“As soon as they can hold a glass”

Exploring the prevalence, context and social determinants of early childhood substance use before age 10: a multimethod study from 11 countries in Africa

Vilde Skylstad

Thesis for the degree of Philosophiae Doctor (PhD)
University of Bergen, Norway
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Scientific environment

The research this thesis is based on was conducted while I was a medical student in the Medical Student Research Programme (2013-2019) and PhD candidate (2019-2023) at the Centre for International Health, Department of Global Public Health and Primary Care, Medical Faculty, University of Bergen, Norway.

Funding for this PhD came from the research project *"TREAT Child Alcohol Use Disorder (C-AUD) in Eastern Uganda: Screening, diagnostics, risk factors and handling of children drinking alcohol"*, funded by the Norwegian Research Council (project number 285489).

The scientific environment was the TREAT consortium, consisting of colleagues from the University of Bergen, the Norwegian Centre for Violence and Traumatic Stress Studies and the Norwegian University of Science and Technology in Norway and Makerere University in Uganda. Further, I have been affiliated with the Global Mental Health Research Group, the Global Health Anthropology Research Group, and the Norwegian Research School of Global Health.

From 2013 I have spent cumulatively one year in Uganda, doing fieldwork and project administration, working with colleagues at Makerere University. In 2023, I had a three-month long stay as a visiting PhD-candidate at the Global Health Section, Department of Public Health, University of Copenhagen.

Main supervisor: Professor Ingunn Marie Stadskleiv Engebretsen, Centre for International Health and Department of Global Public Health and Primary Care, University of Bergen.

Co-supervisor: Ane-Marthe Solheim Skar, PhD, Global Health Cluster at the Norwegian Institute of Public Health , Norwegian Centre for Violence and Traumatic Stress Studies and Centre for International Health, Department of Global Public Health and Primary Care at the University of Bergen (previous affiliation).

TREAT
C - A U D

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My sincerest gratitude,

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Abstract

Background: After finding clinically defined harmful alcohol use among 5–8-year-old children in Uganda, we sought to further investigate this practice in Uganda in particular, and Africa more generally. Substance use in early childhood before adolescence (i.e., before age 10) can have detrimental public health consequences but is under-researched. Social determinants of health are considered the "causes of the causes" and can help explain the reasons and implications for this practice.
Objectives: The overall objective of this thesis was to investigate the prevalence, context and social determinants of substance use among children younger than 10 years in Africa. Further, this included specific objectives of exploring the context and social determinants of substance use among children younger than 10 years in Mbale, Uganda (papers I and II) and investigating the prevalence of substance use initiation before age 10 in Africa, and its association with social determinants (paper III).
Methods: We applied both qualitative and quantitative methods. For papers I and II we undertook eight focus group discussions and 26 key informant interviews with parents and key stakeholders. We applied thematic content analysis. For paper III we undertook a secondary analysis of publicly available data from 10 African countries that participated in the Global School-Based Student Health Survey and provided data on the age of substance use initiation. We used multinomial logistic regression to investigate associations between substance use initiation and social determinants.
Results: The three papers establish two important findings. Firstly, 9.5% of secondary schoolchildren across Africa initiated substance use before age 10, sometimes "as soon as they can hold a glass". Secondly, this practice was explained by a context of widespread substance use and exacerbated by poverty and deprivation, where early childhood use was associated with worse status on social determinants of health.
Conclusion: To our knowledge, this is the first comprehensive investigation of the prevalence, context and social determinants of substance use in early childhood in Africa. This unignorable public health issue of early childhood substance use has been overlooked and will further exacerbate inequalities if it remains unaddressed.

Abstrakt

Bakgrunn: Etter å ha funnet skadelig alkoholinntak blant 5-8 år gamle barn i Uganda har vi undersøkt denne praksisen ytterligere i Uganda spesielt og Afrika generelt. Rusbruk i tidlig barndom, før ungdomstid (dvs. før 10-års alder) kan ha viktige konsekvenser for folkehelsen, men vi mangler forskning på denne aldersgruppen. Sosiale helsedeterminanter er ansett som «årsakene bak årsakene» og kan bidra til å forstå hvorfor denne praksisen eksisterer og hva den kan føre til.

Formål: Det overordnede formålet for denne avhandlingen var å undersøke prevalensen, konteksten og sosiale determinanter for rusbruk blant barn under 10 år i Afrika. Videre hadde vi to spesifikke målsetninger, å undersøke konteksten og sosiale determinanter for rusbruk blant barn under 10 år i Mbale, Uganda (artikkel I og II), samt å undersøke prevalensen av første rusbruk før 10-års alder i Afrika og dens sammenheng med sosiale determinanter (artikkel III).

Metode: Vi brukte både kvalitative og kvantitative metoder. For artikkel I og II gjennomførte vi åtte fokusgrupper og 26 intervjuer med foreldre og nøkkelpersoner. Vi gjennomførte tematisk analyse av dataene. For artikkel III gjennomførte vi sekundæranalyser av offentlig tilgjengelige data fra 10 afrikanske land som deltok i «the Global School-Based Student Health Survey», og rapporterte data om alder ved første rusbruk. Vi brukte multinomiske logistiske regresjonsmodeller for å undersøke sammenhengen mellom alder ved første rusbruk og sosiale determinanter.

Resultater: De tre artiklene etablerer to viktige funn. For det første, 9.5% av ungdomsskolebarn i ulike deler av Afrika begynte å bruke rusmidler før 10 årsalder, og noen «så snart de kunne holde et glass». For det andre, var viktige forklaringer for denne praksisen at inntak av rusmidler var vanlig i denne konteksten, og ble forverret i situasjoner med fattigdom og deprivasjon, hvor bruk blant barn var assosiert med verre status på sosiale helsedeterminanter.

Konklusjon: Så langt vi vet, er dette den første helhetlige undersøkelsen av prevalensen, konteksten og sosiale determinanter for rusbruk i tidlig barndom i Afrika. Dette viktige folkehelseproblemet har så langt blitt oversett, og vil føre til økte sosiale forskjeller om det ikke adresseres.

Contents

List of Publications

This thesis is based on the following three papers, which will be referred to as papers I-III, and can be found in appendix A to C.

Paper I: Skylstad V, Nalugya J, Skar A, Opesen C, Ndeezi G, Okello E, Moland KM, Engebretsen IMS, Tumwine JK. 'As soon as they can hold a glass, they begin taking alcohol': a qualitative study on early childhood substance use in Mbale District, Uganda. BMC Public Health [Internet]. 2022 Apr 23 [cited 2022 May 6];22(1):1–12. Available from: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-022-13140-w

Paper II: Skylstad V, Engebretsen IMS, Nalugya SJ, Opesen C, Ndeezi G, Okello ES, Moland KM, Tumwine JK, Skar AMS. 'There is nowhere to take the child': a qualitative study of community members' views on managing early childhood substance use in Mbale, Uganda. BMC Public Health [Internet]. 2022 Dec 1 [cited 2023 Mar 3];22(1):1–13. Available from: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-022-13548-4

Paper III: Skylstad V, Skar AMS, Engebretsen IMS. Initiation of alcohol and drug use before adolescence – a cross-sectional analysis of prevalence and social determinants using Global School-based Student Health Survey data from 10 countries in Africa [Manuscript]

List of abbreviations

APC:	Alcohol Per Capita
CDC:	Centres for Disease Control and Prevention
CI:	Confidence interval
CSDH:	Commission on Social Determinants of Health
DALY:	Disability-adjusted life year
DSM:	Diagnostic and Statistical Manual of Mental Disorders
ESPAD:	European School Survey Project on Alcohol and Other Drugs
FGD:	Focus group discussion
GBD:	Global Burden of Disease Study
GSHS:	The Global School-Based Student Health Survey
HBSC:	Health Behaviour in School-aged Children
ICD:	International Statistical Classification of Diseases and Related Health Problems
KII:	Key informant interview
LLMICS:	Low- and lower-middle income countries
LMIC:	Low- and middle-income countries
LRA:	Lord Resistance Army
NRA:	National Resistance Army
RRR:	Relative-risk ratios
SDH:	Social determinants of health
UN:	United Nations
UNICEF:	United Nations Children's Fund
UNODC:	United Nations Office on Drugs and Crime
US:	United States
WHO:	World Health Organisation
YRBSS:	Youth Risk Behavior Surveillance System

Definitions and chosen terminology

Early childhood and younger children: A range of terms are used for different age categories and developmental stages of childhood. Childhood is often defined as the age group 0-18, with adolescence starting at age 10 (1). In lieu of a term that describes the age group before adolescence, i.e., ages 0-9 years, we use the term "young children", and we refer to the time period as "early childhood". Child development occurs on a continuum, and it may seem arbitrary to set a cut-off for early childhood at age 9, but colleagues within the field of underage drinking have found age 10 to be a critical transition between late childhood and the onset of adolescence, with differences in substance use related risk factors (2,3). While we are not referring to the developmental stages, but merely a time period, we acknowledge that "early childhood development" is a widely used term that covers the ages 0-8 years (4), and was the closest term we could find.

Substance use: The intake of any psychoactive substance, including alcohol and other drugs, excluding tobacco, nicotine, and caffeine. In the context of Mbale, Uganda, alcohol was the most common substance of use and was the main substance discussed by the participants. However, other substances were also relevant, such as cannabis, marijuana, khat, kuber and solvents for sniffing, such as fuel or glue.

Substance use disorder: Substance use disorders are most commonly defined by the diagnostic criteria presented in either the International Statistical Classification of Diseases and Related Health Problems (ICD) developed by the World Health Organisation (WHO) with the latest version being ICD-11 (5) or the Diagnostic and Statistical Manual of Mental Disorders (DSM) developed by the American Psychiatric Association with the latest version being DSM-5 (6). The two diagnostic frameworks overlap to a large degree and describe substance use disorders as characterised by craving, inability to reduce intake, continued use despite negative effects and the development of tolerance and withdrawal (5,6). However, they have organised the disorders a bit differently. The ICD-11 is organised according to the different substance classes (e.g., alcohol, cannabis, opioids) and diagnostic categories

(e.g., harmful use, substance dependence, intoxication, withdrawal) (5). The DSM-5 has divided the chapter “Substance-related and addictive disorders” according to substance class (e.g., alcohol- cannabis and hallucinogen-related disorders), diagnostic categories (e.g. use disorder, intoxication, withdrawal) and severity (mild to severe), depending on the number of symptoms (6).

Tribe: Within anthropology, there is an ongoing discussion about the appropriateness of the term “tribe”. We chose to use this term in addition to ethnic group because it was used by the participants and is used with pride by many Ugandans. It is also used in literature by authors with intimate knowledge about Uganda (7) and in the Demographic Health Survey, published by the Government of Uganda (8). We have consulted with Ugandan anthropologists, where one preferred the term “ethnicity” and the other viewed “tribe” as appropriate.

Slum: While acknowledging the ongoing discussion of the appropriateness of the term ‘slum’ (9), we chose to use this term in addition to the term ‘poor neighbourhoods’, since it was used in the context and a consensus on an alternative term that sufficiently covers the characteristics of slums has not yet been reached.

1. Introduction

1.1 Substance use

Substances have been used in most communities for millennia. This has included religious, medicinal and recreational use, and both "normal" social use and "abnormal" pathological use (10). Depending on regional availability, societies have used tobacco, coca plants, opium, and cannabis to varying degrees. Alcohol, which can be produced with yeast and a variety of sugar-containing plants and fruits, has been available and consumed across cultures and regions (10). Substance use and substance use disorders are major contributors to the global burden of disease (11), and target 3.5 of the Sustainable Development Goals aims to *"Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol"* (12). This section includes a presentation of the epidemiology and burden of disease related to substance use globally, followed by sections focusing on Africa and younger children.

1.1.1 Epidemiology and burden of disease

In 2016, global estimates showed that 2.8 million deaths and 99.2 million (4.2%) of all disability-adjusted life years (DALYs) were attributable to alcohol use, and 450 000 deaths and 31.8 million (1.3%) of DALYs were attributable to drug use (11). Recently, a systematic analysis of data from the Global Burden of Disease Study (GBD) has established that there is no safe lower limit of alcohol intake (13) and that the effects are more detrimental among youth (14). This is true for other substance use as well, and the United Nations (UN) considers early adolescence to be a "critical risk period" for drug use (15).

Estimating the burden of disease connected to substance use is complex since both alcohol and drug use affect the social, economic and health-related functioning of people worldwide (15,16). Further, there are challenges connected to the "under-coverage" of the estimated alcohol consumption in self-report surveys compared to official sales data (17). For drug use, there are several challenges with obtaining

reliable data (15), connected to self-report, reaching “hidden populations” and the illegal nature of the practice in most countries (18). This leads to uncertainties related to estimates of both prevalence and associations with risk factors and outcomes, resulting mainly in underestimations (17,19).

Despite limitations in the accuracy of data, findings from the GBD have established that substance use is a major contributor to the disease burden in general (11) and among youth in particular (14,20). Among the substance use disorders, alcohol use disorders were the most prevalent globally, followed by cannabis dependence and opioid dependence (11). Globally, alcohol use was responsible for 76% of all DALYs attributable to substance use (11). According to data from the GBD, there were large regional variations in the substances used, the level of use and their implications for the disease burden (11). While the prevalence of alcohol use was highest in Eastern Europe and tropical Latin America, the highest overall burden attributed to alcohol use was found in Eastern Europe and southern sub-Saharan Africa (11).

Substance use is involved both directly and indirectly in several disease pathways and social conditions that affect disability and mortality (15,16). Reviews of systematic reviews have found that more than 40 diagnoses are fully attributable to alcohol use, mostly with a dose-response relationship (21). Further, alcohol intake has been identified as a direct or indirect causal factor for more than 200 diseases (22,23), including infections such as tuberculosis, cancers, diabetes, mental disorders, cardiovascular disorders and injuries (21). Drug use has been identified as a direct cause of several infectious diseases (11,15) and cancers (15), as well as being associated with mental health disorders (24,25) and suicidal behaviour (26). Further, alcohol and other drugs affect the disease burden in different ways. While the attributable burden related to alcohol was more connected to consequences of use, such as injuries, cardiovascular diseases and cancers, the burden attributed to drug use was highest for the drug use disorder itself, followed by cirrhosis and HIV (11).

Globally, substance use is a leading contributor to the burden of disease among youth (20), and adolescence is a developmental period characterised by rapid changes in

puberty, development and health behaviours, such as substance use and experimentation (3,15,27). Large epidemiological surveys monitor substance use behaviour among school-going adolescents. These include the Global School-Based Student Health Survey (GSHS) in low- and middle-income countries, European School Survey Project on Alcohol and Other Drugs (ESPAD) and Health Behaviour in School-aged Children (HBSC) in Europe and the Youth Risk Behavior Surveillance System (YRBSS) in the United States (US). A study on GSHS data from 68 low-and middle-income countries found that the prevalence of past month alcohol use ranged from 1.0% among boys and 0.4% among girls in Tajikistan, to 59.7% among boys and 56.2% among girls in Seychelles (28). The Americas was the region with the highest overall prevalence of alcohol use, while South-East Asia was the region with the lowest overall prevalence (28). Another study using GSHS data from nine countries in Africa and the Americas found a prevalence of lifetime drug use ranging from 1.4% in Senegal to 28.6% in Namibia in Africa and from 8.4% in Uruguay and 22.0% in Saint Lucia in the Americas (29). The most recent YRBSS report found that 23% of high school students in the US had used alcohol in the past month, 16% had used marijuana and 13% had used illicit drugs (30). For all these substances, the use had decreased in the past ten years (30). A similar decreasing trend for weekly drinking has been observed in Europe among 15-year-olds participating in the HBSC (31), as well as 15–16-year-olds participating in all regions of the ESPAD survey, except the Balkans (32). In the ESPAD survey, the lifetime use of illicit drugs was 17%, mostly related to cannabis use with a lifetime prevalence of 16% (33). Unlike the decline identified in the YRBSS study, the ESPAD survey showed an increasing trend of both lifetime and past-month use of cannabis from 1995-2019, but this has decreased or levelled off since a peak was reached in 2011 (33).

Substance use in Africa

According to the latest World Health Organization (WHO) Global Status Report on Alcohol and Health, the prevalence of alcohol use in the African region was lower than the world average (16). However, while the prevalence of current drinkers was lower and the prevalence of abstainers was higher, the African region had the highest

prevalence of heavy episodic drinking among drinkers (16). The total alcohol per capita consumption (APC), which included both recorded alcohol sales and estimated unrecorded alcohol consumption, the African region consumed 6.3 L of pure alcohol per capita, and 2 L were unrecorded, similar to the global average (16). While the proportion of current drinkers in the African region had decreased by 7% since 2000, the APC had been relatively stable (16), and the APC among drinkers, had increased from 14.5 to 18.4 L (16). The primary types of beverages consumed included palm wine or other brews and fermented beverages made of millet, banana or other grains and fruits (16). According to the United Nations Office on Drugs and Crime (UNODC), cannabis and opioids were the primary drugs of concern among those that received treatment for drug use disorders in Africa (15). The most reported combinations in poly-drug use were cannabis with opioids and khat with diazepam or codeine syrup (15). In terms of injecting drug use, the African region was just under the global prevalence of 0.2% (15).

The prevalence and patterns of substance use vary across the African continent. (figure 1) (11). According to the GBD, southern sub-Saharan Africa had

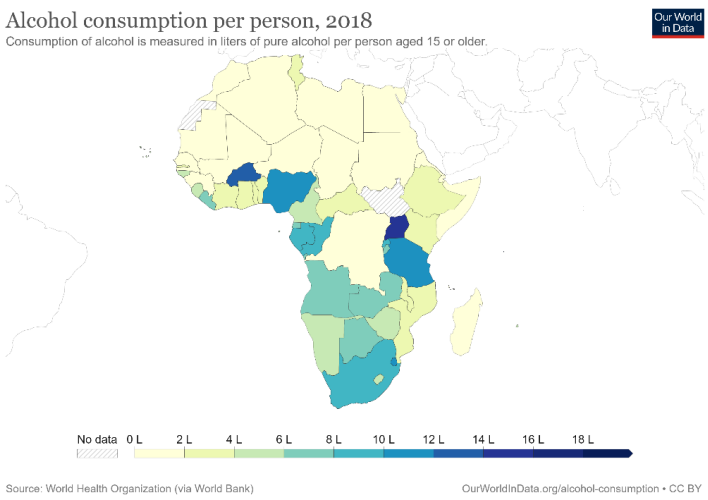


Figure 1: Alcohol consumption per person across the African continent. The map was downloaded from ourworldindata.org (34) *and is published under CC-BY, with permission to adapt content.*

one of the highest overall burdens attributed to alcohol use, but several of the sub-Saharan regions had the lowest burdens attributed to drug use. However, north Africa was one of the few regions where drug use surpassed alcohol use regarding DALYs attributable to substance use (11). Across the continent, the most frequently used drug among those in treatment varied, where opioids were more frequently used in South Africa, Liberia and Guinea, and solvents/inhalants were more frequently used in Angola and the Central African Republic (15).

Further, there are large within-country differences between sub-populations. A recent systematic review of research on substance use and substance use disorders in Kenya demonstrated this (35). The authors identified 144 studies published between 1982 and 2020. The findings included large discrepancies in prevalence according to the sample population, where hazardous alcohol use was found among 2.9% of an adult community sample and 64.6% among female sex workers, using the same diagnostic tool (35). The prevalence of khat use varied from 11 to 88% between a sample of hospital patients and a community sample. The highest lifetime prevalence of inhalant use was found among street children at 67%, while the highest prevalence of sedative use was found among psychiatric patients at 71% (35).

Among adolescents and youth, two systematic reviews have investigated the prevalence of substance use in eastern and sub-Saharan Africa (36,37). One review found that the lifetime prevalence of any substance use (including caffeine and tobacco), ranged from 9.9% in a study from South Africa, to 55% in a study from Gabon, with the same mean age of 14.5 among participants (36). The overall prevalence for different substances was 32.8% for alcohol, 22.0% for khat, 15.9% for cannabis, 9.4% for amphetamines, 4.0% for heroin and 3.9% for cocaine (36). The other systematic review found that among 15–24-year-olds in eastern Africa, the median prevalence of ever-using alcohol use was 52%, while use in the past month was 28%. The prevalence of ever-use varied according to sub-group, where the highest prevalence was found among university students at 70% and was lowest among street-connected children at 14% (37). A study using GSHS data from

secondary school students in 11 countries in Africa, found that the prevalence of past-month marijuana use ranged from 1.3% in Benin to 9.1% in Seychelles (38).

1.1.2 Epidemiology of early childhood substance use

Research on substance use in early childhood is limited (2,39–41). Most studies on early initiation of substance use, set the lowest cut-off for age within adolescence. In the YRBSS, early initiation is defined as use before age 13 and in the ESPAD it is defined as use at age 13 or younger (33,42), leaving possible findings of use in early childhood unknown. Among ESPAD participants, the prevalence of early alcohol use ranged from 7.1% in Iceland to 60% in Georgia, early cannabis use was reported by 2.4%, and 0.5% reported having used amphetamines or methamphetamine at this age (33). One study using GSHS data from 45 low- and middle-income countries (LMICs), defined early initiation of alcohol use as intake at "10 or 11 years old" or younger, finding that the prevalence ranged from 4.1% in Cambodia to 52.1% in Dominica (43). The available trends on early alcohol use from large school surveys in Europe (age 13 or younger) and the US (before age 13) are uplifting. The prevalence of early alcohol use declined from 46% to 28% between 2002 and 2014 in Europe (31), and from 33% to 15% between 1991 and 2019 in the US (42). We have not been able to identify similar overviews of trends in LMICs.

Prevalence in early childhood

Despite qualitative reports of substance use among children in their first few years of life in Uganda (44–46), Tanzania (47) and Cameroon (48), younger children are largely missing from epidemiological studies. While some studies on substance use include children below age 10 in their sample, few studies report data disaggregated for age. In this section, I present findings from studies that have reported data pertaining to children younger than 10 years of age. This review is not exhaustive but includes studies that we have identified over the years working within this field. The comparability of these studies is limited, as the methods for measuring substance use vary. Some use recall, some measure sips, some measure past-month use and others lifetime use. One study on 4-11-year-olds in the United Kingdom found that 200/11,355 children (<2%) reported having had more than a few sips of alcohol

before age 8 and 4% before age 9, when recalling the age of initiation at age 11 (49). The majority started between ages 9-11 years (49). In the US, Donovan and colleagues have been important contributors to the field of childhood alcohol use. In one study they found that among 8-year-old elementary school students, 35% reported ever having had a sip of alcohol, and 5% reported having had a drink of alcohol (50). In another study from the US, 22.1% of 9-11-year-old children reported having sipped alcohol, and their mean age of first sip was 7.7 years (51). Among elementary schoolchildren in Argentina, 66% reported having tasted alcohol at 8 years and 47% at 9 years (52). Further, 28% of the 8-year-olds and 23% of the 9-year-olds reported repeated drinking (52). In rural Peru, 61% of parents reported that their 5-12-year-old children drank the local alcoholic brew, and the median age of initiation was 3 years (53). In a study from Vietnam, 21% of children aged 9 years reported having had more than a sip/taste of an alcoholic drink, more than twice in their life (54). Among street-connected children in India, the age of initiation for using a psychoactive solvent ranged from 6-14 years in Delhi (55), 42% initiated intake of substances between ages 6-10 years in Kolkata (56) and 23.8% had inhaled the solvent toluene before the age of 10 in Hyderabad (57). In the Ivory Coast, 5% of secondary schoolchildren reported to have initiated alcohol intake before age 10 (58). In Nigeria, a study on a school population found a mean age of initiation for alcohol use at 4 years, and the earliest reported onset was 2 years (59). Further, the mean age of initiation for other drugs was 12 years for cannabis and 8 years for kola nut (a mild stimulant with caffeine) (59).

In an ongoing systematic review (60), we are investigating the prevalence of alcohol use among children up to age 10 in Africa, but here we include reported information on other substances as well. Among 4492 records published from the year 2000, we identified six studies that reported data disaggregated for ages 0-10 years, or the authors provided this information upon request. Further two studies were identified through reference lists, yielding a total of eight identified papers. Four studies were on community samples (61–64), three focused on street-connected children (65–67) and one focused on children in informal religious schools (68). The identified studies reported varying prevalence estimates of substance use. One study from São Tomé

investigated 1285 children aged 0-5 years that showed up for a routine health check, where parents reported that 33% had consumed alcohol, 6.1% before age 6 months, 9.5% before age 1 and 7.4% after turning one (61). In a study on the Baka hunter and gatherer community in Cameroon, 102 children and adolescents were interviewed about their daily activities (62). Among these, 25 children were aged between 5-9 years, and 0.5% reported alcohol intake in the past 24 hours (personal correspondence). In correspondence with the author, caution was encouraged when interpreting this finding, as the impression from the field was that a higher prevalence of intake was more likely. In another study by the same authors, the use of an opioid painkiller was reported among children before age 5 (48). In a longitudinal study of community samples from ten different countries, 100 children came from Kenya (63). At ages 8 and 9, 1% gave a positive response to the question "I use alcohol or drugs other than for medical conditions" (personal correspondence). In a study conducted by our team in Uganda, we identified a prevalence of 7.4% clinically defined harmful alcohol abuse or dependence among 5-8-year-old children from a community cluster randomised trial cohort sample (N=148) that had reported mental health symptoms on a screening scale (64). In a study on 220 street-connected children in Ethiopia (65), 31 children were between 5-10 years old, of which 6.5% reported usually drinking alcohol, while 93.5% reported having had alcohol 1-2 times in their life (personal correspondence). In another study on 156 street-connected children in Egypt, 0% of the children aged 7-11 years reported alcohol use (66). In a study on 376 street-connected children in Ghana and South Africa, of those aged 8-10 years, 61.1% reported past-month alcohol use, 58.3% reported past-month marijuana use and 44.4% reported lifetime hard drug use in Ghana, and 71.4% reported past-month alcohol use, 85.7% reported past-month marijuana use 51.5% reported lifetime hard drug use in South Africa (67). A study on children living in informal Muslim schools in Nigeria found that among those below age 10, 0% had used alcohol, but 3.8% had used solvents, 3.5% had used opioids, 1.8% had used cannabis and 19.1% had used stimulants (68).

1.2 Social determinants of health

In an analysis in the British Medical Journal, Professor Mark Tomlinson and colleagues argued that "*Fully realising the potential of children and adolescents will require an ecological life course approach, together with multisectoral, coordinated, integrated action for the provision of care and services for children and adolescents*" (69). Social determinants of health are often referred to as the "causes of the causes", and investigate how social factors, such as education, poverty, and social capital affects health outcomes, and drives inequality (70,71). Although the impact of social conditions on health has been observed for decades (70), the concept of social determinants affecting health on a social gradient was brought to light by Professor Marmot's research on civil servants in the Whitehall studies (72). He found that employment grade was not only associated with coronary heart disease mortality, but that there was a social gradient with incremental improvement in mortality with higher employment grade, and that employment grade was a stronger predictor of mortality than any other coronary risk factor (72). This social gradient pattern has been observed for infant mortality, life expectancy (70), attention deficit hyperactivity disorder (71) and several other diseases and disorders (70,71).

Later, Sir Marmot chaired the WHO Commission on Social Determinants of Health (CSDH), which published the landmark report "Closing the gap in a generation: health equity through action on the social determinants of health" in 2008 (73). This report established that "the structural determinants and conditions of daily life constitute the social determinants of health and are responsible for a major part of health inequities between and within countries" and that these determinants consist of "the circumstances in which people grow, live, work, and age" (73). Two years later, the CSDH published a conceptual framework for social determinants of health (74) (hereafter, the WHO framework for SDH) (figure 2), and in 2013, Bell, Donkin and Marmot published a discussion paper for United Nations Children's Fund (UNICEF) on social determinants of child health in low- and middle-income countries (75) (hereafter, the UNICEF framework for child SDH) (figure 3). In this section, we will

present these two frameworks and review the social determinants of substance use according to the WHO framework for SDH.

1.2.1 The conceptual frameworks for Social Determinants of Health

With core values of social justice, health equity, human rights and power dynamics, the WHO framework for SDH provides a public health framework for action that consider both structural and intermediary determinants of health inequities (74). According to the discussion paper, in which the framework was published, the structural determinants describe the *distribution* of determinants due to governance, policies, culture, and values as well as mechanisms related to power, socioeconomic position, and discrimination, while the intermediary determinants include the specific material, behavioural, biological, and psychosocial factors, as well as the health system (74). Social cohesion and social capital have been placed as a link between the structural and intermediary determinants and emphasises the importance of relationships within communities as well as between communities and the government. Further, the framework has adopted an overarching life course- and socioecological perspective, known from Bronfenbrenner's levels of environmental influence (76), from the micro-level of the household to the macro-sphere of social, economic, and political institutions (74).

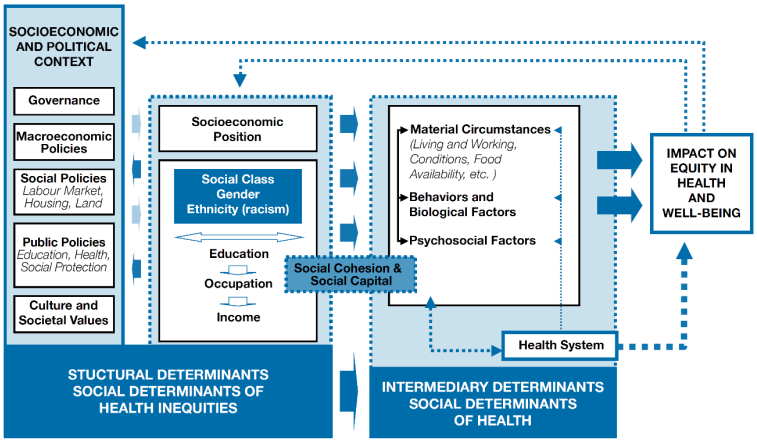


Figure 2: The WHO Conceptual Framework for Social Determinants of Health (74)*, reproduced with permission from the WHO.*

The UNICEF framework for child SDH (figure 3) largely overlaps with the WHO framework for SDH (figure 2), but has put further emphasis on the importance of family conditions and "equity from the start", as positive and negative health effects accumulate over the life course (75).

