

# Mapping Under-researched Areas of Population Dynamics in Pakistan



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Compiled by:  
**Azra Aziz**  
and  
**Minhaj ul Haque**

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National Institute of Health, Block NIPS

Park Road Chak Shahzad, Islamabad

Tel: 051-9255937, Fax: 051-9255932

[www.nips.org.pk](http://www.nips.org.pk)

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Web: [nips.org.pk](http://nips.org.pk)

Ph: 92-051-9255935-33

Fax: 92-051-9255932

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## Preface:

National Institute of Population Studies (NIPS) is a leading research organization in the field of population and development and successfully completed the report of Mapping of under Researched Areas in Population Dynamics of Pakistan. The study is completed with the financial support of UNFPA. In view of importance of further research, Mapping of Under Researched Areas in Population Dynamics of Pakistan report is an important tool to assess the major topics and areas of demographic & population dynamics that have gone under-researched in Pakistan during the last three decades.

The findings, analysis and policy recommendations of the report give the future direction of evidence-based research for better planning and resource utilization. Population dynamics including changes in population growth rates, age structures, migration, fertility, mortality and distributions of people are linked to national developmental challenges. Indeed, the greatest challenges in Pakistan cannot be resolved without paying attention to population dynamics. The increasing growth in population is likely to exacerbate poverty and add pressure on the economy, basic health and socio-economic development.

The three fundamental processes determining population growth and distribution are fertility, mortality, and migration. The research on population dynamics, particularly on technical demographic topics, has been dwindling after the 2000s. The report place special emphasis on areas of technical demography, migration, marriage, and family for evidence based research while cross-cutting themes of political economy, education, gender, environment, and climate change are the under researched areas in Pakistan. These findings are helpful in an integrated assessment and policy analysis need to take into account the likely size and distribution of affected human population.

I would like to record a piece of gratitude to Mr. Perviaz Ahmed Junejo, Ex. Executive Director, NIPS for his commendable support and bringing his advice and wide variety of perspectives encouraged the authors to think boldly which enabled us to accomplish the targets. Dr. Tauseef Ahmed and Ms. Maida Umar did the review of the report and their valuable comments are thankfully acknowledged. Especially gratefully recognized the services of Mr. Muhammad Siddique GIS Expert & Data Analyst (Consultant) did the deep Analysis Work, visualizations and the designing format of this report.

At the end, availing this opportunity, I would also like to acknowledge NIPS staff, technical committee of the study and individuals from academia, government and practitioners involved in key informant interviews for this study.

**Azra Aziz**  
(Director, Research and Survey)

## List of Abbreviations and Acronyms

AKU	Agha Khan University
ANC	Antenatal Care
CPR	Contraceptive Prevalence Rate
FANA	Federally Administered Northern Areas
FATA	Federally Administered Tribal Areas
FP	Family Planning
FPAP	Family Planning Association of Pakistan
HIES	Household Integrated Economic Survey
HIICS	Household Integrated Income and Consumption Survey
ICPD	International Conference of Population and Development
LFS	Labor Force Survey
MICS	Multiple Indicator Cluster Survey
NLSY	National Longitudinal Survey of Youth
NNT	Neonatal Tetanus
PC	Population Council
PDHS	Pakistan Demographic and Health Survey
PDS	Pakistan Demographic Survey
PFS	Pakistan Fertility Survey
PIDE	Pakistan Institute of Development Economics
PSLM	Pakistan Social and Living Standards Measurement
RH	Reproductive Health
UNFPA	United Nations Population Fund Pakistan
WFS	World Fertility Survey

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# Chapter 1

## *Introduction and Methodology*



## 1.1 Introduction

The Demography of any geographic area or a country determines the path to its development. Understanding of makeup of a society in terms of change in rates of birth, death, marriage and migration help make integrated policies and development plans for human development. Demographics capture a snapshot at different points in time, so that historical changes in population dynamics can be assessed over the time.<sup>(1)</sup> The data and analytics emerging from demographic studies are applied and used by various stakeholders for different objectives. To ensure efficient resource allocation and to identify priority needs and areas, governments and public organizations use demographic statistics in the process of economic and social development planning. Whereas, private corporations utilize demographic research to better market their product and services to their targeted base. Hence, with larger population groups and economies, having the knowledge and understanding of demographic changes and population dynamics has become essential to stimulating economic growth and sustaining social development.<sup>(2)</sup>

While demography or the study of population dynamics is frequently reduced to the themes of reproductive health and family planning, its actual scope, usage, and application extends much deeper and beyond. Regulating population size through family planning is a significant usage of demography, but its value cannot be overlooked in decisions relating to food security, health and education, private-sector production and distribution, advertising and marketing, ecosystem conservation, and efficient resource allocation, among many others.

### Understanding demographic transition and its significance

In developing a demographic perspective, demographers seek to answer two main questions—what causes changes in population size and structure and what are the consequences. In this vein, when dealing with population dynamics, some certain basic models and terms help to conceptualize common occurrences in demographic change. The classical demographic transition theory list three stages of change. Reproduction, death, and migration are the key reference points used to study how and why population changes in size and structure. Similarly, there is a wide consensus among demographers that there are three distinct stages of transitions within the process of demographic change, however, recent literature extends second and third into two stages. Here is the explanation of the classical case:

Birth and death rates are high. At this stage, the total net population or natural increase of population is low, because high death and birth rates nullify each other's effect on the rate of population growth.

Transition from high to low birth and death rates. The growth potential is realized in this stage, as the death rate drops before the birth rate, resulting in rapid population growth. The causes of this demographic change can vary from achieving better food security, improvements in water supply and sanitation, to advancements in medicine that lowers the death rate. Moreover, the reason why the birth rate drops after the death rate is that the decision to have fewer children is a cultural one. So, if a society is undergoing industrialization or urbanization, the demand for more children decreases. Similarly, higher education and personal freedom for women tend to lower birth rates as well.

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1. Charlie French. 2014. Why Demographic Data Matters, University of New Hampshire Cooperative Extension. Information Brief #1, November 2014.

2. Naushin Mahmood. 2009. Population and Development, Demographic Research at PIDE. History of PIDE Series-4. Pakistan Institute of development Economics, Islamabad.

Birth and death rates decline. In this stage, mortality stabilizes to its minimum, while fertility may continue to gradually decline to a point that the population growth starts to decline. So, ultimately population growth or natural increase begins to decline in this phase of demographic transition. Typically, societies that are largely industrial and urban are undergoing this stage of demographic change, that is, overall population growth is declining with time.

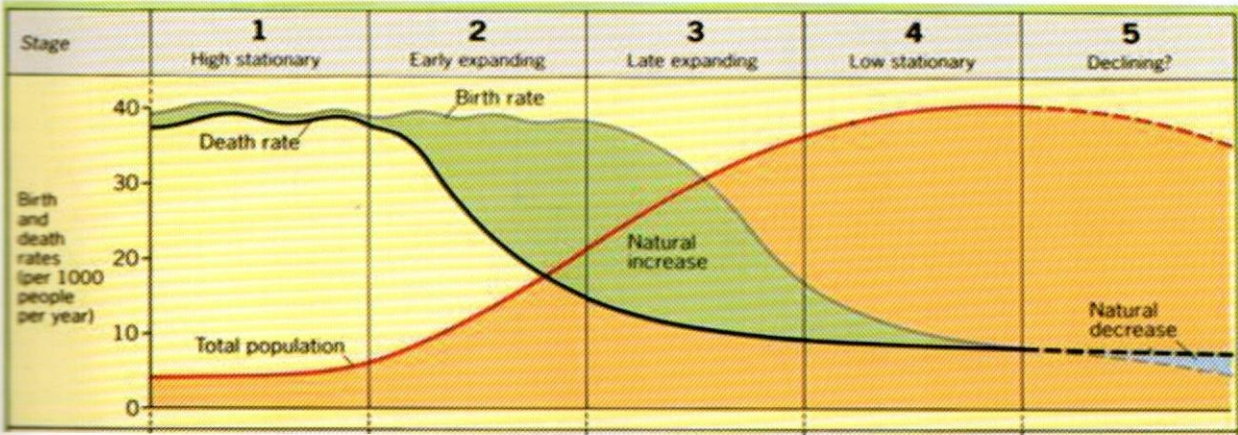
Adoption of family planning practices, improved health indicators, and later age marriages are some reasons that push towards declining birth rates in this stage. Whereas, reliable food supply, improvements in water and sanitation, and high-quality healthcare contribute to lower death rates.

It is important to note that only in rare cases do societies move in reverse through these stages. This implies that if a country or society has entered Stage 3, it is highly unlikely that the region will experience an increase in population growth. To increase population growth or size, a third process will have to come into play, which is migration.

Figure 1 is an apt visual representation of the extended version of main stages of demographic transitions described above, covering the typical conditions true for each stage, i.e., high/low birth and death rates and the associated reasons for changes in birth and death rates at each respective stage. As exhibited in the figure, the first stage is regarded as 'high stationary', because the overall net result on total population or natural increase (red line) is insignificant to slow, with both high birth and death rates canceling the other's effect. At this stage, the natural increase (see red line) will slowly rise when society moves towards Stage 2. Stage two and three are referred to as 'early expanding' and 'late expanding' respectively, where birth rates continue to be high but death rates begin to decrease, due to medical and technological improvements. Low to middle-income economies like Kenya, India, and Brazil are currently in Stage 2 of the demographic transition, where overall natural increase could be considered moderate to accelerated depending upon the stage: early or late expansion.

Finally, most high-income economies, like Japan, France, Germany, have successfully entered the final stage of demographic transition—Stage 3—where both fertility and mortality continue to fall until they stabilize to a certain point. In Figure 1, stages 4 (low stationary) and 5 (declining) represent this transition. Societies in this phase could potentially experience fluctuations in the birth and death rates through the years, but barring any major disruptions (natural calamities), the natural increase will resume on a path of decline (as shown by the dotted decrease red line).

Figure 1.1: Stages of demographic transition in population dynamics

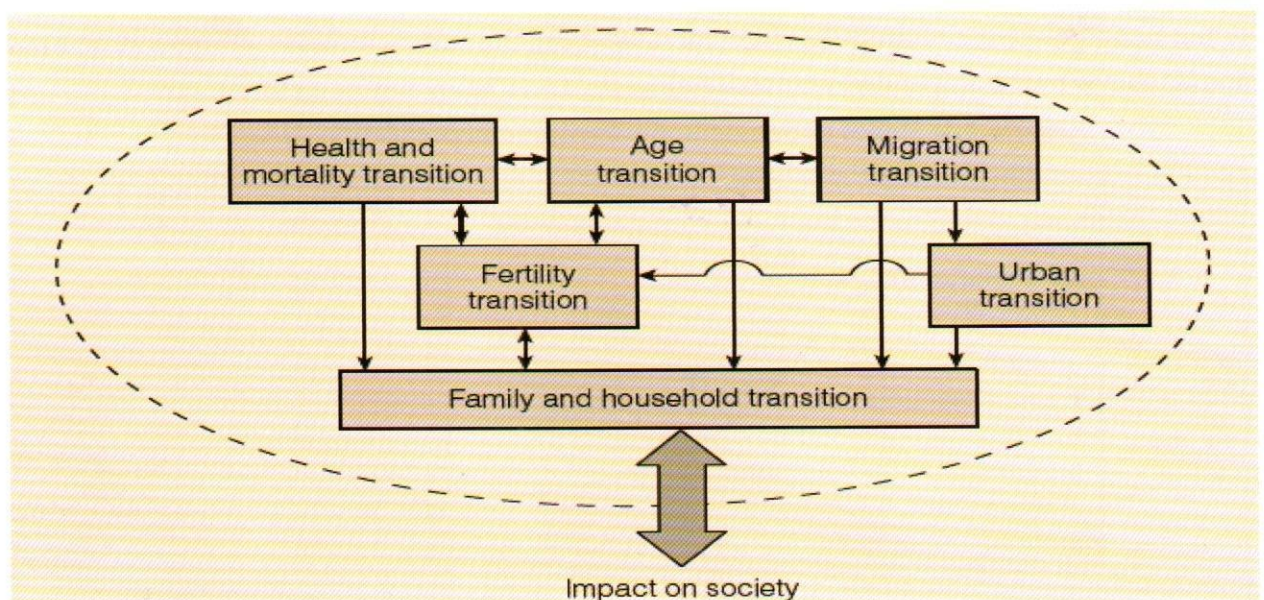


Within the stages of demographic transition, demographers have also identified the interplay of several interconnected **types** of transitions that influence population dynamics and in turn impact society. Figure 2 displays some of the main types of transitions working in the background and how each one relates with the other. Notable transitions include mortality transition, which posits that declining mortality is the outcome of healthier people and higher life expectancies, which directly affects society through a rapid increase in the demand for food and resources. While, fertility transition suggests that declining fertility encourages women to delay marriage, attain higher education, and become more socially mobile and economically productive, and vice versa, i.e., higher education and delayed marriages leads to decline in fertility rates as well.

Similarly, migration transition refers to the tendency of people to move from economically less well-off places to better-off places, closely linked with the urban migration transition, as people prefer to move to urban areas for better economic opportunities. The impact of uncontrolled urban transition could potentially expand economic growth, but rapid migration transition certainly carries serious consequences for the environment of urban poles. The age transition contemplates how a primarily young age structure implies a high dependency ratio in that region, which could limit the society's capacity to generate savings for investment and growth. Lastly, family and household transition sheds light on the diversity of living arrangements (joint or nuclear family system) in a society and how it changes over time, along with the longevity of the institution of marriage (rising divorce rates and voluntary singledom). As shown by Figure 2, none of these transitions occur in isolation; rather they are interlinked and collectively determine the population dynamics in a particular region.

Despite continuous efforts from demographers and population scholars in furnishing data on population dynamics, high population growth rate and its lack of consideration in economic planning remain a contemporary issue in Pakistan. The most recent estimate of Pakistan's total population was 208 million in 2017, making Pakistan the fifth most populous country in the world. Additionally, the unchecked growth rate will soon become the leading stressor on the already stretched public service delivery system. Among the regional countries, Pakistan is considered an outlier with barely touching Stage 2 of the demographic

Figure 1.2: Types of Transitions in Population Dynamics



transition, reporting persistently high fertility rate (3.6) and slowly declining mortality rate. Pakistan with a high growth rate of 2.1 per annum could have grave implications for socio-economic development.

