LITERATURE REVIEW

URBAN FAMILY PLANNING AND FERTILITY IN LOW- AND MIDDLE-INCOME COUNTRIES

URBAN FAMILY PLANNING AND FERTILITY IN LOW- AND MIDDLE-INCOME COUNTRIES

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ACRONYMS AND ABBREVIATIONS

CPI	City Prosperity Initiative
CSM	Condom social marketing
DHS	Demographic and Health Surveys
EC	Emergency contraception
GOLD	Global Observatory on Local Democracy and Decentralization
GPS	Global Positioning System
GRUMP	Global Rural-Urban Mapping Project
GUO	Global Urban Observatory
IPCC	Intergovernmental Panel on Climate Change
IUSSP	International Union for the Scientific Study of Population
LDA-SI	Local Data Action Solutions Initiative
LMICs	Low- and middle-income countries
NGO	Non-governmental organization
NUP	National urban policy
SDGs	Sustainable Development Goals
SDI	Slum/Shack Dwellers International
SDSN	Sustainable Development Solutions Network
TReNDS	Thematic Research Network on Data and Statistics
UCLG	United Cities and Local Governments
UCLG-A	United Cities and Local Governments of Africa
URHI	Urban Reproductive Health Initiative

EXECUTIVE SUMMARY

The Sustainable Development Goals (SDGs) recognize cities and urbanization as vectors for delivering sustainable futures at multiple scales. At the same time, promoting access to family planning and reproductive health is an important driver of urban health and socioeconomic wellbeing in low- and middle-income countries (LMICs). However, historically there has been little engagement between the family planning and urban development sectors. Urban researchers and professionals seldom consider fertility and family planning in their strategies for urban change. Demographers and family planning experts, for their part, are not always attuned to the specific dynamics and trends occurring within and between cities. Given this disconnect, there is an urgent need to embrace and afford greater priority to an urban family planning agenda to help achieve the SDGs.

The importance of taking up an urban family planning agenda is highlighted by the demographic trends of LMICs. Almost 90 per cent of the growth in the global urban population over the next three decades will take place in Asia and Africa. This growth will be associated with significant levels of material deprivation in the form of slum-like urbanism. Contrary to popular belief, the majority of urban growth in LMICs will be accounted for by natural increase rather than rural-urban migration. Meanwhile, urban fertility rates have unexpectedly plateaued in many sub-Saharan African countries at levels well above replacement, and in a few cases have actually increased. These trends threaten to sustain rates of rapid urban growth in future decades, perpetuating higher levels of poverty while placing pressure on urban services, housing, and weak governance systems.

OBJECTIVES OF THE STUDY

The study was undertaken for the International Union for the Scientific Study of Population (IUSSP) Scientific Panel on Family Planning, Fertility and Urban Development. It emerged from a demand for a comprehensive and up-to-date review of research on urban family planning in LMICs. In response, this study gathered evidence on how urbanization and urban growth may present particular kinds of challenges to family planning research and intervention; challenges that will become more important as urban transitions continue in LMICs. Specifically, the study:

- Reviewed recent research on urban family planning and fertility change in LMICs, with a focus on sub-Saharan Africa and South Asia, and work published within the last two decades;
- Focused on what is currently known about intra-urban and inter-urban trends and differences;
- Described key topics and geographies of research interest, in addition to knowledge gaps or possible areas of oversight; and
- Identified learning gaps and recommendations relating to data or other issues, to inform the urban family planning field.

KEY FINDINGS

Unmet need and unintended pregnancy

In general, both the desire to limit family size and contraceptive use are higher in urban areas than in rural areas. However, unmet need for family planning is often similar between the urban and rural sectors and, in some cases, is higher for urban women. Country-level patterns of unmet need may show significant geographic heterogeneity, including variations between particular urban communities.

Large differences in unmet need exist within urban areas. Women living in slum areas generally have a far greater unmet need than other urban women, and sometimes this need is higher than that of rural women. While a larger proportion of poor urban women might use contraception compared to rural women, unmet need can still be higher for the former group.

Poor young urban women are more likely than wealthier groups to engage in high-risk sexual activity, and are at particular risk of becoming pregnant unintentionally. However, the specific determinants of unintended pregnancy may vary by city and settlement type, including between slum neighbourhoods.

The urban dynamics of unmet need, unstable fertility intentions, and unintended pregnancy may be related to an increasing resort to induced abortion in urban areas. Many urban abortion procedures are performed in unsafe conditions and result in health complications that go untreated.

Supply-side issues

High levels of urban unmet need for family planning are, in part, the result of supply-side barriers. There may be limited overall penetration of public-sector family planning services

into urban areas of LMICs. This is particularly the case for smaller towns and deprived areas such as slums.

Provider restrictions are another supply-side barrier to family planning access in urban areas. Women in many LMIC cities experience restricted access to family planning for reasons of age, marital status, parity, and spousal consent. Urban women at greatest risk of unwanted pregnancy often face barriers to obtaining the most popular contraceptive methods.

Given these barriers, poor urban populations often depend on private providers of contraception, which may offer services of low quality and high cost. This implies that the urban poor, particularly residents of slums, are likely to be most affected by disruptions to the public provision of family planning services.

Women's selection of contraceptive sources is influenced by factors of service quality, cost, distance, and the specific kinds of service offered. Private providers may be attractive to many poor urban women for reasons including higher perceived quality, shorter waiting times, and better client-provider interactions. However, public facilities such as hospitals remain important sources of better quality, affordable, and professionally administered services.

Contraceptive use

The use of modern contraceptives in LMICs is generally higher for urban women than for rural women. However, this difference is often small in countries with high rates of contraceptive prevalence. Patterns of contraceptive use may vary significantly between population groups, regions, and cities within countries. Women living in slum areas tend to report lower levels of use than other urban residents.

Patterns of contraceptive method use and method mix vary considerably between countries and cities. In some contexts, trends away from the use of long-term methods towards short-acting methods have been observed for urban populations, potentially leaving more women vulnerable to unintended pregnancies.

In Africa and Asia there is evidence of trends for educated and wealthier urban groups to rely on traditional contraceptive methods as part of fertility regulation strategies that also encompass occasional resorts to emergency contraception and safer abortion.

Experience of side-effects from hormonal methods, leading to method-related dissatisfaction, is a common reason for urban women discontinuing contraceptive use. Urban women in LMICs are more likely to cite 'health concerns' as a reason for non-use of contraceptives than rural women, but the precise influence of health concerns in giving rise to method dissatisfaction can vary between urban and rural contexts, and may be specific to certain methods.

Many poor urban women experience high rates of contraceptive discontinuation. The likelihood of women having an unmet need for contraception after discontinuing can vary significantly between urban contexts within a country. In some cases, problems with method switching and lapses in coverage between methods may be linked to higher incidences of pregnancy and abortion among urban women using multiple methods.

Programmatic interventions

New evidence shows that well-designed family planning programmes can make a substantial difference to contraceptive use in urban areas. Evaluations of programmes such as the Urban Reproductive Health Initiative (URHI) reveal the relative efficacy of supply-side and demand-side interventions in promoting uptake and use in different contexts. However, such donor-supported programmes are not always sustainable beyond project completion.

Integrating family planning with the delivery of other healthcare services is a key objective of many country policies and programmes. Despite facing institutional and personnel barriers to implementation, service integration presents an important opportunity to reduce unintended pregnancies in urban areas. This calls for flexible partnership-based approaches to service integration involving multiple stakeholders.

Data challenges and opportunities

Aggregate urban comparisons, characteristic of much demographic and health research, mask inter- and intra-urban differentials in fertility and family planning dynamics. However, the global recognition of the importance of cities and urbanization for sustainable development has generated new demands for localized and disaggregated understandings of social and natural change. Several initiatives demonstrate an emerging appetite for new kinds, scales, and sources of data. It is important to capitalize on this interest to secure a closer relationship between health, demographic, and conventional urban-focused data.

Official data sources

No single global metric framework for cities and urban processes currently exists. A range of institutions, working at a variety of scales, are active in collecting, analysing, and disseminating urban data. Generally speaking, there is strong interest among development agencies and governments in securing the 'locally embedded' subnational data and processes required for SDG monitoring and localization.

Work on the development of urban indicators for the purposes of SDG monitoring has rarely addressed urban demographic and fertility issues. However, engaging with national urban policies, urban observatories, and new urban expert networks, all offer opportunities to promote greater scrutiny of urban family planning and demographic change.

Data-related engagements need not focus exclusively on monitoring processes, but could also target programme assessment and evaluation. There is considerable interest from donors, development banks, and governments in downscaling their frameworks to assess priority actions and investments in urban areas, and to assist local project implementation in support of wider sustainability and resilience objectives.

Emerging and nonofficial data sources

Some of the challenges in defining 'the urban' (as well as related spatial concepts such as 'slum', 'informal', and 'neighbourhood') across different contexts can be alleviated by linking health with geospatial data. Remote-sensing technologies offer one set of opportunities to do this. A range of initiatives integrate remotely-sensed data with census data while applying new modelling techniques to monitor urban change. There are promising examples of researchers using these resources for the spatial analysis of urban health and demographic issues. However, tailoring these analyses to different LMIC and urban contexts will remain a challenge.

The growing availability of big data and related analytics also offers opportunities to enhance the interoperability of urban and health datasets and systems. Researchers have used large integrated datasets alongside techniques in data science, artificial intelligence, machine learning, and predictive analytics to assess and address urban public health issues. For instance, some employ street imagery and deep learning networks to detect and predict health outcomes in cities. However, this work is only possible where such imaging services are available and comprehensive.

Engaging with citizen science movements focused on urban problems offers another opportunity. Technology-aided processes of community-based mapping and census-taking, for example, have the potential to generate accurate local datasets that take into account local definitions and social dynamics, encourage community engagement, and promote local ownership of data and project interventions.

KNOWLEDGE PRIORITIES

Neighbourhoods and poverty

The neighbourhood context is critical in shaping urban reproductive ideas, behaviours, and outcomes in LMICs. There is a need for further research assessing the role of neighbourhood effects in influencing these dynamics, including the effects of social cohesion, social capital, collective efficacy, and community resources. Here, the insights of sophisticated analyses of urban poverty and inequality, emphasizing the analysis of heterogeneity, must be retained. This includes understanding the implications of particular slum-like conditions for family planning provision and fertility patterns.

Governance

How appropriate governance arrangements should be devised for the complex array of actors and institutions involved in urban family planning delivery remains poorly understood. We know little about the circumstances in which people-based or place-based strategies would be more or less effective, or how these could best accommodate rapid urban spatial change and peri-urbanization. How urban family planning is affected by ongoing decentralization and devolution reforms, and how it should be included within decentralization strategies, is a key priority. Moreover, further research is needed to understand the governance relations, processes, and practices (including and extending beyond the healthcare system) that affect urban family planning supply and demand.

Migration and displacement

We know a considerable amount about how rural-urban migration affects fertility and family planning use. Future research should take greater account of the diversity of migratory experiences, and more remains to be known about how movements within and between particular urban

areas affect reproductive behaviours and fertility. How specific urban community contexts shape different migratory experiences, sexual transitions, family planning needs, and fertility outcomes – particularly for large youthful migrant populations – should also be investigated. Finally, we know little about the implications of increasingly significant urban migrant groups, including those displaced by civil unrest and natural disasters, for family planning, including their specific service needs and barriers to access.

Climate change and resilience

Increasing access to family planning is critical for easing the urban adaptation burden and enhancing resilience among vulnerable populations. Understanding how future family planning needs can be assessed and met demands further investigation of the links between climatic variability and reproductive goals and behaviours among urban groups. Moreover, we need a better grasp of how family planning and fertility change affect, and are affected by, nutrition and food security in order to promote resilient urban food systems and communities.

1. INTRODUCTION

The importance of raising the profile of an urban family planning agenda is highlighted by the demographic trends of low- and middle-income countries (LMICs). Almost 90 per cent of the growth in the global urban population over the next three decades will take place in Asia and Africa (United Nations, 2019). This growth will be associated with significant levels of material deprivation in the form of slum-like urbanism (UN-Habitat, 2016). Contrary to popular belief, the majority of urban growth in LMICs will be accounted for by natural increase rather than rural-urban migration (Fox, 2017; Montgomery et al., 2003). Meanwhile, urban fertility rates have unexpectedly plateaued in many sub-Saharan African countries at levels well above replacement, and in a few cases have actually increased (Garenne, 2008). These stalls threaten to sustain rates of rapid urban growth in future decades, perpetuating higher levels of poverty while placing pressure on housing stocks and other urban services.

This report gathers evidence on how urbanization and urban growth may present particular kinds of challenges to family planning research and intervention; challenges that will become more important as urban transitions continue in LMICs. It also reflects on how family planning research tends to consider 'the urban' as a category of analysis and practice, and the potential drawbacks of that notion. The aim is not to present urban family planning as a 'niche' topic and agenda, but rather as a critical component of the wider family planning field. It is emphasized that the pace and scale of urban growth will be increasingly significant for the family planning field as a whole. It is hoped that the evidence and arguments presented here may assist in the process of delineating a research and practice agenda that is attuned to those challenges and changes.

This study has been undertaken for the International Union for the Scientific Study of Population (IUSSP) Scientific Panel on Family Planning, Fertility and Urban Development. The impetus for this work arose at a meeting of the Scientific Panel held in June 2018 in Paris, where it was noted that a comprehensive and up-to-date review of research on urban family planning in LMICs did not exist. In response to that demand, this report reviews recent work on urban family planning and fertility change, with a focus on sub-Saharan Africa and South Asia.[1] A more specific aim is to identify learning gaps and recommendations (relating to data or other topics) for the urban family planning field.[2] This work is intended to inform the design of a Bill & Melinda Gates Foundation meeting to review learning progress based on the findings of the Family Planning, Fertility and Urban Development programme, and to prepare a renewal proposal for further funding.

The review has not been designed as a 'systematic review', but rather as a critical scoping and interpretive review identifying key topics and geographies of research interest, and gaps in knowledge that may warrant further investigation. This document has been prepared by an urban specialist rather than an expert in health or family planning. As such, the identification of knowledge gaps and priorities has been undertaken from the perspective of an outsider to the field. The review considers whether family planning researchers tend to overlook or under-examine certain debates and insights that are seen as significant within urban-focused subdisciplines related to planning, governance, political economy, sociology, and so on. In other words, it is less able to comment on research priorities *within* the family planning field than those arising at the interfaces between different (and usually non-overlapping) bodies of knowledge.

The geographic scope of the report encompasses LMICs, but with a focus on urban contexts of sub-Saharan Africa and South Asia. Temporally, the review includes research published after 1993, when the last major literature review of family planning and fertility among the urban poor of developing countries was published (Mamdani et al., 1993). However, for practical reasons, arising from the sheer volume of published literature, the emphasis has been on collecting scholarship published since 2000.