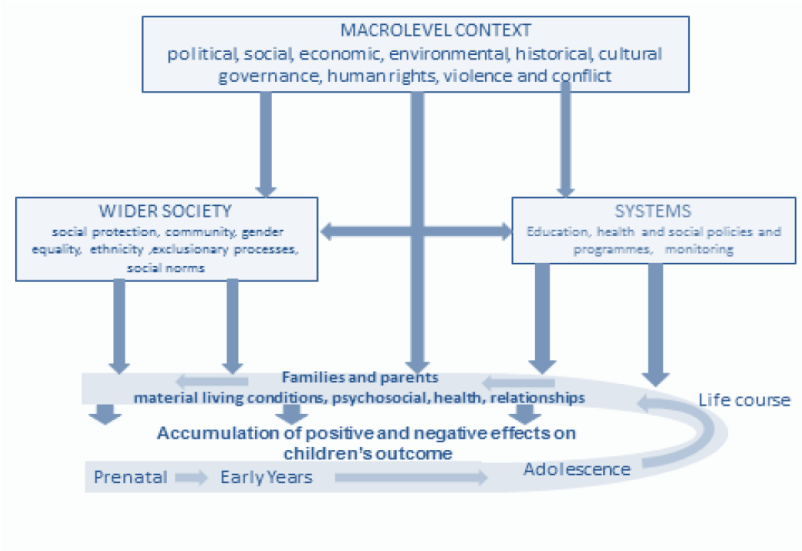


Figure 3: The UNICEF framework for social determinants of health for children in low- and middle-income contexts. Permission to reproduce is granted in the paper, stating that "Extracts from this publication may be freely reproduced with due acknowledgement" (75)

The discussion paper considers children's outcomes on five dimensions: material, physical (including health behaviours), psychological, social (peers and family) and education. These dimensions are considered to be inter-dependent and inter-related where the drivers of one can be drivers of another and work on a social gradient (75). Further, the UNICEF framework for child SDH emphasises the accumulation of risk factors over time and the importance of equity across these dimensions in early childhood for later-life outcomes (75). Where the WHO framework for SDH considers structural and intermediary determinants, the child framework looks at similar interconnections between the macro-level (national governance, cultural and historical context), wider society (society, community, social norms), systems (education, health, and social systems) and family (living conditions). In LMICs, they

argue, social protection has traditionally been provided on a family and community level as opposed to through governmental welfare schemes, leaving the provision of social protection more vulnerable in deprived and conflict-ridden contexts with compromised capacity (75). Further, the framework argues that a multi-sectoral approach and a multi-generational perspective is important when tackling child health outcomes (75). Education, both for the child and the parents, are important factors when considering child health and development. Many children in LMICs are out-of-school due to a scarcity of resources in the home, further exacerbating their health status throughout their life course. Their parents' situation shapes their development and affects their opportunities through social and epigenetic mechanisms from pregnancy to adulthood, at which point these factors may be passed on to the next generation (75).

1.2.2 Social determinants of substance use

Substance use can be considered to be both a social determinant of health and a health outcome, as it is both a health behaviour or risk factor (74,75) and a disorder or health outcome (5,6). As for other health issues, the interplay between risk and protective factors of substance use is complex and multifaceted, and can be found on different socioecological levels; the individual, family, community and society (77). In a review of social determinants of substance use, individual-level risk factors included poor mental health, genetic predisposition, favourable attitudes towards drugs, other problem behaviour and early initiation of substance use, while being pro-social, resilient and having a healthy lifestyle was protective (77). On a family level, risk factors included low parental involvement and warmth, conflict and abuse, role modelling favourable towards drug use and social deprivation (77). At the community level, risk factors included social and peer influence, lack of community belonging with low neighbourhood attachment and high community disorganisation, as well as high availability of substances. Protective factors included social integration, access to support, social capital and social network (77). On a societal and cultural level, discrimination, inequality and poor socioeconomic status were found to be risk factors, as well as laws, norms and media exposure favourable to drug use (77).

The authors of the review noted that the influence of risk and protective factors can vary across the life course, and in different contexts (77). This section includes a review of the social determinants of substance use according to the domains in the WHO framework for SDH, i.e., structural determinants (socioeconomic and political context, and socioeconomic position), social cohesion and social capital, and intermediary determinants (material circumstances, behaviours and biological factors, psychosocial factors, and the health system). The focus will be on determinants related to early use and the African continent.

Structural determinants

Socioeconomic and political context

The socioeconomic and political context of social determinants of health refer to how health is impacted by governance, policies and culture (74). Globally and historically, psychoactive substances have been part of traditional and cultural practices connected to religion, social connection and coping (10,78,79). Cultural contexts affect behaviour, which in turn affects what is considered normal. Normalisation is a cognitive process that has been argued to combine descriptive information about the environment around you and the norms related to the information gathered, i.e., judging normality based on what is common or statistically average combined with what is morally acceptable or ideal (80). The normalisation thesis has been applied to understand early drug use since the 90s (81). In East Africa, making alcohol and brew from available fruits and grains has for a long time been an important part of everyday life, ceremonies and traditions (79). One informant in Justin Willis' book "Potent brews: a social history of alcohol in East Africa, 1850-1999" stated that *"if there's no beer, it's not a ritual"* (79). Alcohol would be offered to elders to cure illness and to new mothers to bless their newborn children (79).

The public health harms related to substance use have been thoroughly documented (11,21), and a myriad of policies have been developed to regulate legal substances globally (16). Alcohol is the most widely used substance which is legal in most parts of the world, and thus most regulatory efforts and research has centred around alcohol. In 2010, the WHO published a Global Strategy to Reduce the Harmful Use

of Alcohol (82), and in 2017 they published their 'Best buys' for tackling noncommunicable diseases, including harmful use of alcohol (83), i.e., the most effective and cost-effective interventions that are feasible to implement in LMICs (83). The 'best buys' relevant for childhood alcohol use included minimum legal drinking age, restricting access and regulating marketing and prices (83). The WHO Global Status Report on Alcohol and Health includes country profiles of alcohol policy and interventions, finding that Africa and the Americas had the most countries with no national policy on alcohol (16). In 2016, age 18 was the most common age limit globally. However, some countries, mostly LMICs and countries from the African region, had limits as low as 13-15 years of age or no age limit (16). Regarding regulations of availability, 86% of the reporting countries had policies related to national licensing, but less than one-third regulated days of sales and alcohol outlet density (16). Youth are sensitive to advertising and promotions through media, and exposure to alcohol marketing has been associated with increased odds of initiating use and hazardous drinking among 10-23-year-olds (84). Still, many countries in Africa and the Americas have no restrictions on marketing (16). For other substances, much of the regulation is related to legality and enforcement thereof. For some substances, such as marijuana, there are ongoing debates regarding decriminalisation and legalisation, and a major concern has been related to youth exposure and harmful impacts over their life course (85).

Socioeconomic position

The link between socioeconomic position and alcohol use is complex. While alcohol use is associated with higher socioeconomic status (86), the most harmful drinking patterns (87), disease burden and mortality attributed to alcohol use increase with lower socioeconomic status (88–90). The WHO has explained that the *harm per litre* of alcohol is substantially larger for lower socioeconomic strata within and between societies, and social status modifies the effect of harmful drinking by exacerbating the harm for the poor and buffering the harm for the affluent (16).

Drinking patterns vary in different countries according to income level, and low-income countries tend to have a combination of high abstention rates and high intake

among drinkers (16). A large study on data from 55 LMICs found a socioeconomic gradient, where the prevalence of drinking increased with income level between countries and socioeconomic status within countries (86). However, the pattern of heavy episodic drinking (HED, > 5 units per drinking occasion) and income level varied according to gender. For males, HED was more prevalent in lower-middle-income countries, and for females, it was more prevalent in low-income countries. Further, heavy drinking (HED in the past week) and daily drinking among drinkers were most prevalent in low-income countries (86). For drug use, however, the GBD found that drug-attributable burden increased with increasing country-level sociodemographic index (11).

According to the GBD, southern sub-Saharan Africa bore the highest overall burden attributed to alcohol, following Eastern Europe (11). Further, there are important within-country patterns. In South Africa, one study found that 60% of the alcohol-attributable mortality occurred in the 30% lowest socioeconomic levels of society (91). A systematic review of substance use research in Kenya found that alcohol use was associated with being unemployed, having lower socioeconomic status, being single and brewing at home, while khat use was associated with both employment and unemployment, higher income, but also negative health outcomes (35). A study from the US found that alcohol use, but not cannabis use, had a statistically significant association with unemployment, but the impact of unemployment was exacerbated by poor socioeconomic status in childhood for both substances (92). These trends have also been established in systematic reviews. One systematic review found that those with lower socioeconomic status had a 1.7 times higher risk of dying of alcohol-attributable causes compared to all causes (88). Another systematic review found that people with lower socioeconomic status had a risk ratio of 3.8-5.2 for alcohol-attributable mortality compared with people with high socioeconomic status (90). And yet another systematic review found a dose-response relationship and socioeconomic gradient in the association between socioeconomic deprivation and alcohol-attributable mortality (89).

Moreover, complex patterns related to gender have been observed for substance use. While men are more likely to use both alcohol (16) and other drugs (15), some

studies have reported that females surpassed males in the prevalence of ever-alcohol use in studies from primary school and among street-connected children, while males were more likely to use among university students (37). Further, female substance users have been found to be more vulnerable than their male counterparts. For example, female drug users have shown an increased vulnerability for faster progression into drug use disorders and contracting drug-related infections, as well as a 2-3-fold higher risk of having co-morbid post-traumatic stress disorder (15). In a study among youth in the slums of Kampala, Uganda, one study found that girls were more vulnerable to unprotected sex and having sex that they regretted under the influence of alcohol, compared to boys (93). In a longitudinal study among youth, it was found that males drank more and started earlier, but the effect of age of initiation differed between the two genders. While earlier age of initiation did not result in later increased recency and frequency of use for males, the reverse was observed for females, where earlier initiation significantly increased their vulnerability for more harmful later use (94).

For children, the parent's socioeconomic position affects their life trajectories. Socioeconomic position has been shown to transmit between generations, and social mobility has been particularly low in sub-Saharan Africa and other LMICs, as less than half of youth acquire higher educational attainment than their parents (95). Systematic reviews of longitudinal studies in high-income countries have found that lower socioeconomic status in early life is associated with higher rates of later-life drug use and disorders, while the results were mixed regarding alcohol (96). Another meta-analysis found a significant association between lower socioeconomic status and alcohol and marijuana risk behaviour among 10-15-year-olds (97). A study from Nigeria found that among children attending informal religious schools, substance use was associated with coming from polygamous homes, having divorced parents, and having a father with no formal education (68). In a study from Seychelles, school absence was associated with higher odds of ever and current alcohol use (98). Further, substance use is toxic to the developing brain (99–101) and can directly children's life opportunities by disrupting the development of essential skills for later life social and academic achievements (2,101). Studies have found that earlier

relative to later onset substance use is associated with poorer psychomotor speed and visual attention (102), reduced social and occupational functioning (103) and worse educational attainment (15,40), which in turn can affect their socioeconomic position throughout their life course.

Social cohesion and social capital

According to the WHO framework for SDH, social cohesion can be understood as the social integration, and the level of trust and belonging in a community, while social capital refers to how this social cohesion is used as a resource for mutual benefit (74). The role of substances in social situations is complex, and ambivalence has been noted in East Africa (79). On one hand, it has been viewed as having positive effects related to social connection and celebrations, and was central to work parties where neighbours helped with harvest and other chores, while simultaneously having negative effects related to harmful use and disruption (79). Social motives have been found important for youth drinking, and drinking for positive social enhancement has been associated with less harmful drinking patterns, compared to motives related to coping (104).

However, research has found substance use to be associated with community disruption. A systematic review investigating alcohol use and its association with community-level social factors found that risk factors included community disorder and crime, and protective factors included safety and social capital, measured as community participation, attachment and support (105). A study from South Africa found that neighbourhood belonging and encouragement (community affirmation) protected against the intake of brew by adolescents, while risk factors included neighbourhood crime and antisocial behaviour (neighbourhood disorganisation) (106). Another study from South Africa found that adolescent drinking was associated with a perception that involvement from the police or neighbours was unlikely (107). Further, among young men, perceived informal social control and social cohesion were protective against heavy drinking (108).

Intermediary determinants

Material circumstances

The material circumstances and family livelihood are closely linked to their socioeconomic position. Child well-being is tied to the family situation, and the family is connected to the wider society around them, their traditions and practices (109). Uganda, and other East African countries, have old traditions for brewing alcoholic drinks for social and recreational purposes (79,110). While public drinking has been more acceptable for men (110), brewing has traditionally been a task for women, and children have been reported to take part in this process, exposing them to intake of brew (44–46,79,110,111). Further, brewing is an important income-generating activity, especially for women, contributing to the family's livelihood (45,79,112).

While the practice of brewing is related to traditions, it can also be a response to material deprivation. Brew has been considered to be nutritious (79) and brewing has been an important income-generating activity for vulnerable populations, such as slum dwellers (113) and populations displaced by conflict (46,114). Scarcity and struggling to make ends meet can affect decision-making and the "mental bandwidth", or capacity, for considering long-term outcomes (115,116). Reports have found that parents have given brew to babies to mitigate material deprivation, such as relieving the child's hunger and helping them sleep (46), or giving them opium to make them calm while attending to other tasks (114). In rural Peru, one study found that the majority of the parents believed that alcohol may be harmful for their children, but could also be nutritious and aid growth at a low price (53). A study on secondary schoolchildren in 11 countries in Africa found a pooled prevalence ratio of 1.92 between food insecurity and past-month marijuana use (38). Excess alcohol use in low-income families has been found to be associated with further impoverishment and poor health outcomes (117).

Street-connected children constitute a highly vulnerable and materially deprived population, and one study found that the most important barrier to quitting their substance use included 'coping and survival on the streets', 'availability and

affordability of drugs' and 'poverty' (111). In a study among homeless children in Ghana and South Africa, being homeless for 1-2 years was associated with a higher odds ratio of substance use relative to those that have been on the street for less than a year, while being on the streets for more than 3 years was associated with less substance use, except for marijuana use in South Africa (67). A study on street-connected children in Egypt found that alcohol use was associated with a more socially disadvantaged background, such as coming from single-parent households, not attending school and having family members that had been in prison (66).

Behaviours and biological factors

Early initiation of substance use has been identified as a behavioural risk factor for harmful use and dependence (118,119), use of other substances (120) as well as other adverse outcomes in later life, including unemployment and injuries (40,119). One study found that alcohol initiation before age 11 was a stronger predictor for later-life alcohol dependence, compared to initiation in later adolescence (118). While some have argued that early drunkenness is more important than the age of first drink when predicting later problem behaviour (121), large prospective cohort studies have found that the age of alcohol initiation predicted harmful drinking patterns in later adolescence (122,123). Age 10 has been identified as a critical transition period for drinking behaviour, between late childhood and the onset of adolescence (2,3). This age involves a shift from being more influenced by family to being increasingly influenced by peers (3,124) and may imply differing risk factors before and after this age.

Children inherit risk and protective factors, as well as behaviours, both through genetic transmission (125) and social learning from family, peers, and the community (126). According to a review, studies have found that genetic factors explain less of the variance in drinking patterns in childhood and early adolescence, but increasingly explain more of the variance into adulthood (127). A systematic review of longitudinal studies investigating the association between parental and child drinking found a consistent positive association but urged caution about inferring causality due to limitations in study designs (128). Another systematic review established a similar

association between household drinking and increased use of other substances by adolescents in LMICs (129). Parenting strategies with a lack of control and supervision have been associated with increased substance use in adolescence (130) and perceived parental approval has been associated with the initiation of alcohol use both in early childhood and adolescence (131–133). While these mechanisms are shaped by cultural norms and can vary in different settings with different drinking cultures (134), the association between parental and child practices has been widely observed. One study from South Africa found that lower parental involvement, monitoring and discipline, as well as higher parental alcohol use, was associated with higher levels of substance use among adolescents (135). Another study of 45 LMICs found that familial alcohol supply was associated with early initiation (before age 12), current use and having been intoxicated (43).

Further, the experiences people have with their own and others' substance use affect their own expectancies, (i.e., personal beliefs and expectations). Although there are variations in findings (136), alcohol use practices among peers and family has been associated with the development of alcohol-related norms (3,124,134,137) and positive alcohol expectancies (138,139). Further, genetic variations related to substance use disorders have been associated with reporting more positive alcohol expectancies, especially among those that had already initiated alcohol use (138). The exact age of formation of alcohol expectancies has varied from ages 3 and 6 between studies (134). A systematic review of alcohol expectancies and early use among children and adolescents ages 4-18 years found that there was a transition from mainly negative to mainly positive alcohol expectancies around ages 10 to 12 (140). The development of positive expectancies has been found to be associated with early initiation of use (138,139), including in early childhood (before adolescence) (49), and later life harmful use (134). One study on children aged 3-5 years found that assigning more alcoholic beverages to drawings of adults in various settings, increased the likelihood of early alcohol initiation (before age 14), compared to those that assigned more non-alcoholic beverages (137). Another study on children aged 2-6 years found that 62% "bought" alcohol when role-playing grocery shopping and

those with parents that drank at least monthly were more likely to "buy" alcohol (141).

Psychosocial factors

In addition to the uptake of harmful practices, household substance use affects the general psychosocial environment for child development, including exposure to violence (16), mental stressors, and deprivation (142). Household alcohol use has been found to be associated with child behaviour problems and poorer academic and cognitive performance (143) as well as child depression, anxiety, suicidal behaviour and self-harm (129). In a study from Burkina Faso, Ghana, Uganda and Malawi, it was found that living with someone who had an alcohol use disorder before age 10 was associated with self-reported drunkenness in adolescence (144). Further, physical and psychological maltreatment and abuse have been found to be associated with substance use in adolescence (130) and early childhood (145). In a study from the US, 8-year-old children that were at risk for or had experienced maltreatment were four times more likely to report suicidal ideation if they had used substances (145).

In addition to the psychosocial factors, we include factors related to the psychological domain specified in the UNICEF framework for child SDH (75). The association between substance use and mental illness is well established (16,24–26,146), and substance use in adolescence has been associated with high impulsivity, rebellious traits, difficulty with emotional regulation, conduct disorder and depression (130). In an English birth cohort, drinking at age 10 was associated with conduct problems and depression (147), and in a small study from Uganda, 10 out of the 11 children (age 5-8) with harmful alcohol use and dependence had co-occurring conduct disorder, suicidality, panic disorder or depression (64). Among pupils in a religious school in northern Nigeria, substance use was associated with depressive symptoms, going hungry, feeling lonely and struggling to go to sleep (68). Moreover, the use of substances to cope with stressful and traumatic events and environments has been widely documented (148), including among vulnerable populations, such as in conflict-affected contexts and displaced populations Africa (47,149,150). Among homeless children in South Africa and Ghana, being exposed to traumatic risk

factors, such as being a victim of sexual assault, robbery or assault with a weapon, was associated with higher odds of alcohol and marijuana use (67).

The health system

Despite its important implications for public health and the disproportionate disease burden placed on LMICs, people with substance use disorders continue to suffer from severe treatment gaps. According to a study on the WHO World Mental Health Survey, only 10.3% of adults with past-year substance use disorders in high-income countries and 1% in low- and lower-middle-income countries (LLMICs) had received minimally adequate treatment (151). A systematic review of the treatment gap for alcohol use disorders found only four studies from LLMICs, where 9.3% in low-income countries received treatment for alcohol use disorder from any source, and 1.9% received treatment from any healthcare setting. Among the included countries, Uganda had the lowest treatment rate for alcohol use disorder, at 3.5% (152). For children and adolescents, the access to treatment for substance use disorders in Africa can be anticipated to be even lower, as the access to psychiatric treatment is limited in general (153), as well as for children (154). According to the WHO Global Health Observatory, Egypt and South Africa were the only two countries in Africa that reported having treatment programmes in the capital city for children and adolescents with alcohol use disorder (155). Further, the relevance of the health system for substance use behaviour can vary according to context. One study from Uganda found that help-seeking for alcohol-related problems was rare unless it had resulted in an emergency or life-threatening condition (44).

In summary, substance use is related to all structural and intermediary social determinants. It contributes to and is a consequence of inequalities across the life course. While the available literature supports its relevance in early childhood, there is a paucity of data and documentation of the patterns in this age group.

Date of ended literature search: 28.07.23

2. Objectives and rationale

2.1 Objectives

Overall objective: Investigate the prevalence, context and social determinants of substance use among children younger than 10 years in Africa.

Specific objectives:

- Explore the context and social determinants of substance use among children younger than 10 years in Mbale, Uganda.
- Investigate the prevalence of substance use initiation before age 10 in Africa, and its association with social determinants.

2.2 Rationale

In 2014, we found clinically defined harmful alcohol use among 5–8-year-old children in Uganda (64). This spurred further investigation of this practice in Uganda in particular, and Africa more generally. While the association between substance use and social determinants of health has been established for adults and adolescents, this has not been systematically investigated in early childhood. Exposure and related harms may be even more detrimental when initiated in early childhood and contribute to driving inequalities throughout the life course. The prevalence, context, and social determinants of substance in this age group merit further investigation to understand this practice and its management on an individual, family, community, institutional and government level. This knowledge will inform future research within the field as well as policy development for the prevention of early childhood substance use and the implementation of appropriate interventions.

3. Methods

This thesis is based on papers that use both qualitative and quantitative methods. This was a pragmatic choice aimed at applying the most suitable method for investigating different aspects of early childhood substance use. First, qualitative methods were used to explore a phenomenon that was not well described in the literature and thus required an open approach to allow for nuanced and unexpected findings (papers I and II). Thereafter, cross-sectional survey data from the Global School-based Student Health survey from the WHO was analysed to estimate the magnitude of the problem and associated factors (paper III). The findings are discussed in light of the WHO and UNICEF frameworks for social determinants of health (74,75).

Table 1: Methods used in the papers.

	Title	Method	Analysis
Paper I	'As soon as they can hold a glass, they begin taking alcohol': A qualitative study on early childhood substance use in Mbale District, Uganda	Qualitative key informant interviews and focus group discussions	Thematic analysis
Paper II	'There is nowhere to take the child': A qualitative study of community members' views on managing early childhood substance use in Mbale, Uganda	Qualitative key informant interviews and focus group discussions	Thematic analysis
Paper III	Initiation of alcohol and drug use before adolescence – a cross-sectional analysis of prevalence and social determinants using Global School-based Student Health Survey data from 10 countries in Africa	Quantitative cross-sectional survey from the Global School-based Student Health Survey (GSHS)	Prevalence estimates and multinomial logistic regression analysis

3.1 Papers I and II

3.1.1 Setting

The fieldwork for qualitative data collection took place in Mbale, eastern Uganda from April to June 2016. To understand the context, I will review some of the history and current sociodemographic factors in Uganda and Mbale.

Uganda

Uganda is a country in East Africa, bordering Kenya, Tanzania, Rwanda, the Democratic Republic of Congo, and Sudan (picture 1).

Picture 1: Map of Uganda and surrounding countries and Mbale outlined in red. Map data ©2023 Google, accessed March 3rd, 2023.

According to the last census, Uganda's population counted approximately 35 million (156). However, it has been estimated to have grown rapidly, reaching 48.5 million in 2022 (157), and has one of the world's youngest populations with almost 50% below 15 years (156). Uganda's Human Development Index has increased from 0.33 in

1990 to 0.53 in 2021 (158). However, inequality levels are high, and in 2019, Uganda had a GINI index of 42.8 (159), where the top 10 % held 52% of the national income, while the bottom 50% held 12% of the national income (160). The latest Demographic Health Survey was conducted in Uganda in 2016 with respondents aged 15-49 years (8). Among these, 37% were Catholic, 31% were Anglican, 13% were Muslim, 8% were Pentecostal, 2% were Seventh-Day Adventist and 8% had "other" religious affiliations (8). Further, 26% of the respondents lived in urban areas, while 74% lived in rural areas. Sixty-four percent of the workforce was engaged in the agriculture sector, and professionals accounted for less than 1% (161). Twelve percent of the population consumed less than two meals a day (161). Ten percent responded that they had no education, 57% had primary education and only 8% had more than secondary education (8). In 2014, 13% of children aged 6-12 years were not in school and 18.5% of 18–30-year-olds were illiterate (161).

Further, Uganda has a rich history. The narrative of a country's history can be a contentious topic with differing opinions and accounts of events. This section is only meant as a brief overview and largely relies on the book, "A History of Modern Uganda" by Professor Richard J. Reid (7), which is a critically acclaimed source (162,163). In his book, Professor Reid explains that what is now known as Uganda once constituted several kingdoms, where the Buganda Kingdom was the largest, in the central region surrounding the capital, Kampala (7). Uganda includes a vast number of tribes and languages and has a diverse history of artistic tradition and oral history telling (7). A large part of the population has traditionally been farmers, and 69% still are (156). Missionaries arrived in Uganda in the 1800s, and the country was colonised by the British as a protectorate from 1894-1961. According to Professor Reid, the period after independence was a tumultuous time with changes in leadership and violence (7). Obote was the first prime minister from 1962. In 1967, he passed a new constitution, proclaiming that Uganda was a republic and abolished all kingdoms, forcing the king of Buganda into exile. Then, in 1971, Obote's senior army officer, Amin, conducted a coup while Obote was out of the country. Under Amin's rule, hundreds of thousands of Ugandans were killed and tens of thousands of Indians were exiled. After Amin was removed in 1979, a series of interim presidents,

(Lule, Binaisa and Muwanga) were placed and removed in the eighteen months that followed before Obote was elected for a second term in 1980 (7). During Obote's second term Museveni led a guerrilla war as the deputy and leader of the National Resistance Army (NRA), and according to Professor Reid, the period included a continuation of violence (7). In 1985, Obote was forced into exile and Lieutenant General Okello took over leadership for a matter of months before the current president Museveni assumed power in 1986 (7). In 1993, Museveni allowed for the kingdoms to be re-established, but without any political power. In 1996, the first election since 1980 was held, but the violence also continued under Museveni's leadership (7). Most notable and contextually relevant for this study are the wars in the north. Professor Reid explains that Northern Acholi had constituted a substantial part of the Ugandan armed forces for a long time. After the fall of Okello's short-lived regime, many Acholi soldiers fled north and were followed by the NRA, subjecting the civil population to violence and destruction (7). Further, the Acholi rebel group, the Lord Resistance Army (LRA), was formed against the government and spread further violence and kidnapping of child soldiers (7,164). Between 50 and 90% of the Acholi population were internally displaced (7,165), and many have struggled to resettle (165). Similar insurgencies with local rebel groups have tormented the northern Teso and Karamoja regions (7,166), with similar challenges related to resettlement (166).

Mbale

The Mbale district lies in eastern Uganda, in a tropical area around the foot of Mount Elgon, just west of the Kenyan border. Mbale lies along important road networks that connect cities within Uganda as well as across the border to Kenya. According to the 2014 census, 500 000 people were living in Mbale District and 95 000 were living in the urban centre of Mbale City (156). Mbale is home to several tribes. The Bamasaba is originally from the area, and the Banyole and Bagwere are from the surrounding eastern areas. Further, Iteso and Karamojong from north-eastern areas live in Mbale, and some are internally displaced because of war in the north (166). The main languages in the area are Lumasaaba, Luganda and English.

The district is varied, with urban and rural areas, and varying profiles of social indicators. According to the 2014 census (156), 77% percent of the households engaged in either crop growing or livestock farming and 24% had access to electricity. The illiteracy rate was 29% among those above 18 years, and 2.9% had education exceeding the secondary level (156). On average, 14% of children aged 6-12 years were not in school, but this ranged from 8-29% between different areas of the region. Similarly, the percentage of households that consumed less than two meals a day ranged from 3 to 16% (average 10%), and between 1 and 57% (average 15%) lived 5 km or more from a public health facility (156).

There are large slum areas in Mbale City that house approximately 40,000 people. These are mostly poverty-stricken families and internally displaced peoples from the war-affected north (113). In 2010, ACTogether Uganda, Uganda Slum Dwellers Federation and the Municipality of Mbale undertook a profiling of Mbale City and its informal settlements and slums (113). Most inhabitants in Mbale's slum areas were renting their housing from landlords, and many were living under the threat of eviction (113). Houses were constructed with materials such as mud or brick for walls and grass or iron sheets for roofing. Nearly all inhabitants were low-income earners, with an average daily income of 3000-5000 Ugandan Shillings (0.8-1.3 US dollars) (113). Many inhabitants were internally displaced peoples from the insurgencies in the north (166), and two settlements were colloquially called Kikaramoja and Kiteso, reflecting the high proportion of inhabitants from Karamoja and Teso (113). In the profiling report, brewing was listed as a main income-generating activity in several settlements, and the authors noted that, although there was varying access to social and religious meeting places, *"there are other social places like bars"* (113).

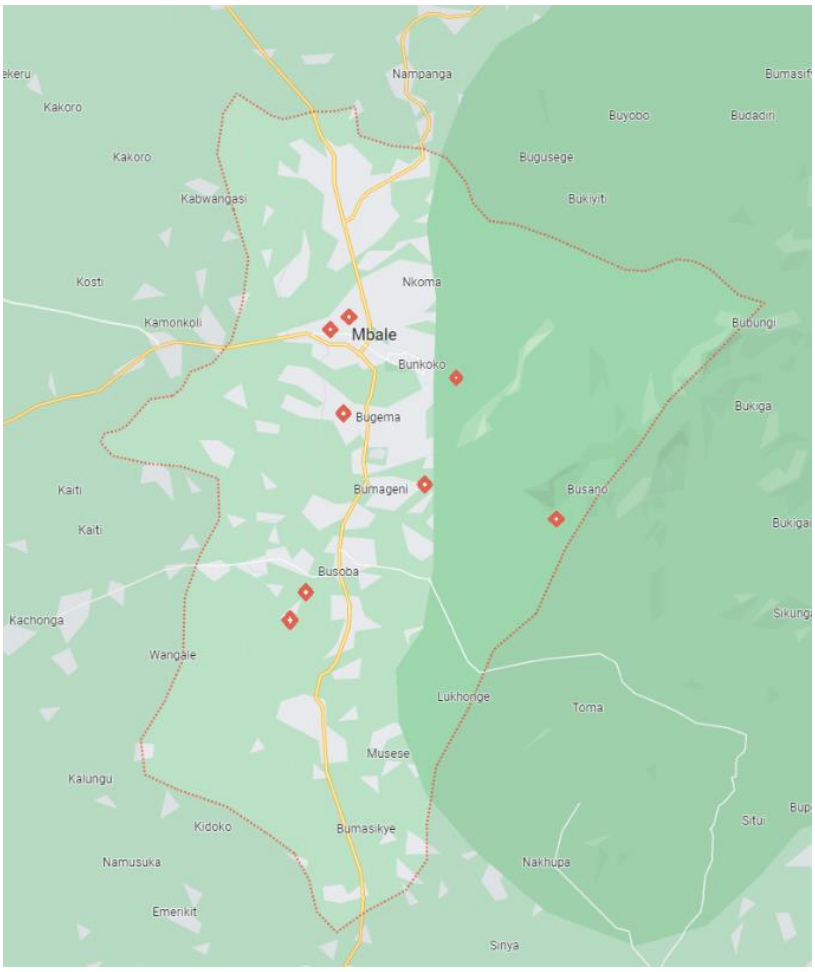
3.1.2 Methods

This section is based on the descriptions of methods in papers I (appendix A) and II (appendix B) (167,168). In summary, the data collection took place in Mbale District, eastern Uganda from April-June 2016. We conducted eight focus group discussions (FGDs) and 26 key informant interviews (KIIs) with parents and key stakeholders to

explore the context and conditions of early childhood substance use. We developed a topic guide to structure the interviews and discussions, and we used vignettes for the FGDs (appendix D). The topic guide was tried out within the research team and was further modified during data collection to include new and relevant topics.

Focus group discussions

We conducted eight FGDs with six parents in each group. We purposively sampled parents of children younger than 10 years to ensure that they were familiar with and had a clear understanding of the age group. After advice from our Ugandan colleagues, we divided the groups by gender (male or female) and age (18-30 years or 31 years and older) to decrease power imbalances and enhance group dynamics. To gain a wide representation of perspectives we sough heterogeneity between the groups by including participant groups from different residential and social backgrounds, i.e., urban/rural residency, slum areas, and agricultural areas, up to one hour drive from Mbale City centre (picture 2). Only one FGD was conducted in each selected community. The communities were identified with the help of the research assistants from the area and were based on their experience and knowledge about the district. Picture 2 shows the approximate locations of the FGDs, to illustrate the representation of various areas of the region.