The latest Pakistan Demographic and Health Survey (PDHS), 2017-18, also corroborated the alarming census findings, reporting that indicators that are known to curtail population growth such as fertility, contraceptive prevalence rate (CPR), unmet need for family planning (FP), did not improve. Going by these statistics, Pakistan is going through a worrying and discouraging time in terms of demographic transition and suggests that past decades of work to improve demographic indicators was not emphatically effectual. The present status of population growth and size gives way to the question of whether the current state is the aftermath of not properly utilizing population dynamics data or there were gaps in the available research that led to misinformation or misguidance in the planning process.

National Institute of Population Studies (NIPS), recognizing the importance of understanding population dynamics and bringing back demographic research as a centralized agenda in development planning and programming, undertook the responsibility to conduct a comprehensive review of the existing body of research on Pakistan's population dynamics. This review will identify gaps and offer relevant action steps to improve the quality and focus of research. The purpose of this report is to assess the major topics and areas of demography/population dynamics and cross-cutting themes that have gone under-researched in Pakistan during the last three decades. It further aims to identify the gaps in data collection and analysis in national-level surveys and data sources. This is a descriptive report on population dynamics, which will conclude by proposing a future direction for research and highlight areas that should be explored in an organized manner so that moving forward, demographic knowledge and evidence is used for better planning and resource utilization.

## 1.2 Methodology

To meet the objectives of this exercise, a two-pronged approach of systematic literature search and interviewing field experts was adopted. The two parts are described in detail subsequently.

### Systematic literature search

Systematic literature search involved identifying selected databases namely Poplin, Cochrane review, Embase, Pubmed and google scholar and reviewing the work of all Pakistan's main research institutes, which were relevant to the selected topics and theme of population dynamics. The research work reviewed published by the following institutions: United Nations Population Fund (UNFPA), Family Planning Association of Pakistan (FPAP), and NIPS, Pakistan Institute of Development Economics (PIDE), Population Council (PC), and Agha Khan University (AKU). Keeping in view the relevance of an earlier and similar review done by Dr. Naushin Mahmood, PIDE, was also given due importance. A point to note here is that the search and review were restricted to the period between 1980 till 2017, covering 37 years of literature, and was not limited to Pakistan based studies—inter-country studies that included analysis on Pakistan's demographic conditions were also part of this review.

The process involved literature search through the aforementioned different databases particularly Cochrane, PubMed and Poplin. To ensure evidence quality check, the second step was to carry out a second round of search and match the results with the master search results data. The initial search produced about 4,000 results related to population dynamics. The process of screening and appraising the

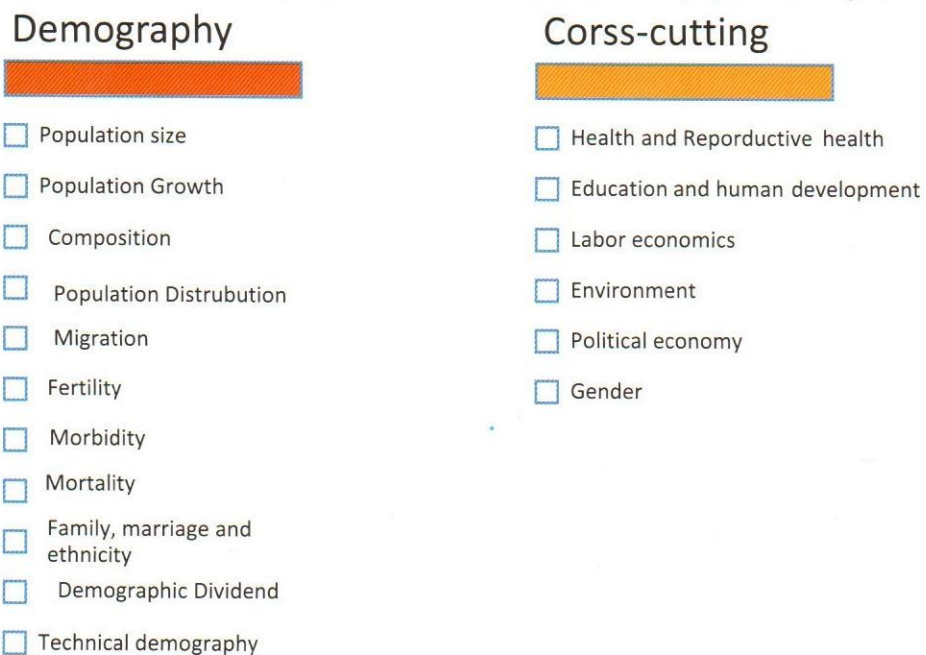
2. Population and Housing Census 2017

3. Pakistan Demographic and Health Survey (PDHS) 2017-18

results for inclusion was done by sorting literature by year, theme, and type of publication (study, report, and survey). This process shortlisted about 1,700 studies and papers for inclusion in the review. Since the focus of the search was population dynamics, the major themes to surface as search result were classified under demography, while other common topics were listed under cross-cutting themes. Going one step further, after reviewing abstracts and major key words, total number of relevant studies included in the exercise came out to be 1,428, to be examined in detail.

After shortlisting the papers, a frequency was run to count how many publications fall under each theme in order to conduct synthesis on the main topics of interest. It is important to clarify that one study can have two or more major topic, so there was incidence of multiple responses— one study counted more than once. Figure 1.1 elaborates the two lists of themes to come out by running the frequency count.

Figure 1.3: List of major keywords searched in relation to population dynamics



## Interviews with population experts

A group of 30 experts from the field was formed covering the public sector, academia, program managers and researchers (complete list attached as annex) to get their thoughts and standpoint on the following questions:

- Contextually, what are the main areas of research by importance in demography and as cross-cutting issues?
- What are the evidence gaps by geographical area in demography?
- What are some of the glaring gaps in the national statistical system, which includes MICS, PDHS and Health surveys?
- Identify or highlight future research topics.

To gather this information in an organized manner, a structured matrix was developed which was filled During one-on-one interview with the selected experts. Though the planned number of expert interviews was 30, a total of 10 interviews could be conducted because of non-availability of others ring the duration of this study. These experts were interviewed through prior appointments and consent.

# Chapter 2

## *Main Topics of Population Dynamics*

## Main topics of population dynamics

This section presents the trends in analysis of major demographic topics over the period of 37 years. In addition, analysis on the type of studies is also presented on the specific areas. Furthermore, after consolidating a long list of demographic terms through search, some topics such as ethnicity, demographic dividend, and technical demography were dropped as they carried only limited information.

### 2.1 Size and Growth

This century's population growth has occurred primarily in the developing world and is the result of lower death rates rather than higher birth rates. Since population growth is the area most focused on when analyzing population dynamics. The negative consequences of rapid population growth are apparent in events such as frequent incidence of low food supplies which leave many in the developing countries under-nourished, deteriorating quality of life, reduction of the potential capacity to produce what is necessary (diminished land resources, water and air pollution), rise in the price of energy and natural resources, difficulty in securing safe and secure employment, and burgeoning urban growth that places strain on scarce housing and transportation.<sup>(4)</sup>

The measure of population growth comprises of four components: birth, death, in-migration, and out-migration. Fast paced population growth brings an array of challenges to any developing country like Pakistan, such as scarcity of resources, economy, employment, agricultural problems, physical infrastructure, education, and healthcare. According to Pakistan's census surveys, the total population in 1951 was 34 million, that doubled in 22 years, and then increased three folds in 14 years, four times in 12 years, and at fastest pace it increased to five times in only nine years, and six times increase, the highest, occurred only in eight years. The bar graph in Figure 2.0, illustrates this trend, which shows how population growth has accelerated as a multiple of 1951 population.

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4. Piotrow PT. 1980. World population: the present and future crisis. New York, Foreign Policy Association, 1980 Oct. Headline Series 251.

Map 2.1: Population density 2017

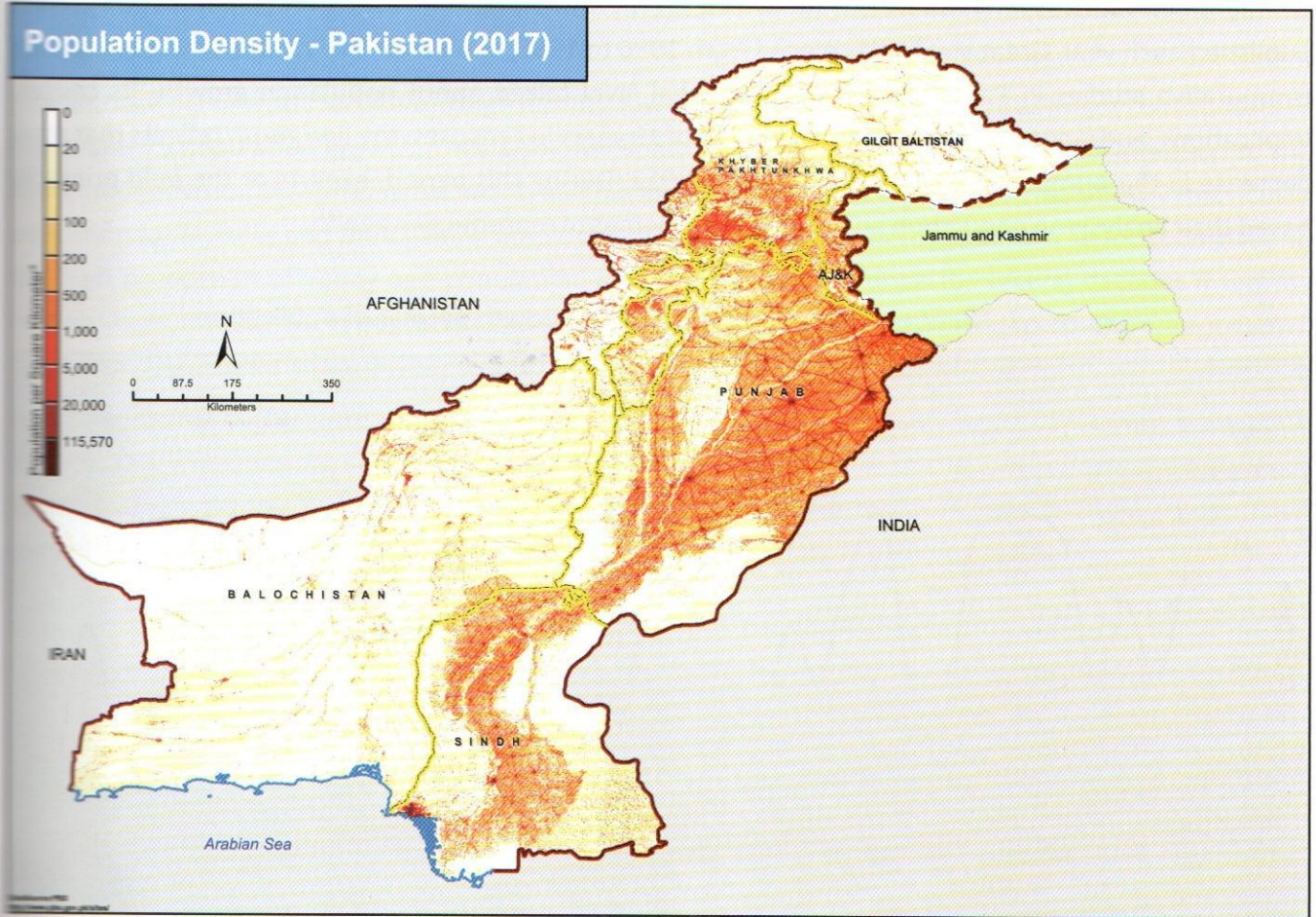


Figure 2.1: Number of times population increases since 1951

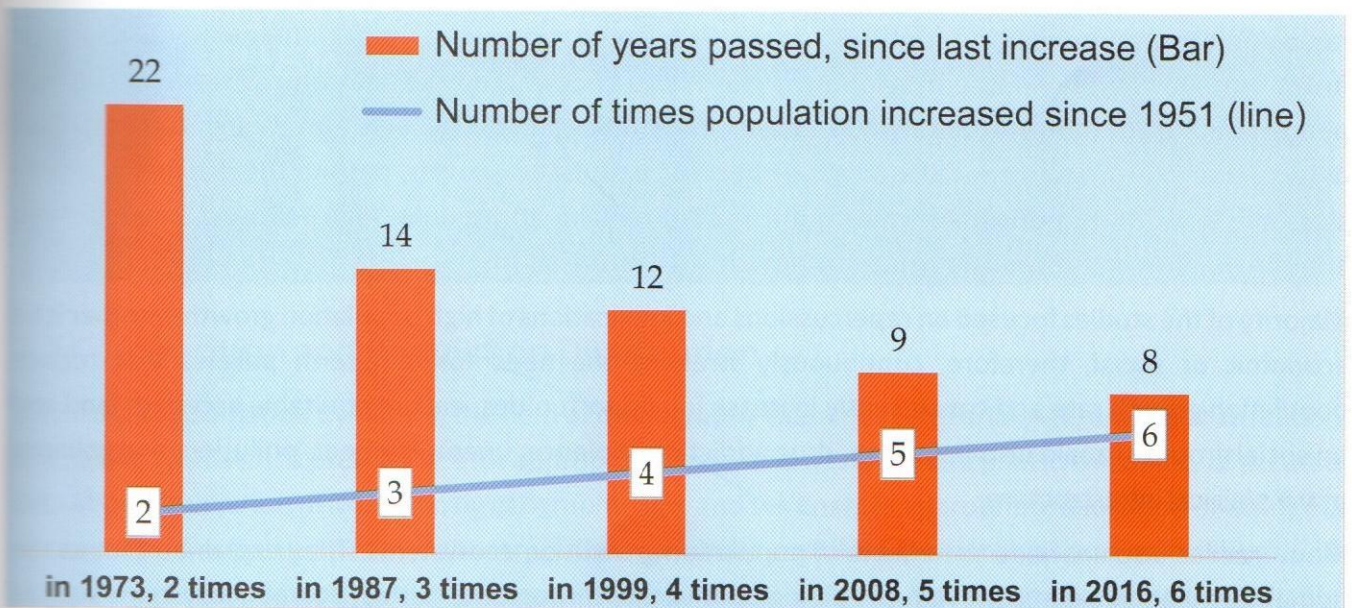
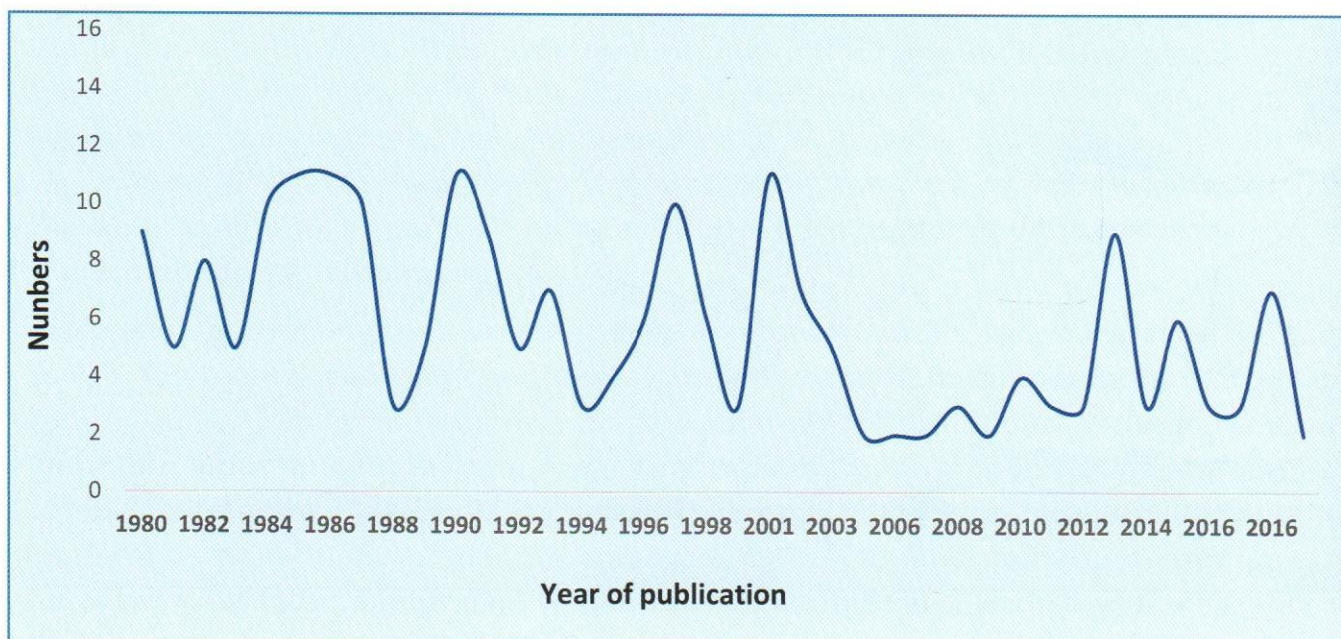