Topically, the review is particularly interested in research where family planning is the principal focus rather than a peripheral concern (that is, as an aspect of wider issues related to reproductive health or maternal and child health). Family planning is taken to include practices of contraception (both 'traditional' and 'modern'), birth spacing, and abortion. As such, the review does not deal with health research that tangentially relates to family planning concerns – for example, assessments of health programmes that provide family planning among many other kinds of services, or studies of reproductive health knowledge among urban residents that include family planning as one aspect of that knowledge base.

The focus is on research that addresses family planning and fertility change as they relate to the process of urbanization, to differences between urban and rural areas, and to trends and phenomena unfolding within 'urban' spaces. As such, the report does not include cross-sectional representative studies encompassing both urban and rural study sites without making any statements about the specific urban aspects of the phenomenon under investigation, or about differences between urban and rural regions (although some

such studies have been cited where they provide important background information on key trends, for example of contraceptive use). Moreover, the emphasis of the report is on family planning programmes addressing or affecting the urban poor, and on the dynamics and needs of poor groups, although trends pertaining to more affluent populations have also been noted and described where these have been deemed significant.

The report is broadly structured according to categories of 'supply' and 'demand'. It should be noted that many studies address or are relevant to both. Following a previously published review of family planning programme evaluations (Mwaikambo et al., 2011), supply-side factors have been taken to include issues of access, quality, and cost. Demand-side factors include those related to the mass media, interpersonal communication, and development.

Section 2 discusses research focusing on issues relevant to the supply or provision of family planning services in urban areas. Section 3 summarizes the findings of work focusing on topics related to the demand for or use of family planning. Section 4 offers an overview of research on the relationship between urbanization, fertility change, economic development, and family planning. This is followed, in section 5, by observations on current weaknesses in the investigation of urban issues in demographic and health literatures, along with some reflections on current challenges and opportunities for data collection. Section 6 concludes with the identification and description of several priority areas for future research.

2. TOPICS RELEVANT TO SUPPLY

This section discusses recent evidence and knowledge on where people obtain their family planning services, the dynamics and impact of service availability and quality, how supply environments relate to distributions of wealth and inequality, whether geographic and economic accessibility affect use, longitudinal studies of programme interventions, and the integration of family planning with other healthcare services.

2.1 SOURCE

Sources of contraception vary by the characteristics of users, including their age and wealth status. In sub-Saharan Africa, a woman's **choice of provider** is often strongly linked to her **choice of contraceptive method**, with younger women using short-term methods obtained from limited-capacity private providers more often than their older counterparts (Radovich et al., 2018).

In many LMICs, **urban residents rely on private providers** to a greater extent than rural groups (Khan et al., 2007). In Kenya and Nigeria, vulnerable and harder-to-reach groups are more likely than other urban women to obtain their short-acting methods from drug stores or pharmacies (Corroon et al., 2016). Elsewhere, there may be a trend towards the use of private sources in poorer urban areas, as in Bangladesh (Angeles et al., 2019). There is little evidence that the increasing role of the private sector in providing services is related to growing inequality in the contraceptive prevalence rate in urban areas of Africa and Asia, although this may be a trend for rural areas (Agha and Do, 2008). In some contexts, however, it is possible that private-sector expansion is associated with the generation of spatial inequalities in the supply environment. In Nigeria, for example, urban areas with good public supply enjoy an increased likelihood of having a better private-sector supply, suggesting that neither sector acts to address the other's supply shortfalls and that public provision should target areas with fewer private providers (Levy et al., 2014).

We know from Kenya that **where urban women go to obtain contraceptive methods** is influenced by issues of **service quality, cost, distance, and the specific kinds of service offered**. Some research suggests that women seeking family planning services are less likely to use public-sector facilities (despite the lower cost and more expansive offering of methods at those facilities), preferring instead private and other non-public facilities for reasons including higher perceived quality, shorter waiting times, and better client-provider interactions (Chakraborty et al., 2019; Keesara et al., 2015). Nonetheless, women living in an informal settlement of Nairobi tended to place greater confidence in the technical medical quality on offer at public facilities and preferred those facilities when seeking comprehensive contraceptive counselling and decision-support (Keesara et al., 2015). Private sources may be convenient and attractive to many poor urban women for various reasons, but public facilities remain important sources of better quality, affordable, and professionally administered services. Many urban women will bypass their nearest healthcare facilities in search of better quality services (Escamilla et al., 2018).

Some sources are potentially more effective than others in promoting the uptake and use of contraceptives. Evidence suggests that, globally, programmes designed to distribute sexual and reproductive health services through youth centres have had only limited or transient effects on increased use by target groups (Chandra-Mouli et al., 2015; Zuurmond et al., 2012). However, there is evidence to suggest that programmes seeking to make contraceptives available in poorer urban areas through small-scale groceries and kiosks (Agha and Kusanthan, 2003), or via mobile service delivery (Krenn et al., 2014), could be effective in promoting uptake. Where women obtain family planning services can also **affect the longevity of method use** – for example, Moroccan women using a governmental source were more likely to continue using the contraceptive pill than those using a different source (Steele et al., 1999). However, further research is needed to determine precisely how the type of source influences subsequent contraceptive behaviour.

2.2 AVAILABILITY AND QUALITY

Ali and colleagues (2018) found in some African countries that the *availability*[3] of family planning services may be greater in rural health facilities, possibly because the profit-oriented private-sector facilities concentrated in urban areas may not hold the provision of family planning services as a priority. Some African urban populations may enjoy a higher *quality* of service than their rural counterparts (Magnani et al., 1999; Mpunga et al., 2017), although overall the quality of care has been found to be 'roughly equal' between urban and rural areas (Miller et al., 1998). That said, the **quality of supply in urban areas can be more variable** than in rural regions. Although large facilities like hospitals often provide high-quality services, and are usually located in urban centres, there may also be high urban concentrations of providers offering low-quality services. Beyond broad urban and

rural disparities, researchers have pointed to significant differences in supply environments within and between cities in contexts like Nigeria (Levy et al., 2014). Taken together, these findings encourage the adoption of a perspective that moves beyond neat assumptions of urban or rural advantage, to understand **precisely how supply factors vary between types of facilities and areas**.

Longitudinal evidence from African countries targeted by the Urban Reproductive Health Initiative (URHI) suggests that improvements in service quality at facilities targeted by programmatic interventions led to increases in contraceptive use (Speizer et al., 2019; Winston et al., 2018). However, the **effect of service quality on use may vary by context** and it is not clear whether changes in quality have a greater or lesser impact in urban or rural areas (Arends-Kuenning and Kessy, 2007; Mensch et al., 1997). Evidence from urban areas of Kenya and India shows that the **quality of provider-client interactions and communication** – in other words, more personal aspects of a client's experience in obtaining the right method linked to their treatment by providers – can have a positive impact on family planning uptake and use (Rajan et al., 2016; Tumlinson, Pence, et al., 2015). These findings concur with previous research on service quality (Hamid and Stephenson, 2006; Paine et al., 2000).

2.3 EQUITY

In Kenya, family planning coverage is unevenly distributed among wealth quintiles, with a bias towards wealthier groups (Keats et al., 2018). In spatial terms, **coverage for lower wealth quintiles is similar in both urban and rural settings**, indicating that an 'urban advantage' likely does not exist and that programmes should focus on the poorest populations regardless of where they live.

That picture changes when the analytical focus is shifted to urban areas. Poorer urban residents may not necessarily live in worse supply environments: contraceptives may be stocked in private facilities or in unconventional small-scale outlets found in those areas (Agha and Kusanthan, 2003), and government interventions to increase access may have levelled-out urban inequalities (Kongsri et al., 2011). Analysis of data from urban areas of **Nigeria** found little correlation between supply and poverty levels, indicating that the **urban poor are as likely to live in a good family planning supply environment as wealthier groups**, although this can **vary significantly between cities** (Levy et al., 2014). These results suggest that efforts to improve access and availability for the urban poor may need to focus on specific local government areas rather than particular income groups distributed across all cities.

2.4 GEOGRAPHIC AND ECONOMIC ACCESS

There is little evidence to suggest that geographic distance between user and source plays a significant role in affecting use (Cleland et al., 2006). Rather, quality of care, or a combination of quality and distance, may be most important in shaping family planning behaviour in the urban context (Arends-Kuenning and Kessy, 2007; Katende et al., 2003; Skiles et al., 2015).

The density of the existing supply environment in a city such as Dakar (Senegal), for example, means that attempting to boost family planning access by increasing the number of facilities in a particular area will probably not have a significant effect on use (Cronin et al., 2018). By contrast, **average facility-level quality does have an effect on contraceptive use**. Evidence from Kenya shows that urban women bypass their nearest facilities for reasons of service quality in order to access facility-based contraception, although poorer women are less likely to do so. Women who bypass tend to visit facilities of higher quality; almost half of those bypassing travel to public hospitals where services are offered free of charge (Escamilla et al., 2018). However, the option of travel may only apply to those who can afford it (Ezeh et al., 2010). Researchers have only just begun to explore the relationship between **urban mobility systems** (in the form of access to public transport) and the **accessibility of family planning services**, as in the case of minibus taxis in Kenyan cities (Escamilla et al., 2019). There, around one-quarter of family planning users surveyed were found to have taken taxis to visit health facilities, with wealthier women more likely to do so.

Studying the supply of family planning services in urban areas entails **methodological challenges** related to the density of the supply environment, and to the growth of private and informal providers. These factors can hinder efforts to measure spatial patterns of access and to determine the relative value of different types of health facilities in expanding access to family planning services (Chakraborty et al., 2019; Cronin et al., 2018; Fruhauf et al., 2018; Levy et al., 2014).

With respect to issues of economic access, most research focuses on various kinds of incentive programmes. Evidence from Kenya and Nicaragua indicates that **voucher campaigns can be effective in promoting the uptake of reproductive health services** among vulnerable groups living in poor urban environments (Amendah et al., 2013; Meuwissen et al., 2006; Obare et al., 2013). However, there may be challenges in isolating the impacts of vouchers against other kinds of health interventions in urban areas

(Madhavan et al., 2010), which has generated interest in quasi-experimental studies of incentive impacts (Nuwasiima et al., 2017).

2.5 LONGITUDINAL AND EXPERIMENTAL STUDIES OF PROGRAMME IMPACTS

Evidence from large-scale multi-country programmes has enabled testing of the relative efficacy of different supply-side interventions. This work shows that programmatic impacts **vary according to the regional or national context** (Achyut et al., 2016; Atagame et al., 2017; Benson et al., 2017, 2018). A longitudinal and comparative assessment of the impact of URHI supply-side interventions focused on availability and quality in urban Nigeria, Kenya, and Senegal found that numbers of new acceptors rose in all three contexts, while the overall number of clients increased in Nigeria and Kenya (Winston et al., 2018). Meanwhile, a randomized controlled trial assessing the impact of a package of six low-technology interventions on the use of modern contraceptives in urban settings of Kinshasa province (Democratic Republic of the Congo) found that the programme did not have a significant influence on the overall use of effective modern contraceptives, but significantly increased the use of implants among postpartum urban women up to a year after giving birth (Tran et al., 2020). Positive effects may not be sustainable following the end of project activities and, as such, Speizer et al. (2019) recommend that family planning programmers **consider longer-term strategies** that would support the continued effects of project components post-implementation.

How and why particular interventions may be more successful in some *urban* contexts than in others, and precisely identifying their role and effect, is an area for future inquiry. Researchers have also called for the development of measures of client agency and autonomy, as well as of discrimination towards clients, to better inform how to address these issues within rights-based family planning programming (Winston et al., 2018).

2.6 INTEGRATION OF SERVICES

The integration of sexual and reproductive health services has been identified as a global priority for healthcare provision and a priority topic for family planning research (Ali et al., 2014). An integrated service system is potentially **more robust and capable of meeting changing health needs and burdens** linked to climate change and urbanization (Mayhew et al., 2017).

Some reproductive health programmes have specifically targeted service integration and measured their impact empirically. Evidence from URHI programmatic interventions in Senegal suggests that the integration of family planning services with those of maternal and child health presents a significant **opportunity to reduce unintended pregnancies in urban areas** (Speizer, Fotso, Okigbo, et al., 2013). The equivalent Kenyan programme revealed that integration-related interventions had mixed results across different service areas, highlighting time and workload constraints on the part of providers as barriers to effective integration (Mutisya et al., 2019). The South African experience shows that staff and facility-level issues may be compounded by wider political and policy uncertainties, and generally overburdened public health systems (Maharaj and Cleland, 2005). Such challenges point to the **need for flexible partnership-based approaches** involving communities, healthcare providers, and other actors (Milford et al., 2018). Randomized controlled trials in Mumbai (India) have demonstrated that partnership models (involving NGO-run community resource centres) to deliver integrated services are a feasible and potentially replicable approach for promoting health in urban informal settlements of Asia and Africa (Shah More et al., 2013, 2017).

The **urban context presents a specific opportunity** for service integration, given that the three levels of health service (primary, secondary, and tertiary) are often all present and geographically concentrated in cities. As such, there is potential for further research to specifically address how integration should best be carried out in urbanizing contexts. In political and policy terms, these insights may provide an opportunity to shift arguments for service integration away from a perspective of efficiency and cost-effectiveness, and towards one rooted in the logic of adaptability and responsiveness, highlighting integration as a means to address emerging demands and challenges of urbanization.

3. TOPICS RELEVANT TO DEMAND AND USE

This section focuses on research addressing issues related to the need for and use of family planning services in urban areas of LMICs. These include trends in sexual behaviour among urban youth, patterns in the use and method mix of contraceptives, levels and distributions of urban unmet need, and a broad range of factors that determine or inhibit the use of family planning. How these issues relate to urban trends in unintended pregnancy and abortion is also discussed.

3.1 YOUTH SEXUAL BEHAVIOUR

A common finding from the literature is that **urban youth in Africa may have later sexual debut** than rural groups, with a longer gap between debut and marriage (Bankole et al., 2013; Basinga et al., 2012; Doyle et al., 2012; Sauvain-Dugerdil et al., 2008; Zuma et al., 2011). Rates of **contraceptive use at first sex tend to be low** across all age groups in African urban areas (Doyle et al., 2012; Naré et al., 1997; Speizer, Fotso, Davis, et al., 2013; Yode and LeGrand, 2012). In urban Nigeria and Senegal, **poor young women reported earlier first sex** than more wealthy counterparts. In Kenya, wealthier young women are more likely to have premarital first sex and to use contraception on debut. Across all three contexts, more-educated female youth have a later sexual debut and are more likely to have premarital first sex, with a greater chance of using contraception on debut (Speizer, Fotso, Davis, et al., 2013). There may be significant variations in sexual and contraceptive behaviour between city contexts, and further research might explore these distinctions in greater detail.