Picture 2: Map of Mbale District with approximate locations of the FGDs. Map data ©2023 Google, accessed March 3rd, 2023.

A community mobiliser from the selected communities helped recruit eligible participants and organise the time and place in their home community. We collected data on the participant's age, education level and main occupation (table 2). We did not collect information on how many were approached and how many declined to take part. None withdrew after inclusion.

Table 2: FGD participant characteristics, reproduced from paper I (167).

Focus group discussion participants	
	N
Total	48
Female	24
Younger age (mean: 24 years, range: 18-30)	30
Older age (mean: 49 years, range: 31-76)	18
Main occupation	
Farmer	24
Student	6
Trader	5
Craftsperson	4
Housewife	2
Local chairman	2
Qualified professional	2
No formal education	1
No answer	2
Education level	
Primary (P1-P7) only	21
Secondary (S1-S6) only	20
High school, A level	1
Tertiary degree	3
No formal education	1
No answer	2

After advice from the Ugandan colleagues, we included a vignette about a boy and a girl using alcohol before age 10 (appendix D) to spur the discussion. Using a hypothetical case that the participants could recognise from their own communities was deemed a better entry point than asking for the participants' personal experiences in a group setting (169). The vignette was based on observations that the researchers had done in the community. The FGDs were facilitated by two research assistants that had experience with qualitative research. Both were female, fluent in the local languages and held a bachelor's degree in social sciences and community psychology, respectively. One moderated the discussion and the other observed and took notes. I was not present in the FGDs (see *Reflexivity* section on page 49*)*. The

FGDs were held in the Lumasaaba language and were audio recorded. The two research assistants transcribed the FGD together and translated them directly into English, reaching an agreement on the correct translation.

Key informant interviews

The KIIs included 31 participants and were done in two ways, with 24 individual interviews and two group interviews with three and four participants. The group interviews included representatives of organisations that on their own initiative recruited more participants that wished to share their insights and experiences. This was not known to the team until we arrived for the interview, but appreciating their initiative and interest in taking part, we accepted to include more participants in the same interview. We purposively sampled participants we believed would have relevant information about children and substance use. This included teachers, community leaders, youth workers, police, religious leaders, health workers, mental health activists, a pharmacist, child protection workers, traditional healers, and alcohol distributors (see table 3). We identified the participants by using our network, visiting relevant institutions, and using snowball sampling techniques, where participants recommended other participants. All the approached participants accepted to take part in the study. The interviews were held in a location chosen by the participants and were audio recorded. Twenty-three of the key informant interviews were held by me in English, who then transcribed the interviews verbatim. Three KIIs (two with alcohol distributors and one with a traditional healer) were held by the research assistants in the Lumasaaba language and transcribed directly into English, with agreement on the translation.

Table 3: KII participant characteristics, reproduced from paper I (167).

Key informant interview participants	
	N
Total	31
Female	14
Main occupation	
Primary school teacher	2
Health worker	5
Youth worker	5
Lawyer	1
Police officer	1
Mental health activist	2
Religious leader	1
Alcohol distributor	3
Pharmacist	1
Community stakeholder for children	8
Government official	1
Traditional healer	1

Analysis

The FGDs and KIIs lasted between 60-120 minutes (average 80 minutes). The FGDs were transcribed during fieldwork and were discussed by the research team for clarification and the need for further probing in subsequent discussions. Data collection continued until no new information seemed to arise, and the participants included representatives of a broad variety of stakeholders. In both the FGDs and the KIIs, the participants were keen to share their experiences and appreciated the opportunity to discuss early childhood substance use. They did not seem hampered by the sensitive nature of the topic neither in the group settings of the FGDs nor in the KIIs.

The transcripts of the KIIs and FGDs were analysed as one data set. This was because our intention was not to compare and contrast findings from different data collection methods or categories of participants (i.e., gender, age, place of residence), but rather to explore findings across these categories and reach a nuanced and comprehensive understanding of the participants' perspectives. The transcripts were read and reread to gain a sense of the whole both before and after thematic content analysis, to ensure

representativeness of the findings (169). Immediately after data collection, the first impressions of findings from the fieldwork were discussed with a Ugandan medical anthropologist who also co-authored the papers (Okello, E). The data were analysed inductively and coded using NVIVO 12 (170). Thereafter, the codes were sorted into categories and themes in tables in Microsoft Office Word and were then iteratively amended and adjusted throughout the process of analysis and writing, staying close to the data and empirical findings. We used quotes to illustrate the findings. These were labelled with the role for which the participants were purposively sampled, to provide context to the statement while ensuring their anonymity. We aimed for the quotes to reflect a broad selection of participants. Further, the analysis was implicitly informed by informal observations, conversations, and notes from the field, corroborating and contextualising the findings.

The codes and themes were discussed within the team, and representativeness was verified by rereading full transcripts and collecting participant feedback. Participants from the KIIs that had consented to be contacted for clarifications and analysis were invited to provide feedback on a draft of the results. The research assistants were invited to provide feedback based on their impressions from the FGDs. Four participants from the KIIs gave feedback on the results in both papers, and the two research assistants gave feedback on one draft each. Both the participants and the research assistants emphasised their agreement with the results as presented and none wished to make any amendments. The WHO framework for social determinants of health (74) was not preselected or part of the initial analysis, but its relevance for contextualising and understanding the findings became evident and helped shape the final organisation of the themes into the two publications where the framework also underpinned the discussions of the findings of papers I and II (167,168).

Reflexivity

When using qualitative methods, the researcher inherently becomes part of and impacts the data, and some reflections related to this are warranted. I am a Norwegian Caucasian female with ten years of experience and a special interest in addiction medicine, both clinically and in research. At the time of data collection, I was a

medical student enrolled in the Medical Student Research Programme and had previous experience in qualitative research (171). At the time of analysis, I was a medical doctor and PhD-candidate. Since 2012, I have spent cumulatively one year in Uganda, with shorter and longer visits up to five months, both for research and a clinical rotation for my medical degree, including in paediatrics and child psychiatry. Regardless of the time spent in Uganda, my position as a foreigner may have impacted the interaction with participants and the data. To explore this, the first impressions after fieldwork were discussed with Ugandan colleagues, including a medical anthropologist who worked at the Department of Psychiatry at Mulago Hospital in Kampala. The general impression in these discussions was that the outsider position had encouraged rich descriptions, where the participants assumed my limitations in knowledge. The participants did not seem intimidated or constrained in their sharing, and were, as mentioned, appreciative of the opportunity and eager to share their insights. Further, the information from the FGDs and KIIs where I was not present, was largely overlapping with the information from the KIIs led by me, implying that my presence did not drastically affect the information shared. The impression by the research team was that both the KIIs and FGDs included rich and open sharing and allowed for viewpoints beyond socially desirable answers. There was a clear notion of agreement across participant gender, age, and sociodemographic backgrounds. However, appreciating the complex social mechanisms at play in both interviews and groups discussion, and the limitations they may pose to reach a complete and true representation (169), participant feedback was sought.

3.2 Paper III

3.2.1 Setting

The third paper included data from ten countries in Africa, namely Algeria, Benin, Ghana, Malawi, Mauritania, Mauritius, Namibia, Seychelles, Sierra Leone, and Tanzania. These countries vary, both culturally and socioeconomically. The human development index ranged from 0.48 to 0.80 (i.e., low to very high) in Sierra Leone and Mauritius respectively (172), and the median age ranged from 16 years in Tanzania to 35 years in Mauritius (173). The completion rate of lower secondary education ranged from 17% in Mauritania to 111% in Seychelles (exceeding 100% due to possible enrolment at different ages or grade repetition) (174). Some were Muslim-majority countries (Algeria, Mauritania, Sierra Leone) while others had a mainly Christian population (Ghana, Malawi, Namibia, Seychelles), and others again had a mix (Benin, Mauritius, Tanzania) (175). Further, they all have their individual history and practices related to substance use, which in turn affect their population's substance use behaviour.

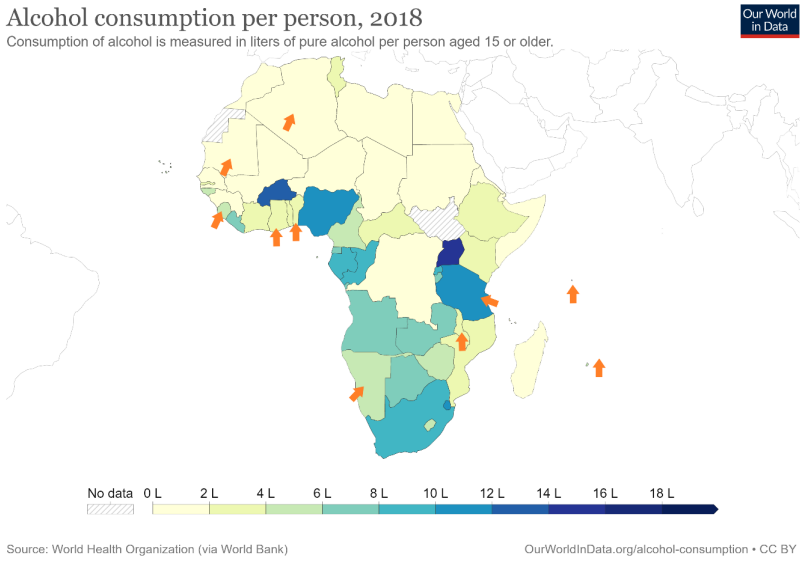


Figure 1: Countries included in paper III. The map is downloaded from ourworldindata.org (34) *and is published under CC-BY, with permission to adapt content.*

3.2.2 Methods

This section is based on the descriptions of methods in the appended manuscript of paper III (appendix C).

Data

For this paper, we used publicly available data from the Global School-based Student Health Survey (GSHS). This is a survey that has been undertaken in more than 100 low- and middle-income countries since 2003 and is organised by the World Health Organization (WHO) and Centres for Disease Control and Prevention (CDC), with coordinators in each country. The GSHS aims to collect data on behavioural risk factors for health (176), and has developed standardised questionnaires with core modules and modules that the countries can choose from. For some questions, it is possible to add context-specific terms, for example to certain types of drugs, but largely, the questions are the same and comparable across countries. In our analysis, we included the countries that had available data on the age of initiation of alcohol or drug use, which included Algeria (2011), Benin (2010 and 2016), Ghana (2012), Malawi (2009), Mauritania (2010), Mauritius (2011 and 2017), Namibia (2013), Seychelles (2015), Sierra Leone (2017), and Tanzania (2014). Algeria and Mauritania only had data on initiation of drug use, while Malawi only had data on initiation of alcohol use.

The GSHS targets schoolchildren aged 13-17 years, but some children are aged "11 years old or younger" and "18 years or older". They apply a two-stage sampling design where the first stage of sampling includes one or two schools (stratum), and the second stage includes one or more classrooms (primary sampling unit). According to the GSHS, the following formula was used for weighting "W=W1 * W2 * f1 * f2 * f3", where, according to the GSHS manual, "W1 = The inverse of the probability of selecting each school, W2 = The inverse of the probability of selecting each classroom, f1 = A school-level non response adjustment factor, f2 = A student-level non response adjustment factor calculated by classroom, f3 = A post stratification adjustment factor calculated by sex within grade" (177).

Variables

We had two dependent variables, i.e., self-reported age of initiation of alcohol use and drug use. These were divided into three categories, early, later, and never, where early initiation was defined as self-reported first use at ages 9 years or younger and later was defined as initiation at age 10 or above. Further, we included independent variables related to gender and the five dimensions in the UNICEF framework for child SDH (75), i.e., material, physical (including health behaviours), psychological, social and education (table 4). These variables were dichotomised, corresponding to relatively better or worse status on the social determinant. We anticipated that worse status was associated with early initiation of alcohol and substance use.

Table 4: Overview of variables included in the analysis.

Dimension	**Variable**
Gender	Gender
Material	Going hungry most of the time or always in the past month
	Using soap for handwashing rarely or never in the past month
	Toothbrushing less than once per day in the past month
Physical (including health behaviours)	Tobacco use initiation before age 10
	Alcohol use initiation before age 10
	Drug use initiation before age 10
	Sexual debut before age 14
	Fighting 4 times or more in the past month
	Being seriously injured 4 times or more in the past month
Psychological	Suicidal thoughts in the past years
	Suicidal attempt in the past year
	Feeling lonely most of the time or always in the past year
	Sleep problems because of worry most of the time or always in the past year
	Being attacked 4 times or more in the past year
Social – peers	Being bullied 4 times or more in the past year
	Having no close friends
	Finding other students kind and helpful rarely or never in the past month
Social – family	Parental tobacco use, one or both parents
	Parents checked homework rarely or never in the past month
	Parents understood problems and worries rarely or never in the past month
	Parents knew about free time rarely or never in the past month
Education	Missed school without permission 6 days or more in the past month

Analysis

We used STATA 17 (178) and 18 (179) to conduct the statistical analysis. We followed CDC guidelines for analysing the data, declaring the survey design and using weights to obtain estimates that were generalisable to the population that the sample was drawn from (177,180). We calculated prevalence estimates to describe the population and used multinomial logistic regression to investigate the associations between the dependent and independent variables, measured in relative-risk ratios (RRRs) adjusted for age. In the STATA manual, the term relative-risk ratio is explained as the ratio between the relative risk in one category relative to the reference category and is thus a ratio between two relative risks (181).

We anticipated that gender and country could be effect measure modifiers, and conducted a test of homogeneity, using the Mantel-Haenszel equation and the chi-square test with a threshold of statistical significance of $p<0.05$. Since country was a statistically significant effect measure modifier for all variables and gender was for several variables (appendix C: Paper III, supplementary file A-C), we stratified the analysis by gender and report associations stratified by country for one variable per domain. Further, we investigated whether those that had missing data on the dependent variables had a different status on the independent variables compared to those with available data.

3.3 Methodological considerations

In the papers for this thesis, we have applied both qualitative and quantitative methodologies, to explore different aspects of early childhood substance use. Each paper was either qualitative or quantitative. This choice was founded in pragmatism and draws on the thinking from mixed-methods methodology (182,183), using both realistic and relativistic approaches and applying the most appropriate method to achieve the most complete picture possible. To do this we needed to explore both constructivist perceptions on the context and conditions, as well as more positivist quantitative measures of prevalence and associations between childhood substance

use and social determinants. The qualitative study (papers I and II) was undertaken to further explore a previous finding of harmful alcohol use in children aged 5-8 years in Mbale (64), and the qualitative findings (papers I and II) informed the quantitative analysis of associated factors (paper III). We thus used a sequential approach where one study informed the next, but we did not combine or analyse the data in an integrated way. I, therefore, do not claim to use mixed methods, but multimethods (184), on a thesis level.

Further, the choice of methods and interpretation was inseparably connected to a value system relating to social justice and structural equity, as well as my professional background as a medical doctor. These values have driven the interest and motivation for the topic, the methods, analysis, and interpretation. The WHO framework for SDH (74) and the UNICEF framework for child SDH (75) resonated with these values and public health perspectives and helped contextualise and generalise the empirical findings. We acknowledge that in addition to these overarching conceptual frameworks for social determinants of health, various other frameworks have been developed specifically for substance use (77) and mental health (185). We chose the more general ones as the practice of early childhood substance use clearly had potential health-related and social effects beyond the substance use itself. Substance use can be a social determinant of other health-related outcomes as well as a health outcome itself. We believe that the practice of early childhood substance can best be understood when contextualised as part of a web of marginalising factors. We sought to understand the broader situation in which this happens, as opposed to identifying isolated pathways that led to substance use. For papers I and II, we chose to use the more general framework, as the participants were adults and the relevant factors pertained as much to the situation of the parents, households, and communities, as to the child. In the cases where children received alcohol to help them sleep or reduce hunger (167), the social determinants of the parent were deemed inherently connected with that of the child, in line with the UNICEF framework for child SDH (75). For paper III, however, we chose to use the UNICEF framework for child SDH, because the participants were schoolchildren, and the factors investigated were child-reported and child-specific.

As the field of early childhood substance use is relatively undocumented, we used descriptive and simple analytic methods to explore findings that could generate hypotheses and more complex analyses in future research. We sought to describe the context, prevalence, and associated factors, and understand this in a framework of social determinants of health. We did not seek to establish causes and sophisticated pathways, but we wish to further investigate this in the future and encourage colleagues to do the same. A further discussion of the limitations of the three papers follows in the discussion section of this thesis.

3.4 Ethical considerations

3.4.1 Papers I and II

The study conformed to the Declaration of Helsinki (186), respecting the autonomy, privacy, and integrity of the participants. Ethical approvals (appendix E) were granted from Makerere University College of Health Sciences, School of Medicine Research Ethics Committee (ref 2016–051), the Uganda National Council for Science and Technology (ref: SS 4073) and the Norwegian Centre for Research Data (ref: 48165). The Norwegian Regional Ethics Committee (ref: 2018/353) confirmed that the study was outside their remit, not requiring their approval. The Chief Administrative Officer of Mbale District and the head of the psychiatry ward in Mbale referral hospital granted permission for data collection. Written informed consent was obtained from all participants with a signature or thumbprint, however, all participants were able to sign. The content of the informed consent form was explained verbally, and they received a written version in English and Lumasaaba. Their opportunity to withdraw at any time was emphasised. They received a flat rate of transport refund (5000 Ugandan shillings, approx. 1.3 US dollars) and a refreshment. We emphasised confidentiality and the group gave verbal consent to not share information from the discussion outside the group. No participant was asked to share personal experiences with or information about their own children, but rather general experiences. Nevertheless, some chose to share their own life stories.

Beyond adhering to formal guidelines, other ethical aspects relating to research on and with vulnerable groups merits consideration. This responsibility has been explicitly addressed in the Declaration of Helsinki (186) and in guidelines for research in LMIC developed by the Norwegian National Committee for Medical and Health Research Ethics (187). Many of the participants in this study were socially vulnerable, particularly the participants in the FGDs (table 2). A large proportion only had primary education, and several lived in slum areas. The inherent power imbalance which is introduced when someone from a privileged background does research on or with people that live under challenging conditions is not to be ignored (187). On a community level, it is important that the research is relevant and beneficial, and not stigmatising (187). We have been conscientious about how we report this practice, aiming to provide a nuanced picture of a complex situation where deep-rooted mechanisms of social determinants lead to an unwanted practice that happens in lieu of other apparent alternatives. The powerlessness expressed by the participants to do something about this was vibrant. On an individual level, the power imbalance and social vulnerability that comes with having limited resources and education can collude with the validity of the informed consent (187). Moreover, one could argue that offering monetary compensation further clouds voluntary participation and makes the research interaction transactional. However, on a practical level, the potential implications of taking time out of people's day that could have been used for earning money is not trivial and we found it ethically problematic to not compensate people with marginal incomes (187). We, therefore, chose to offer a small transport refund as well as a drink and a snack. However, the amount may not have corresponded to their total loss, and we believe it did not incentivise them to participate against their wish.

The Declaration of Helsinki is concerned with protecting the research participants, but also states that *"groups that are underrepresented in medical research should be provided appropriate access to participation in research"* (186). The Norwegian ethical guidelines on research in LMICs also acknowledge the fairness of including participants from LMICs in research that may benefit them (187). Fairness, respect and relevance are rightly emphasised in the Norwegian guidelines (187). In our

project, the socially vulnerable were the ones that were most affected by the practice under investigation, and thus the most relevant to include. Without the invaluable insights from women living in slum communities, we would not have uncovered the context and conditions of early childhood substance use. The main concern is unquestionably to limit potential harm to the participants and protect their rights to privacy and autonomy. To ensure that we mitigated these concerns, we collaborated closely with Ugandan partners from protocol to publication.

However, it is also worth considering the potential positive gains from participating in qualitative research. In 2022, Bredal and colleagues published an article exploring the motivation for participating in qualitative research with vulnerable participants, in their case victims of intimate partner violence and sexual assault (188). Although beyond comparison to our study as such, their findings included a feeling of empowerment from sharing their experiences and having someone listen to them (188), which resonated with the impression we had from the field. It was clear that the topic was important to the participants in our project, and that they appreciated the opportunity to express their thoughts, experiences, and ideas. The explorative nature of the study also allowed them to shape the investigation and drive the findings toward what they believed was important and relevant to their context, as opposed to providing answers to confirm or disprove a predefined outcome. Some participants that consented to be contacted at a later point contributed with feedback on the analysis, further corroborating that the findings were relevant and reflected their thoughts.

We firmly believe that our findings are important and can benefit the participants. We acknowledge that for this benefit to materialise we have a responsibility for dissemination and advocacy, respecting the pertinent prayer of one of the participants:

"My pray is that after this interview, how I pray that something will start happening. So that does not only go the research papers, and just kept there in the

files and then somebody just say that "wow, we did this research and ...". how I pray that something will happen out of this." (Pastor)

So far, the findings from this study have informed two larger research projects funded by the Norwegian Research Council, one investigating the epidemiology of substance use among children (TREAT C-AUD, project number 285489) and one investigating the implementation of school-based identification of mental illness in children and referral to the health system (TREAT INTERACT, project number 316317).

3.4.2 Paper III

For the third paper, we conducted a secondary analysis of publicly available data provided by the WHO and the CDC. The privacy of both schools and students was protected (189) and no identifiers were available in the data set. Research projects using anonymous data do not require approval from The Norwegian Regional Ethics Committee (187).

4. Results

4.1 Synopsis of papers I and II

The first two papers were derived from the same data set and analysis, and the findings were divided into two papers tackling different aspects of early childhood substance use in Mbale, and related social determinants of health. The first paper described and explored the context and conditions that explained why and how this practice occurred, and the second paper investigated the factors affecting how it was managed. Both papers covered these aspects on the micro-, meso- and macrosystem levels, from the family unit to the more structural aspects of policy and culture. Table 5 summarises the themes, followed by a description of each of the five themes that the two papers comprise.

Table 5: Overview of findings in papers I and II.

Title of paper	**Theme**	**Sub-theme**
Paper I: 'As soon as they can hold a glass, they begin taking alcohol': A qualitative study on early childhood substance use in Mbale District, Uganda	Alcohol in everyday life: 'Even children on laps taste alcohol'	'Drinking is a part of the culture'
		'If the parent is drinking, they also give the child'
		'As we brew, children start tasting'
	Using substances to cope: 'We don't want them to drink	'They call it 'My food, my blanket''
		'Now it is about forgetting'
Paper II: 'There is nowhere to take the child': A qualitative study of community members' views on managing early childhood substance use in Mbale, Uganda	Addressing childhood substance use: 'We don't talk about it'	'It requires a leader'
		'We have lost our original African vibe of parenting'
		'We now have to handle children like glass'
	Managing childhood substance use: 'There is nowhere to take the child'	'The majority are sent away from school'
		'The police has failed'
		'Here in the hospital, we don't see them'
	Action for childhood substance use: 'The government has not done so much'	'We don't have clear laws'
		'It may never be addressed'

4.1.1 Paper I

Paper I included two themes on the context and conditions of early childhood substance use. The first theme *"Alcohol in everyday life: 'Even children on laps taste alcohol'*, depicted a context of widespread substance use and brewing for both everyday life and traditional celebrations. The second theme *"Using substances to cope: 'We don't want them to drink'"* described conditions, such as deprivation and traumatic experiences, that exacerbated the substance use by some and explained why some children were more vulnerable than others. The paper discusses these findings, considering structural determinants related to cultural practices and socioeconomic position, as well as intermediary determinants related to scarcity and coping, in line with the WHO framework for SDH (74)

The theme *"Alcohol in everyday life: 'Even children on laps taste alcohol'* included three sub-themes that recounted a reality where *"Drinking is part of the culture", "If the parent is drinking, they also give the child"* and *"As we brew, children start tasting".* All participants, except one, confirmed the existence of and concern for substance use before age 10. They depicted a context in which substance use was widespread in the community both for celebrations and in everyday life. This pertained particularly to local alcoholic brews, where the two most common were the beer-like brew "malwa" and the distilled liquor "waragi", but it also included other substances such as khat, marijuana and kuber. Malwa was made of millet and waragi was made of bananas. Some claimed that community members believed that these brews were not harmful since they were made of unharmful foodstuffs that could be healthy and used to treat ailments. Further, these brews were central in celebrations and traditional beliefs, such as connecting a newborn to their ancestors by giving them some drops of malwa within the first week of life or celebrating the season of male circumcision. Some tribes and ethnic groups had stronger traditions for brewing than others, especially people from the northern areas. Marijuana was often grown in people's gardens, sometimes to improve the appetite of their hens, making it readily available. Children could access substances in the home or buy them themselves and were often tasked with buying alcohol on behalf of adults. The participants emphasised the importance of family practices, and how they influenced the habits of

younger children. Children of brewers were often part of the production and sales, and it was considered natural that they drank it, as it was available. This was confirmed by participants that were children of brewers and brewers that had children. Brewing was a common source of income in slums and poor neighbourhoods and was an important social activity. Further, a large part of the population in the slums was internally displaced peoples from the northern war-torn area and experienced a synergy of conditions that made them vulnerable to substance use. Firstly, they were from cultures that traditionally brewed for everyday life and celebrations but secondly, they were also victims of marginalisation and traumatising experiences from war-related displacements, using brew to cope – as further investigated in the second theme.

In addition to the context where alcohol and other substances were a natural part of community life and something that most children were exposed to, the participants explained that some children were more vulnerable than others due to challenging social conditions. The second theme, *"Using substances to cope: 'We don't want them to drink'"* portrayed conditions in the sub-themes *"They call it 'My food, my blanket'"* and *"Now it is about forgetting"* where some parents and children used substances to cope with a lack of food and resources, as well as traumatic experiences. The participants explained that malwa was cheaper than food and was quite filling. In addition, alcohol and other tranquilizing benzodiazepines could help children sleep. For single parents, substances were sometimes used in lieu of help with childcare, if they needed to go out to work in the evening. Participants believed that this was a result of seeing no alternative solution, and not because the parents didn't know or care about the potential harmful effects. Street-connected children were also known to use substances, especially fuel, to help them feel full, stay warm and sleep on the streets. In addition, street-connected children had often experienced traumatic events, such as domestic violence from parents or step-parents, leading them to leave home. As mentioned, coping with traumatic events was also believed to be a contributing factor to the high intake among populations displaced by war.

4.1.2 Paper II

Despite the wide acknowledgement of and concern for early childhood substance use, the participants explained that it was not addressed in the communities, managed in relevant institutions, or acted upon by the government. Paper II explored three themes, where the first theme, *"Addressing childhood substance use: 'We don't talk about it'"* explored factors explaining why early childhood substance use was not discussed in the community, despite a consensus of concern. The second theme, *"Managing childhood substance use: 'There is nowhere to take the child'"* depicted that addressing it would be futile since there is nowhere to take a child that uses substances. The third theme, *"Action for childhood substance use: 'The government has not done so much'"* recounted a notion of a government that was disconnected from the communities and was neither willing nor able to implement relevant policies to limit children's access to substances. All three themes were permeated by a sense of hopelessness and powerlessness, where the participants felt that despite their concern, there was nothing they could do to change the situation. In the paper, these findings are discussed considering social determinants related to social cohesion and structural determinants of governance and policy related to tackling this issue, as outlined in the WHO framework for SDH (74)

The first theme, *"Addressing childhood substance use: 'We don't talk about it'",* included three sub-themes that described why early childhood substance use was not addressed in the community. The participants explained that *"It requires a leader", "We have lost our original African vibe of parenting"* and *"We now have to handle children like glass"*. There was an overarching notion that the social fabric of the community had changed, and the collective was not as integrated as before. This meant that taking initiative and standing up against community practices was not well received, and it required leadership figures, such as a local council member, to raise discussions about unwanted practices or changes that needed to be made. They explained that this was true, especially when it came to children and childrearing. The old practices of collective responsibility for children had been replaced by more nuclear family structures, where outsiders were not welcome to intervene or comment on other families. In addition, this change was exacerbated by the introduction of

children's rights, which, in their experience, had made it impossible for adults to discipline or correct children's behaviour without fear of being reported to the police. The participants lamented that children were aware of these rights and would bring them up if an adult in the community would approach them. They felt there was nothing they could do or say to raise the issue in the community, with the parents or with the children.

In the second theme, *«Managing childhood substance use: 'There is nowhere to take the child'",* their powerlessness was further corroborated by the notion that even if they decided to address early childhood substance use, there was nowhere to take them. While they considered institutions like the school, police, remand homes and health facilities to be theoretically appropriate for helping the children, they explained in three sub-themes that they were not real alternatives, since *"The majority are sent away from school", "The police has failed"* and *"Here in hospital, we don't see them".* This inability of the institutions to receive and help children was attributed to a lack of financial and human resources. Teachers were not trained in dealing with early childhood substance use, and many would simply be sent away. The police were overburdened with work and remand homes were full and too expensive. There was more disagreement regarding the relevance of the health system. Some health workers had experience with treating children with withdrawal symptoms, but this was rare since substance use was not considered to be a medical problem unless it had led to other consequences, such as injuries or mental illness. One health worker also explained that the medical understanding of substance use was not aligned with deeply rooted cultural practices, where the intake of substances was not necessarily considered to be problematic. These perceptions and experiences made the possible helping institutions untried. Further, the participants did not have much hope for an improvement in the opportunities for getting help, through public policy and improved resource allocation.

In the third theme, *"Action for childhood substance use: 'The government has not done so much'"* this lack of hope for any real action by stakeholders was further explored. The participants explained in two sub-themes that *"We don't have clear*

laws" and *"It may never be addressed"*. They had several suggestions for policy changes that could help prevent early childhood substance use, such as reducing the availability through restricting opening hours of bars, regulating brewing operations and stronger enforcement of the age limit. The participants called for clearer laws that could give them a collective mandate to enforce behaviour change, as opposed to expecting single individuals to take matters into their own hands. One practical example was the dilemma of a bar owner, who was allowed by law to sell alcohol to children if they were buying on behalf of an adult. Even if her moral judgment was that she should not sell to the child, in case they drink it themselves, she would also lose out on money and the child would simply go to the next bar, so nothing would be achieved by self-imposing restrictions on selling to children. However, the participants felt that the government was disconnected from the community and the realities on the grassroots level and would not prioritise their daily challenges. Some believed this was because politicians were ignorant about the reality of community life, while others believed it was because they had vested interests in the alcohol industry and financial motives for not implementing regulations. This left the participants feeling incapacitated and powerless in tackling early childhood substance use unless everyone was part of it on all levels, including the community, institutions, and the government.

4.2 Synopsis of paper III

In paper III, we explored the prevalence of early (age 9 and younger), later (age 10 and older) and never initiation of substance use, as well as the association between substance use initiation and social determinants of health. We investigated the social determinants of gender as well as the domains presented in the UNICEF framework for child SDH (75); material, physical (including health behaviours), psychological, social and education. The data included 12 GSHS surveys from 10 countries in Africa, namely Algeria, Benin, Ghana, Malawi, Mauritania, Mauritius, Namibia, Seychelles, Sierra Leone, and Tanzania. The sample comprised 36 654 secondary schoolchildren, where 48% were female.