Figure 2.1 shows that the matter of population growth has always been a point of interest and focus for demographers and researchers in Pakistan. The figure reports the number of studies on population growth published each year. Great stress was placed from 1980 to 1986, soon after the 1981 census, and several comparative studies in Pakistan, region, and global level talked about population growth, its causes, implications, and way forward. As there was a gap of 19 years in censuses, the line graph reflects that stark decrease in the number of studies from 2002 to 2012. During this period, experts of the field primarily based their analysis on population on cross-cutting themes of reproductive health.

Figure 2.2: Number of studies on population growth by year of publication



It is worth noting that the review of these studies reveals a consistent emphasis on the need to control rapid population since the census of 1980 up till 2017. Studies observed that beginning with the country's first 5-Year Plan (1955-60), the development plans have underscored the necessity of reducing the high population growth rate. Further analysis of available studies and data shows that though the post-1980 data significantly strengthened the adverse effects of population growth, despite the decline in fertility since the late 1980s, population growth in Pakistan remains to be quite high—around 2 percent per annum—with an inter-censal population growth at 4.2 percent.

Majority of the studies focused on repercussions and implications of high population growth whether it be economic or social, therefore, continuously stressing the need for long-term policies that reduce population growth rate and concurrently increase job opportunities, ensure equitable access to land and on social grounds, avoid discrimination, drug addiction, violence, unemployment, pollution, and collapse of the physical infrastructure.

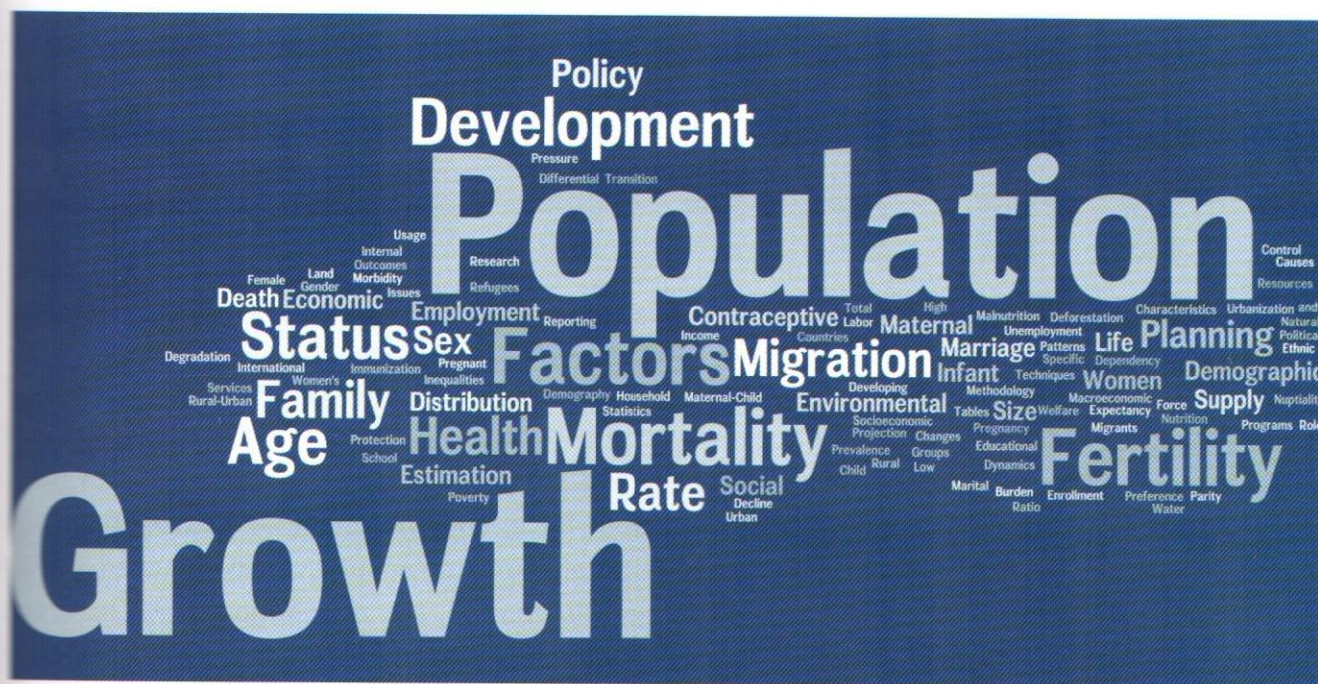
Many studies also analyzed the effects of population growth on ecosystems. They explained that as the human population expands, it reduces biological diversity through the destruction of ecosystems such as tropical and temperate forests, tundra, wetlands, and marine environments. This decline in biodiversity

caused by humans represents a serious threat to development and permanent damage to other species. Furthermore, population growth also affects land usage and water productivity, making it difficult to meet the demand for food.

Studies have persistently recognized high fertility, low CPR, and early marriage age as major contributors to the country's population growth. They also offer solutions in the form of paying serious attention to the combined provision of reproductive health and family planning services, access to education, in particular, education for females and their gainful employment. Also, the research suggests special focus be given to the high proportion of young age population, which is likely to continue for several decades if fertility remains high. Investment in education and skills of this young age group may lead to a preference for small family size in the coming years, which could lessen the strain on the economy.

A detailed search of literature and analysis revealed a range of topics and sub-topics concerning population growth. These themes are summarized in Figure 2.2, in which the size of the font reflects the frequency with which each topic has been studied. Broadly, prominent sub-topics include mortality, population dynamics, economic development, fertility, child mortality, and family planning programs.

Figure 2.3: Word cloud of sub-themes studied in population growth (1980–2017)



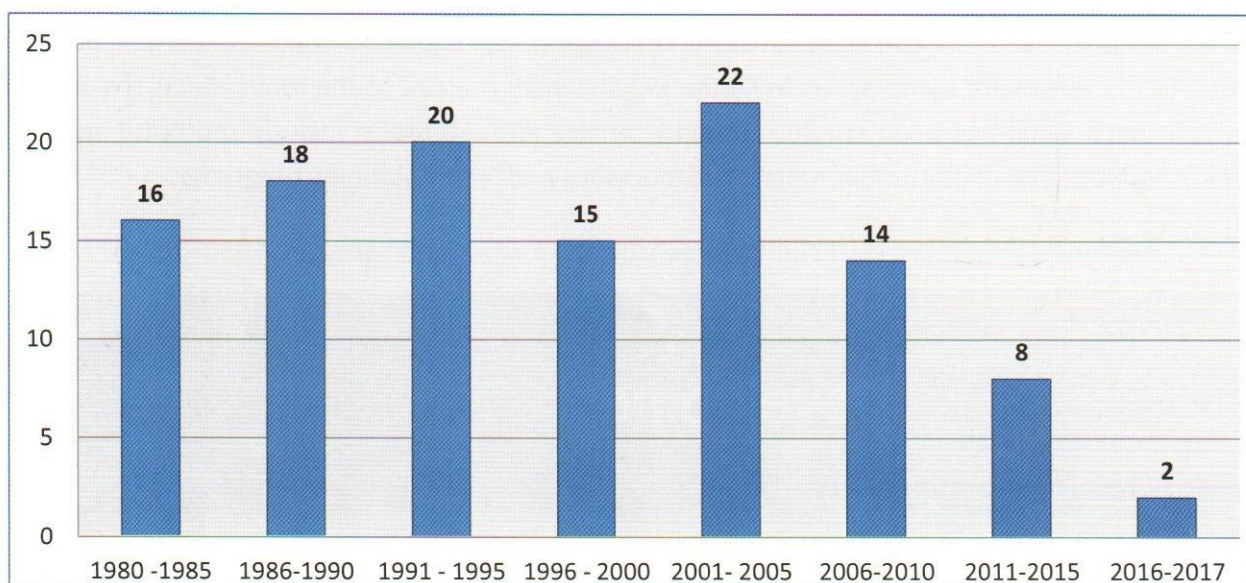
## 2.2 Composition and Population Distribution

In looking at population dynamics, the field of demography examines territorial, age, and sex distribution, and having this data is a prerequisite for appropriate policy and development plans. Availability of accurate data about population distribution by geography, age, and sex enables appropriate allocation of economic resources and opportunities in a country. This area carries multifold relationships and associations with other areas in demography which become interdependent; with any significant change in a population characteristic may affect other demographic indicators such as size, fertility, mortality, urbanization, and

growth. While on the other hand, internal or external migration, mortality rates, and changing family structures have the potential to bring changes in the distribution of the population by territory, age, and sex.

There was a total of 68 studies available on the topic of population distribution as a result of the literature search. The trend of conducted studies during the period of 1980-2017 suggests that this has been an important area of study in population dynamics, although the number of studies per year never crossed over six. Figure 2.3 depicts the number of studies per year, which started at a low of one study in 1980 and ending at zero studies in 2017.

Figure 2.4: Number of studies on population distribution by year of publication

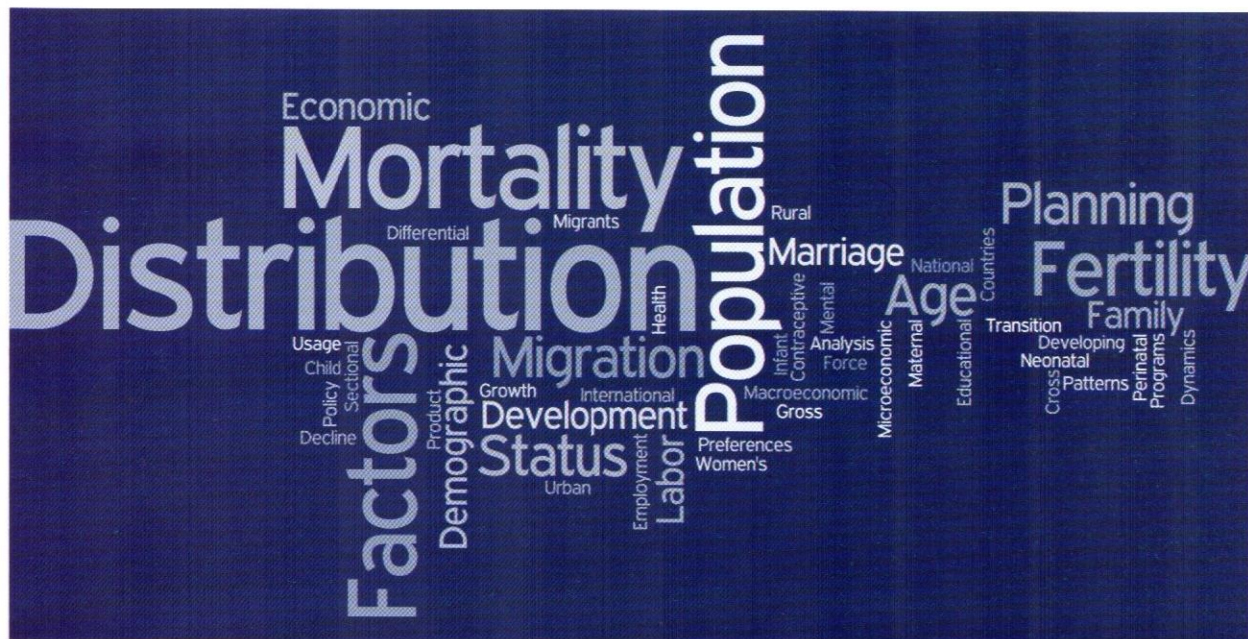


The information on population distribution either by geography, age, or sex, are taken from census and different rounds of PDHS survey. To present a review of demographic trends in Pakistan, latest rounds of the census were used to cover the topics of density and spatial distribution, urbanization, sex roles, religion, literacy and educational status, migration, labor force, unemployment, and occupations and industry. In Pakistan, the first report from a planned series of demographic surveys was launched in 1984 and included data on population characteristics, age distribution, sex distribution, rural or urban residence, marital status, economic activity, labor force, relationship to head of household, marriage duration, marriage age, fertility, infant mortality, and mortality. The data was also disaggregated by province and by urban and rural area.

This compilation of findings from the PDHS 1987 and onwards also reported on population characteristics, sex ratios, mortality, marriage, and fertility. Having data on population distribution also led some researchers to study a certain age group or sex, as one study collected data on adolescents from earlier surveys and studies and published the analysis of this material, titled *“Adolescent girls and boys in Pakistan: Opportunities and constraints in the transition to adulthood”* (2001), which investigated the lives of young people in Pakistan, principally looking at the demography of adolescents in Pakistan. Review of

the literature suggests that a range of topics and sub-topics have been studied under the topic of distribution and population, which is shown in Figure 2.4. Roughly, the main sub-topics common across the 68 studies are fertility, mortality, and factors that affect the distribution of population.