Compared with other city residents, those living in poorer African urban areas or slums have a greater chance of engaging in high-risk sex, which encompasses earlier sexual debut, lower condom usage, and multiple sexual partners (Burns and Snow, 2012; Greif et al., 2011; Pinchoff et al., 2017; Speizer, Fotso, Davis, et al., 2013; Zulu et al., 2002; Zuma et al., 2011). There is a **robust relationship between urban disadvantage and risky sexual behaviour** across urban and national contexts that differ in terms of poverty and urbanization rates (Greif et al., 2011).

Evidence from Kenya gives a more nuanced picture of the **determinants of the sexual behaviour** of young unmarried women in urban areas (Okigbo and Speizer, 2015). Protective factors such as education, religion, religiosity, and employment status are associated with delayed sexual debut. Household factors such as being poor, living in a larger household, or living in a female-headed household help to create an environment that enables young women to engage in risky sexual behaviour and transition to pregnancy. Further research is needed on the key factors and mechanisms driving the relationship between living in a poor urban area and risky sexual behaviour.

While some studies have described 'slum residence effects' (Speizer, Fotso, Davis, et al., 2013), more research could focus on the **impact of neighbourhood and community characteristics** – including factors of neighbourhood structural inequality and collective efficacy or social capital – on sexual behaviour among the urban youth in LMICs. There could also be further work on how the **material nature of the built environment** correlates with sexual behaviour (Burns and Snow, 2012).

Migration has been shown to have implications for urban sexual behaviour. Those who move to urban areas are often exposed to new ideas, permissive norms, and access to a wider selection of potential partners, all of which can facilitate riskier sexual behaviour (Brockerhoff and Biddlecom, 1999; Luke et al., 2012; White et al., 2008). Research in this area highlights the importance of making sexual and reproductive health services available to young urban migrants and of understanding their particular needs. More work is needed on specific aspects of migration, including the community contexts shaping migratory experiences that support or hinder successful and healthy transitions to adulthood for young men and women.

Several works have pointed to the need for further research on how prior school and family experiences (particularly in deprived urban conditions) influence **sexual behaviour, pregnancy, and schooling** outcomes, and how best to target at-risk student groups with family planning messages and services (Grant and Hallman, 2008; Marteleto et al., 2008).

3.2 CURRENT USE OF CONTRACEPTION

Research using Demographic and Health Survey (DHS) data to describe urban-rural variations in the use of family planning in LMICs shows that **urban groups generally use modern contraception at a higher rate** than those living in rural areas (Wang et al., 2017). Geographic differentials in knowledge and ever-use are usually larger in countries with lower overall levels of ever-use of contraception (Khan et al., 2007). Urban-rural differences in current use have narrowed and largely disappeared in some countries with relatively

high contraceptive prevalence rates. These trends are less consistent for sub-Saharan Africa, where rates in rural areas may have remained unchanged or declined. That said, in cases like Rwanda, no significant geographical differences in the contraceptive use rate can be observed, reflecting the real progress made by that country in promoting equitable access to reproductive health services (Basinga et al., 2012; Muhoza and Ruhara, 2019).

However, **patterns of use can vary significantly between population groups, regions, and cities** within particular countries (Clements and Madise, 2004). At the intra-urban scale, we know that women living in slums of Uttar Pradesh (India) tend to report lower levels of use than those living elsewhere (Speizer et al., 2012). Poorer and less-educated women are more likely to have an unmet need in both slum and non-slum areas, and those living in slums are more likely to be sterilized. More-educated women not residing in slums are more likely to use temporary methods. In contexts such as India, Bangladesh, and Kenya (countries that have introduced concerted national family planning programmes) there have been rapid increases in use of family planning among slum residents (Angeles et al., 2019; Fotso et al., 2013).

3.3 TRADITIONAL OR NATURAL METHODS

The use of traditional or natural contraceptive methods, including periodic abstinence and withdrawal, and their specific role in regulating the contemporary fertility transitions of LMICs, has attracted increasing research interest. In both African and Asian settings, there may be a **trend for more-educated and wealthier urban residents to employ traditional methods** as part of a wider strategy of fertility regulation, including occasional recourse to emergency contraception and safe abortion (Basu, 2005; Rossier and Corker, 2017). This may be linked to previous experiences of side-effects from using hormonal methods, leading to method dissatisfaction (Odwe et al., 2019; Spagnoletti et al., 2019). Ghana is a particular case in point where this has been extensively studied (Askew et al., 2017; Machiyama and Cleland, 2014; Marston et al., 2016, 2017, 2018). Ethnographic work has argued that resorting to traditional techniques like abstinence and withdrawal can from part of the way women achieve wider social goals and negotiate the demands of modern urban life, including asserting and maintaining a modern urban identity (Johnson-Hanks, 2002). These kinds of ideas and practices may become more significant and widespread as urbanization proceeds and the middle-class grows in many LMICs. How such attitudes and practices diffuse among urban groups, and between urban and rural contexts, and to what effect, will remain key questions for further research to explore.

3.4 UNMET NEED

DHS data show that **levels of unmet need for family planning are generally greater in rural areas** of LMICs. However, the rural-urban gap is narrow in many contexts and, in some cases, there is evidence of an urban disadvantage (MacQuarrie, 2014; Sedgh et al., 2016; Wang et al., 2017). More detailed spatial analysis of unmet need reveals significant **geographical heterogeneity**, including variation in the risk of unwanted pregnancy across particular urban communities (Amoako Johnson and Madise, 2009). These results suggest that bridging inequality gaps in contraceptive use will require area-specific programmes.

Studies interested in intra-urban dynamics in sub-Saharan Africa show that **unmet need tends to be greater for poorer urban women** than those who are wealthier (Ezeh et al., 2010; Fotso et al., 2013). While residents of Nairobi have the lowest unmet need in all of Kenya, in slum areas that need is double the city average and higher than that of rural women (Beguy et al., 2017). A **greater proportion of poor urban women might use contraception** relative to rural women, but **unmet need can still be higher** for the former group.

Researchers have **questioned the adequacy of conventional definitions of unmet need** as applied to LMICs. They have called for the development of nuanced assessments of fertility intentions that take into account the fluidity and strength of childbearing motivations, degrees of uncertainty surrounding those motivations, the wider social goals of contraceptive practice, the influence of cultural and community-level factors, and emotional orientations (Johnson-Hanks, 2002; Machiyama et al., 2019; Speizer, 2006; Speizer, Calhoun, et al., 2013; Speizer and Lance, 2015; Staveteig, 2016). Moreover, the questions and categories of unmet need used in general surveys such as the DHS may fail to adequately capture new or emerging trends in fertility regulation that are particularly advanced in urban areas (Marston et al., 2017).

3.5 METHOD OF USE

Regions and countries show **markedly different contraceptive method mix profiles and preferences**, and as such it is difficult to make any broad statements about trends (Ross et al., 2015). We know that in sub-Saharan Africa younger

women are more likely to use short-term methods (Radovich et al., 2018). However, injectables are the most frequently used method overall and, in recent years, the use of implants has increased significantly in numerous African contexts. In some countries, implants account for a large proportion of the growth in modern contraceptive prevalence rates (Ahmed et al., 2019; Jacobstein, 2018; Tsui et al., 2017). It is not clear how these trends are distributed according to urban/rural residence or wealth status.

Trends away from the use of long-term methods in urban areas have been observed in South Asian and sub-Saharan contexts. In urban areas of Pakistan, for example, the method mix has shifted away from sterilization towards an increased use of condoms (Carton and Agha, 2012). In Kenya, the trend has been for urban women to increase their use of short-term and less-effective methods (Fotso et al., 2013; Magadi and Curtis, 2003). Given that rates of discontinuation and failure are higher for short-term methods, a growing reliance on these methods may explain why urban areas of Kenya see high rates of unplanned pregnancies and births despite relatively high levels of contraceptive use. Moreover, the reconfiguration of fertility-regulation strategies observed in urban areas of West Africa and Asia (discussed in section 3.3) have entailed a shift away from long-term and more-effective hormonal methods towards a mix comprising natural, short-term, emergency, and abortive methods.

3.6 DETERMINANTS OF AND BARRIERS TO USE

A major emphasis of recent research has been to understand the specific factors and mechanisms that promote or inhibit contraceptive use. In doing so, researchers have consciously sought to engage with more sophisticated theories of behavioural change. Recent years have also seen a growth in studies examining 'contextual effects' (including household or community-level factors) on health behaviours (Okigbo et al., 2017). In addition, some work has examined how the relative determinants of unmet need have shifted over time. In Ghana, for example, lack of access to family planning has declined in importance relative to attitudinal resistance (sometimes related to health concerns) as a determinant of unmet demand (Machiyama and Cleland, 2014).

3.6.1 Supply-side barriers

Regulatory impediments to contraceptive access are an important topic of study. Recently there has been a move to understand **provider restrictions** of a more informal, personal, or interpersonal kind, including the ideas, beliefs, and feelings that providers hold about family planning and their clients (Krenn et al., 2014).

Urban residents may experience fewer restrictions to access than rural populations, but they can be **confronted with significant provider-related obstacles** (Speizer et al., 2000). The degree to which this occurs depends on the characteristics of both users and providers. Senegalese and Kenyan women at greatest risk of unwanted pregnancy (including young, unmarried urban women) face significant barriers, notably in the form of age restrictions, when obtaining popular methods of contraception including the pill, condoms, and injectables (Sidze et al., 2014; Tumlinson, Okigbo, et al., 2015). Eligibility barriers are pervasive in urban Nigeria, primarily based on age, and young and unmarried clients are more likely to face restrictions from private vendors and pharmacists than from other types of provider (Hebert et al., 2013; Schwandt et al., 2017). In cities of Uttar Pradesh (India), undereducated, poor, and newly-wed women are less likely than others to receive family planning counselling from providers (Calhoun, Speizer, et al., 2013).

There is a need for further qualitative research to aid our understanding of how providers make judgements about client education, needs, understanding, and self-efficacy (Calhoun, Speizer, et al., 2013). Future research could also examine the effects of provider bias in contraceptive provision on clients' adoption and continuation of a method (Schwandt et al., 2017), how clients perceive and navigate provider barriers (De Castro et al., 2018; Tumlinson, Speizer, Archer, et al., 2013), and how provider and client education might improve the extent to which clients are involved and can exercise agency in contraceptive decision-making and method choice (Schwandt et al., 2016). In many contexts, addressing provider restrictions may require a cultural shift. This is something that can only be targeted and effected through in-depth understanding of the concerns providers hold and why (Hebert et al., 2013).

3.6.2 Demand-side drivers and barriers

Research focusing on urban areas has demonstrated that social interactions and psychosocial factors are important drivers of and barriers to family planning uptake and use. However, it is not always clear whether these factors take on particular forms or importance in dense urban contexts or in particular kinds of neighbourhood.

Men, couples, and communication

The analysis of **male knowledge, attitudes, and practices** in traditionally patriarchal contexts is an important line of inquiry, with the focus often on describing urban-rural differentials. Significant intra-urban heterogeneity in these attributes has been noted in particular Nigerian cities (Olawepo and Okedare, 2006). Ethnographic studies give a detailed understanding of how male fertility behaviours are linked to particular cultural norms, ideologies, and practices (Agadjanian, 2002). Moreover, the manner in which broad socioeconomic changes are helping to reshape male gender roles and sexual behaviour with the progress of urbanization, the urbanization of poverty, and the precarity of urban work, will be an increasingly important issue for researchers to explore (Silberschmidt, 2001).

In many sub-Saharan and South Asian countries, sociocultural factors are principal barriers to the use of family planning, and **husband preferences and approval** can play a major role (Ajong et al., 2016; Stephenson and Hennink, 2004; Yadav et al., 2017). It is difficult to discern whether the influence of spousal approval is more or less of an urban phenomenon, although a prospective longitudinal study focusing on a Nairobi slum and a rural area of Kenya found that partner approval significantly affected satisfaction with contraceptive pills and injectables in the urban site only (Odwe et al., 2019). It is also unclear whether the nature and role of spousal approval varies between different kinds of urban area. Moreover, partner approval's specific links to patriarchal norms associated with particular forms of urban poverty, migration, and ethnicity patterns are currently not well understood.

A significant strand of work addresses **spousal communication and its influence on family planning behaviour**. As women may occasionally cite their partner's disapproval as a reason for non-use of contraception, despite never having discussed the subject or only engaging with it in a 'sporadic' and 'superficial' manner (Agadjanian, 2005), perceptions of partner approval, the accuracy of those perceptions, and the concordance of a couple's opinions and desires have emerged as important research topics (Berhane et al., 2011; Speizer, 1999). There has been some debate over the precise influence of communication and perception of partner approval. Earlier findings that greater frequency of spousal communication necessarily increases family planning knowledge and promotes approval and use (Lasee and Becker, 1997) have been questioned by later work (DeRose et al., 2004; Dodoo et al., 2001). More recent and detailed evidence from urban Kenya and Nigeria indicates that spousal communication and agreement over family size are indeed linked to increased use of family planning and the achievement of fertility intentions (Babalola et al., 2017; Irani et al., 2014; Tumlinson, Speizer, Davis, et al., 2013).

There is also evidence of growing research interest in **partner discussion as a mediating factor** between exposure to family planning messages in the media and contraceptive use in African urban areas. This work has drawn upon ideational models of behavioural change and constructs such as the 'theory of planned behaviour' to generally confirm the mediating effect of discussion between partners (Do et al., 2020; Schwandt et al., 2015).

Asymmetrical or unequal relationships

Researchers have highlighted that young people in African cities may engage in **asymmetrical relationships that enable risky sexual behaviour** (Gorgen et al., 1998; Hattori and DeRose, 2008; Luke, 2005). The prevalence of monetary and gift exchanges within relationships may also generate risks for young women, and undermine their agency to request safe sex (Kaufman and Stavrou, 2004; Luke, 2006).

Intimate partner violence is one manifestation of gender inequalities within relationships. Evidence from South America and South Africa shows that poor urban women can be particularly vulnerable to violent behaviour from their partners, which in turn may be correlated with decreased or covert use of family planning methods, alongside greater risk of unintended pregnancy and HIV infection (Chacham et al., 2007; Jewkes et al., 2001; McCarraher et al., 2006; Speizer et al., 2009).

Women's negotiations and agency

While many studies highlight a lack of male participation or support as barriers to family planning, the **ways in which women negotiate these barriers and actively pursue their rights** are less well understood (Feld et al., 2019). Women's agency in this respect, and the iterative and dynamic ways in which they attempt to negotiate the adoption of family planning methods in various cultural contexts, constitutes a specific area of qualitative inquiry that has attracted little research attention. These issues take on particular importance for poor urban women, who are likely to be more economically dependent and have less autonomy over reproductive health decisions. However, these dynamics will vary between particular cities and settlements as a function of specific combinations of socioeconomic (including educational and economic status) and cultural factors, as

has been found in Nigeria, and strategies of negotiation and autonomy would differ accordingly (Aransiola et al., 2014).

