we get from this research will be shared with you before it will be used in the thesis or made available to the public. Following the consultation with you we will use the results in the research and maybe also make it available for other interested people.

Risks - The proposal of this research has been ethically approved by the Nepal Health Research Council and got Ethical Exemption from the Swiss Ethics Committee in Basel, which confirm that this research will not harm participants in any means. This research will not disclose your identity anywhere so I would like to assure you, there is not any type of risk for the participants through this research.

Benefits – There is no direct benefit to you, but your participation will help us to understand the child marriage situation and associated contributing factors in Nepal.

Reimbursement – There will be no reimbursement or any incentive to take part in this study.

Confidentiality – The personal information provided by the respondents during the interview will be accessible only to the research team, who are responsible for maintaining its confidentiality. Responses will be tracked using a random code. This code will be linked to the respondents' answers and their names via a master list, which will be stored separately by the researchers. Any information that could directly identify a respondent will be deleted. Later after the data analyses there won't be any recognition between your answer and your person. We will not be sharing information about you to anyone outside of the research team.

Whom to contact - In case of any questions regarding the research or the participation in the research you are welcome to contact Shobha Ram Bhandari (+9779849663230 or shobharam.bhandari@fairmed.ch) or directly the Nepal Health Research Council (NHRC) at Ramshah path, Kathmandu P.O. Box 7626, Kathmandu, Nepal (+97715354220 / +9774254220 or nhrc@nhrc.gov.np).

II Part: Informed consent

I read the information about the planned research “Child marriage in Nepal: A multi-method study on contributing factors, maternal health implications and reduction strategies” and have understood it. I had the opportunity to ask questions and the questions I asked have been answered in a satisfactory way. I consent voluntarily to be a participant in this study.

Name of Participant _____

Signature of Participant _____

Location, Date_____

To complete by the researcher:

Statement by the researcher taking consent

I hereby, confirm that the person has agreed to the above information and has given consent to participate voluntarily in the research, including recording. The person had the opportunity to ask questions.

Print Name of Researcher taking the consent_____

Signature of Researcher taking the consent_____

Location, Date _____

11.4 APPENDIX 4: Interview guide

Study title: Child marriage in Nepal: A multi-method study on contributing factors, maternal health implications and reduction strategies
Participant ID:
Location: Date: Time:
Name of interviewer:
Name of researchers attending the interview:
Qualitative interview introduction
To check before starting: □ Introduction by interviewer see below □ Make sure the information and consent form are signed before the interview □ Asking consent to record the interview before starting □ Ask for any questions before starting Introduction by the interviewer: Namaste. We are _____ and Tamara Mosimann. Thank you for taking time to participate in this study. This interview is part of a research for a master's thesis in collaboration with FAIRMED Nepal. The research aims to explore the factors of child marriage, its consequences on maternal health and possible reduction strategies in Nepal. One part of the research is to talk to local officials and representatives like you and to understand what you think are the most common factors leading to child marriage, the consequences on maternal health and the efforts to reduce child marriage and your thoughts about it. The interview will take around 45 to 60 minutes. There are no right or wrong answers. Your participation is completely voluntary. You have the right to stop any time, without any consequences. If there are any questions, you do not want to answer, that is okay, and you don't need to provide a reason. What you say will be kept confidential and private. Your name will not be connected to what you say or on any document. So, please feel free to speak honestly. We will be audio recording our conversation to make the process after the interview easier for our research. **Before we begin, do you have any questions?**
Warm-up

1. Can you describe your work and your current position?
- How long have you been working in this position?

2. What is your definition of child marriage?

2.1. What can you tell us about child marriage in Nepal?

2.2. How do you see child marriage in this municipality, district, primary health care center or birthing center?

2.3. How does this influence/ relate to your work?
- Probe: Can you tell me more about that?

Main Body for district level and for local NGO chairperson in field of child marriage

Factors of child marriage

3. Is there child marriage in your community?
- Probe: If yes, what is the trend, is it increasing or decreasing?

3.1 In your opinion, what are contributing factors of child marriage in Sindhupalchok?

- Probe: How do these factors contribute to child marriage? Can you explain?

- Probe: If cultural practices/ beliefs are mentioned: How do cultural practices/beliefs influence child marriage? Do you have an example?

- Probe: If cultural practices/ beliefs are not mentioned: Do you think cultural practices and beliefs play a contributing role to child marriage? In which way? Can you tell us more about it?