Figure 2.5: Word cloud of sub-themes studied in population distribution (1980–2017)



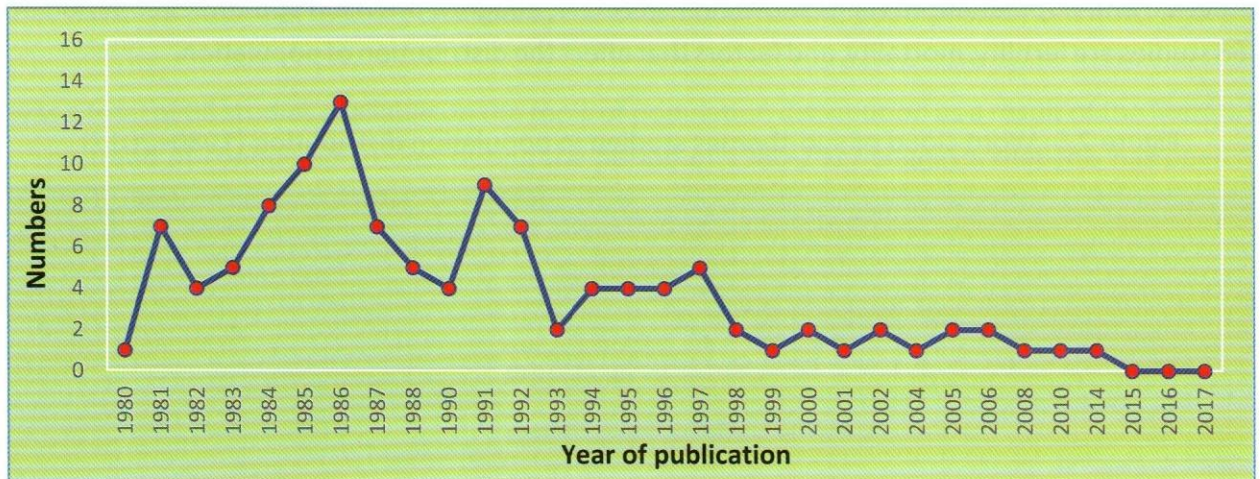
### 2.3 Migration

Migration is an important area in understanding population dynamics, as both internal and external migration are closely linked with urbanization and the increase or decrease in population size of a geographic area. Migration also affects fertility trends, life sex ratios, labor force, economic development, and composition of human resource. In Pakistan, the overall incidence of in-migration or immigration is estimated at 11 percent; the incidence in urban areas (17 percent) is more than double that in rural areas (7 percent) according to the latest PDHS 2017-18.<sup>5</sup> Reporting out-migration/emigration, half of the out-migrants (52 percent) moved to a city within Pakistan, 29 percent went abroad, and 19 percent migrated to a rural area within Pakistan. Data also mentions that 81 percent of people who emigrated in the last 10 years went to the Middle East and 14 percent went to Europe.

As a result of the topic search, about 115 studies on migration were shortlisted for further analysis. Migration is one of the areas that faced decline as a topic of research, especially after the 2000s. Figure 2.5 shows that after 2000, there were some years when there was a sheer absence of any study on migration, while the number of studies remained at one to three per year, indicating this as a low focus area. Despite being a vital indicator to understand population dynamics, no recent evidence/survey on migration is available.

5. National Institute of Population Studies (NIPS) and ICF International. 2018. Pakistan Demographic and Health Survey (PDHS) 2017-18. Islamabad, Pakistan, and Calverton, Maryland, USA: NIPS and ICF International.

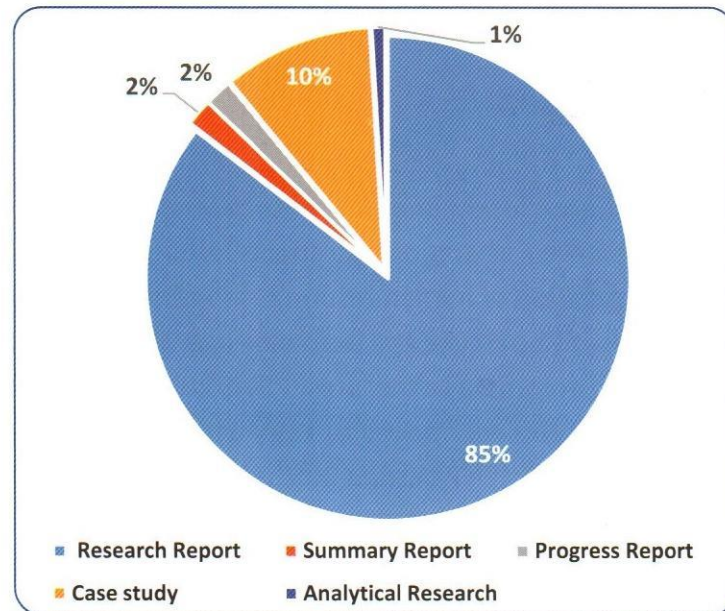
Figure 2.6: Number of studies on migration by year of publication



Analyzing the available studies by their type of research, the majority of the migration-related studies are research-based including both research reports and research journal articles as shown in Figure 2.6.

The themes covered in migration studies were multifaceted such as international migration, internal migration, and forced migration that included refugees and internally displaced population. Since 1980, migration studies focused on migration currents to Middle Eastern countries, and a number of studies deliberated the scale, trend, pattern, its impact, consequences on population, development, domestic economy, the life of male workers after migration, and life conditions of families left behind. Studies also focused on factors and adjustments of return migrants in the domestic labor market. The research also pointed out that the annual placement of

Figure 2.7: Studies conducted on migration by type of study (1980–2017)



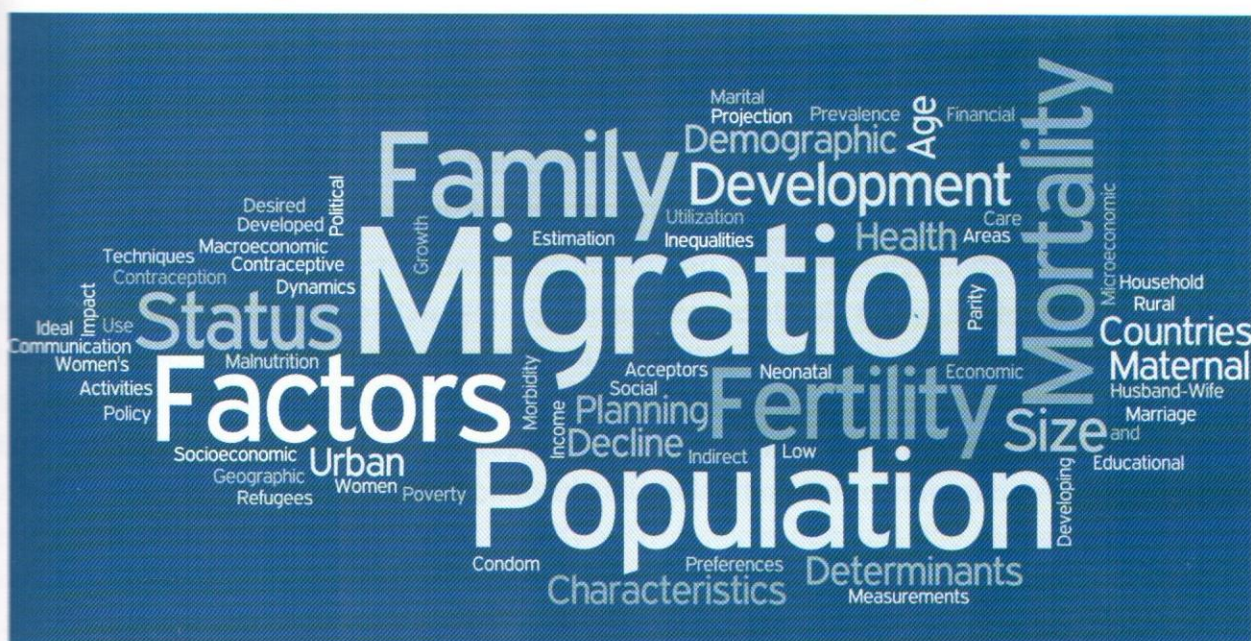
Pakistani workers abroad is slow due to the high cost of migration, complex recruitment procedures, and low skill levels of workers. Besides addressing these barriers, Pakistan should look for new avenues of overseas employment, e.g., European countries.

In terms of internal migration, determinants of internal migration in Pakistan were analyzed using data from the Labor Force Survey (LFS), encompassing a review of literature on internal migration accompanied by statistical and econometric analysis. The third major focus of migration research was on Afghan

refugees that changed the population and economic dynamics in the provinces of Khyber Pakhtunkhwa and Balochistan. The studies noted that in later years this segment of population became more mobile towards the main economic centers of the country. Several studies reported on the influx of refugees, its implications on reproductive health needs, service delivery challenges, and violence against refugee women.

The range of topics and sub-topics studied concerning migration are shown in Figure 2.7 with different font sizes indicating the frequency of each of the topics studied under the main theme. Major sub-topics that have been the focus within migration research include population, mortality, family, rural/urban residence of the population, education, and socio-economic status.

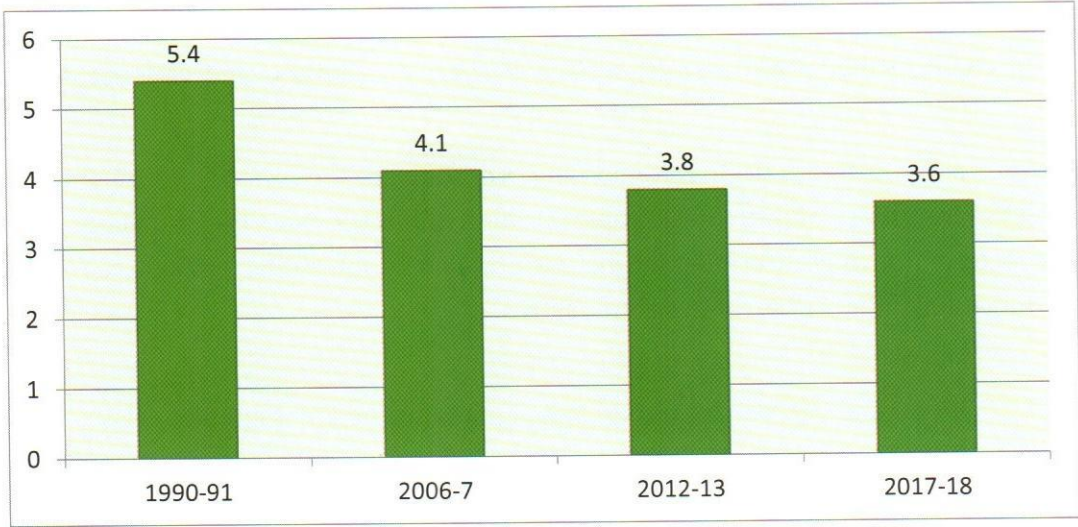
Figure 2.8: Word cloud of sub-themes studied in migration



## 2.4 Fertility

A total of 211 studies on fertility fulfilled the search criteria and were further analyzed. Fertility is considered to be a strong measure of progress not only in the domain of population but also in many other development indicators. Considering the fertility trend, the PDHS 1990-91 reported Total Fertility Rate (TFR) of 4.9 and the recent PDHS 2017-18 reported TFR of 3.6, reveals that fertility declined only by 1.8 births over the past three decades

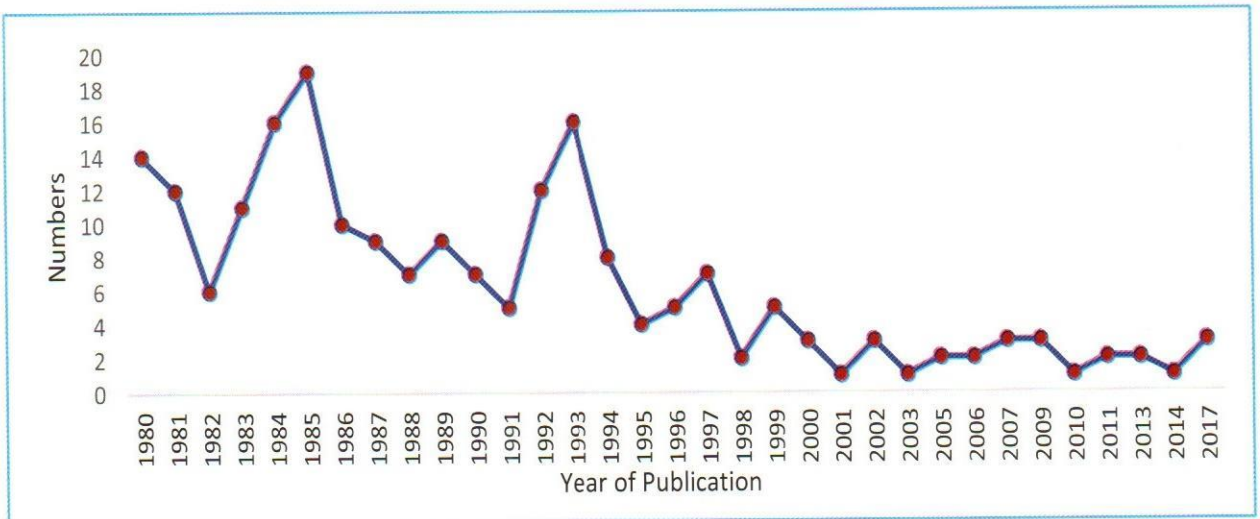
Figure 2.9: Total Fertility rate in Pakistan by PDHS (1990-91 to 2017-18)



There has been steady decline in fertility rate over the time period, from 5.4 births per women as reported in 1990-91 PDHS to 3.6 births per woman in the 2017-18 PDHS, A drop of about two births per women in almost last three decades.

Figure 2.8 relates that fertility had always been a major topic researched in demographic studies but in terms of the number of studies, there was a downfall in studies related to fertility, highest at about 20 studies during the mid-80s and lowest as low as five in 2010. This suggests a declining interest of researchers after mid-1990s. Analyzing the frequency of studies, Figure 2.8 shows that most of the fertility focused research or studies were completed in the mid-1980s and 1990s.