Familial influences

A number of studies have addressed the **role of mothers-in-law** in influencing a woman's fertility and contraceptive behaviour. The evidence points to an ambiguous role that is not always negative. In Pakistan, the presence of a mother-in-law in a slum household can reduce the odds of a woman having ever using a method, and can significantly increase the reporting of psychosocial and physical barriers to use (Stephenson and Hennink, 2004). However, poor young married women are more likely to use contraceptives if they discuss family planning with their mothers-in-law (Fikree et al., 2001). In cities of Uttar Pradesh (India), women living with their mother-in-law or in their husband's natal home are more likely than others to use modern family planning methods (Speizer et al., 2015). This demonstrates that where women live, and with whom they live, matter in the design and efficacy of programmatic interventions.

While perhaps not as pronounced as in the Asian context, the influence of mothers-in-law in African contexts is also apparent. There, too, the role is not always negative. Evidence from urban areas in West Africa shows that women enlist the support of their mothers-in-law in order to secure spousal support for family planning or to avoid pregnancy (Aransiola et al., 2014; Rossier et al., 2014). Given these insights, it is likely that more work is required on the specific circumstances under which influential family members may enable or hinder the agency and choices of urban women who might otherwise lack autonomy over their fertility decisions.

Social norms

Social norms can exert important influences over fertility behaviours, including among poor groups. **Sex composition of surviving children and desire for male children** is an important determinant of fertility behaviour, contraceptive use, and method choice in urban slum areas of northwest India and Bangladesh (Barkat et al., 1997; Calhoun, Nanda, et al., 2013; Kamal, 2015; Kamal and Islam, 2012). In some Nigerian contexts, son preference has also been associated with negative attitudes among poor urban men (or perceived poor attitudes held by their female partners) towards family planning (Aransiola et al., 2014; Isiugo-Abanihe, 1994). **Pronatalist norms** retain an important influence over family planning behaviours in urban areas of Niger (Mayaki and Kouabenan, 2014, 2015).

It is not clear how the nature or influence of such preferences is changing with the progress of urbanization (with resulting changes to family structures, lifestyles, and cultural influences), but several researchers have argued that this is happening in particular African and Asian cases (Das Gupta, 2010; Das Gupta et al., 2003; Mayaki and Kouabenan, 2015). Key questions include whether modernization and urbanization (and associated increases in autonomy for women) are reducing the incentives for norms like son preference, or whether a transition to lower fertility rates is linked to a greater prevalence of sex-selective behaviour.

There have been recent attempts (linked to the URHI country programmes) to examine precisely **how normative factors shape and modify family planning opinions and behaviours**, and, in particular, the role that communication plays in mediating the relationship between social norms and contraceptive use (Babalola, Kusemiju, et al., 2015; Krenn et al., 2014; Rimal et al., 2015; Schwandt et al., 2015). This work has tended to employ conceptual frameworks founded on communication-based ideational models or specific constructs such the theory of normative social behaviour (Rimal et al., 2015). Collectively, it provides evidence that urban fertility decisions and behaviours may indeed be affected by social norms and communicative interactions, and clarifies some of the mechanisms through which this can happen. Yet questions remain around how different types of norms can influence specific kinds of decision-making behaviour in particular contexts (Rimal et al., 2015). There is a need for further research on the interplay of norms, ideologies, communication, and family planning behaviours, including how women process contradictory messages and weigh information from certain sources more or less heavily in exercising their agency. Mixed-methods research encompassing elements of ethnographic investigation may be particularly useful for these purposes (Agadjanian, 2002; Spagnoletti et al., 2018).

Gender empowerment

Recent work has sought to determine the **impact of gender empowerment on women's participation in reproductive decision-making or use of family planning** in urban settings (Mutowo et al., 2014). Autonomy defined in sexual, mobility, employment, and participatory terms has been identified as a critical factor underpinning urban women's agency around reproductive health issues, and has been linked to increased likelihood of contraceptive use (Chacham et al., 2007; Raman et al., 2016). Evidence from Nigerian cities indicates that more empowered women (defined by measures of economic freedom, attitudes towards domestic violence, partner prohibitions, and decision-making) are

more likely to use modern family planning methods and better-quality maternal health services (Corroon et al., 2014). However, the influence of the specific dimensions of empowerment varied significantly between cities and regions, highlighting the importance of context-specific relationships between gender issues and reproductive health behaviours.

Variations in how women's empowerment is conceptualized and measured have arguably produced inconsistent findings in terms of its relationship to sexual and reproductive health outcomes. Examining the relationship between specific autonomy-based measures of decision-making and communication and the use of contraceptives by young urban Ghanaian women, Loll et al. (2019) found that **decision-making autonomy was positively associated with contraceptive use**, but not so in the case of communication. However, further research is required on autonomy-related communication that takes into account the effects of local urban social contexts.

Religion

Religious ideas, values, and affiliations can influence the use of contraception in urban settings, and religion has often been framed as a promoter of unmet need. More broadly, religious values and beliefs have been documented as influencing the practices of providers, while also shaping preferences for family size, patterns of sexual debut and prepartum sexual activity, marriage age, opposition to family planning interventions, and the ways urban youth negotiate their sexual lives and risks. Despite the attention given to religion as a potential barrier to family planning, several studies have observed only weak or insignificant associations between religion and contraceptive behaviours among urban groups (Babalola, John, et al., 2015; Khan, 1997; Okigbo et al., 2017; Yadav et al., 2017).

While some programmes have successfully engaged with local urban religious leaders to shift family planning attitudes and behaviours (Speizer et al., 2014), the literature gives little sense of how the links between religion and contraception may be more or less specific in the urban context. However, it has been noted that urban communities in LMICs like Mozambique tend to be more heterogeneous in terms of religious belief and affiliation than those of rural regions. As such the former group may be exposed to a greater diversity of religious ideas, institutions, and movements (Agadjanian, 2001). This implies that the **influence of religious membership on the spread of contraceptive ideas and use can take more complex forms in urban areas** relative to rural environments. Quite how fertility and contraceptive preferences and behaviours are being reshaped by religious movements that are highly influential in urban contexts, such as those of Pentecostalism and evangelism, deserves further attention (Agadjanian, 2001; Agha et al., 2006; Ezeh et al., 2009). Indeed, research emerging from outside the family planning field gives an indication of how religion-based social movements may be increasingly central to the articulation of notions of development and assertions of sexual citizenship (Tamale, 2014; Van de Kamp, 2010).

Fear of side-effects and perceptions of risk

Fear of the side-effects of contraceptive methods has been cited as an **important reason for their non-use** in numerous LMIC urban settings. Contraceptive health risks are an area of concern for users and an important focus for researchers. Analysis of the latest DHS data from 47 LMICs shows that urban women are more likely to cite 'health concerns' as a reason for non-use of contraceptives than rural women (Moreira et al., 2019). The role of health concerns in giving rise to method dissatisfaction can vary between urban and rural contexts and, as revealed by a recent study of Kenya, can be specific to certain methods (Odwe et al., 2019). Perceptions of safety in terms of long-term use of injectables were found to have a significant effect on method satisfaction in the urban study site (a slum area of Nairobi), but not in the rural site. Perceptions of the health effects of hormonal methods and their links with client satisfaction help to explain fertility trends in contexts like West Africa, where well-educated urban women are increasingly resorting to a less-threatening blend of potentially less-effective contraceptive methods (see section 3.3).

Other fears relate to the **social risks of contraceptive use**, and a number of studies have examined their role in discouraging the use of family planning. In urban Mali, for example, the social consequences of contraceptive side-effects may be perceived as more significant than their biological realities (Castle, 2003). While many studies focus on individual beliefs, some researchers have examined their prevalence at the community level within the urban context (Gueye et al., 2015). This work shows that community-level beliefs may be more prevalent in some places than others – in this case, Nigeria more so than Senegal or Kenya. There is a need for further qualitative research to enhance our understanding of how community-level beliefs and social network interactions relate to individual perceptions of family planning, and how these dynamics might hinder or enable a woman's fertility desires, decisions, and behaviours (Ochako et al., 2015).

Several areas of further research related to side-effects can be identified. For instance, what are the **mechanisms by which urban women negotiate the risk** of generating

adverse social consequences through their family planning practices? Recent qualitative research has explored, for example, how urban Ghanaian women express or manage the demands placed on their identities through fertility-regulation practices that may be secretive or unreliable (Marston et al., 2018). Further work might explore these kinds of social-psychological obstacles to the use of family planning in other contexts, how they are perceived and negotiated, how they relate to emerging urban demands or lifestyles, and the sociocultural conditions that support the reproductive agency of women. Other inquiries could focus on how psychosocial factors and mechanisms differ within and between poorer and wealthier urban groups.

Interpersonal communication

The examination of **interpersonal communication and its links with changing attitudes and behaviours** is well established in family planning research. The topic recently assumed particular importance within the URHI country programmes as the 'primary mechanism' through which social norms governing the use of family planning methods are disseminated within communities (Rimal et al., 2015), and as the principal causal factor leading to changes in fertility behaviour (Krenn et al., 2014). However, from this work we do not know quite how the nature of social networks and communicative pathways differ between urban and rural contexts, or between different kinds of urban areas or communities, or how these specific differences relate to the mechanisms by which contraceptive opinions and behaviours change.

Research on interpersonal communication has often taken the form of evaluations of interventions targeting the opinions and actions of the urban youth (Agha and Van Rossem, 2004; Speizer et al., 2001). The majority of studies in this area (not necessarily urban-focused) have found such **interventions to be positively associated with contraceptive use** (Mwaikambo et al., 2011).

Social networks and communication

One branch of research on interpersonal communication focuses on the **dynamics of communication relationships** – the ways in which people associate and interact with one another in urban areas, and **how this affects family planning knowledge, attitudes, and practices** (Boulay and Valente, 1999; Valente and Saba, 2001). A specific research focus concerns membership of clubs and associations, and its relationship to communication and the use of family planning. This is a topic of particular importance for urban areas, where such associations tend to be more prevalent and diverse. Evidence shows that **approval and encouragement from urban network partners is often positively associated with contraceptive use** (Boulay and Valente, 1999; Huda et al., 2019), and that it may be perceptions of use that matter, even if they happen to be inaccurate (Ochako et al., 2015; Valente et al., 1997). Recent research has also confirmed the influence of social network dynamics on method-specific satisfaction in urban contexts (Odwe et al., 2019).

While studies such as these highlight the positive influence of communication on contraceptive behaviour, others have focused more on the **delimitation of urban communication networks** by class, age, gender, and social-normative boundaries, and how these barriers shape and contain perceptions, discussions, preferences, and decisions regarding reproductive and contraceptive matters (Agadjanian, 2002; Rossier, 2007). Given the complexity of these issues and obstacles, researchers have emphasized the **need to understand the detail of women's embodied experiences of contraception and reproduction**, examining the multifaceted influences on decision-making at individual and structural levels. Research techniques such as body mapping may be of particular use in exploring their everyday life contexts and the influence of wider social networks on contraceptive behaviour (Harries et al., 2019).

From this work it is not clear if there are any urban particularities or advantages to network membership and discussion, although it has been argued that informal social networks can be a particularly important source of contraceptive information and knowledge for urban men in contexts like Mozambique (Agadjanian, 2002). Nor is it obvious how these dynamics may be affected by specific conditions of urban poverty and precarity. Family planning research has engaged little with work focusing on the relationship between urbanization, poverty, livelihoods, and social capital: how urban residents maintain and interact within networks as a means to negotiate conditions of poverty (Rakodi and Lloyd-Jones, 2002). There is also room for productive engagement with literature that emphasizes the study of urban identities, social networks, and coping strategies in relation to migration and the concept of translocality. Understanding precisely **how poor urban residents foster and mobilize social, political, and economic networks at multiple scales** may offer interesting insights into potential avenues of family planning messaging and distribution.

Community-based distribution, mass media, and social marketing

Recent evaluations of programmatic interventions confirm that **community-based systems of distribution** (via community health workers) **and mass media programmes can be effective in generating demand and increasing contraceptive use** in urban contexts, notably among poorer groups, even if the relative effectiveness of different interventions varies between country and city contexts (Achyut et al., 2016; Benson et al., 2017, 2018; McConnell et al., 2016; Okigbo et al., 2017). Family planning programmes have increasingly targeted and encouraged men to participate in reproductive decision-making. Evaluations of the URHI country programmes found that men's exposure to family planning messaging were, in most cases, positively associated with reported use of contraceptive methods (Okigbo et al., 2015; Speizer et al., 2018).

Ideation theory and associated models hypothesize that communication programmes can influence the knowledge, attitudes, and norms related to contraceptives, thereby affecting patterns of use. Researchers have argued that **partner discussion** may offer another significant link between exposure to family planning messaging via mass media on the one hand, and contraceptive behaviour on the other (Schwandt et al., 2015). Employing a conceptual framework informed by the ideation model and the 'theory of planned behaviour', Do and colleagues (2020) conclude that **partner discussion has a 'mediating effect' between exposure and use**, pinpointing a pathway through which communication programmes might contribute to higher rates of contraceptive use.

Over the past three decades, **social marketing programmes** have emerged as important approaches to health education and communication. Arguably, they take on **particular importance in urban contexts**, which tend to enjoy adequate coverage of retail outlets, and the potential contributions of social marketing will likely become increasingly important in a world that is more urbanized and exposed to mass media (Bongaarts et al., 2012; Cleland et al., 2006). Empirical evidence appears to substantiate these statements, and numerous studies have found **positive relationships between exposure to condom social marketing (CSM) campaigns and contraceptive use** (Agha et al., 2001; Agha and Meekers, 2010; Meekers, 2001). Generally speaking, such campaigns have been more effective among men than women, and for urban rather than rural populations (Knerr, 2011; Van Rossem and Meekers, 2007). Fewer studies dwell on the possible negative effects of condom social marketing campaigns (Pfeiffer, 2004). While CSM campaigns have typically taken place over media such as radio and television, there has been some interest in using the Internet and social media to promote condom usage (Purdy, 2011).

Opportunities for future research on communication issues include addressing the integration of HIV and family planning communications, the adoption and acceptance of new contraceptive methods, and the role of new technologies such as mobile phones and Internet-based services (including social media) – each of which will have particular implications and opportunities in urbanizing contexts (Bongaarts et al., 2012).

3.7 DISCONTINUATION AND METHOD SWITCHING

Various studies have focused on the dynamics of contraceptive discontinuation and method switching within and across contexts. Populations of sub-Saharan Africa generally show high rates of discontinuation and low probabilities of switching, indicating high risk for unintended conception (Ali et al., 2012). Research shows that women living in developing urban contexts (as in Ghana) may 'experiment' with or 'test' different methods (Marston et al., 2018). Ambivalent desires and variable or low motivations surrounding childbearing may be associated with discontinuation among urban African women, particularly if they face method-related dissatisfaction (Machiyama et al., 2019; Speizer, 2006; Speizer and Lance, 2015).