4. How have the factors influencing child marriage changed over the years in your opinion?

4.1 How did you notice that?
- Probe: How do you think access to a mobile phone and social media affects child marriage?

4.2 What do you think in which way it will develop?
- Probe: Why do you think love marriage is becoming more popular among children?

Consequences on maternal health

5. What are the maternal health consequences women face due to child marriage in Sindhupalchok district?
- Probe: Which prenatal, perinatal and postnatal outcomes of child marriage are common in Sindhupalchok?

5.1 Can these maternal health consequences be generalized for Nepal? Or how does Sindhupalchok differ from other districts in Nepal?

- Probe: Can you elaborate further on the reasons for these differences?

5.2 Which interventions can prevent adverse maternal health consequences for women and girls who are married as children?

- Probe: How would you start this strategy or how does it look like?

6. What are the long-term health impacts for women who married as children in Sindhupalchok district?

- Probe: How do they relate to child marriage?
- Probe: Is child marriage related to uterine prolapse?
- Probe: How do you address those long-term health impacts at district level?
- Probe: Can you tell us more about these strategies?
- Probe: If no strategies are in place, how could they be best addressed?

6.1 How does child marriage impact the health of children who are born to a mother who got married at a young age (intergenerational impacts) in Sindhupalchok?

- Probe: How do you observe this?
- Probe: How are they addressed? Or how can they be best addressed?

Reduction strategies of child marriage

7. What are the current efforts in Nepal to reduce child marriage?

7.1 Are they successful?

- Probe: If yes, in which way?
- Probe: If not, why do you think not? Would there be a need? What would you suggest? What would you change in the approach?

7.2 Which efforts were taken in the past to reduce child marriage?

- Probe: Can you tell us more about their strategies? Were they successful in your opinion? What made them successful or what not?

8. Are there specific measures, programs, initiatives, or policies at district level aiming to reduce child marriage?

8.1 If no --> go to 8.3

8.2 If yes,

8.2.1 Can you tell us more about those programs, initiatives, or policies?

- Probe: How are they implemented?
- Probe: How are the different efforts coordinated?
- Probe: What are the challenges?
- Probe: Are there any changes or successes since these measures are in place?

8.2.2 In which way do they target different ethnic groups or castes or geographic locations?

- Probe: Is there any specific geographic location in Sindhupalchok in which child marriage is more seen?

8.3 Which efforts were taken in the past to reduce child marriage at the district level?

- Probe: Can you tell us more about their strategies? Were they successful in your opinion? What made them successful or what not? Their actions, goals?

8.4 According to the literature, education has a huge impact on child marriage. The less education a girl or a family has the more likely the girl will marry as a child. How do you think these could be addressed?

- Probe: How can be reached that more girls stay in school? What is needed?
- Probe: Is love marriage affecting girls' education?

8.5 Research also shows that traditions, beliefs, and norms contribute a lot to child marriage. What do you think how can gender and social norms be addressed to reduce child marriage?

- Probe: How can the most marginalized and illiterate people be reached?

9. Who are the key stakeholders to be involved while tackling child marriage?

- Probe: Can you tell us more about their roles and responsibilities in addressing child marriage?
- Probe: How can they be involved?

10. How can the differences between the various geographical areas, ethnic communities, castes, cultures, languages, and practices be tackled while trying to reduce child marriage?

- Probe: Can you tell us more about how best to address these differences?
- Probe: Research shows that geographical factors contribute a lot to child marriage (e.g. Terai & rural areas have higher numbers). How can these challenges be addressed?

11. Which measure according to your opinion will reduce child marriage?

- Probe: How would this measure look in detail?

12. Are there future plans or strategies for further reducing child marriage and improving maternal health consequences in Sindhupalchok district?

- Probe: If yes, can you elaborate more on them?

Main Body for municipality level

<u>Factors of child marriage</u>

3. Is there child marriage in your community?
- Probe: If yes, what is the trend, is it increasing or decreasing?

3.1 In your opinion, what are the contributing factors to child marriage in your municipality?

- Probe: How do these factors contribute to child marriage? Can you explain?
- Probe: If cultural practices/ beliefs are mentioned: How do cultural practices/beliefs influence child marriage? Do you have an example?
- Probe: If cultural practices/ beliefs are not mentioned: Do you think cultural practices and beliefs contribute to child marriage? In which way? Can you tell us more about it?