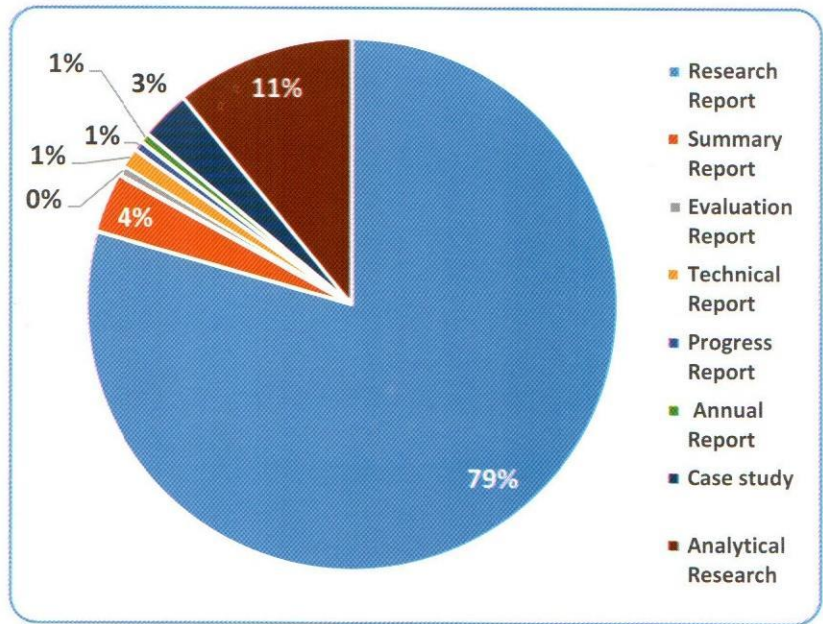
Figure 2.10: Number of studies on fertility by year of publication



Analyzing the available studies by the type of research methods shows that majority of the fertility focused studies are research reports (79 percent), including both research reports and research journal articles. Fewer studies are available which are based on analytical design and

mainly discuss a methodological design to measure fertility. In addition, the studies of comparative analysis on fertility levels and trends are also available. There is almost a sheer absence of any other research type such as evaluation, progress, or technical reports.

Figure 2.11: Studies conducted on fertility by type of study (1980-2017)

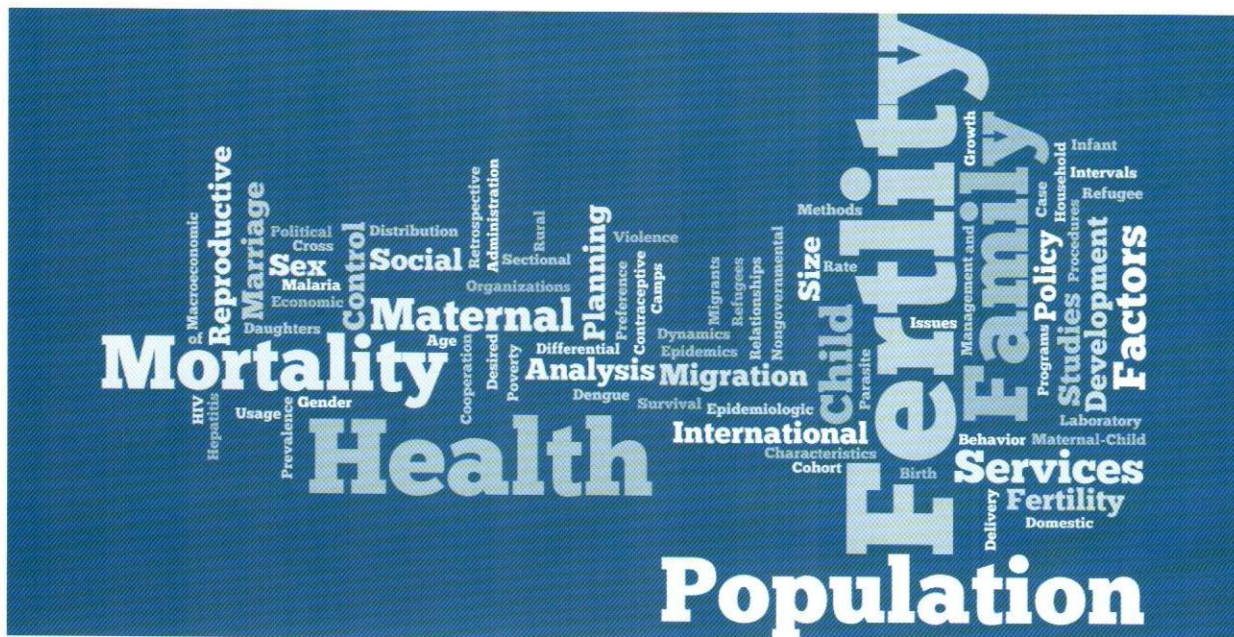


Fertility is mostly discussed in the context of health and population dynamics, marriage, and FP. A substantive amount of research work in Pakistan has been on fertility stagnation, its slow decline and transition encompassing its associated factors and future implications. Most of the focus remained on its trends and determinants in the reference of different population cohorts. There has been frequent analysis and studies conducted using survey data to compare trends and to show development patterns across the countries in general and in the Muslim countries in particular. Moreover, the studies have assessed the association, and effect of fertility with multiple demographic as well as cross-cutting indicators such as migration, education, rural/urban residence, and employment. Many studies on fertility are available in Pakistan, however, gradual decline in focus marks it as a gap area particularly when it remains an important issue and challenge for the country.

Under the theme of fertility, several topics and sub-topics have been the focus of the studies. Figure 2.10 summarizes these topics and explains its frequency with the font size of each of the sub-topic. The main sub-topics to emerge through the search include population growth, maternal health, mortality, FP, and migration.



Figure 2.12: Word cloud of sub-themes studied in fertility (1980–2017)

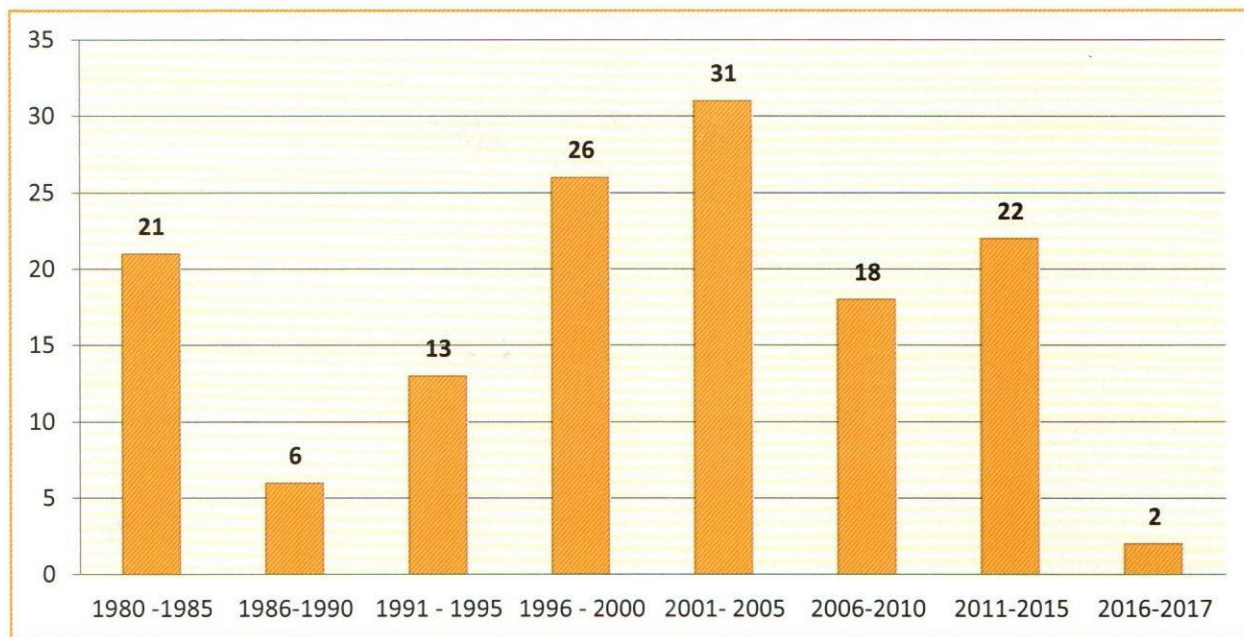


## 2.5 Morbidity

The area of morbidity is a phenomenon that has not been researched or studied well in Pakistan, as compared to mortality. The studies that have been conducted on the topic of morbidity usually focus on newborn and child and maternal health-related issues, with greater emphasis on biomedical perspectives than social context. Evidence from the PDHS 2017-18 shows that high incidence of childhood illnesses, mainly diarrhea (19 percent), fever (38 percent) and acute respiratory infection (14 percent), reported in the two weeks preceding the survey. Examining morbidity trend is significant in grasping the changing population dynamics because it adds to the burden on the health system of a country. Yet, the matter was largely ignored in Pakistan until recently.

Figure 2.11 shows the trend of research on morbidity over the years, and graphical analysis illustrates that contrary to other topics, this area barely received any attention in research. There were only 76 studies on morbidity found in the search results over past three decades, nine being the highest number of studies in a year (2002), while in rest of the years the number stayed below 5 studies per year.

Figure 2.13: Number of studies on morbidity by year of publication



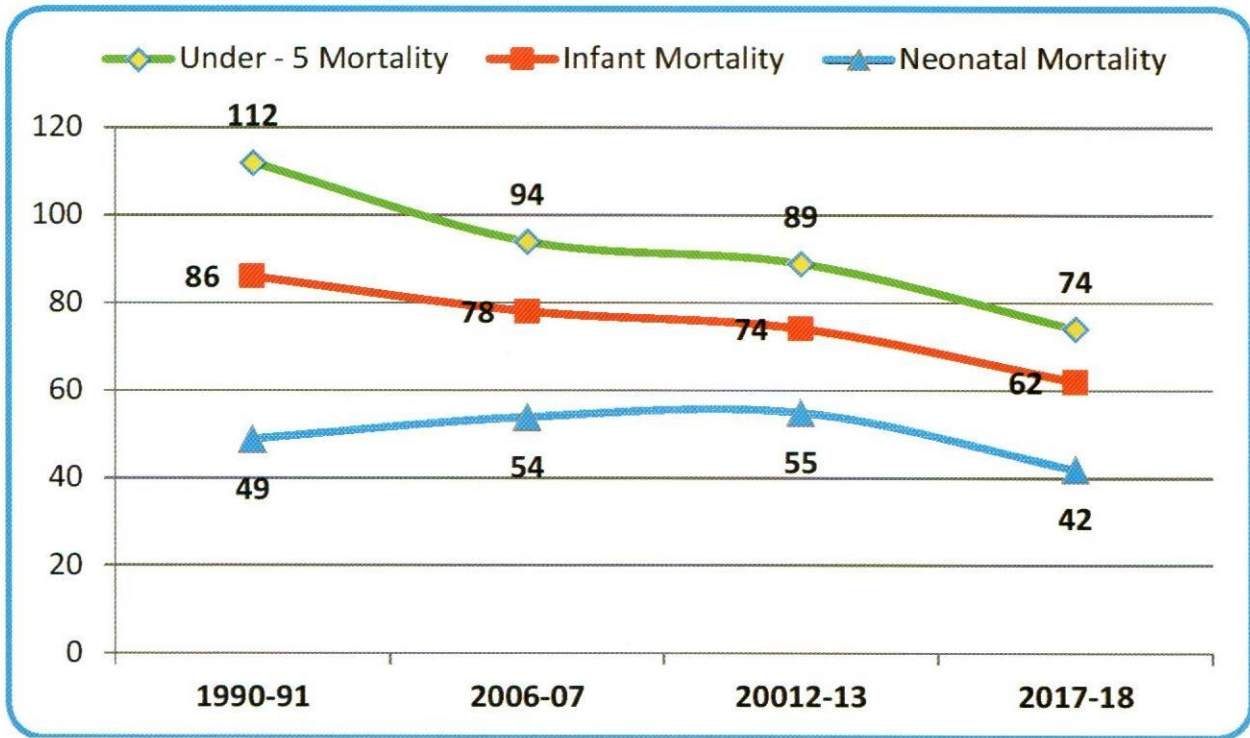
The review of the studies revealed that under neonatal and child morbidity, research was done on causes and effects of major diseases such as malaria and respiratory infections, low birth weight, birth asphyxia, prematurity, neonatal jaundice, pneumonia, zinc deficiencies, weak defense against infectious diseases, neonatal sepsis, tetanus. Available studies on neonatal and child morbidity focused on determinants, factors, and practices but with limited scale and geographic coverage with encompassments of age, sex, residence.

The studies conducted on maternal morbidity focused on pregnancy, delivery, and post-partum related complications. Evidence mentions about the number of pregnancies, the likelihood of an experience of obstetrical and medical complications and their causes such as undernutrition of girls, early marriage, and high fertility rates coupled with unmet need for contraception as important determinants of maternal ill-health in Pakistan. Other studies also mentioned that hemorrhage, eclampsia, and sepsis as the major identifiable causes of severe life-threatening episodes that require intense treatments to avert mortality. A number of studies have been conducted on post-partum hemorrhage, post-abortion complications and effects of these complications on women's health and fertility and also provide evidence that severe maternal morbidity directly contributes to maternal mortality but timely and appropriate interventions can avert precious lives.

Literature search and analysis revealed a range of topics and sub-topics studied with reference to morbidity. These are summarized in Figure 2.12, in which the size of the font reflects the frequency with which each topic has been studied. Mainly, these sub-topics include mortality, demographics of the population, health, factors of morbidity, marriage, family planning.

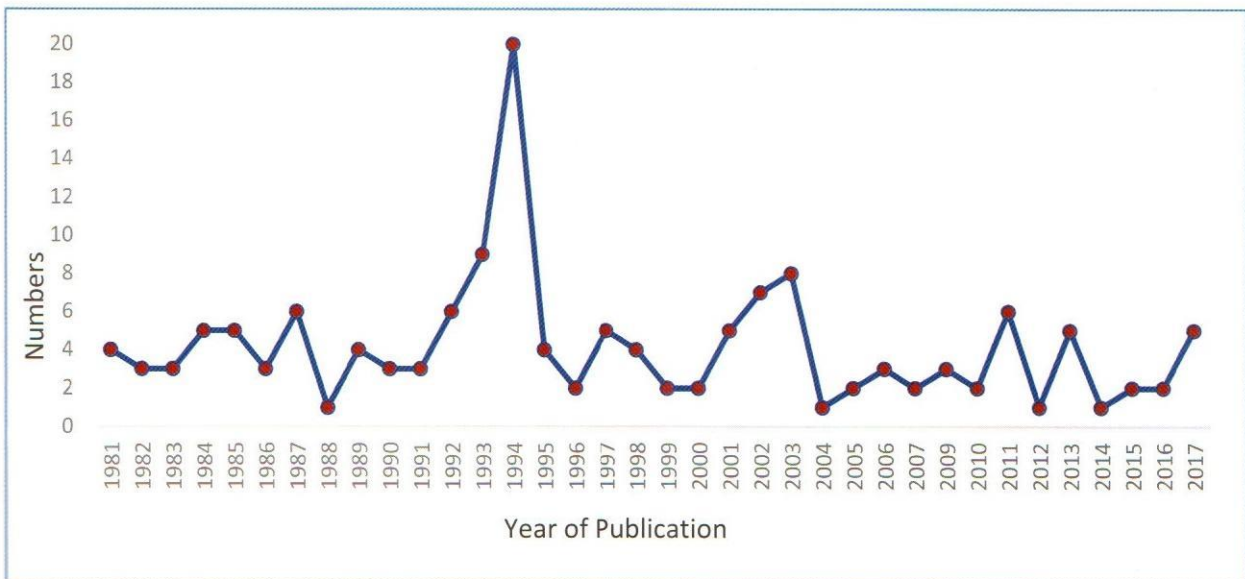


Figure 2.15: Childhood Mortality Trends in Pakistan by PDHS (1990 -91 to 2017-18)



A total of 103 studies on mortality issue were identified and selected for further analysis. Figure 2.13 shows that the topic has been a point of interest and continuously studied from 1981 to 2017. Interestingly an outstanding number of studies were conducted in 1994, most likely as an aftermath of the International Conference of Population and Development (ICPD). The leaning towards researching the issue of mortality is relatively better than other demographic areas, like morbidity.