Poor urban women can experience high rates of method discontinuation, as in Bangladesh, where reasons include fear of side-effects, husband or family disapproval, infrequent sex, and high costs of obtaining contraceptive methods (Huda et al., 2014). Contraceptive discontinuation rates were also found to be high among postpartum women living in slums of Nairobi (Kenya), largely due to method-related dissatisfaction (Mumah et al., 2015). However, these same women were also far more likely than the national average to switch to another method within three months of discontinuing, possibly reflecting a high degree of motivation to postpone pregnancy among couples living in slums areas. By contrast, some urban Indian women who use multiple contraceptive methods were found to experience higher incidences of pregnancy and abortion, possibly indicating problems with switching and lapses in coverage between methods (Barden-O'Fallon et al., 2014). There, a high percentage of discontinuation was reported due to method problems and failure. In Senegal, the likelihood of having an unmet need for contraception after discontinuation was found to vary between particular urban areas and method

types (Barden-O'Fallon et al., 2018). Collectively, this work underscores the **importance of monitoring and evaluating discontinuation alongside method switching** to better understand use trends in particular urban populations or contexts, and to ensure that contraceptive coverage is maintained so that women can switch methods immediately.

3.8 COVERT CONTRACEPTION

Covert use of contraception is one **means by which women negotiate relationships or cultural contexts in which contraceptive use is viewed negatively**. Specific reasons for clandestine use may include male partner disapproval of contraception (Biddlecom and Fapohunda, 1998), experience of spousal violence (McCarraher et al., 2006), and wanting to limit childbearing in the face of a partner's pronatalist or religious views (Castle et al., 1999). However, covert users (who may face consequences from their partners or others in the community if their use is revealed) are often prone to method discontinuation (Biddlecom and Fapohunda, 1998).

Despite the rural bias noted for the prevalence of covert contraceptive practice (Biddlecom and Fapohunda, 1998), it may be worthwhile considering the **risks faced by covert users in particular urban settings**, such as informal settlements. Here, physical and social privacy may be relatively limited, people may be less cash-rich and less able to travel long distances to access modern methods, and there may be fewer and/or less discreet providers of contraception.

Researchers have considered how **maintaining secrecy and hiding contraceptive use can be a critical way in which women exercise their agency** in negotiating and navigating conflicting demands placed on their social identity (that is, perceptions of womanhood and ideal female behaviour) by combining elements of traditional and modern subject positions (Marston et al., 2018). Covert use may enable urban women not only to meet expectations of womanhood measured through childbearing, but also to secure modern responsibilities and aspirations for education and employment. If cultivating this sort of hybrid identity is more of an imperative for urban women, in an urbanizing context it will be significant for a growing proportion of the population.

3.9 EMERGENCY CONTRACEPTION

The specific and emerging role of emergency contraception (EC) within the wider contraceptive mix is not well understood (Mayhew et al., 2013). We know that, in Kenya and Nigeria, users of EC are more likely to be in their twenties, unmarried, and more-educated than never-users or ever-users, thereby contradicting widely held perceptions that EC users are young adolescents (Morgan et al., 2014). Questions remain about how best to target information and services to unmarried urban women, a group that sees EC as a critical component of their contraceptive toolkit. Communications interventions may be particularly important given various misunderstandings and misgivings about EC among urban women in some contexts, such as Ghana (Krakowiak-Redd et al., 2011). Understanding **how EC is used and best provided to key markets will be increasingly important** as it gains popularity as a fertility-control strategy (in combination with a range of other methods) within emerging urban contraceptive practices (Marston et al., 2017).

3.10 THE FEMALE CONDOM

The female condom is a 'new' contraceptive method often framed as a promoter of empowerment and greater sexual autonomy for women. Interest in promoting the use of the female condom in LMICs rose in the 1990s, in part due to its status as an effective contraceptive method with the potential to reduce HIV transmission (Agha, 2001b). Mass marketing campaigns were undertaken to promote its use in several African contexts (Agha and Van Rossem, 2002). Empirical findings from urban contexts in Zambia and Zimbabwe indicate that **use of the female condom remains low, despite high levels of awareness**, suggesting that it would be most important to a specific subgroup of people who are unable or unwilling to use male condoms (Agha, 2001a; Meekers, 1999). Issues related to its high perceived cost and gender inequalities within sexual relationships have been identified as barriers to use (Gambir et al., 2019; Mutowo et al., 2014). In this context, researchers have explored potential communication strategies to increase uptake (Pinchoff et al., 2016).

3.11 UNINTENDED PREGNANCY

Young urban women, particularly those who are poor or living in slums, are at particular risk of unintended pregnancy, and many resort to abortion services that may be unsafe. In Dhaka (Bangladesh), for example, the prevalence of unintended pregnancy among married adolescent girls living in slums is more than double that of adolescent girls living in all urban and rural areas. More than one in ten unintended pregnancies result in spontaneous or induced abortion (Huda et al., 2014).

In Nairobi the **determinants of unintended pregnancy have been found to vary by settlement type** (slum or non-slum) (Ikamari et al., 2013). Here, employment status is a strong predictor of unintended pregnancy and those employed formally are 55 per cent less likely to experience unintended pregnancy compared to unemployed women or students. Research in Senegal revealed significant variations in the extent and correlates of unintended pregnancy between particular cities, calling for further research into the ethnic, religious, and behavioural differences between urban sites, including qualitative case-study research to aid our understanding of why rates of unintended pregnancy are higher in some places than others (Faye et al., 2013).

As many urban women have **inconsistent fertility desires and contraceptive behaviours**, which increases their risk of unintended pregnancy, it is important for family planning research and practice to take into account short-term and long-term fertility desires. Programmes targeting more-motivated new users, and supporting them to switch from less-effective to more-effective methods that suit their specific fertility and family planning needs, should ultimately result in lower rates of unintended pregnancy (Speizer and Lance, 2015).

Further research could measure abortion experiences and examine **how abortion contributes to unintended pregnancies and the fluidity of fertility desires** (Speizer and Lance, 2015). Indeed, there may be a particularly close relationship between unintended pregnancy and induced abortion in urban areas, where women often hold stronger fertility preferences for fewer children (Bankole et al., 2013; Basinga et al., 2012).

3.12 ABORTION

A number of country-level studies of sub-Saharan Africa have found **abortion rates to be highest among urban women**, indicating greater demand for fertility regulation alongside many remaining barriers to contraceptive use (Bankole et al., 2013; Moore et al., 2016; Prada et al., 2016; Rossier and Corker, 2017; Singh et al., 2005, 2010). Restrictive laws, lack of access to trained family planning service providers, and high costs of safe abortion services can lead poor urban women to undertake risky and unsafe procedures performed by informal and untrained providers (Calvès, 2002; Singh et al., 2005).

In some African contexts, such as Malawi and Rwanda, **poor urban women experience abortion-related complications at rates comparable to (or even greater than) those of the rural poor** (Polis et al., 2017). In Rwanda, the costs of abortion services in urban areas are higher and span a wider range of values than those of rural areas, such that almost one-fifth of all abortions are self-induced (Basinga et al., 2012).

Evidence from Ethiopia suggests that the **relaxation of abortion laws can significantly improve access to safe abortions**, thereby bringing significant benefits for post-natal health, particularly for women in urban areas (Moore et al., 2016). Other studies have pointed to the need to take account of the **difficulties experienced by some urban-concentrated groups with high need**, such as sex workers, in accessing safe abortions (Marlow et al., 2014). In future, researchers might also explore how transactional sex and access to abortion interface with movement and trade routes as, for example, in the case of truck drivers in Uganda (Prada et al., 2016).

With the increasing availability of **newer or emerging technologies**, such as medical abortion or manual vacuum aspiration, a number of researchers have examined issues around their use, efficacy, safety, or acceptance (Coyaji et al., 2001, 2002). The literature indicates that urban providers may accept new kinds of abortion methods, such as medical abortion, at a faster rate than their rural counterparts (Prada et al., 2016). Alongside emergency contraception and natural methods, medical abortion is becoming an increasingly important part of the ways in which urban Ghanaian women navigate ideological expectations of womanhood and exert control over their reproductive lives (Marston et al., 2016). Tracking its role and influence in other contexts will be an important topic for future research.

4. FAMILY PLANNING, URBANIZATION, AND DEMOGRAPHIC/ ECONOMIC CHANGE

This section offers an overview of the literature addressing fertility transitions and the factors driving fertility change in LMICs. Particular attention is devoted to sub-Saharan Africa, where the fertility transition has taken particular forms and has been subject to extensive research attention. The discussion encompasses the relationship between urbanization and fertility rates, the economic impacts of family planning programmes, and current knowledge on how migration and displacement interface with both fertility change and family planning use.

4.1 SUB-SAHARAN AFRICA'S FERTILITY TRANSITION

The demographic transition in sub-Saharan Africa has attracted considerable interest as a potentially unique historical case. Research has demonstrated the broad links between socioeconomic factors and fertility change, but the region has also revealed various particularities:

- Fertility declines in sub-Saharan countries began at lower levels of socioeconomic development by comparison with other regions (Bongaarts, 2017).
- Relative to other contexts with similar levels of socioeconomic development or macro-level determinants of fertility (including mortality, per capita income, urbanization, and education) African fertility rates are higher than expected. This phenomenon has been termed the 'Africa effect', and is related to the persistence of higher ideal family size and higher unmet need (Bongaarts, 2017).
- The precise nature of the links between fertility change and development in the sub-Saharan region may be different to elsewhere and not fully accounted for by socioeconomic factors (Casterline, 2017).
- When considering only contraceptive prevalence, national fertility rates are lower than expected, suggesting other factors not adequately captured or measured by demographic surveys are at work (Garenne, 2018).

Empirical studies of sub-Saharan Africa have disaggregated national data to explore the **correlates of and differences in fertility change in urban and rural areas** (Garenne, 2014). Increases in the median marriage age are more common and have risen to a greater extent in urban areas. Increases in contraceptive use have commenced earlier, historically speaking, and are more pronounced for urban areas. Contraceptive use also occurs at an earlier age for urban groups. Overall, fertility rates in urban areas fell by nearly half between 1950 and 2005 (14 per cent for rural areas), while ever-use of contraception increased to just under half of the urban population (28 per cent for rural areas). In terms of the proximate determinants of African urban and rural fertility declines, increased schooling and reduced mortality have accounted for fertility decline to a greater extent in urban places than rural areas. This suggests that family planning and educational investments for women are likely to be more effective in promoting fertility declines in urban rather than rural areas (Shapiro and Tenikue, 2017).

Fertility stalls in sub-Saharan Africa have been the subject of considerable research interest. In terms of the geographical distributions of these stalls, a mixed picture emerges from the literature. Stalls have been identified for countries in different stages of development and fertility transition. Moreover, the urban and rural dynamics of these stalls have not followed a clear pattern (Garenne, 2008; Shapiro and Gebreselassie, 2008). Given that these dynamics often differ between specific regions and population subgroups (Ezeh et al., 2009; Garenne, 2008), a key question is: What factors are driving these differentiated trends? **No consensus exists on the causes of fertility stalls** in the region. Researchers have pointed to contemporaneous trends in socioeconomic development (Shapiro and Gebreselassie, 2008), declining national and international support for family planning programmes leading to greater unmet need and lower contraceptive use (Ezeh et al., 2009), high levels of desired fertility related to socioeconomic uncertainty (Moultrie et al., 2012; Westoff and Cross, 2006), and disruptions to female education linked to the effects of economic crises (and ostensibly structural adjustment programmes) of the 1980s and 1990s (Goujon et al., 2015; Kebede et al., 2019). Better insight into the causes of fertility stalls is fundamental to understanding and shaping future fertility trends and pathways in sub-Saharan Africa (Schoumaker, 2019).

4.2 URBANIZATION AND FERTILITY DECLINE

De Silva and Tenreyro (2017) attempted to account for the **relative impact of urbanization on fertility decline worldwide**. They found that countries with lower urbanization levels tend to have higher fertility rates, and that the latter have fallen rapidly in both urban and rural contexts. This indicates that urbanization alone cannot account for declining fertility rates observed over the past 50 years (De Silva and Tenreyro, 2017). In their analysis, increased urbanization only accounted for around 14 per cent of fertility decline, and the contribution of the urban transition to this decline did not vary significantly according to a country's overall rate of fertility or urbanization.

By contrast, more recent research has demonstrated that, since 1950, trends in the excess of rural over urban fertility in LMICs have followed an inverted U-shaped curve (Lerch, 2019a, 2019b). Rural lag in the onset of the fertility transition was found to play a major role in the evolution of excess rural fertility. For sub-Saharan Africa, the implication is that trends of slow fertility decline at the national level, despite relatively rapid rates of socioeconomic development, are **primarily due to the dynamics of rural areas**. Rural fertility trends dominated national fertility transitions due to the low rate and pace of urbanization seen in many countries in the region. According to Lerch (2019b), these results suggest that the pace of a national fertility transition largely depends on the diffusion of social transformations from urban to peripheral areas. Moreover, continuous fertility decline among urban groups will gradually undermine the dominance of natural increase as the principal determinant of urban growth in the sub-Saharan region. Instead, the proportional role played by the direct and indirect demographic effects of migration can be expected to increase. Whether the extent and intensity of urban fertility stalls will alter this general pattern remains to be determined.

4.3 DEMOGRAPHIC AND URBAN CHANGE IN SUB-SAHARAN AFRICA

Various researchers have investigated the impact of demographic forces and changes on urbanization. Some have argued that **urbanization and urban growth are best understood as products of the demographic transition** (Dyson, 2011). Collectively, this work provides a critique of economic-deterministic arguments holding that urbanization is a by-product of industrialization. It is argued that only a demographic perspective can adequately account for the phenomenon of 'urbanization without growth' and the fact that urbanization has played a limited role in poverty reduction, as observed in sub-Saharan Africa (Fox, 2012, 2017; Hommann and Lall, 2019; Jedwab et al., 2017; Jedwab and Vollrath, 2019).

Whether urban growth is driven by migration or natural increase has significant implications for spatial development policy. If the former, it may be difficult for governments to justify investments in urban infrastructure and services if these might encourage further migration. If the latter, family planning may be seen as a means to accelerate fertility decline and ease the strains of rapid urban population growth (Fox, 2012; Jedwab et al., 2017). However, this work has generally not engaged with family planning in a concerted empirical manner and stops short of considering what its precise relationship to urbanization should be in a strategic or political sense. One exception is a recent paper by Jedwab and Vollrath (2019), which modelled the potential effect of voluntary family planning policies that would lower crude birth rates in poor countries. Their analysis concluded that such programmes – alongside industrialization or improved urban infrastructure and institutions – may indeed be effective in slowing urbanization, reducing the share of urban populations living in informal settlements, lowering overall urban density and congestion, and increasing aggregate welfare in poor countries. These kinds of debates potentially offer entry points for the family planning community to influence wider arguments in the urban and sustainable development fields.