4.2.1 Prevalence of early substance use initiation and social determinants

The overall prevalence of early initiation of alcohol use was 9.5% (confidence interval (CI): 8.6-10.4%) and ranged from 4.1% (CI: 2.6-6.3%) in Malawi to 22.2% (CI: 19.9-24.7) in Seychelles. The overall prevalence of early initiation of drug use was 5.5% (CI: 4.5-6.7%) and ranged from 0.7% in Benin (2016, CI: 0.5-1.5%) and Mauritius (2011, CI: 0.3-1.5%) to 11.2% (CI: 7.9-15.6%) in Ghana (Paper III, table 3). The pooled prevalence of reported initiation at 7 years or younger was 6.6% (CI: 6.0-7.3) for alcohol and 3.8% (CI: 3.1-4.7) for drugs (paper III, supplementary file A-A).

For alcohol use initiation, a social gradient was observed for most social determinants. This means that the prevalence of reporting a worse status on the social determinants increased from never initiation to later initiation and from later initiation to early initiation. For example, the prevalence of going hungry most of the time or always was 10.9% in the pooled sample, whereas it was 14.7% among those with early initiation, 13.6% among those with later initiation and 9.8% among those with never initiation of alcohol use. For drug use initiation, however, the social gradient pattern was not observed. Prevalence estimates for earlier and later initiation of use were more similar and for some social determinants, there was a higher prevalence of worse status among those with later initiation. For example, the prevalence of going

hungry most of the time or always was 10.9% in the pooled sample, whereas it was 17.8% among those with early initiation, 18.4% among those with later initiation and 9.8% among those with never initiation of drug use.

4.2.2 Associations between initiation of substance use and social determinants

The measures of association were relative-risk ratios (RRRs), and "never initiation" was used as the reference category in the logistic regression models. Hence, the RRRs for early and later initiation were relative to never initiation. We undertook pooled and gender-stratified analyses (paper III, table 5 and 6), as well as analyses stratified by country for one variable per domain (figure 5 and 6, below and paper III, figure 1 and 2). We also investigated and reported the statistical significance of the difference between those with early and later initiation (paper III, table 5 and 6). Further, we found that those with missing values on the dependent variables had worse status on almost all independent variables (paper III, supplementary file A-D). Below follows a summary of the most important findings, as well as tables 6 and 7, which include results from the regression models for one variable per domain (reproduced from paper III, table 5 and 6), to illustrate the identified patterns.

Alcohol use

For alcohol use initiation, the association estimates reflected the social gradient found in the prevalence estimates, i.e., worse status on the social determinants for those with early initiation relative to those with later initiation, and for those with later initiation relative to those with never initiation. This pattern was found in all variables with significant differences between early and later initiation in all domains (table 6, below, and paper III, table 5). The social-peer domain was an exception, where those with later initiation of alcohol use were more likely to 'find other students kind and helpful' compared to both early and never-drinkers, and were less likely to have 'no close friends', but this finding was not statistically significant for either early or later initiation (paper III, table 5).

Table 6 (reproduced from table 5 in paper III (appendix C)): Associations between social determinants and early, later, and never alcohol use initiation, adjusted for age and stratified by gender. Associations are given in relative-risk ratios (RRR) with 95% confidence intervals (CI), where "never initiation" was used as the reference category.

Alcohol use initiation	Pooled, RRR (95 % CI)		Males, RRR (95 % CI)		Females RRR (95 % CI)	
Social determinants	Early	Later	Early	Later	Early	Later
Gender						
Male	1.5 (1.3-1.7)^	1.5 (1.3-1.8)^				
Material						
Going hungry	1.6 (1.3-2.0)	1.3 (1.1-1.5)	1.3 (1.0-1.8)^	1.3 (1.0-1.6)^	1.8 (1.2-2.5)^	1.2 (0.9-1.8)*^
Physical (including health behaviours)						
Early sexual debut~	6.2 (4.9-7.8)	3.9 (3.1-4.9)	5.1 (3.8-7.0)	3.1 (2.4-4.0)	8.9 (6.3-12.8)^	5.8 (3.8-8.8)^
Psychological						
Suicidal attempts	3.9 (3.2-4.7)	2.3 (2.0-2.8)	3.6 (3.0-4.4)	2.3 (1.9-2.7)	3.9 (3.0-5.2)	2.5 (2.0-3.0)
Social (peers)						
Bullied ~	2.9 (2.3-3.6)	2.2 (1.9-2.6)	2.7 (2.1-3.5)	2.0 (1.6-2.4)	3.0 (2.2-4.0)^	2.6 (2.1-3.2)^
Social (family)						
Parents don't check homework ~	1.9 (1.6-2.2)	1.5 (1.3-1.7)	1.7 (1.4-2.1)^	1.5 (1.3-1.7)^	2.0 (1.4-2.8)^	1.5 (1.2-1.8)^
Education						
Missing school	3.8 (2.6-5.5)^	3.0 (2.2-4.1)^	3.4 (2.1-5.5)^	2.5 (1.7-3.7)^	4.4 (2.8-6.8)^	3.5 (2.3-5.4)^

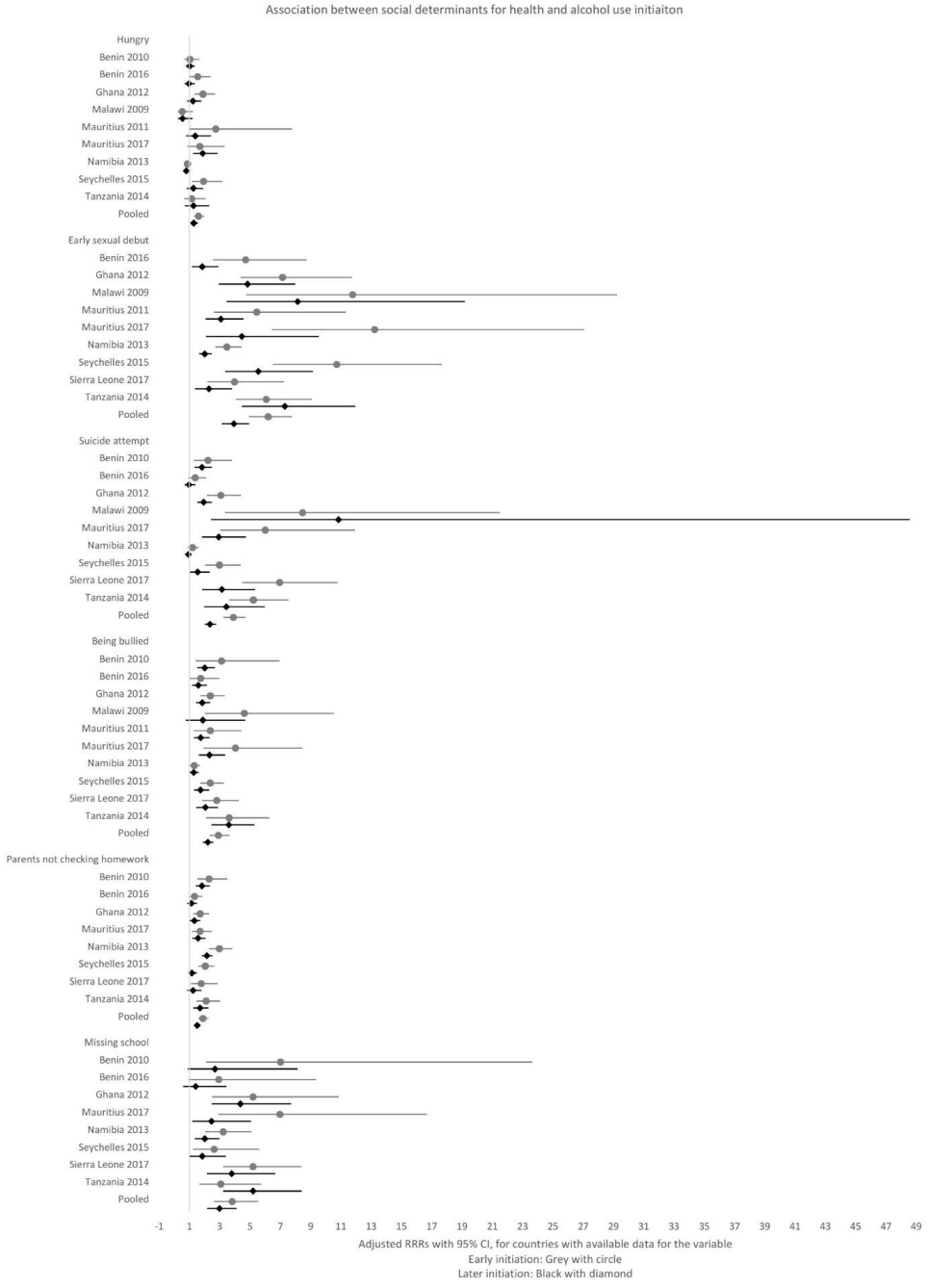
*~Heterogeneity test showed statistically significant differences between males and females ($p<0.05$) (appendix C: Paper III, supplementary file A-B) *Non-significant association between initiation and social determinant ($p>0.05$). ^Non-significant difference between early and later initiation ($p>0.05$)*

Among the most striking findings, was that early initiation of alcohol use had a much stronger association with early onset of other substance use, early sexual debut and suicide attempts compared to both later and never initiation (table 6, below). Those with early alcohol initiation had a relative-risk ratio of 11.1 (CI: 7.6-16.3) for early drug use, while for those with later alcohol use, the relative-risk ratio was 2.6 (CI: 1.7-4.2) (paper III, table 5).

The most important findings from the gender-stratified analysis included a relative-risk ratio of 8.9 (CI: 6.3-12.8) for 'early sexual debut' for females compared to 5.1 (CI: 3.8-7.0) for males (table 6, below). Further, females were more likely than their male peers to report that the 'parents don't check homework' and 'parents don't understand problems' (paper III, table 5). Among early initiators, males had a higher risk of suicidal thoughts compared to females (paper III, table 5).

In the analysis stratified by country (figure 5, next page), there were variations in the strength and precision of the estimates. For 'going hungry', most associations with alcohol use initiation were statistically non-significant. A consistent social gradient was found in all countries for the remaining five determinants; 'early sexual debut', 'suicide attempts', 'being bullied', 'parents don't check homework' and 'missing school'. Exceptions were Tanzania, where later initiation had a stronger or similar association with 'early sexual debut', 'missing school' and 'being bullied', and Malawi, where 'suicide attempts' was more strongly associated with later initiation.

Figure 5 (reproduced from figure 1 in paper III): Stratified analysis by country, showing associations (RRRs, adjusted for age with 95% CI) between early and later initiation of alcohol intake and one variable from each domain of social determinants. Note that the axes vary between figure 5 and 6. The Y-axis crosses the X-axis at RRR=1



Drug use

For initiation of drug use, the social gradient pattern was not found for associations with social determinants, but having initiated drug use was associated with worse status on most social determinants compared to never initiation. The differences between early and later initiation were mostly statistically non-significant, both in pooled and stratified analyses (table 7, below). For those with statistically significant differences between early and later onset, it varied which one had a stronger association with the social determinants (table 7, below and paper III, table 6).

For the material domain, there was a tendency of a social gradient, where earlier use was associated with worse status on the social determinants, but this was only statistically significant for 'not using soap' (paper III, table 6). In the physical/health behaviour domain, only 'fighting' and being 'seriously injured' showed statistically significant differences between early and later initiation, where later initiation was associated with worse status on these variables in the pooled and stratified analyses (paper III, table 6). In the psychological domain, no variable showed statistically significant differences between the early and later initiation in the pooled analysis, and there was no clear tendency (paper III, table 6). In the social-peer domain, there was a statistically significant difference between early and later initiation for having 'no close friends', with a stronger association with early initiation (paper III, table 6). In the social-family domain, there was a social gradient pattern for 'parents don't check homework' in the pooled analysis (table 7, below), but 'parental tobacco use' was more strongly associated with later initiation in both pooled and stratified analyses (paper III, table 6). For education, the association between early versus later initiation and 'missing school' was non-significant but showed a tendency of a stronger association with later initiation both in pooled and stratified analyses (table 7, below).

Table 7 (reproduced from table 6 in paper III (appendix C)): Associations between social determinants and early, later, and never drug use initiation, adjusted for age and stratified by gender. Associations are given in relative-risk ratios (RRR) with 95% confidence intervals (CI), where "never initiation" was used as the reference category.

Drug use initiation	Pooled, RRR (95 % CI)		Males, RRR (95 % CI)		Females, RRR (95 % CI)	
Social determinants	Early	Later	Early	Later	Early	Later
Gender						
Male	1.3 (1.1-1.4)^	1.4 (1.1-1.8)^				
Material						
Going hungry ~	2.2 (1.7-2.8)^	2.0 (1.4-2.7)^	2.2 (1.6-3.1)^	1.4 (1.0-2.0)*^	2.2 (1.5-3.2)^	2.8 (1.5-5.0)^
Physical (including health behaviours)						
Early sexual debut~	3.4 (2.4-5.0)^	4.6 (3.2-6.5)^	2.5 (1.7-3.5)^	3.0 (2.1-4.5)^	7.1 (4.4-11.3)^	11.4 (6.5-20.0)^
Psychological						
Suicidal attempts ~	5.1 (4.0-6.4)^	5.0 (3.9-6.4)^	4.9 (3.6-6.7)^	4.3 (3.3-5.6)^	4.8 (3.6-6.5)^	6.3 (4.3-9.3)^
Social (peers)						
Bullied ~	3.2 (2.5-4.2)^	3.3 (2.6-4.0)^	3.1 (2.2-4.3)^	2.6 (2.0-3.3)^	3.1 (2.4-4.1)	4.5 (3.5-5.8)
Social (family)						
Parents don't check homework	1.5 (1.2-1.9)	1.1 (0.9-1.3)*	1.3 (1.0-1.8)^	1.1 (0.9-1.4)*^	1.5 (1.1-2.1)^	1.1 (0.8-1.4)*^
Education						
Missing school	4.3 (3.2-5.9)^	6.1 (4.1-8.9)^	4.1 (2.5-6.9)^	5.0 (3.1-8.1)^	4.3 (2.5-7.3)^	7.6 (4.3-13.5)^

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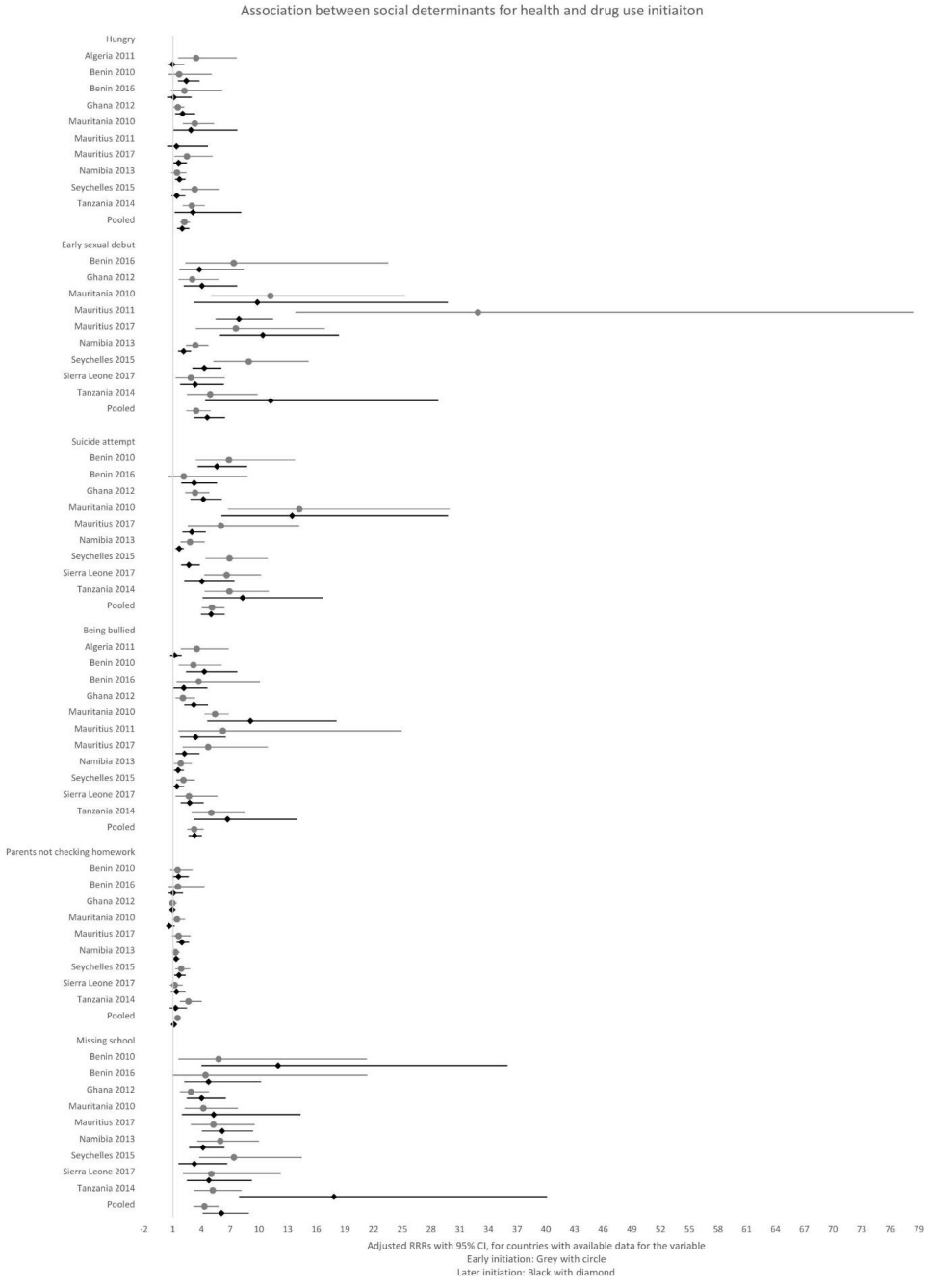
*~Heterogeneity test showed statistically significant differences between males and females (p<0.05) (appendix C: Paper III, supplementary file A-B) *Non-significant associations between initation and social determinants (p>0.05). ^Non-significant difference between early and later initation (p>0.05)*

The stratified analysis showed that males had a statistically significant stronger association between early initiation and ‘sleep problems’, compared to later initiation, while ‘fighting’ had a stronger association with later initiation (paper III, table 6). Females had a stronger association between later initiation and ‘being attacked’ and ‘being bullied’, while those with early initiation had a higher relative-risk ratio of having ‘no close friends’ (paper III, table 6). Females with early or later drug use initiation had a much stronger relative-risk ratio for ‘early sexual debut’, compared to males (paper III, table 6).

The patterns were inconsistent in the country-stratified analyses (figure 6, next page), where it varied between the countries whether early or later initiation had the strongest association with ‘going hungry’, ‘early sexual debut’, ‘being bullied’, and ‘parents don’t check homework’. For ‘suicide attempt’, six countries showed a stronger association with early initiation, while three countries had a stronger association with later initiation. For ‘missing school’, most countries had a stronger association with later initiation.

Figure 6 (reproduced from figure 2 in paper III): Stratified analysis by country, showing association (RRRs, adjusted for age with 95% CI) between early and later initiation of drug use and one variable from each domain of social determinants. Note that the axes vary between figure 5 and 6. The Y-axis crosses the X-axis at RRR=1



5. Discussion

The main aim of this thesis was to explore the prevalence, context and social determinants of substance use among children below the age of 10 in eleven countries in Africa. This was done in three papers (papers I-III) using multiple methods and applying a public health lens of social determinants of health (74,75) to gain an in-depth and comprehensive understanding of the complexity of early childhood substance use. Papers I and II (appendices A and B) were qualitative and explored the context and conditions that could explain the practice of early childhood substance use, as well as factors affecting the management thereof in the community in Mbale, Uganda. Paper III (appendix C) was quantitative and included data from 10 countries in Africa, investigating the association between self-reported age of substance use initiation and social determinants spanning the following domains: material, behavioural, psychological, social and education, according to the UNICEF framework for social determinants of child health (75). In the following section, I will discuss the findings from these three papers, their public health implications and how we can understand them considering existing literature. Further, I will discuss limitations related to the methods used in the three papers, as well as general challenges related to measurement within the field of early substance use initiation.

5.1 Discussion of findings

The three papers establish two important findings; firstly, children across Africa use substances in early childhood and secondly, this is associated with worse status on social determinants of health on a structural and intermediary level. To our knowledge, this is the first comprehensive investigation of the prevalence, context and social determinants of early childhood substance use in Africa. In this section, I will discuss the potential implications these findings can have for public health and explore how this seemingly unignorable public health problem can have gone overlooked in communities, academia, and policy.

5.1.1 An unignorable public health problem?

In paper III we found that among secondary schoolchildren 9.5% reported to have initiated alcohol use and 5.5% reported to have initiated drug use before age 10, and in paper I we found that children sometimes use substances "as soon as they can hold a glass". As reviewed in the introduction section (section 1.1.2), the papers in this thesis (papers I-III) are not the first to document early childhood substance use (44–47,50–54,58,59,61–67,190), but it is one of few multi-country documentations of comparable prevalence estimates across the African continent and in-depth explorations of the context in which this happens. To our knowledge, no previous study has qualitatively investigated the complex social context that surrounds the harmful practice of early childhood substance use, focusing specifically on children before adolescence. Further, it is the first exploration of the social determinants of early substance use initiation in this context, considering variables spanning material, behavioural, psychological, social, and educational domains. We consider the prevalence estimates to be substantial, as exposure to these substances can directly harm the developing brain (99–101) and further affect later life health-related, social, educational and work-related opportunities and abilities (2,40,101–103).

Moreover, both the qualitative and quantitative findings established that the relationship between social determinants and substance use, which has been previously investigated for adults and adolescents, is also highly relevant in early childhood. The qualitative studies (papers I and II) found that the practice of early childhood substance use was linked to factors on family, community, institution and government levels. Widespread use of substances, such as alcoholic brew, in the community, deprivation, a change in social cohesion and inaction on all levels, from the community to the government, were considered to be drivers of early childhood substance use. The quantitative study (paper III) investigated the child-reported intermediary social determinants of early childhood substance use and a social gradient pattern was found for early alcohol use initiation within all domains of the UNICEF framework for child SDH (75). While a social gradient was not identified for drug use initiation, having initiated use was associated with worse status on social determinants compared to never initiation. As reviewed in the introduction section,

this is in line with previous findings from the general population (15,82,86,88,97,130,146,147), and young children (40,49,64,68,114,133,145), where early substance use has been found to be associated with factors such as living in contexts of deprivation (67,68,114), later life harmful use and dependency (118,119), poor mental health status (64,68,145), parental drinking practices (133) and missing school (98).

If left unaddressed, this practice will inevitably continue to have detrimental consequences to public health and further exacerbate inequalities. However, while findings in papers I and II established that this harmful practice was well-known among participants, little was done to mitigate the problem.

5.1.2 How could it have been overlooked?

When realising the importance of this public health issue, one can wonder how it could have been overlooked so far, as was described in paper II, where it was not addressed in the community, managed by institutions, or acted upon by the government. Findings from the three papers may suggest that a combination of normalisation and scarcity has led to powerlessness in addressing the practice on a family, community, institutional and government level. Paper I explored the context and conditions for why and how early childhood substance use happened, ascribing explanatory factors to a culture with brewing, easy access, and widespread use, which was further exacerbated by deprivation. Paper II found that this was not addressed or managed at any level of society (paper II), due to changes in social cohesion and inadequate resources, affecting their perceived power and ability to act. Paper III did not include variables that could inform cultural aspects of normalised use per se but it confirmed the existence of early childhood substance use in 10 countries in Africa, reflecting that children have access to substances. The identified association with material deprivation and low parental involvement may imply a link to family-level scarcity and parental capacity and agency.

Normalisation, scarcity and power are intrinsically part of the structural social determinants of health related to culture, context and socioeconomic position, and the

role of power is emphasised in the discussion paper on the WHO framework for SDH (74). In the following section, I will discuss how these three interconnected and interdependent mechanisms of normalisation, scarcity, and power, can help us understand how the practice of early childhood substance use exists despite being acknowledged by community members.

Normalisation

In papers I and II, the participants explained that drinking and substance use was part of their culture, and it was present both in daily life and in ceremonies. Despite concerns for children being exposed to substances, especially in households where the parents were brewing, there was no community discussion about the matter. Further, children that used substances were rarely seen within the health system or adequately addressed in schools, and the government was not perceived to be taking necessary actions (paper II). In summary, everyone knew, but it continued despite concerns. These findings reflect structural determinants of governance and culture, but also intermediary determinants of behaviour, including normalisation of substance use behaviour.

In general, the cognitive judgment of normality is based on what is common or statistically average combined with what is morally acceptable or ideal (80). These two factors often, but not always, follow each other (80). The normalisation thesis has been applied to understanding adolescent substance use since the mid-90s, merging from an impression that youth drug use had become ‘unremarkable’ and more acceptable among both users and non-users, moving it from being a behaviour on the margins to something more expected (81). The normalisation thesis breaks from previous theories on early substance use by shifting the focus from individual deviance and disruptive motivations in the youth and rather focusing on more subtle mechanisms in the communities that the youth are part of (81). Originally, five dimensions have been part of the normalisation thesis; availability and accessibility, drug trying rates, recent and regular use, social accommodation of use and cultural accommodation of use, and a sixth dimension of government response has been suggested (191).

In paper I, the participants described a widespread use of particularly alcoholic brew in the community, in line with the aspects of normality as something common, accessible and available (80,191). This notion of high availability has previously been described in East Africa in general (79), and in slum areas of Mbale in particular (113). In a qualitative study from Cameroon, a similar pattern of broad access and use of the opioid painkiller Tramadol was documented, where it was widely available and consumed for non-medical purposes by adults and children as young as 5 years (48). The availability of substances affects patterns of use, and the link between availability and use of alcohol has been established in systematic reviews of studies from high-income countries, which have found an association between alcohol outlet density and alcohol intake by adults (192), as well as adolescents (193). This is also found in studies from LLMIC contexts, including from countries in Africa, where alcohol availability, especially in the home and where children can buy it themselves, has been linked to alcohol use among children and youth (43,47). Further, the availability and substance use patterns in the environment surrounding children shape their own expectancies and intake patterns, including early initiation (138,139).

In addition to being common and available, cultural and social acceptance is part of the normalisation process (80,191). In papers I and II, we found a certain ambivalence between the participant's expressed concern for early childhood substance use, while simultaneously accepting it as something that was practiced in the community and not yet been addressed by community members. In his book about the social history of alcohol in East Africa, Professor Willis has described a similar ambivalence towards alcohol use, citing a source noting that *"'alcohol is good' one man told me, 'and on the other hand it's bad'"* (79) (p.14). However, the social acceptance and value of alcohol were also noted by another source stating that *"beer [is] a drink which is valued, on ordinary days and on special days"* (79) (p. 65). In a qualitative study on the social acceptability of alcohol use among adults in Uganda, the authors found that it was widely accepted if those that drank did not bother others (44). Similar to the findings in paper II, help-seeking from the health system was rare, unless it had led to life-threatening conditions (44). Alcohol use was not in and of itself pathological or abnormal unless it led to other consequences. The

study also found that young children were exposed to alcohol, especially in relation to home-brewing and using alcohol to treat ailments, but also for social inclusion of children when the parents were drinking (44). Another qualitative study on the social space of alcohol use initiation among youth in Tanzania found similar results – alcohol was consumed where it was commonly used, socially accepted and it was available to young children and youth (47).

A sixth dimension to the normalization thesis has been suggested, relating to government response and policies (191), which shape people's views on what is normal and acceptable. In paper II, participants explained that government officials were not in touch with the grassroots level and were not expected to address substance use in early childhood. In 2017, the Ugandan Ministry of Health published "Child and Adolescent Mental Health Policy Guidelines", which recognised the existence of substance use in children, stating that *"alcohol and drug abuse in children and adolescents in Uganda is on the increase although not well researched"* (194). However, the laws that regulate access to alcohol date back to 1960, stating that the minimum legal age for consumption is 18 years, but selling to minors elicits a fine not exceeding 500 Ugandan shilling (0.13 USD) and children can buy on behalf of adults (195). According to the WHO Global Status Report on Alcohol and Health, several other countries in the African region had no national policy on alcohol, some had no age limit and less than one-third had regulated days of sales and alcohol outlet density (16). Even before implementation, the processes of legalisation of cannabis has been linked to rates of increased use among youth, ascribing the increase to a federal discourse conveying more lenient attitudes towards cannabis use (196).

However, normalisation alone cannot explain why early childhood substance use had occurred and persisted in the communities investigated in this thesis, as concern was raised by the participants. More deep-rooted mechanisms of scarcity and power may work in synergy with normalisation on a community and government level, hampering their opportunity and ability to address it, when having acknowledged its importance.

Scarcity

Most families and governments must make priorities within the limitations of their available economic and human resources; however, some are more marginalised and struggle to make ends meet. In paper I, we found that parents gave brew and other sedating substances to children to help them sleep and reduce hunger while the parents tended to chores, in lieu of other apparent alternatives. Street-connected children also used substances to cope, describing inhalation of fuel as *"my food, my blanket"* as it reduced the feeling of hunger and kept them warm at night. In paper III we found that early initiation of substance use was associated with material deprivation and reduced parental involvement. Further, in paper II, participants described that institutions had limited human and financial resources to tackle early childhood substance use, and the government did not provide sufficient support.

The practice of feeding brew to children, sometimes as a food replacement in lieu of other alternatives, has previously been documented in Northern Uganda (45–47), Tanzania (47) and Peru (53). In a study using GSHS data, an association between food insecurity and marijuana use has been documented among secondary schoolchildren in Africa (38). In a post-conflict setting in Pakistan, one study found that parents gave opium to children to calm them down while they attend to other livelihood-related tasks (114). Street-connected children are among the most marginalised and deprived populations, and their use of substances to cope with daily hardships, including hunger, has been widely documented (55,56,68,111). Poverty is one of the most detrimental conditions of child well-being (109), and income and education are powerful and synergistic social determinants of health for parents and their children (142). Poverty and scarcity hamper the capacity for childcare, and research from high-income settings has found that parents or caregivers with more resources have more opportunities to invest in their children's formation of human capital (197). Scarcity can affect an individual's decision-making and consideration of long-term outcomes (115,116) such as parenting-related decisions, when having to attend to more acute considerations related to securing basic needs.

In paper II (168), similar challenges related to scarcity were reported for institutions. The participants reported that schools, police, and the health system had limited

resources and capacity to attend to children that needed help. This was due to the sheer magnitude of the problem as well as a lack of priority reflected in missing training, inadequate resource allocation for institutions and interventions, as well as insufficient regulation and policy development. Government officials were not perceived to be acting according to the needs of the community and institutions, and participants called for regulations and increased resources. For policies and interventions to be efficient, they need to be properly implemented and enforced (198). Implementation of policies and monitoring of alcohol use is costly and requires both resources, priority and contextual understanding of effective strategies. In 2017, the WHO published a report on the progress of implementation of alcohol-related policies (199) since they launched their Global Strategy to Reduce the Harmful Use of Alcohol (82). The report found that while five countries in the African region reported to have developed alcohol policies since the launch of the strategy, no low-income country had increased their resource allocation to implementing alcohol-related policies (199). Underfunding and limitations in resources challenge all sectors of governments in low-income countries, with competing priorities and continuous economic shocks related to natural disasters, war and pandemics, hampering the outlook to achieve the Sustainable Development Goals (200).