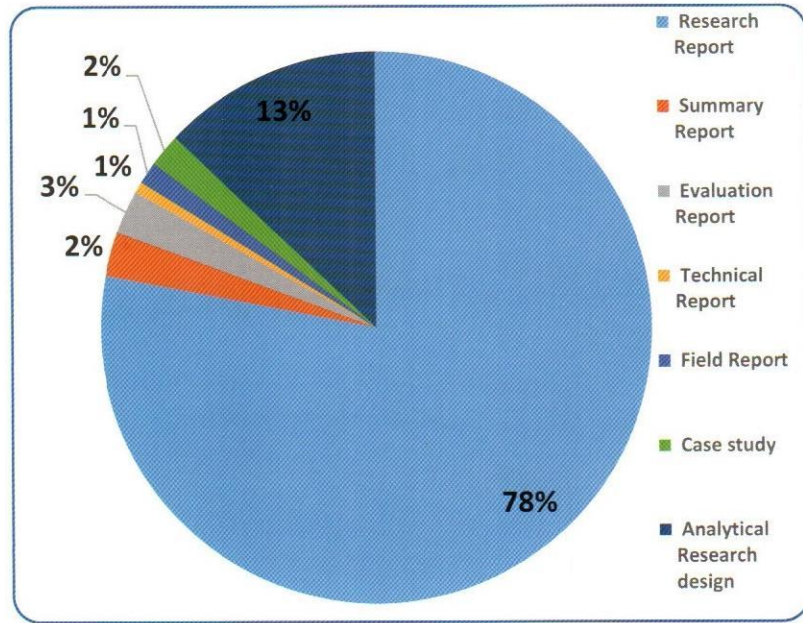
Figure 2.16: Number of studies on mortality by year of publication



Analyzing the available studies by the type of research (shown in Figure 2.14), majority of the mortality focused studies are research based including both reports and journal articles. Fewer studies are available based on analytical design that discuss the methodological design to measure mortality. There are also some studies available on comparative analysis on mortality measures.

The studies conducted on perinatal, neonatal, and child mortality present information on trends, factors of delays in particular contexts and settings, efforts to reduce rates over time, and

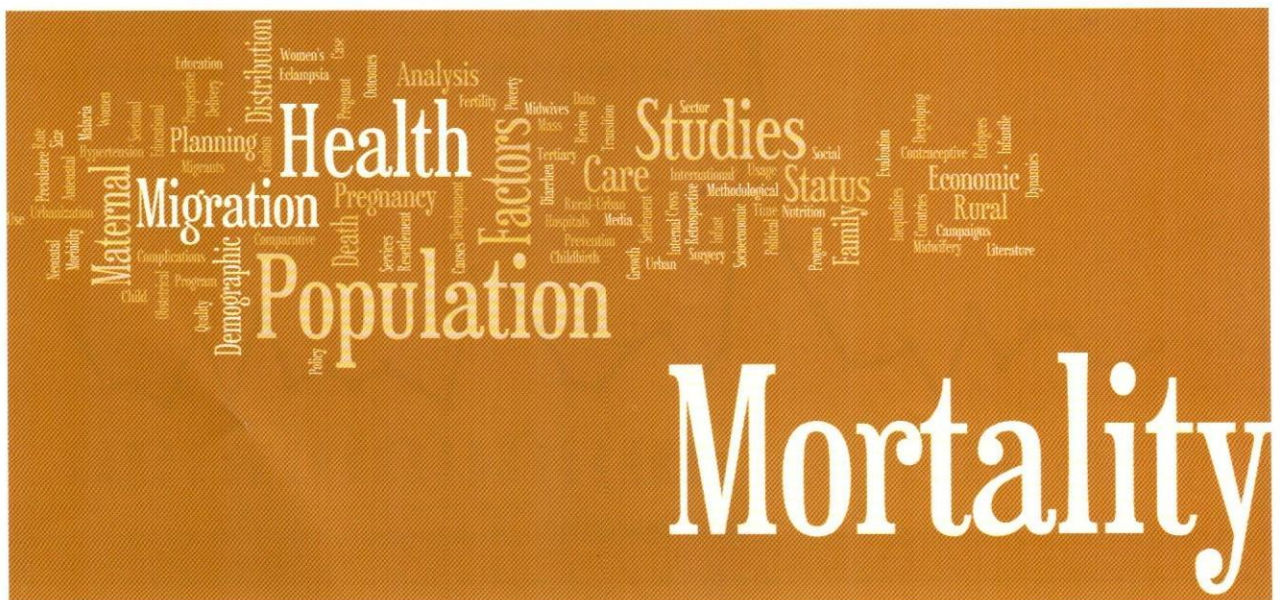
Figure 2.17: Studies conducted on mortality by type of study (1980–2017)



demographic factors and fertility behaviors that contribute to increasing mortality risks. Most of the studies are conducted at national level to assess the magnitude, causes and standards of health care factors responsible for maternal mortality. The main method used to calculate maternal mortality is verbal autopsy, based on which direct and indirect maternal mortality causes are identified. The evidence is being utilized to develop interventions and programs that address issues of morbidity and mortality.

Figure 2.15 shows the summary of the range of topics and sub-topics that have been studied with reference to mortality. In this word cloud the size of the font reflects the frequency with which each topic has been studied. As shown by the figure, prominent sub-topics include health issues, related factors, health services, demographics of population, and migration.

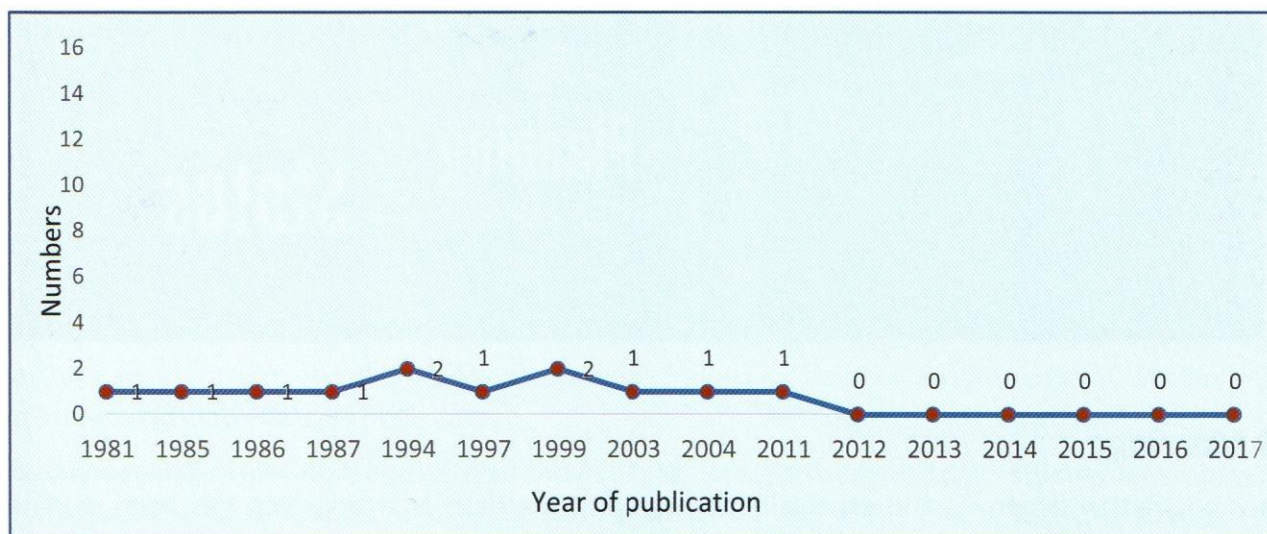
Figure 2.18: Word cloud of sub-themes studied in mortality (1980–2017)



## 2.7 Family dynamics and composition

In a demographic context, the theme of family is studied in terms of its size and its association with fertility preferences and behavior. Since this area is seen in the context of fertility, most of its aspects get covered in studies conducted directly on fertility, which results in scarce research focused on the topic of family. Figure 2.16 shows that the cumulative number of studies per year since 1980 remained under five and this constant pattern is observed throughout the years.

Figure 2.19: Number of studies on family dynamics by year of publication



The studies conducted on family particularly in the reference to fertility are based on secondary data analysis of data sourced by PDHSs, fertility surveys, and primary data collection. Available studies analyzed family structures and other factors that influence fertility preferences such as region, residence, different socioeconomic conditions, cultural background, educational status, wife's labor force participation, husband's occupation, and wife's age and parity. Studies conducted on studying family dynamics also focused on the possible association of family preferences and behavior with contraceptive knowledge and abortion to control fertility, supplemented by gender comparisons. About differences in gender perspectives and its effects on behavior and practices, a number of interventions and programs involved men.

In the same context, a search of the literature reveals that the broad sub-topics studied under the theme of family are contraceptive use, fertility, population, mortality, and fertility. Figure 2.17 displays the results with different size of the font, bigger font size indicates higher frequency.

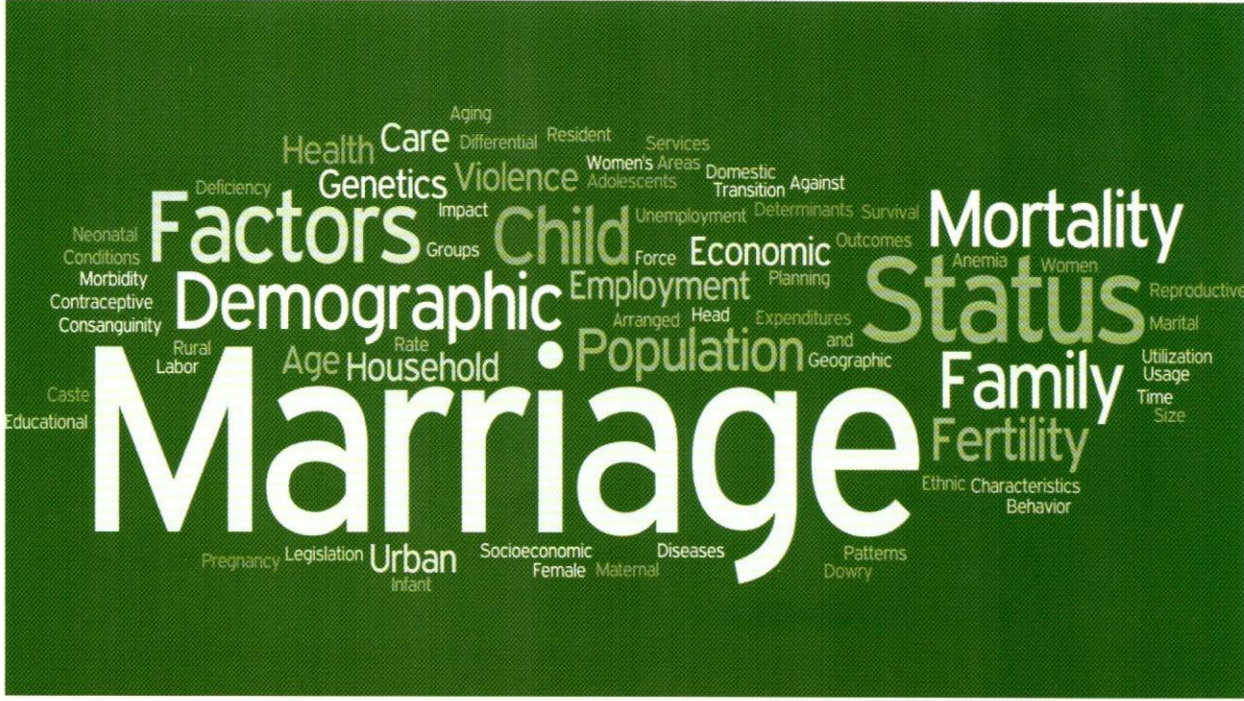


The studies focused on the subject of marriage have been conducted in relation to fertility and family size. The main focus of the studies was the age of marriage, child marriage, causes, consanguineous marriage, nuptiality, and effects of delayed marriages. Few studies highlight the limitation of the datasets to study marriage and compulsion to rely on the Population, Labor Force, and Migration Survey of Pakistan for this purpose. Limitations also include age misstatements and reporting errors that give inaccurate estimates of the mean age at marriage-- mean age at marriage calculated from these survey data do not portray the true picture of nuptiality in Pakistan. Studies also present research on the root causes of child marriage and recommend increased access to education as an effective strategy to prevent child marriages, as girls who stay in school tend to marry later.

One of the studies explored the associations between young women's involvement in their marriage arrangements and their ability to negotiate for contraceptive use and fertility decisions. Other factors explored were respondents' mobility outside of the household, social role, and decision making in their homes. The research concluded that women who had decision-making freedom in their parental home carried this ability with them into marriage in their new home and were better able to negotiate decisions about their fertility. The studies also show that child marriage is significantly associated with many outcomes of fertility control, as well as maternal health care utilization. Furthermore, women who married in early adolescence and childhood show a higher propensity towards most of the negative health outcomes as compared to women who married in middle adolescence age. The study concluded that child marriage adds a layer of vulnerability to women that leads to poor fertility control, fertility-related outcomes, and maternal care utilization.

A detailed search of literature and analysis shows a range of topics and sub-topics studied with reference to marriage. These are summarized in Figure 2.19, in which the size of the font reflects the frequency with which each topic has been studied. Broadly, these sub-topics include fertility, demographics, factors, the status of women, fertility, and mortality.