4.4 ECONOMIC IMPACTS OF FAMILY PLANNING

Several economists have highlighted the importance of well-designed and context-relevant family planning programmes as part of wider efforts to **reduce fertility and promote economic growth** in sub-Saharan Africa through the **demographic dividend** (Bloom et al., 2013, 2017). However, various **critiques of the dividend hypothesis** have been issued. For example, it is noted that many of the non-demographic conditions required for a dividend are not in place across sub-Saharan Africa. As such, there can be nothing guaranteed about securing a dividend from fertility decline in the region (Cleland and Machiyama, 2017). In addition, evidence from South Korea and Nigeria has been used to argue that, while family planning and fertility declines are not negligible factors in driving economic growth, they are only secondary to human capital investments like education (Lutz et al., 2019).

4.5 MIGRATION AND DISPLACEMENT

While natural increase constitutes the primary contributor to urban growth in the majority of LMICs, **migration remains an important trend and driver of urbanization**. A considerable body of work has addressed the relationship between migration, fertility rates, and contraceptive use, yet more remains to be known. For instance, focusing primarily on bidirectional movements between urban and rural areas, the literature gives **little insight into experiences of urban-to-urban migration**, which constitutes a considerable proportion of internal migration patterns in many LMICs (Montgomery et al., 2016). While much research has focused on the risks and disadvantages experienced by young migrants, the potential benefits of their moving into cities and towns are often neglected. Moreover, the **diversity of their backgrounds, motivations, and experiences** are generally underexamined.

4.5.1 Migration, displacement, and fertility

Evidence on the **links between internal migration and fertility** in LMICs is relatively scarce (Abubakar et al., 2018). That migrants tend to have fewer children than rural non-migrants, instead showing fertility rates that are more similar to longer-term urban residents, is a common finding (Brockerhoff and Yang, 1994; Liang et al., 2014; Lindstrom, 2003; Lindstrom and Hernández, 2006). Traditionally, explanations for this effect have revolved around three hypotheses: selectivity, disruption, and adaptation. These are not mutually exclusive; the three processes may work in conjunction with one another in ways that are specific to context, including whether the destination is a primary or secondary city (McKinney, 1993).

Montgomery et al. (2003) argued that the literature had settled on a consensus around the adaptation hypothesis, or the notion that **migrants will shift their fertility behaviours to accord with the socioeconomic realities** (notably sociocultural norms and opportunity costs of childbearing) **prevailing in their new urban environments**. There is considerable evidence from a range of countries to support this proposition, although there is also evidence to suggest that migrant fertility is disrupted in the period immediately following arrival at their destination (Brockerhoff, 1995).

More recent work has attempted to assess the precise effects of and relationships between the three hypotheses, while exploring the more subtle behavioural patterns that mediate these dynamics. Evidence from Ghana indicates that significant selection effects may operate alongside adaptation and disruption (Gyimah, 2006; White et al., 2008). It is possible that the prevalence of circular and individual migratory patterns in Ghana may be particularly conducive to a strong selection effect, making the adaptation hypothesis redundant (Chattopadhyay et al., 2006). The effects of adaptation on fertility may also vary according to factors such as employment status and parity (Jensen and Ahlburg, 2004; White et al., 2008).

In the African context, this evidence broadly suggests that **accommodating additional migrants would appear to be consistent with efforts to reduce fertility rates in cities** (Brockerhoff, 1995). Therefore, rates of urban population growth could potentially be limited by modifying or removing measures that restrict rural-urban migration, including anti-accommodationist land-use regulations and social service provision.

4.5.2 Migration, displacement, and contraceptive access/use

Globally, the **sexual and reproductive health needs of migrants and displaced persons are often overlooked**. Many have inadequate access to care, including family planning services (Abubakar et al., 2018; Ivanova et al., 2018; Matlin et al., 2018). Barriers to access may be particularly acute among marginalized groups such as undocumented migrants, refugees, displaced populations, and asylum seekers – people who are more vulnerable to sexual assault and, therefore, have a greater need for accessible and quality sexual and reproductive health services (Abubakar et al., 2018). In countries affected by violent conflict, for example, refugees and displaced persons face serious obstacles to obtaining safe abortion and family planning services (Guy, 2013). Access to reproductive health services, including family planning and emergency obstetric care, is critical for reducing high rates of maternal and child mortality in countries affected by large-scale conflict.

Some research on the **relationship between migration and contraceptive use** demonstrates a positive association – that migrants may be more likely to use contraception than non-migrants (Kumar et al., 2016). These findings dispel 'negative views about fertility among migrants' (Abubakar et al., 2018, p. 2612).

There have been some efforts to nuance this argument by investigating how the **urban destination context shapes**

the use of contraceptives by migrants. A study of Mozambique examined the effect of the urban community context on female migrants' use of modern methods (Cau, 2016). There, women who had recently moved to urban areas were significantly less likely to use modern contraceptives than longer-term urban residents, and the destination context definitely shaped patterns of use. For example, recent migrants were more likely to use modern methods if they lived in communities where a high proportion of women discuss family planning, or in communities enjoying greater levels of female education or wealth. These findings are consistent with the adaptation hypothesis (see the previous section), and remind us that **not all migrants are poor and end up living in slums**. Urban location decisions are based on various factors, including socioeconomic characteristics, with differing consequences for health-related behaviours and outcomes.

Evidence from Zambia shows that women may adapt their family planning behaviours to those prevalent at their destination when migrating from rural to urban areas, but not when moving in the opposite direction (Almonte and Lynch, 2019). This indicates that **factors beyond migration (such as wealth) can influence whether unmet need is disrupted or if women can adapt** to their new contexts. With that in mind, future research might explore the potential roles that urban out-migrants could play in influencing the contraceptive ideas and behaviours of rural women, enabling family planning programmes to target messages to groups of young, poor women with high levels of unmet need. Indeed, migration and migrants have been shown to play an important role in the diffusion of family planning knowledge and practices in other contexts (Chen et al., 2010; Lindstrom and Hernández, 2006; Lindstrom and Muñoz-Franco, 2005).

Factors promoting or inhibiting the **use of family planning among refugee women** in sub-Saharan Africa include social influence to avoid contraceptives, lack of trust in western medicine, desire to have large families, low socioeconomic status, poor geographic accessibility of family planning suppliers, beliefs that healthcare providers are unqualified, experiences of disrespectful treatment, limited contraceptive knowledge, and fear of side-effects (Ackerson and Zielinski, 2017; Tanabe et al., 2017). Stigmatization arising from the use of modern family planning and abortion services has also been highlighted as a significant barrier to healthcare among refugee and displaced adolescent women in Kampala (Uganda) (Logie et al., 2019). Overall, **more remains to be learned about the specific kinds of family planning needs and barriers experienced by urban migrants and displaced persons**, and how these dynamics will affect the ways that services are delivered.

4.5.3 The urbanization of internal displacement

Internal displacement is recognized as an increasingly urban phenomenon (IDMC, 2019). Displaced people may face harsh conditions in their urban destinations: poor living environments, lack of security for housing and land, and dependence on low and irregular income (Mowafi, 2011). As a result, displaced groups may be forced to move multiple times, or engage in risky and harmful strategies to secure their livelihood.

Managing displacement in urban areas may be particularly challenging. As the speed and scale of displacement into urban areas tends to significantly outpace regular urbanization processes, urban governance systems need to adjust and respond more quickly to growth than they would otherwise (IDMC, 2019). **Gathering data** on the family planning and reproductive health needs of people displaced to urban areas can also be a challenge, given that they may settle among existing populations in poor neighbourhoods without legal status and without a presence in official health information systems (Mowafi, 2011; Tanabe et al., 2017).

Overall, while displacement is increasingly recognized as a fundamental challenge for cities and urban governance systems, to date **family planning researchers have seldom engaged with the implications of the urbanization of internal displacement** for service delivery, access, and fertility outcomes.

5. REFLECTING ON 'THE URBAN' IN URBAN FAMILY PLANNING RESEARCH

Research on family planning and fertility often seeks to produce nationally representative and internationally comparable analyses. In doing so, it may overlook or conceal considerable spatial and socioeconomic differences (Bongaarts, 2003). Data and analyses that are disaggregated into broad 'urban' and 'rural' categories mask regional variations and specific dynamics unfolding within and between urban settlements that vary by population size and mode of economic production. Differences between particular kinds of urban systems and networks will be overlooked. Moreover, an **urban-rural dichotomy is increasingly inadequate** for describing or examining ongoing changes in economic development, the restructuring and relocation of economic production, socioeconomic fragmentation, and spatial reorganization that accompany contemporary modes of urban growth (Montgomery et al., 2003).

Broad urban-rural comparisons are particularly unhelpful in seeking to **understand or intervene in dynamics at the city or intra-urban scale**. Our understanding of these realities is constrained by the categories of data collection used by major demographic and health surveys. While efforts to gain a more detailed understanding of urban realities and processes by disaggregating data and analyses into 'slum' and 'non-slum' categories are an improvement, these too can mask important intra-urban heterogeneities, not least between different kinds of 'slum' settlements (Zulu et al., 2011).

A significant consequence of having an underdeveloped understanding of spatial and settlement differentiation in health-service need, demand, and supply is the resulting mismatch between analysis, investment, performance, and outcomes. This makes it difficult for health researchers to engage effectively with the institutions (national or subnational) that deliver services at the city and intra-urban level.

5.1 DATA CHALLENGES AND OPPORTUNITIES

Developing a detailed understanding of urban family planning needs and demographic change faces a number of data-related challenges and limitations. Drawing on Tatem et al. (2012), these include:

- The fact that we still **know relatively little about populations within cities**, and currently available cluster-level DHS data are inadequate for understanding the dynamics within urban areas. While the DHS and some other survey programmes have focused on collecting larger urban samples, there remains a need for large samples of urban populations to permit city-specific analyses. Moreover, countries implementing the DHS do not employ a standard definition of 'urban'.
- Current spatial, demographic, and health databases giving insight into urban dynamics are **disparate**, but could potentially be brought together to gain a more detailed and refined perspective.
- From existing databases, we **lack time series of urban spatial extents** that would help to develop ways of forecasting changes in urban spatial growth.
- **Information on properly defined urban neighbourhoods** within cities, such as within-household and within-neighbourhood population density, is important yet insufficient.
- Our **capacity to undertake spatial and temporal projections at subnational scales is limited**. However, new approaches to enrolling existing data within a spatial framework are emerging, enabling population projections to be performed for small and large cities in LMICs.

The following discussion does not address the reform of data practices implemented by international programmes and institutions such as the DHS or United Nations. These kinds of reforms call for sustained political and technical engagements, and are beyond the scope of this review. Rather, the focus is on the data opportunities afforded by the Sustainable Development Goals (SDGs), the potential creation of new institutional partnerships, and the emergence of new technologies and processes for data collection.

Globally, the importance of cities and urbanization in driving sustainable and equitable forms of development is acknowledged through multilateral conventions like the SDGs, the New Urban Agenda, and the Paris Agreement (Parnell, 2016). This has generated **new demands for localized and disaggregated understandings of social and natural change**, while ensuring the linking of local, national, and global metrics. In particular, the imperatives of monitoring and achieving the SDGs has called for the creation of new data capacities and linkages. While data gaps remain a major challenge, particularly in LMICs where informal areas and

activities are often excluded from official datasets, there are several emerging initiatives that demonstrate an appetite for new kinds, scales, and sources of data (UCLG, 2019). It will be important to capitalize on this groundswell of interest within any attempt to secure a closer relationship between health, demographic, and conventional urban-focused data.

For the reproductive health and family planning agenda to advance in the urban policy space, it will probably have to do so within the wider discourse of the demographic transition. Many national governments already recognize the significance of the demographic transition, and moreover there is an existing economic and long-term planning argument attached to it. The issue of ageing urban populations, particularly in developed countries, has gained significant traction within the urban research and practice community (Buffel and Phillipson, 2016). However, the argument that, in some places, high fertility rates are a fundamental issue requiring concerted attention from those responsible for managing urban change has yet to be won.

Given these points, the challenge is not simply one of increasing the availability, comparability, and reliability of urban and health/demographic data. Rather, **data should be seen as one entry point** through which **demographic and family planning experts** can work to **further their agenda in the domain of urban policy and practice**. Data constitute a significant political issue because they structure the choice of indicators and information, the nature of the resulting analysis, and thus the ways in which stakeholders will assess and understand progress made in the implementation of SDG targets (UCLG, 2019). In other words, engaging around issues of data, monitoring, and evaluation will be crucial in **ensuring that an interface exists between urban and health/demographic practitioners**, thereby cultivating an ongoing interest among urban managers in fertility rates and demographic timeframes, and the factors (including family planning and reproductive health) that influence those dynamics. It will also be critical in efforts to shift developmental and scientific conversations away from an 'urban versus rural' frame to one that focuses on specific kinds of places.

While the following subsections present various opportunities to improve the availability of disaggregated data, quite **how to link together datasets and data-gathering institutions for urban health, demographic, and environmental topics will remain a significant challenge**. Issues of incommensurability and institutional siloism will have to be overcome. Data-sharing protocols between sectoral line functions will be required so that health and demographic data can link up with those addressing road safety, housing, schools, sanitation, energy, and so on. Nevertheless, there are very good arguments for doing so: understanding family size, age cohorts, and fertility projections is critical (yet underutilized) knowledge that can be mobilized for effective urban service delivery. Demographic change will fundamentally affect demand for housing and other services, in addition to long-term requirements for infrastructural investment, which is precisely what cities in poorer countries need to be able to assess in accurate and timely ways.

5.1.1 Conventional and official data sources

The global data landscape for urban health and sustainability is characterized by the use of inconsistent methodologies, disparate sources, incomprehensive and non-overlapping urban coverage (particularly in LMICs), and problems of reliability (Taylor et al., 2018). Likewise, spatial demographic data, while routinely collected by governments and programmes such as the DHS, and while providing some insights into subnational population dynamics, remain disconnected and 'scattered across national statistical offices and websites' (Tatem et al., 2012, p. 1). Moreover, the institutional space for data management in the wake of the SDGs is fluid, with a number of new institutions and initiatives emerging over and above traditional systems of government-collected statistics implemented by national statistical offices and international agencies (Mahajan, 2019).

Similar observations apply to the field of urban development. No single global metric framework for cities and urban processes currently exists. A range of institutions, working at various scales, are active in collecting, analysing, and disseminating urban data. While traditional custodians of the urban data domain such as UN-Habitat and the World Bank remain key players, other organizations and initiatives have taken new leadership roles in deciphering and meeting the data requirements for urban-centred sustainable development. These include:

- **Global networks of cities and governments** like C40, Cities Alliance, Metropolis, and United Cities and Local Governments (UCLG). Some of this work is undoubtedly valuable in collating data from a range of sources, but can be *ad hoc* and thematically focused – an example being UCLG's Global Observatory on Local Democracy and Decentralization (GOLD) reports.[4]
- **Advisory networks of scientific and technological experts** such as the Sustainable Development Solutions Network (SDSN), which among other things oversees the Thematic Research Network on Data and Statistics

(TReNDS) – an initiative that aims to strengthen data ecosystems, promote learning on the sharing of data, and inform investments in emerging data opportunities.[5]

- **Private consultancies and think tanks** that may coordinate data and city indexes, often with a view to informing their clients' investment decisions. Many focus on issues of wealth and economic development, but may also incorporate a wider social and sustainability lens.