A complicating element, both on a family level and a government level, is that substances are commodities that can alleviate poverty. While the alcohol industry has been found to take advantage of the lack of regulating policies in Africa, (201) and is promoting a product with a substantial burden to public health (11), they also provide substantial tax income to governments and offer employment in production and retail (112). Increasing excise taxes on alcohol has been an important element of the WHO Global Strategy to Reduce the Harmful Use of Alcohol, and in fact, 20 out of 28 reporting countries from the WHO African region have reported a somewhat or substantial increase in alcohol excise taxes since the launch of the strategy (199). Increasing the price of alcohol has been found to be among the most effective intervention to reduce access for youth and heavy drinkers (82). In fact, implementing taxes and prices on alcoholic products for the first time has been found to have a

theoretical potential to reduce the odds of adolescent lifetime drinking by 54% (202). On a family level, brewing has traditionally been one of very few income-generating activities that have been mostly tended to by women in Africa (45,79,112), and an important source of income for vulnerable populations, such as slum dwellers (113) and displaced populations (46,114). One informant in Professor Willis' book about alcohol use in East Africa explained that *«it was hunger, if you find hunger is disturbing you […] you decide to make and sell [beer]"* (79) (p.99). While brewing benefits the family's financial situation, and provides an opportunity for income for women (79), it also exposes children to harmful substance use (44,47,167), positing a dilemma in the context of scarce available resources.

In lieu of other apparent solutions, both families and governments need to balance the need for resources and protecting children from harmful exposure. Resources and power are closely related, and without resources, it can be challenging to find solutions.

Power

The concept of power is central in the WHO framework for SDH, both on an individual, community and government level (74). The concept of power, empowerment and are central to breaking the poverty cycle, or so-called poverty traps, which are self-reinforcing and affect prospects for well-being (203). In papers I and II, this feeling of powerlessness permeated all themes and was explicitly expressed by one participant stating: *"We don't want them to drink… [but] if you have 11 children, how will you feed them? You buy a jerry can of local brew and put it there for the children to drink as you are looking for what to eat." (FGD 8, younger men).* In paper III, we found that those who initiated alcohol use early or had initiated drug use, were more vulnerable in all domains of social determinants. The synergy of material deprivation, harmful health behaviour, struggling psychologically, being socially marginalised both on a peer and family level and missing school is hard to overcome. Further, being female was found to exacerbate some of these vulnerabilities. Further, in paper II, we found that the structural mechanisms of social support for families and children were changing, where

community involvement in child rearing and collective agency was reduced. In the interplay between normalisation and scarcity, the participants seemed incapacitated when faced with the notion of uprooting a longstanding and normalised practice without the necessary means. Further, in paper II, participants explained that government officials were not acting upon it, partly because they were not in touch with the grassroots level, but also due to vested interests in the industry and protecting votes.

In paper I, we learned that children's exposure to brew was linked to the practice of brewing in the home, which is traditionally done by women (79). The power and agency for women (204) and children (205) to protect their well-being is connected to, and sometimes limited by, their position in communities and families and by partners and parents. In Uganda and many other African countries, men have traditionally been the heads of households, while women have been primary caregivers. This position can make it challenging to negotiate the balance between providing what is best for their children, without access to necessary means. In an article about the traditionally pastoral Samburu in Northern Kenya, Holtzman explored how women's brewing plays into family politics, power, and women's bargaining position in the family's distribution of cash and food (206). According to Holtzman, in the Samburu society, women control the distribution of available food, but their husbands generate cash income and have decision-making power. Further, men are reluctant to give women access to cash to acquire food and other household necessities. However, income generated from sales is individual and not shared property (206). Women are primary brewers, and can independently decide to start brewing, not only to supplement the household's income, but also to have access to an independent source of income that they control. Almost half of the households investigated engaged in brewing, and it was more prevalent among low-income households and were sometimes the only alternative for women to generate income to feed her family (206).

In paper II, the participants noted a reduction in collective community involvement in the social support of families. On a community level, social cohesion is closely

connected to power, and the WHO framework for SDH cites the philosopher Arendt, who once expressed that; *"power corresponds to the human ability not just to act, but to act in concert."* (74,207). The role of social networks is important in tackling structural and chronic deprivation (203). The UNICEF framework for child SDH emphasises the importance of social protection to mitigate the stressors of resource-poor families (75). According to the World Bank, sub-Saharan Africa has the lowest state provision of social protection in 2019 (208). It has been argued that the lack of government-provided social protection in Africa has been mitigated by a long-standing collectivist community orientation for social support (106,209,210). In East Africa, the practices related to drinking itself have been suggested to mirror these changes in social cohesion – whereas people used to drink from straws coming out of a communal pot, it has become more common for everyone to have their individual containers (79).

In paper II, participants explained that the government officials were not acting, but were the ones that held the ultimate power to introduce policies and allocate necessary resources. This responsibility of governments is echoed in the WHO framework for SDH, stating that the "*primary responsibility for protecting and enhancing health equity rests in the first instance with national governments"* (74). One could argue that elected officials are part of the communities they represent, and their lack of prioritisation may reflect a normalisation and acceptance of harmful substance use in the community, hampering a notion of urgency when facing competing and seemingly more pressing priorities. Further, with scarce resources, difficult prioritisations must be made regarding what policies are most important to implement to benefit the public health of their population. However, the participants also pointed to an abuse of power, where they believed that elected officials had vested interests in the alcohol industry and were more concerned with protecting votes by avoiding unpopular policies of regulation (paper II). Similar perceptions were noted in another study from Uganda, about the social acceptance of alcohol use (44). In this study, the participants explained that the local authorities were reluctant to enforce the prohibition of sales to minors, because of the income generated by

those that produce and sell alcohol, and to protect votes, which were often campaigned for by handing out free samples of alcoholic drinks (44).

To address early childhood substance use in a reality of competing priorities, there is a need to support families, communities, and governments in challenging a normalised and culturally accepted practice with scarce available resources. However, the main responsibility lies with stakeholders and governments to implement policies that protect children from harmful substance use, without further marginalising families and communities that cannot compromise their livelihoods in lieu of other apparent alternatives.

5.2 Discussion of limitations

In the papers that form the foundation of this thesis, we applied multiple methodologies and gained access to both an in-depth contextual understanding as well as the epidemiology of early childhood substance use and related social determinants in Africa. That said, there are limitations to all three papers, which I will discuss below.

5.2.1 Papers I and II

The qualitative study included a relatively large and varied sample of participants. We triangulated methods of KIIs and FGDs and sought participant feedback on the findings. Thus far, the findings have resonated with observations by colleagues from the field, and we find them to be trustworthy. Still, the papers have several limitations related to the methodology and generalisability of the findings that I wish to raise.

One important limitation concerns that the participants to a large degree reported experiences and observations about other community members, rather than about themselves. This was a result of methodological and ethical choices we made, where we did not wish to ask the participants to reveal potentially incriminating information from their own lives in a group setting. To facilitate discussion, without asking participants about personal experiences with early childhood substance use, for example among their own children, we used a vignette in the FGD topic guide. The

use of vignettes is common in qualitative research, especially when inviting people to talk about potentially sensitive issues (169). We anticipated that the topic of early childhood substance use could be sensitive and that having a starting point might aid discussion. Although we agree with this choice, we acknowledge that it is uncertain whether their accounts accurately reflect the experiences of the families they describe. There can be a discrepancy between what people say they would do in a hypothetical situation, compared to a real situation, and they may have ascribed inaccurate explanations for substance use to other community members. However, the topic did not seem as sensitive as expected and participants shared openly about their thoughts and experiences. Many also shared their own lived experience with early childhood substance use, both from when they were children themselves and as parents admitting to substance use among their own children, verifying the reports.

Another important limitation is that we did not conduct interviews with children in this study, leaving important factors less known by parents and other adults unexplored. The reason for not involving children in this study was partly because the context and conditions for early childhood substance use were undocumented, and to gain a nuanced understanding of this context, it seemed natural to start by exploring the perceptions of adults and key stakeholder surrounding the children. However, their insights may differ from the perceptions of adults and children's own accounts of how and why substances are used are of immense importance to gaining insights into how early childhood substance use can be prevented and managed. The involvement of children in qualitative research about them has been rightfully advocated, but also involves several methodological and ethical challenges, such as gaining access, obtaining informed consent and protecting their privacy (211). In our study, one could discuss challenges related to asking children to disclose substance use, which may be something that they may not be allowed to do. Other reported challenges relating to the inclusion of children in qualitative research have been related to building rapport with children in a setting where a researcher may be viewed as an authority figure, as well as gaining rich data from children that may be timid or distracted (211). Therefore, as we did wish to access the views of children, they were included in another study conducted by a colleague and PhD candidate

within the consortium, Dr. Joyce Nalugya, who is a Ugandan child and adolescent psychiatrist, and thus better suited to mitigate these challenges. The results from this study are yet unpublished and were therefore not included in this thesis. In further investigations, it would be interesting to triangulate and compare the perceptions of adults and children.

Thirdly, we acknowledge the limitation of using translated transcripts, compromising the original expression of concepts (169). To mitigate this, we had bilingual research assistants who were native speakers of both Lumaasaba and English. English is an official language in Uganda and is widely used. The research assistants reached a consensus on the translation and were involved in discussing and clarifying the content of the translated transcripts.

For reflections related to reflexivity, see the methods section, page 49.

5.2.2 Paper III

In paper III, we investigated the association between the reported initiation of substance use and social determinants, adjusting for age. The choice of adjusting only for age could be discussed, and I, therefore, wish to elaborate on the rationale for this. One could argue that the term social "determinants" suggests a causal pathway where a social factor causes a certain health status, but it is widely accepted that this pathway is complex for social determinants in general (71,212,213), and for substance use in particular (96,214). Social determinants are dynamic; they cluster, accumulate and vary over the life course, and transmit between generations (75,212). Since the data were cross-sectional, causal inference was beyond reach, and one cannot establish the direction of the association. Further, we found that most potential confounders were also potential mediators (except age). Confounders and mediators are statistically indistinguishable, and whether a variable is one or the other is a conceptual question (215), and the identification of mediators is based on a conceptual understanding of the direction of effects (215,216). However, this direction can vary– e.g., early substance use can lead to missing school one day, and missing school can lead to substance use the next. Adjusting for a mediator or a proxy

for a mediator can introduce overadjustment bias (217), making it difficult to interpret the results. It has been argued that trying to make models to identify independent effects in an interdependent complex system can hamper progress and provide insights that are incomplete at best, but also potentially wrong (213). Our goal was simple: to explore associations between social determinants and substance use initiation. We were not attempting to explain these complex associations with limited data but rather generate hypotheses as a starting point for future studies within the scarcely investigated field (213) of early childhood substance use. We look at these social determinants as a web or constellation of factors that marginalise children and people to situations where they have multiple and inter-connected adversities and leave the disentangling of this web for future research designed to undertake this task.

Moreover, limitations of this study include information bias, especially social desirability bias and recall bias. While previous research has found that children's self-reports on substance use are reliable, consistent and valid down to fourth grade in the US (9-10 years) (137), they are prone to the same bias as other self-report surveys. In our study, the dependent variables (age of initiation) were among those with the highest percentage of missing information. This can be related to a social desirability bias, which is associated with the underreporting of socially unwanted behaviour or missing data on sensitive variables, and thus underestimation of the true prevalence (218). Regarding recall bias, the dependent variables of this study was the self-report of recalled aged of initiation. Recall of time is sensitive to inaccuracies in memory and a phenomenon termed "forward telescoping", resulting in reporting an event as more recent than it was (219). This phenomenon has been found to be relevant in recall studies on drug use, where it can inflate estimates of recent drug use (219), but also underestimate the recalled age of initiation (40). Previous research on substance use initiation has found that older participants were more likely to report a later time of initiation, resulting in a potential underestimation of earlier initiation (40). Another study investigating this phenomenon used longitudinal data over 10 years and found that the tendency of forward telescoping was most pronounced for those that reported an earlier onset of substance use at previous time points (220). This is important to keep in mind, as it may imply an underestimation of early

initiation in our study. Another related limitation was that the dependent and independent variables were reported for incongruent time points in the participants' lives. The dependent variables were reported for the recalled age of initiation, while the independent variables were reported recall of the past month or year. Thus, we have no data for the independent variables at the time of initiation, which may or may not have been different. We can therefore only infer an association between the status of a social determinant "now" and initiation of substance use "then".

Regarding selection and survivorship bias, the sample only included schoolchildren that were present on the day of the survey. This makes the results unapplicable to those absent on the day, or those out of school. The completion rate of lower secondary education varied substantially between the countries (174), and the study missed the most vulnerable children. Further, it included children that had entered secondary education despite initiation of substance use at an early age. This can introduce a survivorship bias (221) where participants do better than expected due to resilience and might show a different pattern of association compared to those that dropped out of school, which are missing from the sample. This can have been particularly relevant for the findings related to initiation of drug use in paper III, where later use was associated with worse status on several social determinants of health, compared to early initiation. Lastly, we are missing information on the amount and frequency of use in early childhood as well as parent and family level indicators, such as the home environment, parental socioeconomic status, and substance use behaviours. These are relevant factors that would be important to include in future studies.

5.3 Measuring substance use – current challenges

Finally, I wish to raise some general limitations and challenges related to the comparability of substance use measures across studies. Several tools have been developed and validated for measuring substance use and screening for clinical substance use disorders among adults and adolescents (222), but similar tools for children are lacking. There is a high level of heterogeneity in the measurement and

reporting of substance use among adolescents (37,222), and available tools are rarely developed, adapted or validated in LMIC contexts (222). A scoping review of assessment tools used for alcohol intake among adolescents in Africa found that a range of tools were being used, but very few had developed locally appropriate tools or made contextual adaptations to existing ones (222). Only 6/109 studies had asked specifically about local drinks (222). Moreover, these tools are not validated for use among younger children.

Further, estimating the prevalence and associated factors of substance use among youth is hampered by a lack of consensus on the measurements of amounts and frequency, which makes it hard to interpret and compare results across studies and undertake reliable systematic reviews and meta-analyses (37,190,223,224). Even the large multinational surveys of school-going adolescents use different cut-offs for amounts and time frames. For example, the GSHS and the YRBSS use ‘a drink other than a few sips’ (225,226) as their cut-off, while the HBSC uses ‘more than a small amount’ (227) and ESPAD uses ‘at least one glass’ (228). While many research projects rely on the questionnaires developed for these larger surveys, there are further variations in smaller studies, where some only ask about intake without making a cut-off for amounts (54), and others specifically focus on the practice of sipping and tasting in early childhood (50). Moreover, the timeframe of recall varies from weekly, monthly, yearly and lifetime use.

Another important factor to keep in mind is that children are part of a highly heterogeneous population, and childhood and adolescence are characterised by rapid changes, including in substance use (20). Factors such as the age range of participants, and the stratification of age ranges within the sample affect the generalisability of findings to other age groups, that are seemingly close in age but might be at a different developmental stage regarding risk-taking. Further, reports of the age of initiation have arbitrary cut-offs for what is considered “early use”. In research reports, the cut-off for early use is sometimes at age 13 (31,33), other times at age 12 (42,50,137), or other ages. Very few studies include or report initiation before adolescence. In the HBSC the lowest possible age of initiation is ’11 years old

or less' (227). One exception is the GSHS, which allows recall of first use as low as '7 years old or younger' (225).

As previously discussed, there are several limitations related to using recalled age of initiation, and more research on current use among younger children is warranted to confirm the prevalence estimates of recalled age of initiation and investigate the extent of the practice, globally. Currently, we are missing data on current use among younger children that is comparable across studies. This is despite evidence that children have knowledge about alcohol from age 2 (136), can identify alcoholic beverages based on smell from age 3, understand what alcohol is, as well as social norms related to its use and from age 4, and identify health risks and consequences from age 5 (134).

5.3.1 Errors and corrections

During the work with this thesis, I discovered an erroneous reference in paper II. Reference number 29 was supposed to be "Bryden A, Roberts B, Petticrew M, McKee M. A systematic review of the influence of community level social factors on alcohol use. Health & place. 2013;21:70–85.", and not the following study by the same author: "Bryden A, Roberts B, McKee M, Petticrew M. A systematic review of the influence on alcohol use of community level availability and marketing of alcohol. Health & place. 2012;18(2):349–57." The journal has been notified, and a correction will be published.

6. Policy implications and future perspectives

In this thesis, the existence of early childhood substance use has been documented qualitatively and quantitatively and should urge future research and interventions targeting this age group. One participant urged the government to "wake up", and there is a clear need to raise awareness of early childhood substance use among stakeholders and encourage them to engage with communities in addressing this practice. However, the work on this thesis has made it clear that early childhood substance use is a public health issue that has been overlooked in all instances, including academia.

Firstly, to understand the magnitude and impact of the problem, there is a need to include younger children in research on early substance use. Policies should be evidence-based, but we are missing systematic and high-quality evidence of substance use in this age group. To obtain this, we need a consensus on how to measure substance use among children, to gain estimates that are comparable across contexts and over time.

Secondly, while policymakers need to prioritise when resources are scarce, several cost-effective preventative policies have already been outlined by the WHO. However, effective implementation of regulations and interventions is lacking. This allows for the continuation of a practice that exacerbates inequalities and is detrimental to individuals, families, communities, and public health.

Yet, preventative efforts and interventions must consider the intrinsic mechanisms of normalisation, scarcity and power that allow for this practice to remain overlooked. The responsibility for the social protection of citizens ultimately lies with governments. Communities and families must be encouraged and supported to identify alternative solutions to coping with scarcity without exposing young children to harmful substance use. However, substances are used to cope with a range of poverty-related challenges, and some families' livelihoods depend on brewing. Real alternatives to these coping strategies need to be provided to avoid further marginalisation of low-income families.

7. Conclusions

This study set out to investigate the prevalence, context, and social determinants of early childhood substance use before age 10, in 11 countries in Africa. The two main conclusions from this thesis are the unequivocal existence of early childhood substance use and the firmly established association between early childhood substance use and social determinants of health on both a structural and intermediary level. In the qualitative study from Mbale, Uganda, we learned that early childhood substance use was related to a social context of widespread substance use in the community, which was exacerbated by conditions of material and emotional deprivation. Further, despite community concern, the complexity and magnitude of the problem left them feeling powerless and incapacitated in responding due to factors at community, institutional and government levels. In the quantitative study, we found that this practice pertained to more countries, and established that substance use initiation was associated with worse status on social determinants of health in all five domains presented in the UNICEF framework for SDH; material, behavioural, psychological, social and education. A social gradient was identified for early alcohol initiation, while for drug use, we found that having initiated drug use was associated with worse status on social determinants compared to never initiation. To our knowledge, this is the first comprehensive investigation of both the magnitude and the context of early childhood substance use in Africa, as this seemingly unignorable public health issue appears to have been overlooked so far. This can be understood by the parallel mechanisms of normalisation and scarcity hampering the power to tackle it on a family, community, and government level. Still, substance use is a powerful social determinant of health, it has detrimental implications on social outcomes and will further exacerbate inequalities if left unaddressed. Therefore, it is imperative that this practice is addressed and prioritised by governments and communities.

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9. Appendicies:

Appendix A:	Paper I
Appendix B:	Paper II
Appendix C:	Paper III, including supplementary material
Appendix D:	Topic guides and other data collection tools (available in Lumasaaba upon request)
Appendix E:	Ethical approvals
Appendix F:	Informed consent forms (available in Lumasaaba upon request)

APPENDIX A:

PAPER I

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RESEARCH

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'As soon as they can hold a glass, they begin taking alcohol': a qualitative study on early childhood substance use in Mbale District, Uganda

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Abstract

Background: Globally, substance use is a leading contributor to the burden of disease among young people, with far reaching social, economic and health effects. Following a finding of harmful alcohol use among 5-8-year-old children in Mbale District, Uganda, this study aims to investigate community members' views on early childhood substance use among children below the age of 10 years.

Methods: In 2016, we conducted eight focus group discussions with 48 parents and 26 key informant interviews with teachers, health workers, alcohol distributors, traditional healers, religious leaders, community leaders and youth workers. We used thematic content analysis. Four participants and two research assistants reviewed and confirmed the findings.

Results: *Alcohol in everyday life: 'Even children on laps taste alcohol':* Almost all participants confirmed the existence of and concern for substance use before age 10. They described a context where substance use was widespread in the community, especially intake of local alcoholic brews. Children would access substances in the home or buy it themselves. Those living in poor neighbourhoods or slums and children of brewers were described as particularly exposed.

Using substances to cope: 'We don't want them to drink': Participants explained that some used substances to cope with a lack of food and resources for childcare, as well as traumatic experiences. This made children in deprived families and street-connected children especially vulnerable to substance use. Participants believed this was a result of seeing no alternative solution.

Conclusions: To our knowledge, this is the first study to describe the context and conditions of childhood substance use before age 10 in Mbale District, Uganda. The study shows that community members attributed early childhood substance use to a social context of widespread use in the community, which was exacerbated by conditions of material and emotional deprivation. These social determinants for this practice deserve public health attention and intervention.

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Keywords: Early childhood substance use, Social determinants of health, Community child health

Background

Globally, substance use is one of the leading contributors to the burden of disease among young people [1, 2] and is associated with adverse social and health consequences, including mental illness, infectious diseases, cancer, accidents, and violence [3–5]. Research on early onset of substance use has thus far focused on adolescent years, as this is a period characterised by an increase in risk-taking behaviour, including substance use [1]. Although there is limited data on preadolescent and early childhood substance use, especially from low- and middle-income countries, some reports do exist. Data from the Global School-Based Student Health Survey show that the prevalence of alcohol intake before age 11 ranged from 4.1-43.5% in 45 low- and middle-income countries [6], while in Uganda in 2003, 20.6% of students reported onset of alcohol intake before age 13 [7]. Onset of intake before age 11 has shown a stronger association with adult alcohol dependence, when compared with adolescent onset [8]. Furthermore, early intake of substances can affect the developing brain and key cognitive and emotional functions, such as planning, learning and social development [9, 10].

Children learn from their environment, and early onset of substance use is associated with family and peer practices [11]. Studies have shown that children have knowledge about alcohol from age two, and they understand alcohol related norms and form expectancies from age four [12]. Parental and peer use are important predictors for early use [6, 13, 14], and around age 10 there seems to be a shift from primarily family-oriented to peer-oriented influence [9, 10] and from primarily negative to positive alcohol expectancies [12]. Familial, or household, alcohol supply has been associated with earlier onset of alcohol intake and a higher frequency of drinking [6]. Living with someone with an alcohol use disorder before age 10 has been associated with increased self-reported drunkenness among adolescents in Burkina Faso, Ghana, Uganda, and Malawi [15].

Alcohol consumption patterns vary across the globe. While alcohol per capita consumption is higher in high-income countries and high-income strata of populations, the drinking patterns in low- and lower-middle-income countries are characterised by a combination of high abstention rates in the population and high rates of heavy episodic drinking among those who drink [5]. The Ugandan population has a long-standing practice of alcohol intake [16, 17]. Although 32.5% of men and 62% of women are lifetime abstainers from alcohol [5], Uganda had the world's highest rate of alcohol consumption in 2004 [18], and the rate of alcohol-use disorder among both male and female adults was almost double the average of the African region in 2016 [5]. A study among secondary school students in central and northern Uganda found that 23.3%, used alcohol, and approximately 10% used kuber (a form of tobacco that can be mixed with other substances), khat, aviation fuel or cannabis [19]. According to the 2018 World Health Organization (WHO) Global Status Report on Alcohol and Health, 86% of all consumption in Uganda was comprised of unregulated local brews, such as fermented beverages made of banana, sorghum, millet, or maize [5]. While it is more acceptable for men to drink publicly [17], brewing is primarily done by women, which has been linked to childhood exposure of brew [17, 20, 21].

In 2014, our team identified an unexpectedly high prevalence of 8.4% clinically defined harmful alcohol use or dependence among 5-8-year-old children in Mbale District, Uganda [22]. While the study sample was small (n=119) and consisted of children who had screened positive for a high mental health symptom load, we believe the finding merits further exploration. Substance use in this age group has not, to our knowledge, been the primary subject of investigation in studies from Uganda, while the Ugandan Government's Ministry of Health's *Child and Adolescent Mental Health Policy Guidelines* from 2017 state that *"alcohol and drug abuse in children and adolescents in Uganda is on the increase although not well researched"* [23].

In this paper we explore the perception of parents and key informants related to the context and conditions for substance use among children (younger than 10 years) in Mbale District, Uganda. An understanding and appreciation of the social determinants of health underpin our analysis. We discuss our findings considering the WHO conceptual framework for action on the social determinants of health [24]. This framework describes the interplay between structural and intermediary determinants of health, adopting a life-course and socio-ecological perspective. The structural determinants describe the *distribution* of social determinants related to governance, culture, and power dynamics, while the intermediary determinants include material, behavioural, biological, and psychosocial factors, as well as the health system [24]. We use this framework because we believe alcohol and substance use in

early childhood is best understood when considering the wider social environment of the child, family, and community, rather than exploring specific pathways for deviant behaviour in children.

The present paper is the first of two papers from this study. While the current paper explores the structural and intermediary determinants related to family and community contexts and conditions for early childhood alcohol and substance use, the second paper explores how this is addressed and managed at a community, institutional (including health system) and government level, and relevant social determinants related to power, social cohesion and agency.

Methods

Study design

A qualitative study design was deemed appropriate to investigate thoughts, experiences and practices related to the context and conditions of childhood substance use. We combined key informant interviews (KIIs) and focus group discussions (FGDs), allowing for exploration of agreement and disagreement between participants in groups, while accessing sensitive topics in the confidentiality of individual interviews.

Study setting

The study was conducted in the Mbale District in eastern Uganda from April-June 2016. Mbale lies by the foot of mount Elgon, approximately 250 kilometres east of the capital, Kampala, close to the border of Kenya and south of the pastoral areas of Kenya, South Sudan, and northern Uganda. Large lines of transportation of goods run through Mbale. It is home to several ethnic groups, including the Bamasaba, Banyole, Bagwere, Baganda, Iteso and Karamojong. The main languages are Lumasaaba and English. According to the latest census of 2014, Uganda had a population of approximately 35 million, with 48% under 15 years [25]. Mbale District had a population of approximately 490 000, with 95,000 living within the urban centre of Mbale City [25]. The census shows that many social indicators are similar to the national average. 13.9% of the children aged 6-12 years were not in school (the national proportion was 12.5%), with rates varying from 8-29% within the Mbale District [25]. 77% percent of the households engaged in either crop growing or livestock farming, a proportion slightly higher than the national average of 69%. 24% had access to electricity, compared to 20% in the rest of the country. The illiteracy rate was 29% among those above 18 years, and 2.9% had education exceeding the secondary level [25]. 9.6% of households consumed less than two meals a day [25]. We anticipate that the situation may have deteriorated for many during the Covid-19 pandemic. There are large slum areas in the district that house approximately 40,000 people, mostly poverty-stricken families, and internally displaced peoples from the formerly war affected north [26]. Most inhabitants in Mbale's slum areas were renting their housing from landlords and 90% of the inhabitants were low-income earners, with an average daily income of 3000-5000 Ugandan Shillings (0.8-1.3 US dollars) [26].

Participants and research team

We conducted eight focus group discussions (FGDs) with six participants in each group. We purposively sampled parents of children below 10 years, as they were assumed to have a rich experience with children of the relevant age group. Furthermore, to explore different perspectives, we aimed to include participant groups representing varying characteristics relating to gender, age, and community profiles, i.e., urban/rural residency, slum areas and agricultural areas. To identify participants that suited the purpose of our study and to organise the FGDs, the research assistants collaborated closely with community mobilisers who knew the community well through their experience with community work, for example as head of the women's committee. The mobilisers were known to the team from previous research projects [27] and had experience with research, recruitment, and ethical procedures, such as confidentiality and voluntary participation. The research assistants carefully explained the purpose of the study and the importance of recruiting focus group participants who had the experience of parenting children below age 10. The participants were recruited into separate discussion groups according to their gender (male or female) and age (18-30 years or 31 years and older), to ensure variability of perceptions between the groups, while preserving homogeneity within the groups. The mobilisers identified and recruited relevant participants directly through their community network and organised a suitable time and place for the FGD in the participants' home communities. We did not collect information on how many were approached, and how many declined to take part. Before the discussion started, we informed the participants about the study and collected data on age, education level and occupation (Table 1). None of the participants refused to participate or dropped out after inclusion. The FGDs were facilitated by two research assistants with a bachelor's degree in social sciences and community psychology and with experience in qualitative research. Both were fluent in the local language. One of the research assistants moderated the discussion and the other observed and took notes. The first author was not present at the FGDs, since she did not speak the Lumasaaba language, and thus could not take active part in the discussion. We deemed that

Table 1 Participant characteristics

Focus group discussion with parents		Key informant interviews	
	N		***N***
Total	48	**Total**	31
Female	24	Female	14
Younger age (mean: 24 years, range: 18-30)	30		
Older age (mean 49 years, range: 31-76)	18		
Main occupation		*Main occupation*	
Farmer	24	Primary school teacher	2
Student	6	Health worker	5
Trader	5	Youth worker	5
Craftsperson	4	Lawyer	1
House wife	2	Police officer	1
Local chairman	2	Mental health activist	2
Qualified professional	2	Religious leader	1
None	1	Alcohol distributor	3
No answer	2	Pharmacist	1
Education level		Community stakeholder for children	8
Primary (P1-P7) only	21	Government official	1
Secondary (S1-S6) only	20	Traditional healer	1
High school, A level	1		
Tertiary degree	3		
No formal education	1		
No answer	2		

her passive presence as a foreigner could potentially disturb the discussion. This was based on experience from previous research and advice from Ugandan colleagues.

We recruited 31 participants for 26 key informant interviews (KIIs). We purposively sampled participants we believed had relevant knowledge about childhood substance use, including community leaders, teachers, youth workers, religious leaders, police, health workers, traditional healers, and alcohol distributors (Table 1). We identified participants through our network and by visiting relevant institutions, as well as using snowballing technique, where one participant introduced us to another in person or by phone. The KIIs were mainly individual interviews, while two were group interviews that included three and four participants from the same organisation. Before commencing with data collection, we informed the participants about the study. None refused to participate or dropped out. The first author conducted 23 of the interviews in English, while three KIIs (with a traditional healer and two alcohol distributors) were done by the research assistants in Lumasaaba language. All interviews were done in a location chosen by the participants. At the time of data collection, the first author was a medical student enrolled in a research programme. She had gained experience in qualitative research in the study setting, where she has spent cumulatively one year. At the time of analysis and writing she was a medical doctor enrolled in a PhD-programme.

Procedures

We used a topic guide for the interviews and discussions. This included topics such as the general use of substances in Uganda, perceptions about childhood use, protective and risk factors, perceived consequences and how they should be handled. The guide was amended during data collection to capture and explore new relevant topics as they arose. To facilitate discussions, the focus groups were read a vignette story about a boy and a girl drinking alcohol before age 10, based on observations in the community. The topic guide was pretested within the research team, and participants confirmed that the story and questions were appropriate and understandable.