Figure 2.22: Word cloud of sub-themes studied in marriage (1980–2017)



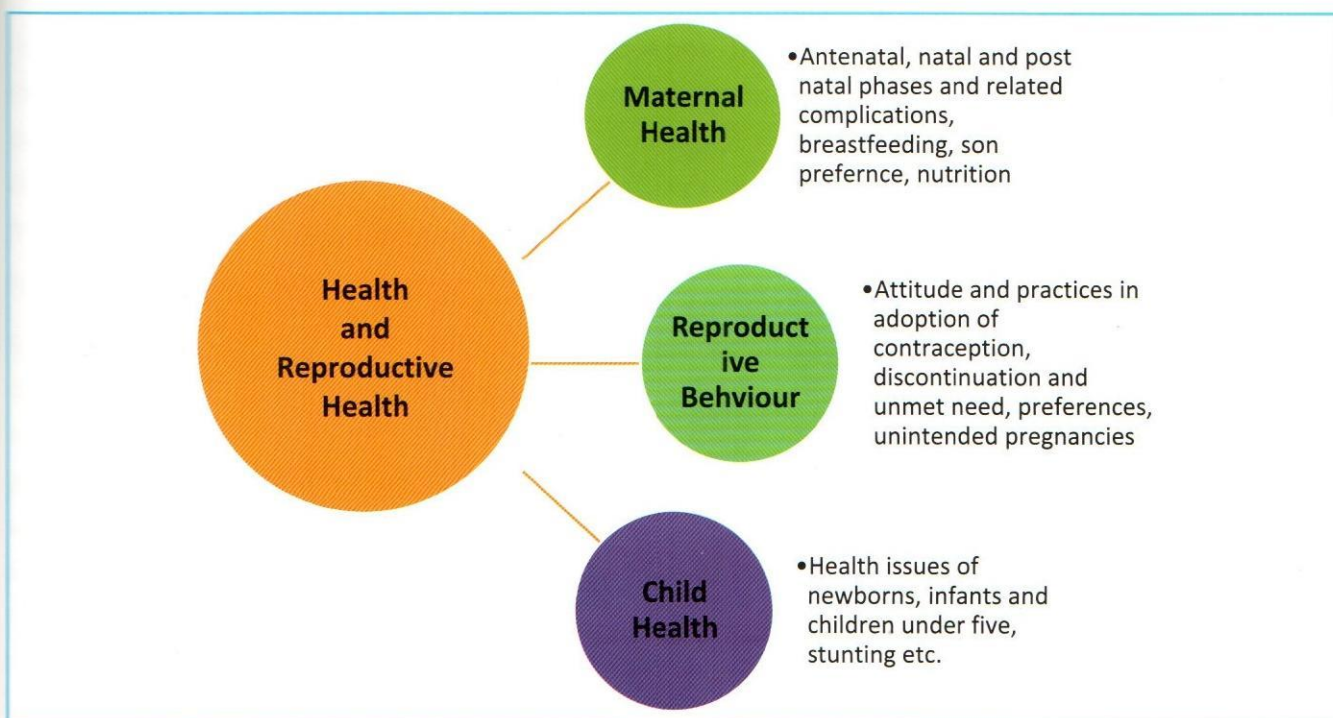


# Chapter 3

## *Cross-cutting Topics of Population Dynamics*

## Cross-cutting topics of population dynamics

While reviewing research on population dynamics, besides the term demography, several other terms emerged as cross-cutting issues common across many of the shortlisted studies. These terms mainly include health and reproductive health, education, and gender.



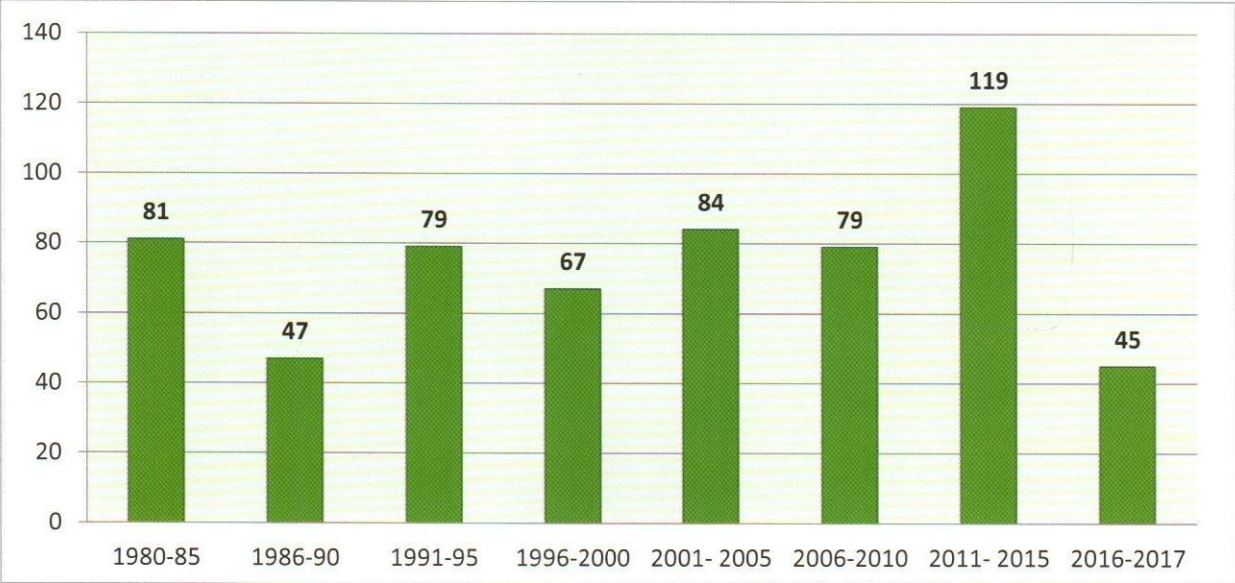
### 3.1 Health and reproductive health

Health/maternal health has close relevance with population dynamics and demography such as the concepts of fertility, morbidity, and mortality. The studies under health and reproductive health encompass three main domains: maternal health, reproductive health, and child health. According to PDHS 2017-18 findings, maternal health indicators have improved. About 86 percent of women who gave birth in the five years before the survey received antenatal care (ANC) from a skilled provider, (a 13-percentage-point increase from 2012-13), and 51 percent of women had at least four antenatal care visits. Concerning the delivery, 69 percent were conducted by skilled birth attendants, and 66 percent of deliveries took place at a health facility.

On the other hand, performance on reproductive health (RH) behavior, which includes fertility intentions, unmet need for family planning (FP), CPR, and discontinuation rates, did not improve during the 5 years' time. Related to child health, PDHS mainly shares figures about protection against neonatal tetanus, and 69 percent of the most recent births to women in the 5 years before the survey were protected against neonatal tetanus.

As this was a cross-cutting theme and broad area, the highest number of studies—260—were identified by the search. Figure 3.1 shows the trend of studies conducted on health-related issues over the years. The trend suggests that studies on population dynamics considered it significant to include the health and RH perspective in their studies, as compared to other topics. The highest number of studies that included the health and RH angle was 30, published in 2013, while the lowest number was six in 1989 and 2003, which came up as highest number for certain other topics of population dynamics.

**Figure 3.1: Number of studies on health and reproductive health by year of publication**



**Maternal Health**

During the decade of the 1980s, there were three main focus areas of studies in maternal health research—breastfeeding, women's health and status, and preference for a male child. In the early 80s, the focus of studies under maternal health had been to estimate the incidence and levels of breastfeeding in Pakistan, to investigate the socioeconomic differentials of breastfeeding, and understand the implications of prevailing patterns of breastfeeding on fertility. The studies also assessed the extent to which the very strongly expressed preference for sons in Pakistan influenced couples' actual fertility behavior. Several fertility measures and estimation techniques had been used to determine whether subsequent fertility behavior was influenced by the sex composition of previous births.

The studies during the 1980s also examined the cultural practices and social status differentials that may endanger the health of females and contribute to female mortality. Using data from the Pakistan Fertility Survey (PFS), conducted as a part of the World Fertility Survey (WFS) program, and based on the data the interrelationships between educational attainments, residence, pattern of work, and occupation were also analyzed to assess their impact on women's status in comparison with other developing countries.

The main indicators used to assess maternal health were antenatal, natal, and post-partum. The studies analyzed all potentially contributing factors that cause complications and maternal deaths such as analysis

of the place of delivery, deliveries attended by skilled and unskilled attendants, immunization, and post-partum complications. A number of studies analyzed the type of complications and social and economic factors related to maternal deaths over the years.

There is a consistent debate on the direct and indirect causes of maternal deaths and ways to address them through interventions and programs. Analysis advanced that major causes of maternal deaths were medical disorders, hemorrhage, sepsis, toxemia, and abortion. Given the sensitivity of induced abortions in Pakistan, no research estimated the incidence of abortion. For the first time in 2004, a study using indirect estimation methods, revised after 10 years, showed high and alarming rates of abortion in Pakistan. This is an area within maternal health of which the number of studies is very low, and the available studies are generally limited in scope and depth. However, they provide evidence to understand the burden of abortions and related complications, not only in terms of women's health but also how the health system deals with averting unwanted pregnancies.

### Family Planning

Studies conducted on FP mainly discussed the status of Pakistan Population Planning Program since the inception in 1965 and analyzed various approaches and policies adopted and developed to reduce fertility rates to overcome the effects of high fertility on the achievement of economic and social development goals. Data were drawn from the 1975 World Fertility Survey, the 1979-80 Population, Labor Force Survey, and Migration Survey, the 1984-85 Contraceptive Prevalence Survey, and the series of DHSs. National surveys, particularly demographic health surveys, have been providing contraceptive prevalence rates over the years, comparing it with previous patterns. Along with DHS, other data sources like global fertility surveys, PSLM, MICS (providing district-level rates) also provide the information on CPR and related indicators, such as unmet and met-need for FP and ideal family size.

A number of other studies based their analysis on primary data collection as well as secondary data sets, focusing on trends over the years, knowledge, attitude, and practice levels of couples, profiles of different type of users, method-specific use, problems, and costs. The focus of the studies has been to understand the factors responsible for low contraceptive use, barriers and its variation across the regions, age groups, educational status, residence, parity, and occupation. Some of the studies evaluated interventions carried out to improve FP services on small and larger scales, while some described the different models of marketing of contraceptives by the private sector, and assessed the supply systems and bottlenecks in both public and private sectors.

### Child Health

The main focus of studies on child health was on infant and child morbidity, mortality, stunting, and immunization. Child's birth weight, growth, health and child morbidity, and mortality have been analyzed using different types of data sources and studies including facility-based data, community-based evidence, clinical studies, and comparative studies. The available studies suggest that all child-health related issues have been analyzed by mother's education, father's education, mother's current residence by region in the country, time period of the birth of the child, mother's age at the time of the birth, birth order of the child, and sex of the child. Pakistan Fertility Survey and DHS provide data on infant-child mortality.

Some studies explored the influence of sex composition of live births and surviving children, and sex differentials in infant and child mortality through parity 4 on the subsequent fertility behavior of couples. Using World Fertility Survey data, the replacement behavior of individual couples who experienced the death of a child and the differences in the ability or motivation of families to replace children who have died was also studied, not only for Pakistan but compared with other neighboring countries. After the late 1980s, areas of focus were to measure the magnitude of the problem of neonatal tetanus (NNT), neonatal sepsis, malnutrition, and diarrhea. The evidence led to a number of intervention programs carried out at a different point in time to address child morbidity and mortality issues.

Recent studies identify the causes of child malnutrition as early marriages, large family size, high fertility rates with a lack of birth spacing, low income, the lack of breastfeeding practice, and exclusive breastfeeding. Since health and RH are vast areas of studies, a detailed search of literature and analysis revealed that a range of topics and sub-topics have been studied within this theme as well. Figure 3.2 summarizes the search results, in which the size of the font reflects the frequency with which each topic has been studied. Main sub-topics are fertility, health, status, population, migration, mortality, and family.

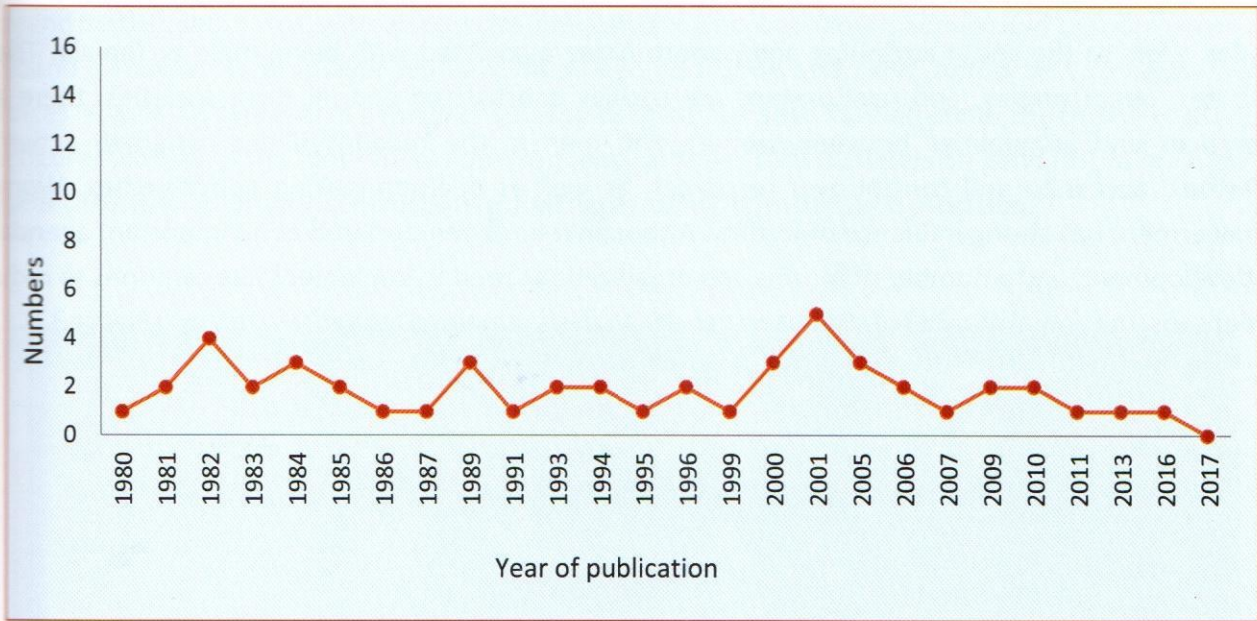
Figure 3.2: Word cloud of sub-themes studied in health and reproductive health (1980–2017)



### 3.2 Education

Education is one of the major cross-cutting issues in population dynamics research. The studies reviewed that integrated education data further reveal that there is a higher contraceptive prevalence in communities that had higher schooling enrollments and corroborated the influence of primary schooling on fertility transition in the country. Moreover, studies also identified a positive association between education and utilization of maternal health care services to improve health indicators. These studies noted that a country's socio-economic development can be successful, if the education attainment of its inhabitants is pervasive and high, as it contributes to declining birth rates and fertility. The search found 71 relevant studies and Figure 3.3 shows that the number of studies per year remained under five on average throughout the review period.