In many cases there are **limitations to the ways in which official national-level data can be spatially and demographically disaggregated**. Most national statistical systems have significant gaps and deficiencies, collecting few reliable demographic, health, economic, and social data at the level of individual towns and cities. As such, there is strong interest among development agencies and governments in securing the 'locally embedded' **subnational data and processes required for SDG monitoring and localization** (UCLG, 2019).

While a great deal of work has focused on the development of urban indicators for the purposes of SDG monitoring, to date this has hardly engaged with urban demographic and fertility issues. As such, there is considerable scope for researchers working on urban demographic and health issues to secure further data resources by partnering with those responsible for urban management. Specific opportunities include:

- Engaging with the creation of **national urban policies (NUPs)**, which will be central to country-level and internationally joined-up efforts to promote effective urban planning and management interventions (Acuto et al., 2018; African Development Bank et al., 2019; Cartwright et al., 2018). It has been specifically argued that the process of developing an NUP should be used to upgrade data-collection systems and develop new and additional data to improve disaggregation, coverage, and interoperability (UN-Habitat and OECD, 2018).

- Working with **urban observatories**, which are key mechanisms to transform the urban science-policy interface into more effective and responsive forms (Acuto et al., 2018; Bai et al., 2018; Robin and Acuto, 2018; Washbourne et al., 2019). These may take various forms and work at a range of scales, but in essence act as a convening point for actors and institutions involved in collecting, processing, and disseminating city data in order to strengthen policymaking, planning, and decision-making. Members of the scientific steering committee of the Cities and Climate Change Science Conference for the Intergovernmental Panel on Climate Change (IPCC) recently called for the global availability of better urban data through networks of local urban observatories as one of six research priorities for promoting sustainable city development and confronting climate change (Bai et al., 2018).

- Engaging with **networks of urban observatories** such as UN-Habitat's Global Urban Observatory (GUO). The GUO provides guidance to cities on establishing urban observatories, implements activities that support the monitoring of the New Urban Agenda and SDGs relating to human settlements, coordinates the indicators used to produce UN-Habitat's flagship reports, maintains the Global Urban Indicators Database, computes the City Prosperity Initiative (CPI), and undertakes the ongoing monitoring of urban inequities.

- Working with newer **expert networks** such as the SDSN-linked TReNDS, which implemented the Local Data Action Solutions Initiative (LDA-SI) to 'identify and promote replicable methods for subnational SDG monitoring that facilitate local action'. The idea was to identify and support initiatives that collect local data on SDG indicators and promote the alignment of national and subnational reporting systems.[6]

In engaging with these kinds of institutions and initiatives, a necessary step would be to convene specialist groups to work out precisely what data (from those already held by demographers and family planning researchers) would be useful in securing an understanding of the interface between fertility and urban growth that is sensitive to their localized and long-term relationships.

A final point is that engagements concerned with increasing the availability of urban demographic data need not focus exclusively on data indicators and collection for monitoring purposes. They could also target other processes, including **programme assessment and evaluation**. The subnational and cross-cutting emphasis of the SDGs has prompted considerable interest from donors, development banks, and national governments in reconfiguring their frameworks to assess priority actions and investments in urban areas, thereby assisting in the implementation of local projects in support of wider sustainability and resilience objectives. This has called for the 'downscaling' of national conceptual, methodological, and indicator frameworks to ensure their applicability at the city level. The recent launch of an SDG Project Assessment Tool by UN-Habitat is a one example of this trend, designed to assist government authorities and delivery partners in developing more inclusive, sustainable, and effective urban projects that align with the SDGs under

the themes of urban planning, transport, and resilience.[7] The African Development Bank is also in the process of procuring a tool to capacitate African cities to assess and respond to urban resilience and fragility – a downscaled version of a similar diagnostic tool aimed at the national level.[8] In developing and implementing these kinds of frameworks, authorities should be tracking demographic trends in different regions and within cities. However, this is unlikely to happen given the current disjuncture between the urban development and demographic sectors. Nonetheless, engaging and encouraging relevant institutions to collect data, assess, and monitor projects in ways that cut across demographic, health, and urban concerns is a way to secure new data *and* influence the urban development agenda by positioning fertility issues as integral to the achievement of wider sustainability objectives.

5.1.2 Emerging and nonofficial data sources

All forms of urban analysis face challenges in defining 'the urban' (as well as related spatial concepts such as 'slum', 'informal', and 'neighbourhood') across contexts with very different histories, development patterns, and governance systems. Some of these challenges can be alleviated by **linking health with geospatial data**. However, doing so raises the challenge of tailoring these data and analyses to urbanizing LMIC settings.

Remote-sensing technologies provided through satellites, aircraft, and drones offer a particular set of opportunities. For instance, there are important initiatives and resources that **integrate remotely-sensed data with census data while applying new modelling techniques to monitor urban change**. These include Africapolis, the Global Rural-Urban Mapping Project (GRUMP), WorldPop, and the Atlas of Urban Expansion (Fox et al., 2018). In principle, employing such approaches in monitoring the built environment enables researchers to develop more accurate, consistent, and comparable definitions of urban areas than would be possible if the focus was on population thresholds or administrative boundaries exclusively (Dorélien et al., 2013; Leyk et al., 2019; Linard et al., 2013).

Researchers linked to the WorldPop programme have used such approaches in LMICs for the spatial analysis of issues related to maternal and child health, and adolescent childbearing, although findings have generally been reported at the district rather than urban/city scale (Neal et al., 2016; Ruktanonchai et al., 2016, 2018; Tatem et al., 2014). Others taking more of an urban focus have used satellite imagery to analyse spatial inequalities of health in Accra (Ghana) (Weeks, Getis, et al., 2012; Weeks, Hill, et al., 2012) and to examine the distribution of fertility levels according to a gradient or continuum of urban contexts in West Africa (Benza et al., 2017; Corker, 2017). While such approaches are certainly promising, it is likely that **more will have to be done to tailor these systems to different country and urban contexts** (Kuffer et al., 2016). Transferring or scaling-up these kinds of initiatives would probably demand extensive preparatory work involving the gathering of insights from multiple domains of expertise.

The growing availability of **big data and related analytics** also offers important opportunities to **enhance the interoperability of urban and health datasets and systems**. In certain cases, these developments will enable some of the data and mapping challenges described above to be overcome. For example, data from global positioning system (GPS) tracking devices and smartphones have been used in the mapping and planning of transit networks in various African cities. Such approaches have particular advantages for understanding the informal paratransit systems that dominate mobility systems in these settings (Goletz and Ehebrecht, 2018; Joseph et al., 2019; Klopp et al., 2015; Ndibatya et al., 2016; Pinelli et al., 2016). The benefits of these projects extend beyond the substance and accuracy of the data itself. Collaborative mapping projects can help to render paratransit service providers more visible in planning processes, while instigating more 'grounded and inclusive' planning discussions around modal integration, passenger information, and vehicle upgrading (Klopp and Cavoli, 2019). While researchers may confront issues of data propriety in doing this kind of work, resources such as OpenStreetMap and SharedStreets are freely available online.

In addition, there are emerging examples of researchers using large integrated datasets alongside advances in data science, artificial intelligence, machine learning, and predictive analytics to assess and address issues of public health. One example is the Rockefeller Foundation's Precision Public Health Initiative, which focuses on using predictive analytics to prevent health threats, leveraging big data on the social determinants of health to reduce maternal and child deaths in LMICs (Rockefeller Foundation, 2019). There are also recent examples of researchers employing street imagery and deep learning networks to detect and predict health outcomes in cities (Suel et al., 2019). However, this kind of work is only possible in contexts where services like Google Street View are available and comprehensive, which is not always the case in LMIC urban settings.

Finally, engaging with a broader **citizen science movement** focused on urban problems also offers data-related

opportunities for reproductive health and family planning experts. For example, technology-aided social or community-based mapping and census-taking are one set of approaches with the potential to generate accurate local datasets that take account of local definitions and social dynamics, encourage community engagement, and promote local ownership and coproduction of data and project interventions (Hachmann et al., 2018; Marcil et al., 2016). There may be opportunities for health and demographic researchers to link up with existing urban-focused networks like Slum/Shack Dwellers International (SDI), which promote community-based enumeration activities in poor urban areas of LMICs, but not necessarily with an explicit or detailed health lens (Patel et al., 2012).[9] For their part, such organizations would benefit greatly from the skills and techniques of health experts with their methodological rigour and the quality of their datasets. Through these kinds of partnerships, health research might offer a 'domain of excellence' that could spill over into the urban sector and provide an analytical basis for wider policy and intervention.

6. KNOWLEDGE GAPS AND PRIORITIES

A broad range of knowledge gaps and issues that could be taken up by future research is described in the following subsections. This is intended to provide a comprehensive basis from which priorities can be drawn. A summative set of research priorities is given in the Executive Summary.

6.1 URBANIZATION AND URBAN SYSTEMS

An understanding of cities and urbanization as vectors for change and sustainable development has underpinned the evolution and nature of international agreements such as the Sustainable Development Goals and New Urban Agenda (Parnell, 2016). However, family planning research generally does not consider the implications of urban processes as *transformative* of wider social, economic, and political realities and relations. How a family planning agenda should link with a strategic development agenda rooted in the transformative potential of the urban transition remains a gap and challenge, although engaging more concertedly with the creation of national urban policies may be one area of opportunity (Acuto et al., 2018; African Development Bank et al., 2019; Cartwright et al., 2018). Doing so would require a detailed understanding of how reproductive dynamics and needs vary between different sizes and categories of cities, various types of urban settlement, and different kinds of national/regional urban network. Four focus areas for future research are suggested.

First, with respect to city size, large cities are the focus of much of the demographic and health (and urban development) literatures, but we need further work addressing the dynamics of **secondary urban areas**. Smaller cities and towns often host the majority of LMIC urban populations, tend to grow at faster rates, and display higher rates of poverty (Montgomery, 2009; Montgomery et al., 2003). Populations of secondary or smaller cities often have lower levels of access to basic services (such as water and sanitation) and reproductive health services (Montgomery et al., 2003). Their municipal governments usually have less institutional capacity and fewer resources to respond to pressing developmental needs even if, in an era of decentralization, they are increasingly shouldered with responsibilities for raising revenue and delivering services (Montgomery, 2008).

Second, there is a need for closer scrutiny (in data terms) of **peri-urban regions** as well as areas located between urban centres that are likely to fuse with those centres in years to come. Closer monitoring of these dynamics is warranted given that peri-urban areas in LMICs are often places characterized by rapid spatial and economic change, high degrees of social mobility, intense rural-urban interactions, environmental stress, poverty and inequality, informality, and conflicts over land entitlements (Mbiba and Huchzermeyer, 2002; Rakodi, 1999). Moreover, vulnerable peri-urban populations may experience heightened risks of unplanned pregnancy (Feld et al., 2019; Niemeyer Hultstrand et al., 2019). Understanding how these particular kinds of challenges affect the provision, access, use, and outcome of reproductive health and family planning services will be an important topic for future research.

Third, more remains to be known about how family planning issues and fertility rates vary for **urban areas of differing economic category**, such as manufacturing, service, transportation, knowledge/innovation, or administrative centres. This will be significant as urban areas exemplifying specific modes of economic production and growth potential will, to a greater or lesser extent, attract migrants of varying economic status and education/skill levels. The point here is that cities and urban areas are all different, and having a grounded understanding of a city and its political economy are important in shaping what the local elements of a family planning programme should look like.

Fourth, when considering **urban networks and systems** at a national or regional level, future research might investigate how fertility desires, behaviours, and outcomes vary, say, for a system centred on a large primate city versus a more evenly distributed system, or for urban networks where smaller or secondary cities are growing at proportionately fast or slow rates. Developing this kind of understanding would have important policy implications, particularly for national urbanization policies that aim to guide the overall development of national urban spatial systems or the process of rural-urban demographic shift (Parnell and Simon, 2014).

If national urban policies are central to country-level and internationally joined-up efforts to promote effective urban planning and management interventions for sustainable development, developing the kind of perspective argued for here – one that moves well beyond a straightforward urban-rural binary – would be critical for informing national development or urbanization policies that are relevant and suited to context.

6.2 GOVERNANCE

Family planning and urban health researchers engage little with questions of governance and intergovernmental politics, and what these imply for demand and service provision. As health researchers often rely on and interface with relatively efficient healthcare delivery systems, they may enjoy the 'luxury' of not having to engage with the complexities of intersectoral urban governance. However, that complexity in the urban governance regime complicates the prioritization of interventions that could best improve general health, reproductive health, and fertility outcomes.

Furthering an urban family planning agenda raises a number of pressing questions related to governance:

- Where and how should family planning be inserted or strengthened within the complex array of urban actors and institutions encompassing public, private for-profit, private non-profit, sectoral, municipal, state/provincial, and national governments?
- Are there examples of properly 'joined-up' (Harpham, 2009; Montgomery, 2009) approaches to the governance of urban family planning?
- Can such approaches deal adequately with rapid change in the spatial dimensions of urban growth and peri-urbanization in LMICs?
- In what circumstances are place-based strategies (with a slum focus) or people-based strategies (with a focus on the urban poor wherever they may live) more appropriate and effective?

The urgency of answering such questions is underscored by ongoing reforms related to **decentralization and devolution**. Indeed, there is a need for empirical research that considers how family planning supply, demand, access, and use are affected by the complexities of local governance processes and intergovernmental power relations. While examining mechanisms of (and barriers to) improving family planning supply, organization, and service delivery within the health sector is important and necessary (Daff et al., 2014; Dicko et al., 2017; Hasselback et al., 2017), it is not enough by itself. We need a better understanding of how family planning services fit in the wider network of urban services and infrastructures (such as housing, water/sanitation, and public transport), and the ways in which these are designed, funded, and maintained.

Developing an understanding of 'actually existing' urban and territorial governance (as opposed to a preoccupation with formal institutions and structures), and how these arrangements shape family planning could include:

- The **implications of decentralization and devolution** for the provision of and access to reproductive health and family planning services (Montgomery et al., 2003), and the ways in which these services should be incorporated within wider decentralization strategies. Lessons from countries that have recently devolved health and family planning services, such as Kenya (Keyonzo et al., 2015; McCollum et al., 2018), should be captured and shared.
- How intersections of formal and informal processes of **land governance**, land markets, and legal regulations on land rights, ownership, and finance shape the evolution of the urban built form and socioeconomic context, and how these affect the provision of and access to health services.
- The governance relations, weaknesses, and conflicts related to issues such as land use, poverty, and disaster risk-management in **peripheral urban regions**, and the challenges that underserviced peri-urban areas raise for family planning and reproductive health.