Each FGD and KII lasted between 60-120 minutes (average 80 minutes), and were audio recorded. The participants were encouraged to speak openly about their knowledge, opinions, and experiences with the topic. Since the parents and participants had varying levels of

education and proficiency in English, the FGDs and three KIIs were held in the Lumasaaba language and were transcribed directly into English by consensus between the research assistants. The remaining KIIs included participants with a certain level of schooling and fluency in English, which is one of the official languages in Uganda. The KIIs were therefore held in English and transcribed verbatim by the first author. The first author and research assistants discussed each transcript during data collection to evaluate the need for further probing, as well as after data collection for clarifications of the content. In the protocol we had estimated a need for 15-30 KIIs and 4-8 FGDs with 4-6 participants in each group. We continued data collection until saturation was deemed met, i.e., when no new themes seemed to arise, and a sufficient variety of key informants was represented.

Analysis and interpretation

The dataset comprised the transcripts of the KIIs and the FGDs. These were thoroughly read and reread to gain a sense of the whole before, during and after undergoing thematic content analysis [28]. We analysed the FGDs and KIIs as one dataset, as our intention was not to compare them, but rather triangulate methods and populations for comprehensiveness. The first author used NVIVO 12 for open coding of the transcripts, before the team sorted them into categories, sub-themes and themes using Office Word. We used an inductive approach, staying close to the original data in reporting and interpretation of findings. The identified codes and themes were discussed by the team and refined throughout the process of analysis and writing. Quotes were chosen according to their ability to illustrate the essence of the theme. We aimed for a comprehensive and nuanced description of the findings in the social context of Mbale, with a broad representation of perspectives from a varied group of participants. When quotes included more than one participant, they were assigned a number, 'P1', 'P2', and the interviewer was marked 'I'. Further, the findings have been complemented by observations made by the first author, including from the media and social media outlets. To provide context to the quotes, we have labelled them with the role for which the participants were purposively sampled but have sought to generalise these terms to ensure the anonymity of the participants.

A draft of the results was shared twice with participants from the KIIs that had consented to be contacted for clarifications later in the process of analysis. Eight participants were invited to provide feedback, and four participants answered and accepted the invitation. The two research assistants provided feedback on behalf of the FGDs. All agreed that the findings reflected a true and accurate representation of their reports and perceptions. None wished to make any changes.

Results

We identified two main themes related to the context and conditions for early childhood substance use. The first theme *'Alcohol in everyday life'*, described a context with widespread substance use and brewing for everyday life and traditional celebrations. The second theme *'Using substances to cope'* described conditions, such as deprivation and traumatic experiences, that exacerbated the substance use by some. The term 'substance' has been used to include any psychoactive substance, including alcohol. When appropriate, the substance has been named. While acknowledging the ongoing discussion of the appropriateness of the term 'slum' [29], we chose to use this term in addition to the term 'poor neighbourhoods', since it was used in the context and a consensus on an alternative term that sufficiently covers the characteristics of slums has not yet been reached.

Alcohol in everyday life: 'Even children on laps taste alcohol'

Almost all participants agreed that the problem description and vignette story was recognisable, expressing a consensus on the existence of and concern for childhood substance use before age 10. The participants emphasised a higher frequency of alcohol consumption among adults and teenagers, and the reported amount and frequency of use by children varied. Guesstimates ranged from 10-98% of children drinking, and amounts varied from tasting to a more extensive use from a very young age*: "P: Alcohol, like local brew, you can find even a child of 3 years drinking local brew. (I: 3 years?) P: Yes, three years and he is drinking local brew and holding a cup like an adult" (FGD 7, younger women).* The participants did not think that it was acceptable for children to drink, but considered the practice to span regions, place of residence, socioeconomic position, and age groups. They explained that the cultural background of the family, living conditions and practices within the home could make some children more vulnerable than others. Some believed that religious conviction could be protective, while others did not perceive it to be important. We note that in one FGD with young women, it was discussed whether substance use happened among children, and one KII participant was hesitant about the importance of the problem, stating that: *"If it is there, it is an ignorable percentage" (KII 16, government official).*

'Drinking is a part of the culture'

The participants described that alcohol was part of longstanding traditions in the country and intake was

widespread. They explained that traditional home brews called 'malwa' and 'waragi', were most used by the community members, including children. Since malwa is made of grains used for food, some community members claimed that it could not be harmful: *"Malwa is [made of] maize and yeast, and millet. They fry and then add water, after three days it ferments, that is the only difference. So, the parents tell you that, that is food, in the form of liquid, so what is wrong with that? (I: so that it is alcoholic doesn't really matter) Yes, that it is alcoholic is not bad." (KII 3, community stakeholder for children).* A small minority of participants claimed that children only drink malwa on day one or two of the fermentation process, while it is not yet alcoholic, but other participants dismissed this. 'Waragi' is a distilled liquor, mostly used by adults, but also by some children. A few participants explained that some community members believed that waragi and malwa could treat ailments and make someone sharp and strong: *"There are good things, because when a person drinks, he can go to the field and run for a long time" (FGD 8, younger men).* Further, they shared that some young children used marijuana, which was sometimes grown at home for hens to reduce inflammation and improve appetite. Substances such as kath and kuber (a form of tobacco that could be mixed with other substances), were widespread, while solvents, such as sniffing of glue and fuel, were mostly used by street-connected children.

Alcohol was expected in social gatherings and events but was also integrated in daily life to the extent that people no longer noticed it: *"Drinking is a part of the culture for Mbale and it runs in the family [...] They have their local brew and even gives to a young child. From 5 years, a child knows alcohol. [..] Alcohol here in Uganda… people take it as water" (KII 6, traditional healer).* Children were especially exposed when alcohol was part of celebrations and ceremonies. Several participants reported a tradition of giving brew to a newborn within the first week of life, to connect with the ancestors. Further, the season of circumcision ceremonies for adolescent boys in Mbale District included especially high intake of and access to alcohol, also for young children. *"In circumcision ceremonies, some families gather the children and tell them to drink local brew to fulfil the celebration of the culture. Even the children who are still on laps are made to taste alcohol. The culture of the bagishu [ethnic group of the Mbale area] brings alcohol for the young children to drink, because all of them are given local brew" (FGD 2, older women).*

Although participants reported that drinking took place in all of Uganda, they emphasised that the north eastern populations, the Karamojong and Iteso, were especially known for their strong culture for brewing and sharing this with their children. Participants from the north eastern area confirmed this notion: *"P: Especially I can speak about where I come from, Karamoja. There I would say children start drinking from day one of their birth, because as soon as you're born they make sure that you taste the alcohol […] (I: and when would they start sipping, or drinking without their parents minding?) P: As soon as they can hold a glass, they begin taking alcohol." (KII 10, religious leader).*

'If the parent is drinking, they also give the child'

There was agreement that children would mainly access substances in the home or buy it themselves. The participants believed that growing up in an environment where parents and older children use substances was an important risk factor for own use. They were concerned that children copied the behaviour of their parents and peers, or were given alcohol by them directly: "*P: The moment the child starts walking it begins to ask for things and so if the parent is drinking, they also give the child (I: At what age?) P: Like one year. (I: And if the child finds you drinking, you give to taste?) P: Yes, I stopped drinking, but when I used to drink, I would also give my child to drink some, which was really bad." – (FGD 2, older women).* The participants explained that children are allowed, and often asked, to buy alcohol on behalf of adults, and they believed many children started tasting in this process. Peer influence was also considered important, especially in cinema halls and in school: *"Almost all schools have bars around. The child goes to school to study, but at break time the children go to sit in those bars and the bar owners do not care to say anything because they are also looking for money" (FGD 8, younger men).* Sales of alcohol to children was observed first-hand when an eight-year-old child bought a small bag of liquor during an interview with a bar owner.

'As we brew, children start tasting'

In the homes of brewers, it was considered almost inevitable that children were drinking. One participant, who grew up with parents that brewed, explained: *"Children drink because of the family background. Like in the family I grew up, our fathers and mothers used to cook waragi and therefore there was no way you would skip taking that waragi and the malwa." (FGD 8, younger men).* A brewer, who was also a parent, confirmed that the appropriate age to start drinking brew was blurred: *"It is hard because we brew from home, and as we brew, children start tasting. So, it is hard to say that at this age it is ok, since we brew it at home."* (*KII 9, alcohol distributor).* In addition to high availability, the children were also exposed to brew when helping in sales, which included tasting to prove the safety of the brew: *"You put the malwa in the*

pot, and then you pour hot water. As the seller puts the straw inside, they are told to sip first. When the child has been tasked to serve, they have to first of all sip to see if it poisoned and if the straw functions well and is not blocked. In that process a child gets addicted to the alcohol." (KII 23, primary school teacher).

According to the participants, brewing was an important source of income, especially in poor neighbourhoods. The slum areas in Mbale City were described as crowded, with a high density of bars and brewing spots, and were inhabited by mostly low-income families and internally displaced peoples from the north east. To open a bar or brewing spot was considered an attainable source of income in poor neighbourhoods since regulations were poor and demand was high: *"In poor families they will brew local brew to get some money for buying clothes, something to eat and may be buy some flour" (FGD 7, younger women).* The participants described a form of double dependency on the brew, where it was necessary for income, but also made the brewers and their family more exposed to alcohol due to increased access to and use of brew: "*They use substances because of the parent's situation not being good and they sell alcohol. Whether a Karamojong, or a Gishu, or Mugwere, as longs as he sells alcohol, even the child at home has to drink. Mother drinks, father drinks alcohol even the child has to take alcohol whether of 1 year, or 3 years." (FGD 1, older men).*

Using substances to cope: 'We don't want them to drink'

The participants explained that rich, poor, urban, rural, educated, and uneducated people used alcohol and substances, and that one such factor alone did not explain why children were exposed to this. Rather, they explained that growing up with a set of poor social conditions exacerbated the existing practice of intake. While the participants believed that some parents were unaware or did not care about the harm of substance use, and that some children should be disciplined for experimenting, they explained that many had no choice. They described that a complex interplay between social, economic, and cultural circumstances resulted in childhood exposure of substances as part of coping with deprivation and psychological stress. In these cases, despite knowing the harmful effects of substance use, the parents did not have the resources to protect their children from it.

'They call it 'My food, my blanket"

The participants explained that in some families the local brew was used to alleviate hunger and help the children sleep: *"They drink because of hunger and [for the children] to not disturb you because there is nothing [to offer them]. Every child drinks, and they end up sleeping. [..] It is to cool the hunger. We don't want them to drink… We know that it's bad, but a kilo of posho [staple food] cost a lot of money and if you have 11 children, how will you feed them? You buy a jerry can of local brew and put it there for the children to drink as you are looking for what to eat." (FGD 8, younger men).* Alcohol and substances were also used to cope with a lack of capacity and social support for childcare. Although the practice was unknown by some, multiple participants shared experiences with parents giving alcohol or benzodiazepines to children when they did not have the capacity to attend to them: "*The mother of the child gets the alcohol and puts it in the mouth and then gives the young child, but does not give much. Have you ever seen how the doves feed their young ones? Then she sleeps. As you know the baby's brain is still weak, she sleeps[...] You know how children cry, they disturb the mother so she has to give [alcohol] so that they can sleep and give the mother opportunity to do other things like brewing local brew." (KII 11, alcohol distributor).* In some rare cases, this practice also occurred in situations where single parents who worked evenings had to leave the children unsupervised and saw no other choice than making sure the child slept: *"One time there was a lady whom they brought for child neglect, complaining that she goes out in the night and she leaves the children of 4 and 6 years at home. She gives them alcohol so that they sleep […] I have also heard about a nursery school where they would give to children some Diazepam (benzodiazepine), and they will sleep." (KII 20, health worker).* The participants explained that this practice was not accepted by the community, but they understood it as an act of desperation by caretakers living on the margins.

Street-connected children were also reported to use substances to cope with unmet needs. Substances helped reduce hunger, ease sleep, feel warmth, get courage to beg for money and sleep outside at night and look for food in the rubbish. The main substance used was aviation fuel as it was cheap and could last for a long time if put on a cloth and kept in a plastic bottle. One participant that worked closely with street-connected children explained that 'jet fuel' was preferred as it provided favourable effects, and they could not see any other solution: *"You see the kids, they use what is called jet fuel. They call it 'my food, my blanket' because you don't feel hungry and you don't feel cold in the night. Now, why would you want to take away somebody's food and somebody's blanket if you are not providing another solution?" (KII 25, youth worker).*

'Now it is about forgetting'

Substances were also used to cope with traumatic experiences and psychological stress. The participants explained that some children who experienced neglect and domestic violence, particularly from stepparents,

ran away from home to escape an intolerable situation: *"Some children tell me they run away from home because of abuse. Parents were beating them and they say they can't take it anymore. Then we have kids from families that have a step mother, and they can't live together, and maybe she is denying them food and they decided to run away.[…]. [In the street] they have really hardened. They can't go [from the street], they will die there. But using substances helps them cope with the conditions." (KII 17, police officer).*

The use of substances to cope with trauma also applied to the north eastern populations whose long-standing traditions for substance use were exacerbated by their experience with war, insurgency, and internal displacement. One participant from the area explained: *"P: After the insurgency, some people had this feeling of dejection and loss. So, they went into the habit of drinking. Drinking has always been a culture in Teso [north eastern area], and local brew is always part of a good welcome home. But after the insurgency, it just went pooff, I think.. [..] it is more for forgetting problems and people were poor and started drinking instead of working. The social drinking was usually in the evening after they have done their work. They sit together and discuss over a pot, but now it is about forgetting." (KII 20, health worker).* The celebratory and social aspect of using substances had turned into a way of coping with a hopeless situation.

Discussion

In this study, we explored the context and conditions for childhood substance use before age 10 in Mbale District, as perceived by community members and key informants. Our study shows that widespread use of alcohol and substances as part of the everyday life and local traditions left children exposed to substance use. For some, this was exacerbated by conditions where substances were used to cope with resource deprivation and psychological stress. In the following sections, we will discuss these findings considering the WHO Commission on Social Determinants of Health (CSDH) Framework [24] and existing literature, as we believe social determinants are relevant for all children exposed to alcohol and substance use, yet more specific theories on child behaviour can supplement the insights drawn from the social determinants of health framework.

The context - structural determinants of health inequality

According to the CSDH framework, the structural determinants of health consider the *distribution* of exposure and vulnerability to health compromising factors, and are twofold. One part includes the socioeconomic and political context, including policy, culture, and societal values, and the second part includes socioeconomic position on three levels: individual, household, and neighbourhood. Socioeconomic position is in broad terms related to social class, gender, ethnicity, income, education, and occupation. In the case of children, these factors are understood as 'received' from the parent [24].

The participants explained that children learned from their environment, where substances, especially alcoholic brew, was an important part of daily life, as well as during ceremonies and celebrations. This tended to normalise the use of substances also by children, even if the use in this age group was not fully approved of. Globally, psychoactive substances are part of cultural practices, religious rites, building social bonds and coping with hardship [30]. In Uganda, brewing has been an important part of community life, and has been described as 'integrated' into the community [31]. Studies have shown that the intake of alcohol in the north eastern areas was double that of the central region among adults [17] and youth [19]. This is in line with our findings describing a higher vulnerability for alcohol exposure among children from these areas. However, the practice of intake by children of brewers has been described for populations both in the north [21, 32] and in the south [20], suggesting that this may apply to a large part of the country.

The participants explained that while the intake of substances was generally high, it was higher in poor neighbourhoods and slums, where brewing spots were common. In 2010, ACTogether Uganda, Uganda Slum Dwellers Federation and the Municipality of Mbale undertook a profiling of Mbale City and its informal settlements [26]. They described that brewing was a main income generating activity in the slums, and noted that, although there was varying access to social and religious meeting places, *"there are other social places like bars"* [26]. Globally, there have been contradicting results on whether neighbourhood density of alcohol outlets make the populations more vulnerable for alcohol intake. One systematic review found an association [33], while another systematic review was inconclusive, but reported a possible association among adolescents [34]. When interpreting these results, one needs to have context-specific factors in mind. One example of this we found in a study from South Africa where the authors found an association between problem drinking and alcohol outlet density, but not with heavy drinking [35]. They stipulated that a potential explanation for the missing association with heavy drinking was a weekly traditional event with dancing, where home brewed alcohol was sold, providing a source of alcohol consumption that was missed when only focusing on alcohol outlet density [35].

The conditions - intermediary determinants of health

While the structural determinants of health describe the *distribution* of exposure to determinants, the intermediary determinants describe the relevant interrelated conditions, material circumstances, psychosocial factors, behavioural and biological factors. Social cohesion and networks are placed as a factor overlapping the structural and intermediary determinants. As mentioned, the CSDH adopts a socio-ecological and life-course perspective, and children's determinants are defined by the conditions of the family [24].

Our findings strongly suggest an important connection between scarcity and increased vulnerability to substance use among children. The participants explained that since substances were so accessible, and by some deemed a nutritious food replacement, they provided an immediate solution to a range of daily life challenges when alternative solutions were not available. Brew and substances were used to generate income, relieve hunger, and help sleep. In lieu of a social network for childcare support, some caretakers used substances to release capacity for work and chores. Street-connected children used substances to mitigate the lack of safe housing, food, and warm clothes. Similar practices for using substances to cope with needs have been described elsewhere. Brewing alcohol has been identified as an important income generating activity among women [17], slum dwellers [26] and displaced populations in Kenya and Uganda [21, 32]. In Karamoja, mothers have reported giving brew to babies and children to help them sleep and relieve hunger [21], while in Pakistan [32] and Nigeria [36] reports show that opium and brew have been used to keep the child calm while the caregiver attends to other chores. These practices do not necessarily imply that caregivers are unaware of the potential harm. In a study from Peru, where 61% of parents reported that their 5–12-year-old children drank brew, with a median 3-year age of initiation, a majority of the parents believed that alcohol may be harmful, but also nutritious with the potential to aid growth at a low price [37]. These practices can be understood in light of Mullainathan and Shafir's work on how scarcity affects decision-making [38, 39]. The authors highlight that the 'mental bandwidth', or capacity, required for good decision-making, may not be available when resources are so scarce and basic needs like food and sleep must be addressed. In this situation, the 'bandwidth' for parenting is not available, and people tend to 'tunnel' on solving the acute issue at hand, such as income, food, and chores, disregarding long-term outcomes [39].

The participants explained that substances were also used to cope with a lack of security, nurturing care, and processing of traumas. This was especially relevant for two groups, namely the north eastern populations who were victims of war and insurgency, believed to have exacerbated an already strong habit for drinking alcohol, and street-connected children, victims of domestic abuse and neglect, especially by stepmothers. The practice of using substances to cope with psychological stress is well known in the addiction field as 'self-medication' [40, 41]. In line with our findings, this association has been documented qualitatively [32] and quantitatively [42, 43] among internally displaced peoples in Uganda, as well as among survivors of childhood trauma [44, 45]. A systematic review on the prevalence of substance use by street-connected children in resource constrained settings found that the prevalence ranged from 15-92%, with variation according to geographical location and methodology [46]. In a survey and qualitative assessment of street-connected children in Kenya, the authors identified 'peer influence and social network', 'coping and survival on the streets', 'availability and affordability of drugs', 'poverty' and 'negative family influence' as the most important barriers to quitting drugs. Further, 71.4% strongly agreed with the statement 'Glue helps me cope with reality' [47].

Implications for policy

The United Nation's Sustainable Development Goal 3.5 recognises the need to *"Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol"* [48]. The CSDH framework provides guidance on policy, calling for context-specific strategies that address both structural and intermediate determinants of health with a multisectoral approach, including community participation [24].

In our findings we observe an interplay between the structural and intermediary determinants, the context that permits childhood substance use and the conditions that exacerbate it. On a structural level, we identify a need for policies that protect children from access to alcohol and substances, and improved opportunities for alternative work and income generation, especially for women, internally displaced peoples, and slum dwelling populations. On an intermediary level it is imperative to address the conditions that make these children and caregivers resort to substances as a coping mechanism, seeing no alternative. While we agree when the CSDH framework states that *'interventions addressing intermediary determinants can improve average health indicators while leaving health inequalities unchanged'* [24], we acknowledge the acute character of the scarcities described in our findings and believe action targeting the intermediary determinants are necessary on humanitarian grounds. It is crucial to alleviate the described need for food, network, and prevention as well as treatment

of traumatic experiences with multisectoral and targeted interventions, while also improving the *"the circumstances in which people grow, live, work, and age*"[49].

Strengths and limitations

This study provides important and novel knowledge about the context and conditions in which early childhood substance use occurs in Mbale District, Uganda. We included a relatively large sample of participants, triangulated KIIs and FGDs, allowing for comprehensive exploration, and sought participant validation of the findings. Yet, the study has some noteworthy limitations. Firstly, most of the participants reported experiences and observations about other community members, rather than about themselves. Whether this reflects the experiences of the families they describe is therefore uncertain. Some, however, did report from their own lived experience with childhood substance use, verifying the reports. Secondly, we did not conduct interviews with children, leaving factors less known by parents and other adults unexplored. Thirdly, we investigated childhood substance use with a problem focus, missing important aspects such as protective environments, preventative measures, resilience and modifying factors. We acknowledge the value of a more solution-oriented approach of investigating children who grow up in similar contexts and conditions, without developing harmful substance use.

Further, we acknowledge the limitation in using translated transcripts, compromising original expression of concepts [28]. To mitigate this, we had bilingual research assistants who were native speakers of both Lumaasaba and English. The research assistants reached consensus on the translation and were involved in discussing and clarifying the content of the translated transcripts. In addition, since the first author was a foreigner and did not know the Lumasaaba language, she was only present in the KIIs, where she could have an active role and we considered her background would have the least impact on the interview setting and answers. Appreciating her position as an outsider, she discussed the first impressions of the findings with a Ugandan medical anthropologist (ESO) affiliated with the Department of Psychiatry at Makerere University at the time of the study. It is a noteworthy and reassuring observation that the findings in the FGDs and KIIs overlapped to a large degree. The FGDs had only Ugandans present, and their open sharing about this sensitive topic gives us an indication that they were not hampered by a wish to give socially desirable answers in the group setting. Further, a subset of participants gave feedback on the findings after analysis, emphasizing their agreement with the presented themes. Moreover, it is worth noting that the data was collected in 2016 and analysed from 2019-2021 due to capacity issues. The time passed may have left relevant changes unaccounted for, including a relatively recent ban on small bags of hard liquor [50], which are now substituted with small bottles. It is also worth mentioning the harsh consequences of the Covid-19 pandemic, which has led to an exacerbation of the described social conditions for many people, with a potential increase in exposure to alcohol for children. Apart from this, we have not observed other substantial societal changes in Uganda in the past five years that we believe would have large implications for our findings or conclusions.

Conclusion

In this paper we present findings related to the context and conditions in which children use substances before age 10 in Mbale District, Uganda. Substance use in early childhood was a concern for parents and key informants. Culture and context combined with an acute scarcity of resources, security and care left children exposed to alcohol and other substances, with potentially detrimental effects on public health and opportunities to thrive. We found that living in communities and families with high intake promoted early use, especially in slum areas or in families that brew. Substances were used to cope with deprivation and psychological stress, particularly in situations with lack of food and childcare capacity, as well as traumatic experiences from war or domestic abuse. We have explored and discussed the findings considering the interplay between structural and intermediary social determinants of health described in the CSDH framework, opening an opportunity for meaningful prevention and intervention initiatives targeting these determinants. Real alternatives for income generating activities, hunger relief and trauma processing must be made available. Exploring the children's own perspectives is warranted, as well as epidemiological investigations of the prevalence, associated risk and protective factors, and long-term consequences for the developing child. Despite the importance of future research, the presented report should be sufficient to entice urgent attention and action targeting substance use in this age group.

Abbreviations

FGD: Focus group discussion; KII: Key informant interview; WHO: World Health Organization; CSDH: Commission on Social Determinants of Health.

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Authors' contributions
VS and JKT were co-principal investigators. VS: conceptualisation, methodology, investigation, analysis, writing-original draft, project administration. JKT: conceptualisation, project administration, resources. IMSE: Conceptualisation, methodology, investigation, writing-original draft, project administration, supervision. AMSS: Writing – original draft, supervision. KMM: methodology, supervision, writing -review and editing. JN: conceptualisation, writing- review and editing. GN: Writing – review and editing. ESO: methodology, supervision. CO: conceptualisation, methodology, writing – review and editing. All authors read and approved the final manuscript.

Authors' information
VS is a PhD-candidate, medical doctor and has worked with research in Uganda since 2013. The Ugandan partners comprise JN, child and adolescent psychiatrist, JKT and GN are professors of paediatrics, ESO and CO are anthropologists holding PhDs. Norwegian partners include IMSE and KMM, professors in global health, and AMSS, PhD in psychology.

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Availability of data and materials
The University of Bergen and Makerere University have shared intellectual property rights to the data. The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
The study conformed to the Declaration of Helsinki. Ethical approval was granted from Makerere University College of Health Sciences, School of Medicine Research Ethics Committee (ref 2016-051), the Uganda National Council for Science and Technology (ref: SS 4073) and the Norwegian Centre for Research Data (ref: 48165). The Norwegian Regional Ethics Committee (ref: 2018/353) confirmed that the study was outside their remit, not requiring their approval. The Chief Administrative Officer of Mbale District and the head of the psychiatry ward in Mbale referral hospital granted permission for data collection. Written informed consent was obtained from all participants with signature or thumbprint, and they were informed about their opportunity to withdraw at any time and ensured confidentiality. The participants gave verbal confirmation that the content of the discussions would not be shared outside the group. While the participants were not directly asked to share personal experiences about their own children, but rather general experiences about the phenomenon, some chose to share from their own life. The participants received a flat rate transportation refund and a refreshment.

Consent for publication
Not applicable

Competing interests
The authors declare that they have no competing interests.

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Publisher's Note

APPENDIX B:

PAPER II

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RESEARCH

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'There is nowhere to take the child': a qualitative study of community members' views on managing early childhood substance use in Mbale, Uganda

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Abstract

Background: Harmful alcohol use by 5–8-year-old children has been identified in Mbale District, Uganda. To further examine this finding, the present study explores the experiences and perceptions of community members regarding how childhood substance use (before age 10) is managed in this area.

Methods: We conducted eight focus group discussions with 48 parents of children aged < 10 years and 26 key informant interviews with teachers, health workers, child protection workers, police, local stakeholders, brewers, and others. Thematic content analysis was performed.

Results: Three main themes were identified:

'We don't talk about it': Despite concern, childhood substance use was not addressed in the community. Participants attributed this to three main factors related to a lack of leadership in addressing it, changing acceptability for peer parental interference, and uncertainty about repercussions related to children's rights.

'There is nowhere to take the child': Schools, police, and remand homes were intuitively considered appropriate arenas for managing childhood substance use but were considered inaccessible, unresponsive, and inadequate due to insufficient resources, competence, and training. Since substance use was not considered a medical problem, help from the health sector was only sought for adverse consequences, such as injury. This left the participants with the experience that there was in effect nowhere to take the child.

'The government has not done so much': The participants called for government action and clear laws that would regulate the availability of alcohol and other substances to children, but they had limited trust in the capacity and commitment of the government to act.

Conclusions: The participants were concerned about childhood alcohol and substance use, but the complexity and magnitude of the problem left them feeling incapacitated in responding. Relevant factors were identified on the community, institutional, and the government level, such as a lack of leadership in addressing it, a loss of mandate to

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interfere in child-rearing, inadequate services, weak legal structures, and missing government action. A strengthening of collective agency and public policy is necessary to prevent and address childhood alcohol and substance use.

Keywords: Childhood substance use, Community health response, Social determinants of health

Background

There is ample evidence that substance use and dependence have health related, economic, and social consequences for individuals and communities globally [1, 2]. The patterns of substance use vary across the globe, but alcohol dependence is the most common substance use disorder in most countries [1]. The World Health Organization (WHO) states that "*the harmful use of alcohol compromises both individual and social development. It can ruin the lives of individuals, devastate families, and damage the fabric of communities.*" [3]. According to the 2018 WHO Global Status Report on Alcohol and Health, the WHO African region had a level of alcohol per capita consumption (APC) similar to the world average, at 6.3 L. However, the region had a pattern of high abstention rates and high APC among drinkers and the highest age-standardised alcohol-attributable burden of disease and injury [2]. Uganda, once ranked with the world's highest APC in 2004 [4], had an APC of 9.5 L in 2016, almost 50% higher than the African region average [2]. Among men, the APC was 16.1 L and among women it was 3.0 L [2].

The WHO Global Strategy to Reduce the Harmful Use of Alcohol emphasises community action as an important target area for interventions to prevent and respond to harmful alcohol use [3]. To plan appropriate preventive and treatment interventions, it is instrumental to understand how context-specific practices, attitudes, and culture influence the community handling of mental illness and substance use [5]. There are long-standing traditions for brewing alcohol in Uganda [6], and 86% of their consumption comprises of unregulated local brews, such as fermented beverages made of banana and grains [3]. While men drink more, and their intake is more socially accepted [6], women are the primary brewers. This practice has been linked to their children being exposed to brew in the process of brewing and selling [6, 7].

Alcohol and substance use can be especially detrimental when it starts early in life [1, 8, 9]. Data from the Global School-Based Student Health Survey show that alcohol intake before age 10 or 11 ranged from 4.1–43.5% between 45 low- and middle-income countries (LMIC) [10]. Compared to later onset, pre- and early adolescent alcohol intake has shown a stronger association with later life dependence [11], lower scores on the Social and Occupational Functioning Assessment Scale [12], and poorer psychomotor speed, visual attention, working memory and cognitive inhibition [13]. The mechanisms include biological explanations, where alcohol directly affect the developing brain and cognitive skills [14], but also play into the complex interactions with social determinants of health, including poor education outcomes and early pregnancy [15, 16].

In 2014, we identified harmful alcohol use in a small sample ($n=148$) of 5–8-year-old children living under parental care in Mbale District, eastern Uganda [17]. This finding spurred the present study, aiming to further explore and understand early childhood substance use, defined as before age 10 years. We consider 'substance use' to be the intake of any psychoactive substance, including alcohol. In the context of Mbale, alcohol was the most common substance of use, and was the main substance discussed by the participants. However, other substances were also relevant, such as cannabis, kath, kuber and solvents for sniffing, such as fuel or glue. In a previous paper from this study (i.e., the same participants and dataset) we described the social determinants related to the context and conditions for early childhood substance use, finding that alcoholic brews and other substances were widely used in daily life and ceremonies from the first year of life, but the use was exacerbated by deprivation and exposure to stressful and traumatic experiences [18]. Children of poor families, brewers, slum dwellers, internally displaced people and street-connected children were considered particularly vulnerable for using brew and other substances to cope with traumatic events, hunger, and neglect [18].

Despite being a leading cause of the disease burden among youth [8, 9], an analysis of data from the World Mental Health Surveys showed that 99% of patients of all ages with past-year substance use disorders in LMICs remained without minimally adequate treatment [19]. According to data from the WHO Global Health Observatory repository, there is no epidemiological data collection system for substance use among children and adolescents and no treatment programmes for children and adolescents with alcohol or substance use disorders in Uganda [20]. The treatment gap in child and adolescent mental health services in LMICs has been connected to family and community factors, as well as structural, political, psychosocial, and sociodemographic factors, service delivery and inadequate reach of vulnerable populations [21, 22].