4. How have the factors influencing child marriage changed over the years in your opinion?

4.1 How did you notice that?
- Probe: How do you think access to a mobile phone and social media affects child marriage?

4.2 What do you think in which way it will develop?
- Probe: Why do you think love marriage is becoming more popular among children?

Consequences on maternal health

5. What are the maternal health consequences women face due to child marriage in this municipality?
- Probe: Which prenatal, perinatal, and postnatal outcomes of child marriage are common in this municipality?

5.1 Can these maternal health consequences be generalized for Sindhupalchok district? Or how does this municipality differ from other municipalities?
- Probe: Can you elaborate further on the reasons for these differences?

5.2 Which interventions can prevent adverse maternal health consequences for women and girls who are married as children?
- Probe: How would you start this strategy or what does it look like?

6. What are the long-term health impacts for women who married as children in this municipality?
- Probe: How do they relate to child marriage?
- Probe: Is child marriage related to uterine prolapse?
- Probe: How do you address those long-term health impacts at municipality level?

- Probe: Can you tell us more about these strategies?
- Probe: If no strategies are in place, how could they be best addressed?

6.1 How does child marriage impact the health of children who are born to a mother who got married at a young age (intergenerational impacts) in this municipality?

- Probe: How do you observe this?
- Probe: How are they addressed? Or how can they be best addressed?

Reduction strategies

7. What are the current efforts in Nepal to reduce child marriage?

7.1 Are they successful?

- Probe: If yes, in which way?
- Probe: If not, why do you think not? Would there be a need? What would you suggest? What would you change in the approach?

7.2 Which efforts were taken in the past to reduce child marriage?

- Probe: Can you tell us more about their strategies? Were they successful in your opinion? What made them successful or what not?

8. Are there specific measures, programs, initiatives, or policies at municipality level aiming to reduce child marriage?

8.1 If no, --> got to 8.3

8.2 If yes,

8.2.1 Can you tell us more about those programs, initiatives, or policies?

- Probe: How are they implemented?
- Probe: How are the different efforts coordinated?
- Probe: What are the challenges?
- Probe: Can you tell us more about the changes or successes since these measures are in place?

8.2.2 In which way do they target different ethnic groups or castes or geographic locations?

- Probe: Is there any specific geographic location in Sindhupalchok in which child marriage is more seen?

8.3 Which efforts were taken in the past to reduce child marriage at municipality level?

- Probe: Can you tell us more about their strategies? Were they successful in your opinion? What made them successful or what not? Their actions, goals?

8.4 According to the literature, education has a huge impact on child marriage. The less education a girl or a family has the more likely the girl will marry as a child. How do you think these could be addressed?

- Probe: How can be reached that more girls stay in school? What is needed?
- Probe: Is love marriage affecting girls' education?

8.5 Research also shows that traditions, beliefs and norms contribute a lot to child marriage. What do you think how can gender and social norms be addressed to reduce child marriage?

- Probe: How can the most marginalized and illiterate people be reached?

9. Who are the key stakeholders to be involved in tackling child marriage?

- Probe: Can you tell us more about their roles and responsibilities in addressing child marriage?
- Probe: How can they be involved?

10. How can the differences between the various ethnic communities, geographical areas, cultures, castes, languages, and practices be tackled while trying to reduce child marriage?

- Probe: Can you tell us more about how best to address these differences?

- Probe: Research shows that geographical factors contribute a lot to child marriage (e.g. Terai & rural areas have higher numbers). How can these challenges be addressed?

11. Which measure according to your opinion will reduce child marriage?

- Probe: How exactly would this measure look like?

12. Are there future plans or strategies for further reducing child marriage and therefore improving maternal health consequences in this municipality?

- Probe: If yes, can you elaborate more on them?

Main body for birthing center, primary health care center

Factors of child marriage

3. Is there child marriage in your community?

- Probe: If yes, what is the trend, is it increasing or decreasing?

3.1 In your opinion, what are the contributing factors of child marriage that you observe in this center?

- Probe: How do these factors contribute to child marriage? Can you explain?

- Probe: If you don’t observe any: Are there married women below 18 years who are using the services of your center? What do they have in common?

- Probe: If cultural practices/ beliefs are mentioned: How do cultural practices / beliefs influence child marriage? Do you have an example?

- Probe: If cultural practices/ beliefs are not mentioned: Do you think cultural practices and beliefs play a contributing role to child marriage? In which way? Can you tell us more about it?