This kind of knowledge would be useful not only to enhance our understanding of the drivers, barriers, and outcomes of family planning use, but also to **inform wider governance arrangements linking family planning and the management of urban change**. The opportunity to engage with the development of national urban policies has already been mentioned. In some contexts, local governments may be responsible for delivering family planning services. If they are not, one would expect local urban authorities to be alert to the governance arrangements through which those services are delivered. The point is that in a mature policy environment, one would expect there to be a governance interface and relationship between family planning on one hand, and city planning and management on the other. Just as one would expect a disaster risk reduction plan to operate at multiple scales, so too should various elements of a family planning strategy be articulated at different scales as part of a wider public health strategy.

6.3 FOOD SECURITY AND SYSTEMS

Considering the documented links between poverty, household food security, nutrition, and maternal and child health outcomes, **it is remarkable that more has not been made**

of the urban links between family planning, fertility, food systems, and health. Relevant studies do exist. Researchers have examined how demographic characteristics such as family structure relate to food security outcomes (Owoo, 2018), how increasing access to family planning can improve the nutritional status of children (Ervin and Bubak, 2019; Goudet et al., 2017), and the benefits of providing integrated community-based services encompassing family planning and nutrition (McConnell et al., 2016; Shah More et al., 2013, 2017). Further work is needed to address topics such as:

- The effect of family planning provision/access and fertility on household food security and nutrition outcomes;
- How particular modes of urban food access influence reproductive behaviours and outcomes in towns and cities;
- The role of formal and informal food systems within household food strategies, as well as urban food price shocks and volatility, and their effects in determining nutrition and fertility behaviours/outcomes; and
- The linkages between food access and income generation, welfare systems, and mobility patterns in shaping the ways that the urban poor access family planning services within the larger context of their livelihood strategies (Rakodi and Lloyd-Jones, 2002).

Much of the emerging research interest in urban food-systems analysis and planning in sub-Saharan Africa originates from geographical and urban governance subfields (Battersby, 2017; Battersby and Crush, 2014; Battersby and Watson, 2019; Peyton et al., 2015). To date, this work has made few references to questions of reproductive health and demographic change. Given that African urban food systems constitute an emerging research focus, this might present an opportunity for further dialogue and engagement, not least as the capacity to access accurate demographic and health data and projections would be critical knowledge for the development of effective urban and regional strategies for food security. Demographers and family planning experts, for their part, would benefit from gaining a refined understanding of the linkages between urban poverty and transforming food systems – linkages that may place fundamental limits on health-related behaviours and outcomes in cities.

6.4 NEIGHBOURHOODS, COMMUNITIES, AND SOCIAL NETWORKS

In the landmark volume *Cities Transformed*, the Panel on Urban Population Dynamics argued for the importance of applying the concepts and methods of multilevel health research to urban demography in LMICs (Montgomery et al., 2003). The call was for researchers to understand the 'social worlds' that poor urban people inhabit; to study poor individuals and families in relation to larger structures such as 'social networks and local associations, neighbourhoods, and the wider social and political communities within which neighbourhoods are nested' (Montgomery and Ezeh, 2005, p. 318). In the years since, some work has responded to those prompts, but in general many remain unanswered. There is now a need for further work taking greater account of issues such as:

- The role of **neighbourhood effects** (including factors of social cohesion, social capital, collective efficacy, and community resources) in influencing sexual, reproductive health, and fertility behaviours and outcomes.
- The **spatial and temporal heterogeneity** of urban neighbourhoods and communities, which is a key insight of more sophisticated analyses of urban poverty (Harpham, 2009; Montgomery and Hewett, 2005). Local diversity, if correlated with higher levels of social, economic, and political resources, may enhance the potential for neighbourhood-based interventions targeting poverty and health (Montgomery and Ezeh, 2005; Montgomery and Hewett, 2005). As such, developing a more fine-grained understanding of the nature and structure of neighbourhoods and communities – and how these interlink with social capital and community mobilization – will be key to devising relevant and effective reproductive health and family planning programmes in urban areas.
- The **implications of particular slum-like conditions** for family planning service delivery and fertility patterns, including how the conditions of an older, centrally located settlement might differ from those of a newly formed community on the urban periphery in terms of access to healthcare, transport, and infrastructural services of all kinds.
- The role of **employment status** – how, where, when, and on what people work – in shaping access to family planning services and to what outcome. Informal workers may face particular and substantial occupational and health risks, and considerable barriers to accessing quality

public health services. Researchers could understand better how these challenges and barriers are differentiated between various kinds of informal work and levels of income.

- How the composition and function of **social networks** differ within and between urban and rural areas of LMICs. This would encompass the precise forms and functions of spatially dispersed socioeconomic ties, as with those linked to migration, and how these potentially influence flows of information and the diffusion of new kinds of knowledge and strategies.

- Issues relating to the **social capital** of the urban poor, including the specific ways in which associations and networks of urban slum dwellers foster social capital, promote learning between communities and cities, and engage with authorities to secure good and services, as well as how they might address urban health and family planning issues in a more concerted manner (Montgomery, 2009). Another relevant topic would concern how inequalities in social capital manifest between migrant and established urban groups, and how the specific kinds of social capital fostered by various groups shape differences in family planning norms, knowledge, and behaviour.

6.5 SPACE AND THE BUILT ENVIRONMENT

A key insight of urban research is that **space and place matter** in the generation of social worlds, inequalities, and risks. The places and structures in which people live and work, the infrastructures and services to which they enjoy more or less access, and the manner in and extent to which they move around, are critical factors that collectively shape social, economic, and political outcomes and inequalities. Arguably, family planning research has some way to go in developing the kind of detailed disaggregated understanding of how various characteristics of space and place influence the ways in which people think and behave with respect to contraception and fertility.

The **nature and form of the physical urban environment** can have important relationships to human health and condition. As such, the processes and techniques through which we shape the environment can play a significant role in promoting health and wellbeing (Jackson, 2003; Kent and Thompson, 2012; Northridge et al., 2003). There is potential for family planning and reproductive health research to move beyond a focus on neighbourhood-level social effects such as ethnicity, poverty, and inequality, to examine the specific **influence of the built environment** on service access, sexual or reproductive behaviour, and fertility outcomes. While researchers have explored these dynamics for wealthier contexts, there has been limited work focusing on urban areas of LMICs (Dune et al., 2017; Messer et al., 2013; Miranda et al., 2012; Satcher et al., 2012).

The relationship between space and family planning concerns not only where people live or work and the material conditions that they experience, but also how they move across space. Understanding better the **linkages between urban mobility systems** (modes, costs, times, safety risks, and so on) and **health services and outcomes** will be essential if family planning is to be incorporated effectively within processes of local spatial planning, urban design, and service delivery. Further research is needed on the ways in which family planning access and fertility are affected by:

- Wealth status and transportation costs (Escamilla et al., 2019);

- Levels of geographical and economic access to mobility networks enjoyed by poorer urban residents (shaped, for example, by disability, straight-line and path distance to transport nodes and health facilities, residence-workplace commuting patterns and requirements, urban design features, and household income);

- The specific ways in which people move and travel (for example, walking, private transport, motorcycle or minibus paratransit, or formal public transport); and

- The risks that women and men face in moving across space (including risks to livelihood born of the trade-offs between time spent travelling, opportunity costs, the direct economic cost of fares, and impacts on income generation; risks to health through exposure to air pollution or physical safety problems; and psychosocial factors linked to experiences of harassment or perceived insecurity).

6.6 MIGRATION AND DISPLACEMENT

Related to the topic of urban mobility is the wider question of migration and displacement, and what existing and emerging patterns of movement imply for family planning demand and supply, and reproductive health. This review has pointed to a range of topics that warrant further investigation, including:

- The **diversity of migratory experiences**, recognizing that not all migrants are of similar age, that not all are poor and move into slum areas, that they may stay at their destination for differing lengths of time, and that some will move around urban areas more often than others during their lifetime (Anglewicz et al., 2017; Montgomery et al., 2016);
- How migratory movements **between particular urban areas** affect reproductive behaviours and fertility, and how this differs from the experiences and trends linked to rural-urban migration (Montgomery et al., 2003);
- The **relationship between migration and sexual behaviour** and risk among urban youth, including the influence of the community contexts that shape the migratory experience and sexual transition, and the implications of these processes for young migrants' reproductive health and family planning needs (Brockerhoff and Biddlecom, 1999; Luke et al., 2012; Sauvain-Dugerdil et al., 2008);
- The various socioeconomic characteristics of migrants, their urban location decisions, and how the **community contexts of their destinations affect adaptation** to those contexts in terms of the assumption of new family planning behaviours (Cau, 2016);
- The ways in which **migrants create new social networks** following their arrival in urban areas, how these networks provide novel contexts for making decisions related to fertility and health, and whether they provide opportunities for education and intervention (Bond et al., 1999; Montgomery et al., 2003);
- How **women migrating from urban areas disperse information and knowledge** related to family planning, with the potential to act as conveyors of family planning messaging to more vulnerable groups (Almonte and Lynch, 2019); and
- The implications of increasingly significant urban migrant groups – notably **refugees and displaced persons** – for family planning demand and provision, including their particular service needs and the specific barriers to access that they face (Ackerson and Zielinski, 2017; Logie et al., 2019).

6.7 RIGHTS AND AGENCY

Given the shift towards rights-based approaches to family planning – with the attending emphasis on agency, autonomy, participation, and equity – a key issue for future research to consider is how **different kinds of governance arrangements** and **modes of social organization** can act to **hinder or enable the agency of urban women and men** to pursue their reproductive health goals and rights.

Much of the urban-focused work foregrounding issues of agency in promoting access to housing, water, and sanitation services (such as the sustainable livelihoods literature) has failed to engage with family planning and reproductive health matters. Urban specialists and researchers stand to contribute to thinking around rights-based family planning by:

- Documenting cases where women or social movements have **linked urban development demands to safety and sexual and reproductive health concerns**, including how and why governing actors responded to those claims;
- Sharing the insights of the extensive work focusing on **rights-based approaches to urban governance and service delivery**, as well as processes of **societal claim-making**; and
- Developing a more thorough articulation of a gendered perspective on **the right to the city** (as an influential framework for urban policy, governance, and social organization) that gives specific credence to questions of urban safety, reproductive health, and family planning.

6.8 CLIMATE CHANGE, POPULATION, AND FAMILY PLANNING

Researchers of climate and population dynamics have recognized the need to factor in urbanization and other demographic variables (such as age distribution) when testing the effect of demographic change on emissions (O'Neill et al., 2012). Moreover, they have argued that **we require a better understanding of the precise linkages between urbanization, energy use, and emissions**. A range of studies point to the ways that emissions vary widely within and between individual or groups of cities, depending on factors such as the national urbanization rate, stage of development, levels of urban density, the dominance of certain economic sectors, income levels, and whether production or consumption statistics are considered (Dodman, 2009; Hoornweg et al., 2011; Martínez-Zarzoso and Maruotti, 2011; Poumanyvong and Kaneko, 2010; Satterthwaite, 2008).

The precise role of family planning within population-climate transitions is the subject of some debate. Proponents argue that slowing global population growth by

meeting unmet need for contraception could have substantial climatic co-benefits by reducing emissions (Bongaarts and O'Neill, 2018; O'Neill et al., 2010; Zlotnik, 2009). Critics regard a family planning agenda as detracting attention from the harm caused by consumption-intensive development and having limited potential to impact global climate change (Martine, 2009). Regardless of these debates, it should be recognized that fertility exerts a powerful influence on urban growth. As such, **increasing access to family planning is critical for easing the urban adaptation burden** (Bongaarts and O'Neill, 2018; Bryant et al., 2009; Guzmán et al., 2009). A key research question is how family planning could be effectively integrated with wider adaptation strategies that address the needs and vulnerabilities of the urban poor.

Researchers have begun to explore **how climate shocks and vulnerability affect reproductive behaviour** in urban areas (Eissler et al., 2019). This work highlights the need for a better understanding of the links between climatic variability and demographic behaviours. Topics for further research might include:

- Where and under what circumstances women and men are able or unable to adapt their fertility behaviours to environmental changes as they desire;
- The specific barriers preventing the realization of these fertility preferences;
- The specific pathways leading from climate anomalies (both short- and longer-term) to changed fertility preferences, and how these pathways vary across social and spatial contexts; and
- How adaptation (which has been shown to involve changes to migration, agriculture, and livelihood practices) is linked to ideational changes affecting reproductive behaviour in the longer term.

6.9 TOWARDS AN URBAN FAMILY PLANNING AGENDA

Cutting across all these suggested research areas is the question of how health, demographic, built environment, government, and other professionals and researchers can develop new relationships and effective modes of interdisciplinary collaboration. Corburn (2004) has pointed to the historical drivers of the separation of the public health and urban planning fields in the twentieth century. He noted that the biomedicalization of public health encouraged researchers to underemphasize the social determinants of health, just as planning's increasing agenda of promoting economic development led its focus away from an original concern with environmental health. For Corburn, insights from ecosocial theory and environmental justice offer a preliminary conceptual framework for reconnecting the fields around an agenda centred on the principles of social justice. However, the challenge extends beyond conceptual divisions. For example, how do we overcome the divergent nature of the evidence that has traditionally been used to justify health and planning interventions? How can we explore diverse methods and data in producing 'a mutually acceptable standard of evidence'? (Kent and Thompson, 2012, p. 6) Responding to these kinds of questions will be central to any effort to promote new linkages and collaboration between the urban and family planning sectors.

ENDNOTES

1 These are the priority regions addressed by the Family Planning, Fertility, and Urban Development programme.

2 This objective was expressed by Clea Finkle, Programme Officer at the Bill & Melinda Gates Foundation.

3 Measured in terms of the physical presence of at least one contraceptive method at a health facility.

4 https://www.gold.uclg.org, accessed 2 April 2020.

5 https://www.sdsntrends.org/about, accessed 2 April 2020.

6 https://www.sdsntrends.org/local-data-action-microgrants-2018-2019; https://sdg.iisd.org/news/sdsn-initiative-awards-grants-to-local-data-innovations-for-sdgs/, accessed 27 March 2020.

7 The Tool was developed as part of the United Kingdom's Global Future Cities Prosperity Fund programme and will be implemented in 19 participating cities; https://guardian.ng/property/new-sdg-urban-project-assessment-tool-for-nigeria-others/, accessed 30 March 2020.

8 https://www.afdb.org/fileadmin/uploads/afdb/Documents/Procurement/Project-related-Procurement/EOI_-_Urban_drivers_of_fragility_and_resilience_-_RDTS.pdf, accessed 3 April 2020.

9 For example, the Know Your City campaign is a global initiative of SDI, United Cities and Local Governments of Africa (UCLG-A), and Cities Alliance that has, to date, profiled over 220 cities and 7,700 slum areas. Through such initiatives, SDI's databases 'are becoming the largest repositories of informal settlement data in the world'; https://knowyourcity.info/explore-our-data/, accessed 3 April 2020.

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