The current paper explores how early childhood substance and alcohol use is addressed and managed at the

community, institutional and government level, and factors that influence agency. Our discussion is underpinned by the WHO Commission on Social Determinants of Health framework on social determinants of health, focusing on elements related to community factors, governance, power, social cohesion, and the health system [22]. We use this framework because it allows us to consider the complexity of the wider social contexts of early childhood alcohol and substance use, as opposed to specific pathways for deviant behaviour.

Methods

Study design and setting

We applied a qualitative study design, combining key informant interviews (KIIs) and focus group discussions (FGDs).

The study was conducted from April-June 2016 in the Mbale District in eastern Uganda. In the last census from 2014, Uganda's population counted approximately 35 million [23], but according to United Nations data the total population in 2022 has been estimated to be 48.5 million [24]. Thus, the country is experiencing a rapid populations growth, and with 50% below 15 years, it has one of the world's youngest populations [23]. According to the 2014 census, 500 000 people were living in Mbale District and 95 000 were living in the urban centre of Mbale City [23]. The district lies in a tropical area around the foot of Mount Elgon. Large lines of transportation of goods run through Mbale as it has road connections to large cities within Uganda, and to the Kenyan border in the east. Several ethnic groups reside in Mbale, including the Bamasaba originally from the area, Banyole, Bagwere from surrounding eastern areas, Baganda from the central region, and Iteso and Karamojong from north-eastern areas. The main languages are Lumasaaba, Luganda and English. The social indicators vary greatly within the district: 8.2–29.3% (average 13.9%) of children aged 6–12 years were not in school, 2.6–15.5% (average 9.6%) of households consumed less than two meals a day, and 1.2–57% (average 14.7%) lived 5 km or more from a public health facility [23]. There is one main urban centre, Mbale City, which holds approximately 20% of the district population, and hosts the main district referral hospital that has a psychiatric ward.

Participants and sampling

We conducted eight FGDs, for which we purposively sampled six parents of children younger than 10 years to ensure they had a clear understanding of the age group. We did not collect data on the number of children they had or their ages but, considering the age range of the participants (18–76 years, see Table 1), we anticipate that their children spanned all ages below age 10. To enhance group dynamics, we sought homogeneity within the groups relating to gender (male or female) and age (18–30 years or 31 years and older), while seeking heterogeneity between the groups, anticipating that this would enable representation of different perspectives. We therefore included participant groups from different communities, i.e., urban/rural residency, slum areas, and agricultural areas. This selection was aided by the research assistants' knowledge about the district and the aim of covering a wide range of residential and social backgrounds. Within the selected communities, a community mobiliser helped recruit relevant participants based on their prior knowledge about community members fitting the eligibility criteria. We did not collect information on how many were approached and declined to take part. None of the participants withdrew after inclusion. Only one FGD was conducted in each selected community.

The KIIs were done in two ways, 24 individual interviews and two group interviews with three and four participants from the same organisation. The group interviews were organised on the initiative of the organisation,

Table 1 Participant characteristics, reproduced from Skylstad et al., 2022 [18]

Focus group discussion with parents		Key informant interviews	
	N		**N**
Total	48	**Total**	31
Female	24	Female	14
Younger age (mean: 24 years, range: 18–30)	30		
Older age (mean 49 years, range: 31–76)	18		
Main occupation		*Main occupation*	
Farmer	24	Primary school teacher	2
Student	6	Health worker	5
Trader	5	Youth worker	5
Craftsperson	4	Lawyer	1
House wife	2	Police officer	1
Local chairman	2	Mental health activist	2
Qualified professional	2	Religious leader	1
None	1	Alcohol distributor	3
No answer	2	Pharmacist	1
Education level		Community stakeholder for children	8
Primary (P1-P7) only	21	Government official	1
Secondary (S1-S6) only	20	Traditional healer	1
High school, A level	1		
Tertiary degree	3		
No formal education	1		
No answer	2		

as more representatives wished to share their insights and experiences. Appreciating their initiative and interest in taking part, we accepted to include more participants in the same interview. We purposively sampled participants we believed would have relevant information by using our network, visiting relevant institutions and snowball sampling, where participants recommended other participants. Participants in these interviews included teachers, community leaders, youth workers, police, religious leaders, health workers, mental health activists, a pharmacist, child protection workers, traditional healers, and alcohol distributors. All the approached participants accepted to take part in the study.

Process and procedures

The FGDs were held in the participants' home community. Two research assistants facilitated the FGDs. Both were female, experienced with qualitative research, fluent in the local languages, and held a bachelor's degree in social sciences and community psychology, respectively. While one moderated the discussion, the other observed and took notes. The KIIs were primarily held by the first author (see 'Reflexivity' section for details), in a location chosen by the participants.

The participants were given oral and written information about the study. We used a topic guide to structure the interviews and discussions. The focus group discussions started with the facilitator reading a vignette about a boy and a girl using alcohol before age 10 (see supplementary file 1). The purpose was to spur the discussion through a hypothetical case that presented a situation that the participants could recognise from their own communities. This was deemed a better entry point to a potentially sensitive topic than asking for the participants' personal experiences in a group setting [25]. The vignette was developed based on observations in the community. The topic guide was tried out within the research team and was inductively modified during data collection to capture new and relevant topics. The participants shared openly about their experiences and perceptions and did not seem hampered by the sensitive nature of the topic in either the FGDs or KIIs.

The FGDs and three KIIs (two with alcohol distributors and one with a traditional healer) were held in the Lumasaaba language and transcribed directly into English by the two research assistants, who agreed on the translation. The first author conducted 23 of the KIIs in English and transcribed the interviews verbatim. All FGDs and KIIs were audio recorded and lasted between 60–120 min (average 80 min). During data collection, the first author and research assistants discussed each transcript, the need for further probing and clarifications of the content. Data collection was continued until saturation was deemed met upon agreement that no new themes seemed to arise, and a broad variety of participants was represented.

Analysis and interpretation

The unit of analysis comprised the transcripts of KIIs and FGDs. These were analysed as one dataset, since our intention was not to compare findings from different research methods or categories of participants (i.e., gender, ages, place of residence), but to reach a nuanced and comprehensive exploration of perspectives on a complex topic. The transcripts were read and reread to gain a sense of the whole before and after thematic content analysis, to ensure representativeness of the findings [25]. The first impressions were discussed with a Ugandan medical anthropologist (ESO). The first author read the full unit of analysis, while IMSE and AMSS read a selection of transcripts to be familiar with the data. The first author coded the transcripts using NVIVO 12 and sorted codes in Office Word to identify categories and themes, which were iteratively amended throughout the process of analysis and writing. Further, the analysis was implicitly informed by observations and field notes, considering whether the data matched observations in the field. We used an empirical data-driven and inductive approach. The codes and themes were discussed within the team, and representativity was verified by rereading full transcripts. We selected quotes to illustrate the theme, aiming for wide representation of participants. For context, we labelled the quotes with the role for which the participants were purposively sampled, while ensuring their anonymity. Identified themes that related to the context and conditions (i.e., culture, family conditions, poverty and traumatic experiences) for childhood alcohol and substance use has been presented elsewhere [18].

Reflexivity

The first author is a Norwegian female with experience and special interest in addiction medicine. She was a medical student with experience in qualitative research at the time of data collection and a medical doctor and PhD candidate at the time of analysis. Though she had spent cumulatively one year in Uganda, her position may have impacted the interaction with participants and the data. To explore this, the first impressions were discussed with Ugandan colleagues, including a medical anthropologist (ESO). The general impression was that the outsider position yielded rich descriptions, where the participants assumed her limitations in knowledge. They did not seem intimidated or constrained in their sharing. Further, the information from the FGDs and KIIs where the first author was not present was largely overlapping with the information from the KIIs led by the first author. Our

impression was that the rich and open sharing in both the KIIs and FGDs had allowed for viewpoints beyond socially desirable answers, and there was a clear impression of agreement across participant gender, age, and sociodemographic backgrounds. The topic engaged the participants, and many expressed their gratitude for the opportunity to share. However, appreciating the complex social mechanisms at play in both interviews and groups discussion, and the limitations they may pose to reach a complete and true representation [25], participant validation of the findings was sought. A draft of the results was shared with participants from the KIIs that had consented to later be contacted for clarifications and analysis, and the research assistants were invited to provide feedback based on their impressions from the FGDs. Four participants from the KIIs and one research assistant responded, emphasising their agreement with the results as presented. None wished to make any amendments.

Results

We identified three main themes related to handling childhood substance use in Mbale, Uganda. In the first theme *'We don't talk about it'*, participants explained challenges related to leadership in addressing the problem and a lack of mandate to intervene with other parents' children. In the second theme *'There is nowhere to take the child'* we explored the perceived relevance and ability of the school, legal system, and health sector to manage childhood substance use. In the third theme, *'The government has not done so much'* we found that government involvement was perceived necessary, but the trust in their commitment and ability to act was limited. Further, throughout the themes we explored the factors within and the interplay between community action, relevant institutions, and governance. We used the term 'substance' for any psychoactive substance, including alcohol, and we named the substance when appropriate.

Addressing childhood substance use: 'We don't talk about it'

The participants were deeply concerned about childhood substance use. Despite this, it was not part of community discussions, primarily explained by three factors: 1) a lack of leadership in addressing it, 2) changing acceptability for peer parental interference and 3) uncertainty about repercussions related to children's rights. Bringing up the topic was perceived difficult, requiring leadership. Further, the community members' mandate to intervene and guide other parents and their children was curtailed by changes in the social fabric of the community, where child-rearing responsibilities were increasingly vested in the nuclear family. Children's rights exacerbated their hesitancy to interfere, leaving participants scared of legal prosecution if they intervened using corporal punishment. Many participants expressed a wish to do something about early childhood substance use, if only they had the power and community mandate to raise it.

'It requires a leader'

The participants expressed a deep concern for childhood substance use and explained that community sensitisation was necessary. Simultaneously, they demonstrated that they, as community members, were well sensitised to the issue, and shared knowledge about harmful substance use and its consequences. Further, they explained that the existence of childhood substance use was indeed common knowledge but that it was not easy to address: "*Everyone knows about it! A majority of people know about it but coming out as a single individual to say that 'no this practice is wrong', it is not simple." (KII 19, youth worker).* Therefore, despite concern, there was a recurring notion of despair and powerlessness to handle the problem. A part of the challenge was that the practice of drinking alcohol was perceived to be so prevalent and accepted in the community that standing up against it was difficult for single individuals. While everyone knew, they were waiting for someone else to take initiative and leadership in bringing up the conversation.

> *"There is no discussion about it because it [drinking] has become a habit. How do you start that [discussion] when bars are everywhere? We don't talk about it. How do you start it? It requires a leader of the village. I cannot just tell someone to stop drinking, they may not listen, it requires a leader." (FGD 8, younger men).*

Leadership was also considered necessary when approaching and addressing specific parents of children that used substances. Local council members and those with an official role in the community experienced that they had the authority and mandate to guide parents when necessary, and many participants pointed to them for action. For community parents to address other parents directly, however, was considered challenging in a context where parenting practices were changing.

'We have lost our original African vibe of parenting'

The lack of discussion in the community co-occurred and was influenced by a change in social community structures, particularly related to child-rearing. The participants experienced that while they were free to discuss and discipline children in the community in the past, the responsibility for raising children had moved from the collective community to the nuclear family. A police officer explained that "*We have lost our original African vibe of parenting" (KII 17, police officer).* This limited their

mandate to intervene with and guide other parents and children, as interference from community members was increasingly unwelcome:

> *"When we were young, they told us that whoever you would meet on the way, a woman is your mother, and a man is your father. That 'parent' was also allowed to cane you if you had done something wrong […] But nowadays children cannot behave, and we can't discipline them because we don't have the same authority that we used to have." (FGD 1, older men).*

The participants explained that many children and parents would reject community members that tried to address a child's behaviour, including substance use. In addition to having lost the authority to intervene, they had lost the insight into what happened in the neighbours' home. They alluded to an increased distance between community members and reduced connectivity in the community, expressed by the noted unwanted interference with the nuclear family and erected fences around compounds. In addition to the change in the collective nature of child-rearing, the introduction of children's rights exacerbated the hesitancy to interfere, leaving many uncertain about what they were legally allowed to do.

'We now have to handle children like glass'

Children's rights and their legal implications were a major concern and barrier to addressing, discussing, and getting involved with other parents' children. They explained that children would bring this up if they were approached by a community adult; *"Nowadays, you don't talk about someone's child because if you talk [to] the child he runs and says 'what does the children's rights say?'. People fear to talk about those children." (FGD 3, younger men).* Many participants complained that children's rights made corporal disciplining illegal, removing an important tool for correcting behaviour. This challenge was also reported by participants working to protect children's rights, who agreed with the concept of the rights, but recognised that they had not been well received in the communities. A youth worker explained:

> *"They will say 'no, long ago, there were no children rights, we grew up and we were very obedient'. In fact, they believe it is a white man's thing, these 'children's rights, they say 'why do you want to spoil [ruin] our children by telling them they have rights?'" (KII 19, youth worker).*

Although not true for everyone, many participants reported that these laws, sometimes in combination with hostile reactions from parents or children, made them hesitant about future attempts of intervention for children that use substances:

> *"We now have to handle children like glass. If I catch a child [using substances] and cane him or her, the child may go straight to the police and report, and they imprison me just because I am helping to put the child on the right track. Such things threaten us [from intervening] and it has caused the children to get spoilt [undisciplined]. So, there is an obstacle on the side of the government and on the side of the parent there is also an obstacle. The lack of having a say about it hurts us." (FGD 6, older men).*

Changes in interpersonal community relations were further complicated by uncertainties about legal consequences. This worked to silence the community members when facing childhood substance use.

Managing childhood substance use: 'There is nowhere to take the child'

The participants considered institutions within education, law, and health intuitively appropriate for helping children that used substances, but did not consider them to be real alternatives in practice. Schools, remand homes, police and local council members were considered especially relevant, but insufficient resources, competence and training made these institutions unresponsive and inadequate. Religious leaders and traditional healers were mentioned by some, and there was disagreement on the relevance of the formal health system. This left the participants with the experience that there was in effect nowhere to take the child.

'The majority are sent away from school'

The participants believed that the school sector and teachers should be involved and prepared to help children that use substances. However, some believed that it was currently relying on the engagement of the individual teacher:

> *"I think the schools have no clear program and strategy for handling cases of alcoholism. Some teachers try to help these children, but the majority [of children] are sent away from school. They look at them as a bad influence. You will just be lucky when the teacher is attending to the child." (KII 4, youth worker).*

Many participants believed that the inaction was related to a lack of resources in the schools, while some believed the teachers lacked insight into the complexity of the issue and how to best understand and handle these children:

"Some teachers mishandle children who are addicts, making some of them drop out. They don't listen to the problems of these children. The teachers should be empowered and maybe given some capacity training on how to handle children in such families, or who have friends who are already addicts. They should also be trained on that." (KII 1, primary school teacher).

While participants believed the schools should and could be an important place to turn, the missing guidance on how teachers should understand and respond to childhood substance use made their reactions unpredictable.

'The police has failed'

Correctional interventions, such as the police and remand homes, were frequently discussed. Participants argued that the police should be involved to arrest the child or parent, and to deal with the violence and crime that substance use was associated with. Some participants reported a functioning collaboration between the local council members and the police, while many felt the police managed the problem inadequately:

"I want to put in place a law so that the government can help us control children drinking. Here, children have defeated us and have even scared the police. We have so many who take marijuana and they have stones [are violent], and the police has failed." (FGD 2, older women).

This view was shared by a representative of the police, who explained that the problem was far bigger than the resources to tackle it:

"I see this everyday [...] I see them sniff, see them smoke, see them chew. I used to arrest them, and the matter has come up several times in our district security meetings. Children are not criminally responsible, so [...] they are remanded in the children's remand home here, which has a capacity of 43 children for 11 districts. In a single operation, I can arrest more than 100 children. So, what do you do? I see them, but what do I do. Tracking the parents down, arresting them and bring them to court is costly. We may not have the funds." (KII 17, police officer).

The lack of resources and the barrier of high costs were also felt at the individual level, where having a child in a remand home incurred impossible costs, leaving this option inaccessible in practice:

"P1: We had a remand home for children, but nowadays you have to pay 450,000 Uganda shillings [approx. 120 US dollars]. So, there is no way you can shape them. P2: There is nowhere to take the child. P1: If you take him there, you will pay money every month and sometimes you are too poor to afford the money they are asking for, and the child ends up getting spoilt [undisciplined]." (FGD 1, older men).

Further, the remand homes had a lower age limit of 12 years, leaving the institution unavailable for those below age 10. While police and remand homes were in theory considered to be part of the solution, both community members and the police recognised that there was no use in contacting them. Even in the unlikely event of getting access to an overburdened remand home, the parents would not be able to sustain the cost.

'Here in the hospital, we don't see them'

There were varying perceptions about the relevance of the formal health system for managing childhood substance use. Some of the participants who were health workers shared their experiences with treating children as young as 10–13 years for withdrawal symptoms from alcohol, implying that the use had started earlier. However, this was rare since addiction was not generally perceived to be a medical problem, unless it had led to other consequences:

"I know children below 10 years who drink, although here in the hospital we don't see them, but in the communities, they drink because they are brewing [...] Those who get a problem because of drinking, a medical problem, a physical problem, or a mental problem, that is when they go to any health centre. If it was serious, they are brought to psychiatric care. People don't know that substance use is a medical problem." (KII 16, health worker).

Others pointed to barriers, such as high costs, stigma, and unfriendly health personnel. Others again believed that the health workers' understanding of substance use did not resonate with the understanding of the community members:

"We in the medical field fail to eradicate some conditions because we want to separate the cultural from the disease, and it is wrong. To help solve the problem of alcohol abuse in children, and you know it is so culturally deep rooted, we should join them and modify the cultural practices, but we are not going to uproot the culture practice." (KII 20, health worker).

In essence, except for a few cases, participants explained that children did not receive help from the health system. Challenges related to differences in the understanding of substance use, its medical relevance

and barriers related to access and unpleasant experiences left opportunities for management and follow-up within the health system untried.

Action for childhood substance use: 'The government has not done so much'

The participants agreed that government initiatives were necessary for a change in both the community action and access to help. They called for clear laws and regulations to protect children from substance use, as well as increased priority and investment in prevention and handling of this issue. They looked to Kenya, which had been successful in implementing restrictions on access to alcohol by reducing the opening hours of bars. While government action was considered necessary, there was considerable hesitation about its ability and commitment to act, and community involvement in the process was considered necessary.

'We don't have clear laws'

The participants explained that a considerable challenge was the weak protection of children from substance use in the current laws and regulations in Uganda: "*It has always been like this because we don't have clear laws which control alcoholism in our constitution." (KII 8, mental health activist).* The participants suggested restrictions on the opening hours of bars, stronger enforcement of the age limit and regulation of brewing. They explained that in the current situation, the responsibility was put on each community member to make individual decisions to do what was best for the child. They called for government leadership and action in the form of clear laws to strengthen the community mandate to act, and to act coherently:

> *"A voice from the government or higher authorities should come down here to the local council, who can call for meetings so that the community can sit, and they go through what is happening to the children, and then come out with a law." (FGD 5, younger women).*

The participants explained that putting the responsibility to act on behalf of children on the individual community member, without supporting laws, could lead to difficult dilemmas. This ranged from the risk of compromising community relationships by unwanted interference to the more explicit dilemma of earning money on selling alcohol to children:

> *"I need money to survive. If I don't sell to those young children, but other friends are selling, you find there is nothing you have done. Unless you agree all that 'we are not supposed to do this, we are not supposed to do this,' but when you are not together [agreeing], you cannot do it. You can't." (KII 12, alcohol distributor).*

Although participants, including bar owners, agreed that children should not be able to buy alcohol, they recognised the challenge for the individual alcohol seller to self-impose this restriction when it meant losing income and achieving little unless everyone changed practice through government regulations. However, while the government was perceived necessary for action, the belief in this materialising was tepid.

'It may never be addressed'

The participants' belief in the government's ability and commitment to act was limited. The local council was considered key when it came to the development and implementation of policy and regulations and were perceived more likely to have an impact: *"If it is not addressed right from the grassroot level, then trust me, it may never be addressed." (KII 18, lawyer).* There was variation in the extent to which participants believed the government was informed or dedicated to addressing early childhood substance use. Some believed the government did not know, while others believed they did not care to act unless it involved personal gains:

> *"The government has not done so much. Most of them look at their salary, and that is it. They don't come down to the grassroot to find out about the problems. […] I know you might make recommendations after your research, but they are not going to do anything. The government has a very big part to be blamed, they just put things on paper, but they don't put them in implementation. They have to wake up." (KII 1, primary school teacher).*

Some participants explained that there was a complex interplay between the government, the alcohol industry and election campaigns, where liquor samples would be distributed for free. Some participants believed that corruption and self-interest could be a factor for politicians and the non-governmental organisations (NGO), raising concerns that they were making a profit of the problem, and solving it would undermine their existence:

> *"I'm sorry to say, people make it look like rocket science to end it [children on the street]. It is possible to end it, but it seems that if you are having a problem, it gets money, you don't want to get rid of it. […] I knew this guy from this organisation who was riding a bicycle before he started the organisation, soon we saw him in a car and soon he was driving a range rover sport, and I ask myself, if all this money is still coming here, and you can build these facilities, how*

come we are getting more street children?" (KII 26, youth worker).

The government and NGOs were the ones with perceived real power to act but were not believed to channel this power into actions that would give community members a mandate to address childhood substance use, or the nescessary resources for institutions to manage it.

In summary, all three themes on addressing, managing, and acting for childhood substance use were permeated by a sense of powerlessness due to the magnitude and complexity of the issue. The participants expressed a deep concern for childhood substance use but felt incapacitated in tackling it unless everyone was part of it on all levels, including the community, institutions, and the government.

Discussion

In this study, we explored community members' perceptions on how childhood substance use was addressed in the communities, managed in relevant institutions, and acted upon by the government. The participants expressed concern for childhood substance and alcohol use but perceived the problem to be too complex for any individual to tackle alone. They explained that the community members' agency was hampered by a lack of leadership in addressing the issue, changes in traditional collective child-rearing practices and restrictions related to children's rights policies. The participants considered schools and correctional facilities, such as remand homes, to be appropriate institutions for intervention, while the health system was mostly sought if the substance use had led to adverse consequences. These institutions' opportunity to manage early childhood substance use was, however, hampered by inadequate human and financial resources. Finally, the participants called for stronger policies and laws from the government to limit the access and use of substances but had little trust in their ability to act. We will now discuss these findings considering elements from the WHO Commission on Social Determinants of Health framework on social determinants related to social cohesion, community agency, power, and governance [22].

Social cohesion and the power to act

All three themes were permeated by a perceived lack of power and agency in handling childhood substance use. This notion spanned community members' hesitation to intervene with other's children, the police officer's inability to tackle the sheer magnitude of children using substances and the alcohol seller who alone could not stop access of alcohol to children. The WHO emphasises that social determinants of health include social cohesion (the social integration, mutual trust and belonging to a community), the social capital (social cohesion as a resource that facilitates collective action for mutual benefit), and the power to act (the mandate and opportunity for social participation in shaping their community). Further, it states that it *"requires understanding how power operates in multiple dimensions of economic, social and political relationships"* [22]. These factors are recognised in our findings where the social relationships hampered community discussion and intervention; economic relationships made it difficult to access care and limit sales of alcohol to children; and political relationships and the perceived absence of political commitment hindered action on all levels.

In our findings we observe a perceived powerlessness and inability to act on a community, institutional, and government level. Social cohesion, collective agency and power have been explored in political and psychological theory, as well as in empirical studies. The political philosopher Arendt explained that; *"power corresponds to the human ability not just to act, but to act in concert. Power is never the property of an individual; it belongs to a group and remains in existence only so long as the group keeps together"* [22, 26]. In psychology, Bandura's theory on 'self-efficacy' [27] and 'collective efficacy' [28] has been central in understanding agency in the face of challenges. These factors can have important implications for childhood substance use, as empirical studies show that community inaction is associated with increased substance use among youth. A systematic review of community level social factors and alcohol use found that, overall, community disorder and crime were risk factors, while safety and social capital (community attachment and support, community participation) were protective [29]. We note that all 48 studies included in the review were from high income settings, except one from Bolivia. However, studies from South Africa have shown similar results as presented in the systematic review, demonstrating that neighbourhood belonging and encouragement (community affirmation) was protective for intake of brew by adolescents [30]. Risk factors for increased alcohol intake among youth included neighbourhood crime and antisocial behaviour among neighbourhood adults (neighbourhood disorganisation) [30] and living in a community where it was perceived to be unlikely that the police or neighbourhood members would respond to youth drinking [31]. Among adult men, identified protective factors for heavy drinking included higher level of collective efficacy, measured by perceived informal social control and social cohesion [32]. Interestingly, informal social control was assessed by asking how likely it would

be for your neighbour to intervene if a child was observed skipping school or being disrespectful [32], tapping into the concerns raised by the participants about the loss of mandate to intervene when observing children that use substances. We have not identified studies that have investigated these community mechanisms in relation to children below age 10, but our findings can imply that similar factors are relevant in this age group in Uganda.

Community action and empowerment is an important entry point for prevention of and intervention for early substance use [3]. Studies have suggested that a community-based approach is even more important in the African context [30] because of a long-standing collectivist orientation [5, 30]. In addition to the power and collective efficacy yielded by social cohesion and social capital, this collectivist sense of group belonging has been suggested to have an overall protective effect on mental illness [5]. Therefore, it is worth paying attention to our finding of a perceived disintegration of this collectivist social fabric and its implications for community members to identify, intervene and support children and parents of children that drink alcohol or use other substances.

Governance and policy implications

The participants in our study had several suggestions for policy improvements to protect children from alcohol and other substances, including restrictions on days and hours for sale and stronger enforcement of the age limit. These policy suggestions are overlapping with the WHO Global Strategy to Reduce the Harmful Use of Alcohol [3], which notes a discrepancy between the high impact of alcohol to public health and low priority among decision-makers [3]. Unfortunately, the participants' concern for a lack of priority of these policy measures was confirmed in 2017, when the WHO published a report on the "Progress in implementation of the WHO global strategy to reduce the harmful use of alcohol since 2010", finding that no low-income country had increased their resource allocation for implementing alcohol policies [33]. The participants were concerned that this lack of priority may be affected by stakeholders' self-interests and influence by the alcohol industry. Concerns about the exploitation of weak alcohol policies in Africa has previously been raised, where the industry has increased their production and promotion in the region and lobby to keep the market unregulated [34]. Despite this, examples from South Africa and Botswana show that when there is a political will, increasing taxes and restricting the availability of alcohol can help reduce intake, including among youth [2]. This political will has also been observed in Uganda's effort to ban small sachets of liquor due to the harm they pose to children and adults, but their efforts are receiving push-backs from the industry [35]. That said, brewing is the livelihood for many, and in the effort to regulate alcohol access and output it is important to simultaneously stimulate alternative sources of income [3].

Another governance issue raised by the participants was the inadequate financial and human resources in the education, police, and health sector. The WHO highlights the importance of health service response [3], and the Ugandan Ministry of Health acknowledges the need *"to build capacity, improve access and availability of comprehensive Mental Neurological and Substance use services for care and treatment of children and adolescents […]"* [36]. However, given the stated resource constraints in responding to childhood substance use and the detrimental economic and social effects throughout the life-course, efforts to prevent early initiation of substance use are crucial. This is emphasised in the WHO Global Strategy to Reduce the Harmful Use of Alcohol [3], which outlines that the most cost-effective strategies for reducing the harmful effects of alcohol, termed "best buys" [3], include preventative measures that regulate alcohol availability, i.e., minimum legal drinking age and restricting hours, days, and places of sale, restricting and enforcing bans on alcohol marketing, and regulating prices and taxes [3]. Further, the participants explained that the health sector was not even perceived relevant to approach for substance use issues. These context specific factors are important to keep in mind and address when designing and planning interventions [5]. Further, according to the WHO, a multidisciplinary and multisectoral approach is key as *"policies to reduce the harmful use of alcohol must reach beyond the health sector, and appropriately engage such sectors as development, transport, justice, social welfare, fiscal policy, trade, agriculture, consumer policy, education and employment, as well as civil society and economic operators"* [3]. Our findings suggest that focusing efforts on schools and disseminating alternative disciplining strategies that are in line with children's rights may be relevant in Uganda. Further, it is necessary to address how children's rights, that are meant to protect children, are now perceived as a barrier for community members to act on their behalf. While banning corporal punishment undoubtedly has positive effects [37], shortcomings in implementation has left parents and other adults unsure about alternative ways for correcting unwanted behaviour in children [38]. In an effort to remove harmful practices, we may leave a vacuum unless we provide beneficial alternatives. This point parallels to one made in a previous paper, where the same participants warned against removing the substances that children used for coping with cold, hunger and traumatic experiences without providing alternatives [18].

Strengths and limitations

This study provides important insights into community experiences and perceptions regarding how childhood substance use is addressed, managed, and acted upon in Mbale District, Uganda. With a relatively large and diverse sample of participants, we have explored the viewpoints of a broad representation of the community. However, a major limitation is the missing experiences of children who are using substances and their parents, and how they perceive the support from the community, institutions, and government. These insights would be invaluable to fully capture the lived experiences of these families and to inform how to best support them. Methodological strengths include triangulation of methods (KIIs and FGDs), and participant feedback on findings. Furthermore, our research assistants were bilingual and translated the transcripts in pair reaching consensus, but we appreciate the limitations in analysing translated transcripts [25]. Moreover, we note that, due to capacity issues, the data was collected in 2016 and analysed from 2019–2021. The time passed may have included changes that are not accounted for, including the detrimental consequences of the Covid-19 pandemic. However, we have not observed other substantial changes since the time of data collection that we believe would have impacted our findings or conclusions considerably.

Conclusion

In this paper we have explored community members' experiences and perceptions regarding how childhood substance and alcohol use was addressed, managed, and acted upon at the community, institutional and government level. We have learnt that while the practice was common knowledge, and of deep concern, it was not addressed at the community level. A lack of leadership and social cohesion hampered collective community action. Relevant institutions for seeking help were underfunded and unable to manage the problem. There were ample suggestions of evidence-based policy measures, but these were complicated by power relations between stakeholders and the industry. Context-specific perceptions about the irrelevance of the health system for managing substance use, the perceived importance of schools, and experiences of children's rights as a barrier to helping children underlined the complex context that needs to be considered when suggesting and planning interventions. A multidisciplinary and multisectoral approach, tackling barriers and drawing on opportunities in the community, relevant institutions for seeking help, and the government, is important. We have established that the community knows and cares about the issue, and welcomes discussion and action on childhood substance use. The community is instrumental for tackling childhood substance use, and their insights are invaluable for informing policy and implementing future interventions. We reiterate the need for research focusing on the lived experiences of children using substances and their parents.

Abbreviations

APC: Alcohol per capita consumption; FGD: Focus group discussion; KII: Key informant interview; LMIC: Low- and middle-income countries ; NGO: Non-governmental organisation; WHO: World Health Organization.

Supplementary Information

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Additional file 1. Case vignette for the focus group discussion.