4. How have the factors influencing child marriage changed over the years in your opinion?

4.1 How did you notice that?

- Probe: How do you think access to a mobile phone and social media affects child marriage?

4.2 What do you think in which way it will develop?

- Probe: Why do you think love marriage is becoming more popular among children?

Consequences on maternal health

5. What maternal health consequences can be observed in this center as a result of child marriage?

- Probe: Which prenatal, perinatal, and postnatal outcomes of child marriage do you observe in this center?

5.1 How do you address women married at a young age, knowing that there can be adverse maternal health consequences?

- Probe: Is there anything specific you are doing? What exactly?

5.2 Which interventions can prevent adverse maternal health consequences for women and girls who are married as children?

- Probe: How would you start this strategy or what does it look like?

6. What are the long-term health impacts for women who married as children that you observe in this center?

- Probe: How do they relate to child marriage?
- Probe: If not observed: What do you think could be the long-term health impacts of child marriage?
- Probe: Do you observe uterine prolapse in this center? How is it related to
- child marriage?
- Probe: How do you address those long-term health impacts in your center?
- Probe: If no strategies are in place, how could they be best addressed?

6.1 How does child marriage impact the health of children who are born to a mother who got married at a young age (intergenerational impacts)?

- Probe: What do you observe in this center?
- Probe: How do you address them in your center? Or how can they be best addressed?

Reduction strategies
7. What are the current efforts in Nepal to reduce child marriage? 7.1 Are they successful? • Probe: If yes, in which way? • Probe: If not, why do you think not? Would there be a need? What would you suggest? What would you change in the approach? 7.2 Which efforts were taken in the past to reduce child marriage? • Probe: Can you tell us more about their strategies? Were they successful in your opinion? What made them successful or what not?
8. Are there specific measures, programs or initiatives in place in your center to reduce child marriage? **8.1 If no --> go to 8.3** **8.2 If yes,** 8.2.1 Can you tell us more about those programs or initiatives? • Probe: How are these measures implemented? • Probe: Who was the initiator of these efforts? • Probe: What are the challenges? 8.2.2 Would you call them successful? • Probe: If yes, what could be the reasons for that? Which changes or successes do you observe since these measures are in place? • Probe: If not, reasons for why not? 8.2.3 In which way do they target different ethnic groups or castes or geographic locations? • Probe: Can you elaborate more on that? **8.3** Which efforts were taken in the past to reduce child marriage in your center? • Probe: Can you tell us more about these efforts? Were they successful in your opinion? What made them successful or what not? Their actions, goals? 8.4 According to the literature, education has a huge impact on child marriage. The less education a girl or a family has the more likely the girl will marry as a child. How do you think these could be addressed? • Probe: How can be reached that more girls stay in school? What can you contribute as a center? • Probe: Is love marriage affecting girls' education? 8.5 Research also shows that traditions, beliefs and norms contribute a lot to child marriage. What do you think how can gender and social norms be addressed by your center to reduce child marriage? • Probe: How can the most marginalized and illiterate people be reached? How can these center approach these communities?

9. Who are the key stakeholders to be involved while tackling child marriage for you as a center? • Probe: Can you tell us more about their roles and responsibilities in addressing child marriage? • Probe: How can they be involved? 9.1 How could this center be a supportive stakeholder to reduce child marriage? • Probe: Tell us more about this idea.
10. How can the differences between the various ethnic communities, geographical areas, cultures, castes, languages and practices be tackled while trying to reduce child marriage? 10.1 How do you address different ethnic communities, cultures, castes, languages and practices in your center? • Probe: Do you use different approaches for different communities? • Probe: Research shows that geographical factors contribute a lot to child marriage (e.g. Terai & rural areas have higher numbers). How can these challenges be addressed?
11. Which measure according to your opinion will reduce child marriage? • Probe: How exactly would this measure look like?
12. Are there future plans or strategies that you would like to implement for further reducing child marriage and therefore improving maternal health consequences in your center? • Probe: If yes, can you elaborate more on them?
Closure
13. Slowly coming to an end, what is your recommendation on how to reduce child marriage best? • Probe: Why do you think this could be the best way?
14. Is there anything additional you want to say or to add?
15. Is there anything you would like to ask us as researchers?
<u>Final Comment to the Interviewee:</u> We highly appreciate your time and your valuable answers and are very pleased that you participated in our research. THANK YOU SO MUCH! If you have any questions later, you are very welcome to contact us anytime.