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Authors' contributions

VS and JKT were co-principal investigators. VS: conceptualisation, methodology, investigation, analysis, writing (original draft), project administration. JKT: conceptualisation, project administration, resources, writing (review and editing). AMSS: Conceptualisation, methodology, writing (original draft, review and editing), supervision. IMSE: Conceptualisation, methodology, investigation, writing (original draft, review and editing) project administration, supervision. KMM: methodology, supervision, writing (review and editing). JSN: conceptualisation, writing (review and editing). GN: Writing (review and editing). ESO: methodology, supervision, writing (review and editing). CO: conceptualisation, methodology, writing (review and editing). All authors read and approved the final manuscript.

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VS is a medical doctor and PhD-candidate and has worked with research in Uganda since 2013. The Ugandan partners comprise JSN, child and adolescent psychiatrist, JKT and GN are professors of paediatrics, ESO and CO are anthropologists holding PhDs. Norwegian partners include IMSE and KMM, professors in global health, and AMSS, PhD in psychology. VS, AMSS, IMSE and JSN are currently part of the research project *TREAT Child Alcohol Use Disorder (C-AUD) in Eastern Uganda: Screening, diagnostics, risk factors and handling of children drinking alcohol*, which is funded by the Research Council of Norway (ref: 285489).

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Availability of data and materials

The University of Bergen and Makerere University have shared intellectual property rights to the data. The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical approval and consent to participate

The study conformed to the Declaration of Helsinki. Ethical approval was granted from Makerere University College of Health Sciences, School of Medicine Research Ethics Committee (ref 2016–051), the Uganda National Council for Science and Technology (ref: SS 4073) and the Norwegian Centre

for Research Data (ref: 48165). The Norwegian Regional Ethics Committee (ref: 2018/353) confirmed that the study was outside their remit, not requiring their approval. The Chief Administrative Officer of Mbale District and the head of the psychiatry ward in Mbale referral hospital granted permission for data collection. Written informed consent was obtained from all participants with signature or thumbprint. They were informed about their opportunity to withdraw at any time and received a flat rate of transport refund and a refreshment. We emphasised the confidentiality and the group gave verbal consent to not share information from the discussion outside the group. No participant was asked to share personal experiences with their own children, but rather general experiences. Nevertheless, some chose to share from their own life stories.

Consent for publication
Not applicable.

Competing interests
The authors declare that they have no competing interests.

Author details
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Publisher's Note

APPENDIX C:

PAPER III

APPENDIX D:

TOPIC GUIDES AND OTHER DATA COLLECTION TOOLS

Focus group discussion guide – English version

Topic for discussion – probe for the following aspects.

- Perceptions on alcohol use by children
- Protective and risk factors for early onset drinking
- Perceived positive and negative outcomes of drinking
- Community handling of children at risk
- Help seeking possibilities and practices for high risk families

Introduction

There are various reasons for people to drink, and alcohol is widespread to use in the context of social settings and other festivities. From what we have observed there are also children who enjoy alcohol in homes and in social settings, under adult supervision. This is something we know little about in the global context, and my research team and I are curious to explore this a bit. Former research has been done on adults and adolescents, but the children are not yet described. Our study aims at exploring what different people in the community think about this, and we have tried to recruit key people that we believe might have something to say about this.

Case vignette about child at a party

There is a party in the village as one of the boys have graduated from a bachelor's degree. He is from a wealthy family that is hosting a big celebration. After the ceremonies there is a party with a lot of dancing and alcohol is being served. Some of the boys of nine years old are sharing a bag of waragi, while a girl of six years is drinking some brew. The day after the girl gets some alcoholic brew for lunch that the mother is making and selling. She likes the brew and it makes her sleep better. After a while she can tolerate more and drinks some before school to get rid of her head aches.

1. Can you discuss this story a bit for me, and discuss if it is something that can happen here?

General context of drinking in Uganda

2. Can you tell me a bit about how alcohol is used here in Uganda?
3. At what age do people here usually start to drink?
4. Are there other substances that are commonly used?

Childhood drinking

<u>Perceptions of phenomenon</u>

5. I have heard and seen different places that young children also drink alcohol or other substances. Can you tell me a bit about this?
6. How young is it ok to start tasting brew and what age is it ok to sit with adults to drink?

7. Are there some drinks it is ok that children take, but other things that is not ok?
8. Should children be protected from alcohol or can they drink as the adults do?

Protective and risk factors for early onset drinking

9. What do you think might be the reason children drink?
10. Does this happen in all families?
11. How is it looked at in the community when a child is drinking?

Perceived positive and negative outcomes of drinking

12. What are positive and negative sides of children drinking alcohol?
13. How do you think drinking alcohol affects children?

Help seeking possibilities for high risk families

14. Are children who drinks discussed in the community? What are the disagreements?
15. What should and what is done if a child drinking or using other substances is identified?
16. Is there something one could do to help this child?

Interview guide key informant interview – English version

Topic for discussion – probe for the following aspects.

- Perceptions on alcohol use by children
- Protective and risk factors for early onset drinking
- Perceived positive and negative outcomes of drinking
- Community handling of children at risk
- Help seeking possibilities and practices for high risk families

Introduction

There are various reasons for people to drink, and alcohol is widespread to use in the context of social settings and other festivities. From what we have observed there are also children who enjoy alcohol in homes and in social settings, under adult supervision. This is something we know little about in the global context, and my research team and I are curious to explore this a bit. Former research has been done on adults and adolescents, but the children are not yet described. Our study aims at exploring what different people in the community think about this, and we have tried to recruit key people that we believe might have something to say about this.

Introductory small talk

1. Could you tell me a bit about this village and your community?
2. Can you tell me a bit about yourself?

General context of drinking in Uganda

3. Can you tell me a bit about how alcohol is used here in Uganda?
4. At what age do people here usually start to drink?
5. Are there other substances that are commonly used?

Childhood drinking

Perceptions of phenomenon

6. I have heard and seen different places that young children also drink alcohol or other substances. Can you tell me a bit about this?
7. How young is it ok to start tasting brew and what age is it ok to sit with adults to drink?
8. Are there some drinks it is ok that children take, but other things that is not ok?
9. Should children be protected from alcohol or can they drink as the adults do?

Protective and risk factors for early onset drinking

10. What do you think might be the reason children drink?
11. Does this happen in all families?

12. How is it looked at in the community when a child is drinking?

Perceived positive and negative outcomes of drinking

13. What are positive and negative sides of children drinking alcohol?
14. How do you think drinking alcohol affects children?

Help seeking possibilities for high risk families

15. Are children who drinks discussed in the community? What are the disagreements?
16. What should and what is done if a child drinking or using other substances is identified?
17. Is there something one could do to help this child?

Other data collection tools – FGD participant sheet

Group number:_____ Male/female: _____ Number of participants:_____

Date: ____/_____/_____ Start time: _____:_____End time: _____:_____

Village/cell: _____

Interviewer: _____ Observer: _____

List of participants:

Letter	Age	Highest education Optional	Main income generating activity Optional
A			
B			
C			
D			
E			
F			

Other data collection tools – KII participant sheet

Informant number:

Occupation/role:

- Can this information be used in reporting: YES/NO

Date:

Start time:

End time:

Interviewer:

Observer:

Does the participants wish to read through the transcript for checking?: YES/NO

Does the participant agree to be contacted for clarifications?: YES/NO

APPENDIX E:

ETHICAL APPROVALS

MAKERERE UNIVERSITY
P.O. Box 7072 Kampala, Uganda
E-mail: rresearch9@gmail.com
Phone: 256 414 533541
Fax: 256 414 541036/0414 532204

COLLEGE OF HEALTH SCIENCES
SCHOOL OF MEDICINE

RESEARCH ETHICS COMMITTEE

April 25, 2016

Ms. Vilde Skylstad
Bergen University

Category of review

[X] Initial review
[ ] Continuing review
[ ] Amendment
[ ] Termination of study
[ ] SAEs

Dear Ms. Vilde,

Re: Approval of proposal #REC REF 2016-051

"Community perceptions on alcohol and substance use by children in Mbale district"

Thank you for submitting an application for approval of the above – referenced proposal.
The committee reviewed it and granted approval for one year, effective April 25th, 2016. Approval will expire on April 24th, 2017.

Continuing Review
In order to continue work on this study (including data analysis) beyond the expiration date, the School of Medicine Research and Ethics Committee must reapprove the protocol after conducting a substantive, meaningful, continuing review. This means that you must submit a continuing report form as a request for continuing review. To best avoid a lapse, you should submit the request six (6) to eight (8) weeks before the lapse date. Please use the forms supplied by our office.

Amendments
During the approval period, if you propose any change to the protocol such as its funding source, recruiting materials, or consent documents, you must seek School of Medicine Research and Ethics Committee approval before implementing it.
Please summarize the proposed change and the rationale for it in a letter to the School of Medicine Research and Ethics Committee. In addition, submit three (3) copies of an updated version of your

original protocol application- one showing all proposed changes in bold or 'track changes,' and the other without bold or track changes.

Reporting

Other events which must be reported promptly in writing to the School of Medicine Research and Ethics Committee include:

Suspension or termination of the protocol by you or the grantor

Unexpected problems involving risk to participants or others

Adverse events, including unanticipated or anticipated but severe physical harm to participants.

Do not hesitate to contact us if you have any questions. Thank you for your cooperation and commitment to the protection of human subjects in research.

Final approval is to be granted by Uganda National Council for Science and Technology.

Documents approved for use along with protocol:

- Informed consent document
- Data collection tool

MAKERERE UNIVERSITY
SCHOOL OF MEDICINE
APPROVED
VALID UNTIL
24 APR 2017
RESEARCH & ETHICS COMMITTEE
P.O.BOX 7072, KAMPALA

Yours sincerely,

Assoc. Prof. Ponsiano Ocama
Chairperson School of Medicine Research and Ethics Committee

Gmail **Vilde Skylstad <skylstad6@gmail.com>**

Re: Notice of Approval: (SS 4073): Community Perception on Alcohol and Substance Use by Children in Mbale District, Uganda

Hellen Opolot <hellen.opolot@gmail.com> 3. mai 2016 kl. 13.53
Til: Skylstad6@gmail.com
Kopi: "<f.nakabanda@uncst.go.ug>" <f.nakabanda@uncst.go.ug>, Mutumba Beth <b.mutumba@uncst.go.ug>, Isaac Makhuwa <maki2saac@gmail.com>, Isaac Makhuwa <i.makhuwa@uncst.go.ug>, research@uncst.go.ug, Winfred Badanga <winnfry@gmail.com>

Dear Vilde Skylstad ,

This is to notify you that the Uganda National Council for Science and Technology (UNCST) approved the above protocol on **2nd May 2016**.

The approval is subject to the following condition:

1. Payment of the research administration and clearance fee of **300 US Dollar.** Payment is made to Standard Chartered Bank Speke Road Branch (or any other branch); the account title is UNCST and the **account number is 8705611811400**. If however you wish to pay in Uganda shillings, the account **number is 0105610632101**. If you intend to wire the research fees, the swift code is SCBLUGKA. Note that bank charges will entirely be the researcher's responsibility. After payments, please bring the bank pay slip or transaction sheet to UNCST accounts office upon which a receipt will be issued to you. Please quote **YOUR NAME** and **THE ABOVE REFERENCE NUMBER** on your pay slip

2. Obtaining of clearance to the study districts from the Research Secretariat, Office of the President; The process of obtaining clearance from the Research Secretariat, Office of the President is handled by UNCST on behalf of the researcher. Once approval has been secured, you will be notified.

Yours sincerely,
Hellen .N.Opolot
For: Executive Secretary

UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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Ingunn Marie Stadskleiv Engebretsen
Institutt for global helse og samfunnsmedisin Universitetet i Bergen
Postboks 6165
5892 BERGEN

Vår dato: 25.04.2016 Vår ref: 48165 / 3 / HIT Deres dato: Deres ref:

TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 01.04.2016. All nødvendig informasjon om prosjektet forelå i sin helhet 22.04.2016. Meldingen gjelder prosjektet:

48165	*Community perceptions on alcohol and substance use by children in Mbale district, Uganda*
Behandlingsansvarlig	*Universitetet i Bergen, ved institusjonens øverste leder*
Daglig ansvarlig	*Ingunn Marie Stadskleiv Engebretsen*
Student	*Vilde Skylstad*

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, http://www.nsd.uib.no/personvern/meldeplikt/skjema.html. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, http://pvo.nsd.no/prosjekt.

Personvernombudet vil ved prosjektets avslutning, 16.06.2016, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Kjersti Haugstvedt

Hildur Thorarensen

Kontaktperson: Hildur Thorarensen tlf: 55 58 26 54

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Vedlegg: Prosjektvurdering
Kopi: Vilde Skylstad skylstad6@gmail.com

Personvernombudet for forskning

Prosjektvurdering - Kommentar

Prosjektnr: 48165

Det oppgis at det er søkt om etisk vurdering fra School of Medicine Research and Ethics Committee (SOM-REC) Makerere University College of Health Sciences, Kampala Uganda. Personvernombudet legger til grunn at denne innvilges.

Utvalget informeres skriftlig og muntlig om prosjektet og samtykker til deltakelse. Siste utgave av informasjonsskriv mottatt 22.04.2016 er godt utformet.

Det behandles enkelte opplysninger om tredjeperson. Det skal kun registreres opplysninger som er nødvendig for formålet med prosjektet. Opplysningene skal være av mindre omfang og ikke sensitive, og skal anonymiseres i publikasjon. Så fremt personvernulempen for tredjeperson reduseres på denne måten, kan prosjektleder unntas fra informasjonsplikten overfor tredjeperson, fordi det anses uforholdsmessig vanskelig å informere.

Personvernombudet legger til grunn at forsker etterfølger Universitetet i Bergen sine interne rutiner for datasikkerhet. Dersom personopplysninger skal sendes elektronisk eller lagres på mobile enheter, bør opplysningene krypteres tilstrekkelig.

Forskningsassistenter vil benyttes til innsamling, oversetting og transkripsjon av data. Disse vil være å anses som databehandlere for prosjektet. Universitetet i Bergen skal inngå skriftlig avtale med vedkommende om hvordan personopplysninger skal behandles, jf. personopplysningsloven § 15. For råd om hva databehandleravtalen bør inneholde, se Datatilsynets veileder: http://www.datatilsynet.no/Sikkerhet-internkontroll/Databehandleravtale/.

Forventet prosjektslutt er 16.06.2016. Ifølge prosjektmeldingen skal innsamlede opplysninger da oppbevares med personidentifikasjon frem til 03.04.2026 for oppfølginsstudier/videre forskning og deretter anonymiseres. Anonymisering innebærer å bearbeide datamaterialet slik at ingen enkeltpersoner kan gjenkjennes. Det gjøres ved å:
- slette direkte personopplysninger (som navn/koblingsnøkkel)
- slette/omskrive indirekte personopplysninger (identifiserende sammenstilling av bakgrunnsopplysninger som f.eks. bosted/arbeidssted, alder og kjønn)
- slette digitale lydopptak

Vi gjør oppmerksom på at bruk av personopplysninger for andre formål vil kreve ny melding til personvernombudet.

Vi gjør oppmerksom på at også databehandler må slette personopplysninger tilknyttet prosjektet i sine systemer.

REK
REGIONALE KOMITEER FOR MEDISINSK OG HELSEFAGLIG FORSKNINGSETIKK

Region:	Saksbehandler:	Telefon:	Vår dato:	Vår referanse:
REK vest	Fredrik Rongved	55978498	23.03.2018	2018/353/REK vest
			Deres dato:	Deres referanse:
			13.02.2018	

Vår referanse må oppgis ved alle henvendelser

Ingunn Marie Stadskleiv Engebretsen
Senter for Internasjonal Helse

2018/353 Oppfatninger på landsbygda om bruk av alkohol og rusmidler hos barn i Mbale, Uganda

Vi viser til søknad om forhåndsgodkjenning av ovennevnte forskningsprosjekt. Søknaden ble behandlet av Regional komité for medisinsk og helsefaglig forskningsetikk (REK vest) i møtet 07.03.2018. Vurderingen er gjort med hjemmel i helseforskningsloven § 10.

Forskningsansvarlig: Universitetet i Bergen
Prosjektleder: Ingunn Marie Stadskleiv Engebretsen

Prosjektomtale (original):
Alkholbruk i Uganda er et betydelig problem blant voksne og de er et av landene i Afrika med størst alkoholbruk per voksne (23 liter per person per år). I tillegg har de ca 10% av den voksne befolkningen med avhengighetsproblematikk. Det er anekdotisk informasjon om at også barn under 10 år drikker alkohol. Dette er en kvalitativ eksplorati studie blant voksne foreldre/foresatte og nøkkelpersoner som jobber med barn om deres holdninger til dette problemet i Mbale, Øst-Uganda. Vi var interessert i å systematisk forstå ved bruk av kvalitative metoder om voksne med ansvar for eller i kontakt med barn tenkte at det et betydelig problem eller ikke. Vi ønsket å utforske holdninger til alkholbruk hos barn. Hva er omfanget, og hva er beskyttende og risiko-faktorer til alkoholbruk. Hva er oppfatninger og praksis til omsorgsgivere og personale rundt barn om barn under 10 år sin bruk av alkohol?

Vurdering

Søknadsplikt

Komiteen diskuterte først om prosjektet var søknadspliktig. Når REK skal vurdere om et prosjekt er søknadspliktig må prosjektet vurderes i henhold til helseforskningslovens virkeområde. Det saklige virkeområdet er beskrevet i § 2 og vurderes i to trinn: REK skal vurdere (1) medisinsk og helsefaglig forskning (2) på mennesker, humant biologisk materiale eller helseopplysninger. Prosjektet skal ikke samle inn (2) humant biologisk materiale eller helseopplysninger. I følge søknadsskjemaet skal friske voksne intervjues i fokusgrupper for å undersøke deres holdninger til barns alkoholbruk på landsbygden og i byene. Komiteen vurderer at det ikke er helseopplysninger involvert i dette prosjektet, ettersom fokusgruppene tar for seg hypotetiske caser eller kasuistikker, i tillegg til noen praktiske spørsmål om helsevesenet. Det er imidlertid forskning på mennesker, ettersom disse forskningsdeltakerne skal intervjues.

Spørsmålet er da om dette prosjektet (1) er medisinsk og helsefaglig forskning, nærmere definert i loven som virksomhet som utføres med vitenskapelig metodikk for å skaffe til veie ny kunnskap om helse og sykdom, jf. hfl. § 4 bokstav a.
Komiteen finner at det ikke er et formål om å skaffe til veie ny kunnskap om helse og sykdom i dette prosjektet. Prosjektet ønsker her å undersøke friske voksnes subjektive oppfatning av barns alkoholbruk og

risikofaktorer knyttet til farer og omfang av alkoholbruk. REK vest vurderer at dette er annen type forskning, men påpeker at det er en gråsone dette prosjektet havner i. REK vest finner at prosjektet ikke er søknadspliktig

Komiteen vurderer at dette prosjektet er utenfor helseforskningslovens saklige virkeområde.

Ettergodkjenning

Prosjektleder er klar på at dette er en ettergodkjenning og har lagt ved en forklaring på hvorfor det ikke ble søkt tidligere, signert av prosjekt- og senterleder. Hovedregelen har siden 2006 vært at medisinske og helsefaglige forskningsprosjekter skal forhåndsgodkjennes av REK, jf. forskningsetikkloven § 4 andre ledd og helseforskningsloven § 9 fra 1. juli 2009. Den foreliggende studien ble gjennomført etter at helseforskningsloven trådte i kraft. Det finnes en åpning for at REK i særskilte tilfeller kan vurdere godkjenning i ettertid av et forskningsprosjekt som er igangsatt og eventuelt avsluttet, jf. veilederen til helseforskningsloven og NEMs avgjørelser i flere klagesaker. REK må da foreta en vurdering av om prosjektet ville fått forhåndsgodkjenning dersom det hadde vært søkt rettidig.

Prosjektleder skriver at de ikke trodde kvalitative studier av anonymiserte data krever REK-godkjenning. Dette er en misforståelse:

Anonyme data: Loven krever ikke at REK skal godkjenne prosjekter som bare analyserer anonyme data. REK-godkjenning er imidlertid et nødvendig behandlingsgrunnlag for å anonymisere eller samle inn helseopplysninger innenfor helseforskning.

Kvalitative studier: Det er en misforståelse at ikke kvalitative studier skal søke REK. Studier som skaffer til veie ny kunnskap om helse og sykdom må søke REK. Dette kan være kvalitative så vel som kvantitative studier, så lenge formålet er innenfor det saklige virkeområde til helseforskningsloven, jf. § 2.

Komiteen finner det imidlertid ikke nødvendig å vurdere om vilkårene for ettergodkjenning er til stede i dette prosjektet ettersom komiteen anser prosjektet for å ha vært annen type forskning. Prosjektet har av den grunn ikke vært å anse som medisinsk og helsefaglig forskning, og er dermed ikke omfattet av helseforskningslovens virkeområde.

REK vest ønsker å bemerke at det er kritikkverdig overfor både forskningsansvarlig og prosjektleder at det tok så lang tid å få avklart om prosjektet var søknadspliktig. Komiteen diskuterte også at de som arbeider på prosjektet i Uganda ikke er nevnt. Komiteen finner det underlig at de som gjør jobben ikke er nevnt og kreditert.

Vedtak
Prosjektet faller utenfor helseforskningslovens virkeområde og søknaden skal derfor ikke behandles av REK.

Klageadgang
Du kan klage på komiteens vedtak, jf. helseforskningsloven § 10 og forvaltningsloven § 28 flg. Klagen sendes til REK vest. Klagefristen er tre uker fra du mottar dette brevet. Dersom vedtaket opprettholdes av REK vest, sendes klagen videre til Den nasjonale forskningsetiske komité for medisin og helsefag for endelig vurdering.

Med vennlig hilsen

Marit Grønning
Prof. dr.med.
Komiteleder

Fredrik Rongved
rådgiver

Kopi til:post@uib.no

APPENDIX F:

INFORMED CONSENT FORMS

Informed consent form regarding participation in key informant interview – English version

Title of study: Community perceptions and practices on alcohol and substance use by children in Mbale district, Uganda

Principal Investigator: Vilde Skylstad, Researcher centre for International Health, Department of Global Public Health and Primary Care (IGS), Faculty of Medicine and Dentistry, University of Bergen (Contact: [redacted]

Co-investigators and supervisors:

- Prof. James K. Tumwine (JT), Co-PI,MD, PhD, Department of Paediatrics and Child Health School of Medicine, College of Health Sciences, Kampala, Uganda (contact: [redacted])
- Prof. Ingunn Marie Stadskleiv Engebretsen (IE), MD, PhD, Centre for International Health, Department of Global Public Health and Primary Care (IGS), Faculty of Medicine and Dentistry, University of Bergen, (Contact: [redacted])
- Prof. Grace Ndeezi (GN), MD, PhD, Department of Paediatrics and Child Health School of Medicine, College of Health Sciences, Kampala, Uganda (contact: [redacted])
- Dr. Joyce Nalugya Sserunjogi (JN), MD, Makerere University College of Health Sciences, School of Medicine, Department of Psychiatry, (Contact: [redacted])
- Elialilia Sarikiaeli-Okello (EO), MA, PhD, Makerere University College of Health Sciences, School of Medicine, Department of Psychiatry (Contact: [redacted]
- Chris Columbus Opesen (CO), Department of Sociology and Anthropology, Faculty of Social Sciences, Makerere University (Contact: [redacted])

Introduction:

We are contacting you to participate in a study which is called *Community perceptions and practices on alcohol and substance use by children in Mbale district, Uganda.* The study derives from the study *SeeTheChild – Mental child health in Uganda*, a sub-study of *Saving Brains in Uganda and Burkina Faso (PROMISE SB).*

If you decide to participate in the study, you will be asked to sign and date the end of this form. Do not sign this form unless you understand the information in it and have had your questions answered to your satisfaction. You will be given a copy of the signed form. You should keep your copy for your records as it has information, including important names and telephone numbers, to which you may wish to refer during the study period or later.

Taking part in this research study is entirely your choice and voluntary. You can decide to stop taking part in this study at any time for any reason. Please read (or have it read to you) all of the following information carefully as it contains important information about the study. Ask the present representative to explain any words or sections that are unclear to you. You should also ask any questions that you have about this study.

WHY ARE WE DOING THIS STUDY?

The purpose of *Community perceptions and practices on alcohol and substance use by children in Mbale district, Uganda* is to examine perceptions about alcohol use in Ugandan children below 10 years of age. This knowledge will be used to improve help that can be provided for this age

group, as little is known by health workers today. Therefore we will ask you to reflect upon and share your views, reflections and knowledge about this topic.

Who and how many will be involved in this study?

We are targeting key persons from the community we believe have insight on this topic. We are conducting 15-30 interviews with community leaders (including local leaders, leaders, traditional healers), teachers, health workers, youth worker, stakeholder, bar owners and other alcohol distributors.

How will the study be done?

You will have a brief introduction by the interviewer who will then ask for permission to start the interview. The interview will be on different issues regarding alcohol use particularly relevant for children. The duration will be approx. one hour. We ask for your permission to audio record the interview which will be transcribed word by word. If you wish to look at the transcript and approve it, you are invited to do so. If we have some uncertainties we would like to contact you to clarify these.

What are the possible risks or discomforts from this study?

We ask for your time to do the interview. Some of the questions might cause some discomfort since the topic might be perceived as sensitive.

What are the benefits for you participating in this study?

There are no immediate benefits for you participating in this study. The only indirect benefit is the results which this study yields informing scientists, public health managers and doctors about your thoughts.

Confidentiality

The information obtained in the course of this study will not be released to anyone outside the study team without your written permission, with the exception of the Makererere University School of Medicine Research Ethics Committee IRB and the Norwegian Centre for Research Data, or if compelled by courts of law. All information provided by you is confidential, and your identity will be kept anonymous outside the research group. The study information will be kept under a lockable computer for a minimum of 10 years, until 2026. After 10 years all data will be anonymised, and you will be contacted if data is kept for a longer time period or being used for purposes outside the present study. We ask for the permission to audio record the discussion, this is to be able to hear your answers and think about them at the stage of analysis. The audio-records will be kept in a locked or pass-word protected place and will be deleted when the study period is over.

Compensation

For time and inconvenience: You will be offered refreshments and transport refunds to compensate for your excess costs and time. There will be no payment.

Rights of the participant

Your participation in this study is voluntary. Whether or not you choose to participate will not introduce any consequences. You have the right to refuse or withdraw from the study if you wish to do so without any explanations. Questions regarding participant's rights as a result of

participating in the study should contact the Chairperson of the School of Medicine Research Ethics Committee Prof. Ponsiano Ocama [redacted]

Who to contact for more information or your rights in this study

If you have questions about this research you should contact Vilde Skylstad, telephone number [redacted]. Contact information to all researchers are stated above.

What does your signature mean?

Your signature or thumbprint below means that you have understood and are satisfied with the explanations given to you about this consent form. If you sign the form, it means that you agree to join the study. You will receive a copy of this consent form.

STATEMENT

Documentation of Permission

I have been given a copy of this form. I have read it or it has been read to me. I understand the information and have had my questions answered to my satisfaction.

I agree to take part in this study:

I would like to read through the transcript: O

I can be contacted for further clarifications if needed: O

Name Date

I have fully explained the nature and purpose of the above described study and the risks that are involved. I have answered all questions to the best of my ability.

Signature of Principal Investigator or Representative Date

Informed consent form regarding participation in focus group discussions – English version

Title of study: Community perceptions and practices on alcohol and substance use by children in Mbale district, Uganda

Principal Investigator: Vilde Skylstad, Researcher centre for International Health, Department of Global Public Health and Primary Care (IGS), Faculty of Medicine and Dentistry, University of Bergen (Contact: [redacted]

Co-investigators and supervisors:

- [redacted]Prof. James K. Tumwine (JT), Co-PI,MD, PhD, Department of Paediatrics and Child Health School of Medicine, College of Health Sciences, Kampala, Uganda (contact: [redacted]
- Prof. Ingunn Marie Stadskleiv Engebretsen (IE), MD, PhD, Centre for International Health, Department of Global Public Health and Primary Care (IGS), Faculty of Medicine and Dentistry, University of Bergen, (Contact: [redacted]
- [redacted]Prof. Grace Ndeezi (GN), MD, PhD, Department of Paediatrics and Child Health School of Medicine, College of Health Sciences, Kampala, Uganda (contact: [redacted]
- Dr. Joyce Nalugya Sserunjogi (JN), MD, Makerere University College of Health Sciences, School of Medicine, Department of Psychiatry, (Contact: [redacted]
- Elialilia Sarikiaeli-Okello (EO), MA, PhD, Makerere University College of Health Sciences, School of Medicine, Department of Psychiatry (Contact: [redacted]
- Chris Columbus Opesen (CO), Department of Sociology and Anthropology, Faculty of Social Sciences, Makerere University (Contact[redacted]

Introduction:

We are contacting you to participate in a study which is called *Community perceptions and practices on alcohol and substance use by children in Mbale district, Uganda.* The study derives from the study *SeeTheChild – Mental child health in Uganda*, a sub-study of *Saving Brains in Uganda and Burkina Faso (PROMISE SB).*

If you decide to participate in the study, you will be asked to sign and date the end of this form. Do not sign this form unless you understand the information in it and have had your questions answered to your satisfaction. You will be given a copy of the signed form. You should keep your copy for your records as it has information, including important names and telephone numbers, to which you may wish to refer during the study period or later.

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WHY ARE WE DOING THIS STUDY?

The purpose of *Community perceptions and practices on alcohol and substance use by children in Mbale district, Uganda* is to examine perceptions about alcohol use in Ugandan children below 10 years of age. This knowledge will be used to improve help that can be provided for this age group, as little is known by health workers today. Therefore we will ask you to reflect upon and share your views, reflections and knowledge about this topic.

Who and how many will be involved in this study?

We are targeting key persons from the community we believe have insight on this topic. We are conducting 4-8 focus group discussions with 4-6 parents in each group.

How will the study be done?

The group members will have a brief introduction by the moderator, who will then ask for permission to start the discussion. The discussion will be on different issues regarding alcohol use particularly relevant for children. The duration will be about 1-2 hours depending on availability of the participants. The group must prior to the discussion agree to keep all information given confidential within the group – that means that no group member can go back after the discussion and tell others what they heard within the group. We ask for your permission to audio record the discussion which will be transcribed word by word.

What are the possible risks or discomforts from this study?

We ask for your time to join this discussion. Some of the questions might cause some discomfort since the topic might be perceived as sensitive.

What are the benefits for you participating in this study?

There are no immediate benefits for you participating in this study. The only indirect benefit is the results which this study yields informing scientists, public health managers and doctors about your thoughts.

Confidentiality

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Compensation

For time and inconvenience: You will be offered refreshments and transport refunds to compensate for your excess costs and time. There will be no payment.

Rights of the participant

Your participation in this study is voluntary. Whether or not you choose to participate will not introduce any consequences. You have the right to refuse or withdraw from the study if you wish to do so without any explanations. Questions regarding participant's rights as a result of participating in the study should contact the Chairperson of the School of Medicine Research Ethics Committee Prof. Ponsiano Ocama [redacted]

Who to contact for more information or your rights in this study

If you have questions about this research you should contact Vilde Skylstad, telephone number [redacted]. Contact information to all researchers are stated above.

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STATEMENT

Documentation of Permission

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I agree to take part in this study:

Name	Date

I have fully explained the nature and purpose of the above described study and the risks that are involved. I have answered all questions to the best of my ability.

Signature of Principal Investigator or Representative	Date

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