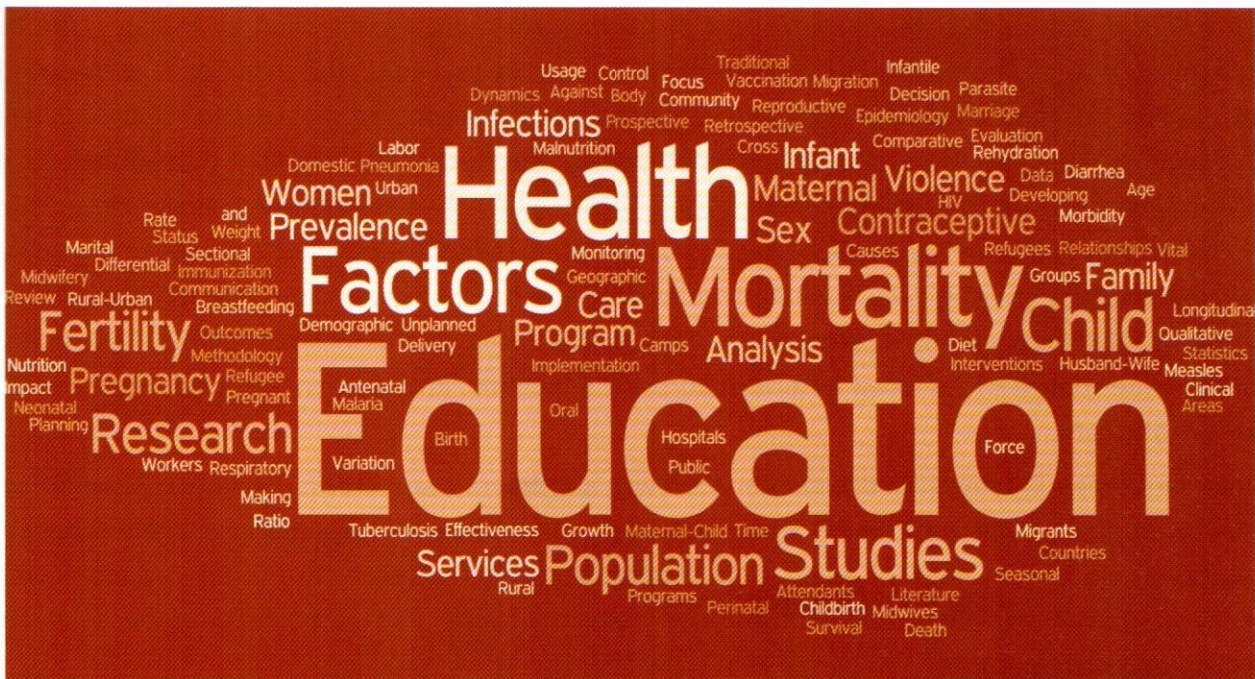
Figure 3.3: Number of studies on education by year of publication



Among the studies that were selected and reviewed, the topic of education and population dynamics has been examined by its relationship and association with fertility behavior. During the early 1980s, studies investigated the structure of the relationship between female education and fertility, using data from the World Fertility Surveys for 14 countries. These analyses represented a wide range of cultural background, geographical environments, and levels of economic and educational development.

Figure 3.4 shows a word cloud of topics and sub-topics that surfaced under the main theme of education. Although a range of topics has been covered under the topic of education, going by the font size indicating its frequency, main sub-topics were mortality, fertility, contraceptive, violence, and health.

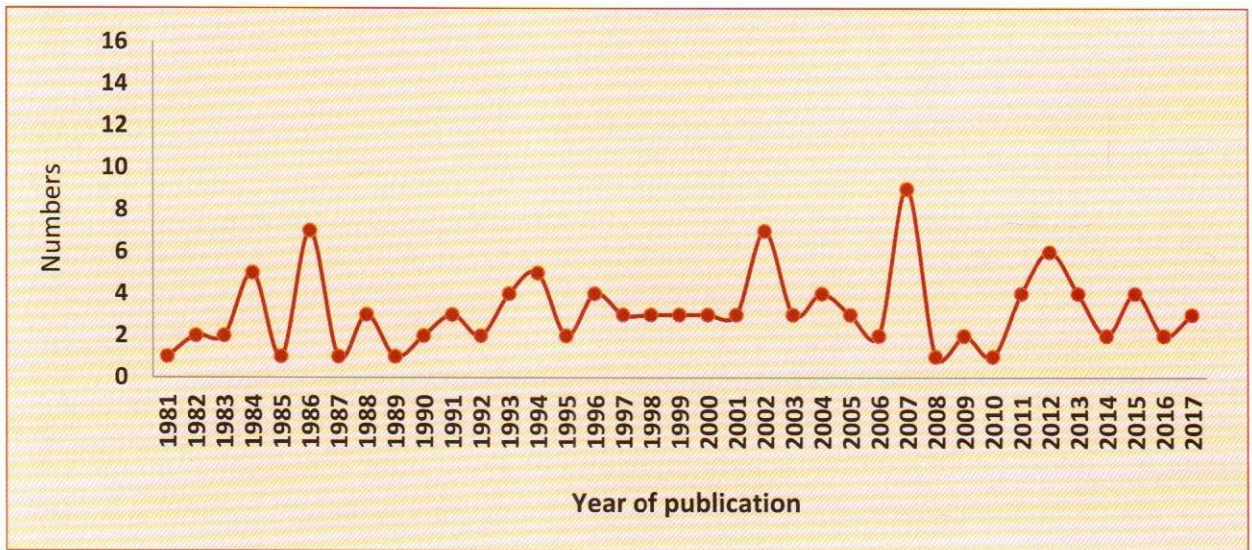
Figure 3.4: Word cloud of sub-themes studied in education (1980–2017)



### 3.3 Gender

Gender refers to the social attributes and opportunities associated with being male or female. These attributes, opportunities, and relationships are socially constructed and, in most societies, there are differences and inequalities between women and men in the responsibilities assigned, activities undertaken, access to and control over resources, as well as decision-making opportunities. Women empowerment has strong influence of fertility. Although it has been declared as an important agenda of the development, and a number of forums and organizations tried to implement interventions to reduce gender gaps, the actual number of studies on gender analysis remained limited, as shown in Figure 3.5.

Figure 3.5: Number of studies on gender by year of publication



While evidence shows that gender gaps and disparities are more experienced by females, the male perspective is virtually non-existent in the available studies. By and large, the main focus of the gender-based studies has been on gender inequalities particularly in the context of access to education, health services and facilities, decision-making, and employment. The studies also highlight that adolescent girls and young women are at a greater risk of these inequalities than their male counterparts. Studies recommend that programs and services need to be designed to facilitate women's access to physical and social needs. Talking about gender equality, studies have also been conducted on violence against women covering its incidence, practices, attitudes toward gender roles, and associated factors. Research also covered gender-based issues faced by girls in pursuing education, employment opportunities, and while seeking health care.

Though the studies directly related to gender are fewer, another relevant area is the status of women and a number of studies have focused on this when assessing gender disparities. Studies investigated changes in the status of women in different generations, intergenerational increases in the educational levels of women, occupation, age at marriage, the number of children borne, and relationships of these indicators with economic development.





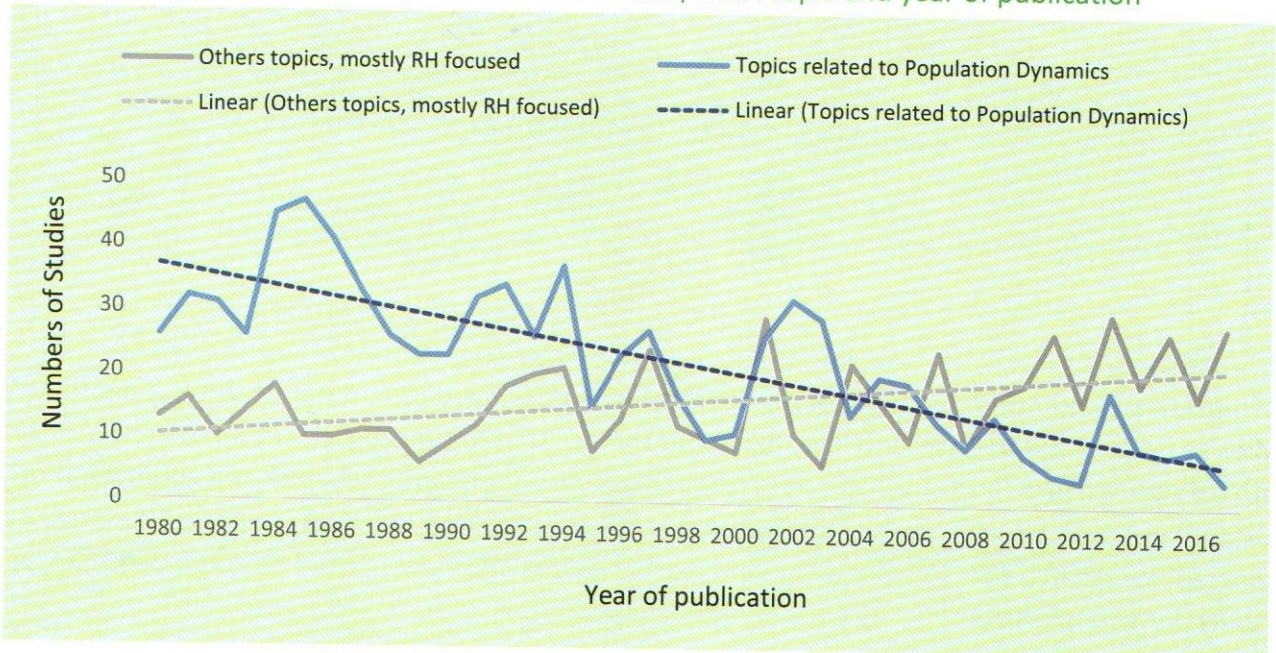
# Chapter 4

## *Summary of Literature Search on Population Dynamics*

## Summary of literature search on population dynamics

This section summarizes the search results on population dynamics and the cross-cutting areas. The figure 4.1 gives analysis of the selected 1,428 studies published between 1980–2017. The trend in number of studies published in each year shows an alarming picture. The pattern of studies related to population dynamics continues to decline gradually after 1990s and research on other topics, particularly RH, gradually increased in recent years. Primarily, this crowding out of studies on population dynamics occurred as a result of shifting of funding towards RH.

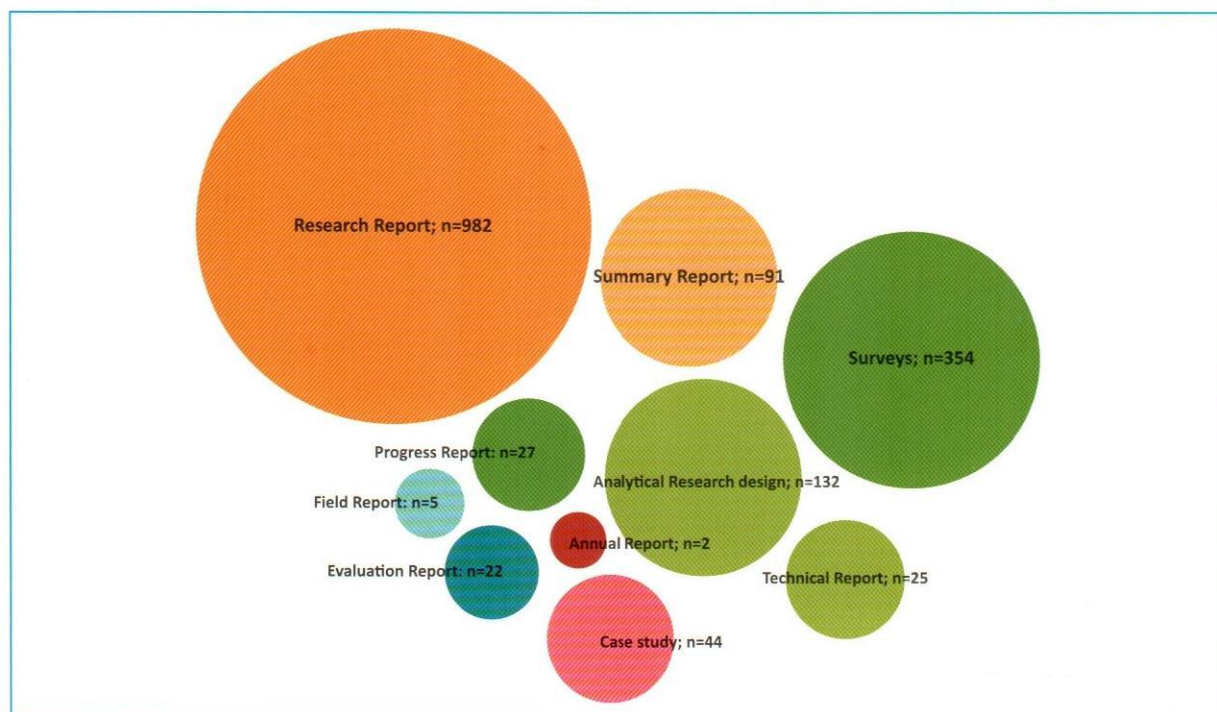
Figure 4.1: Number of studies searched by main topic and year of publication



Regarding cross-cutting themes, the most frequent topic to come up was health and RH. These two are strongly linked with assessing morbidity and mortality under demography, but, due to the predominance of medical and clinical studies that encompasses several social and cultural perspectives, this area has been discussed as a cross-cutting issue. Under demographic studies, many studies included mortality, fertility, migration, distribution, and growth while the least concentration was given to the topics of family and marriage. The lack of inclusion family dynamics and cause of deaths in the research is probably due to the reason that there are no surveys that exclusively bring evidence on these topics.

Assessing the type of studies that have been conducted on population dynamics in the last four decades, search results suggest that a huge focus has been on producing research reports based on both secondary and primary data (Figure 4.2). Secondary data analysis was carried out mostly on demographic areas using census, fertility, labor force, migration, demographic and health surveys. Though the number of research reports is not comparable to any other type of research, several studies were based on analytical research design. This powerful group of studies included correlation studies, clinical research studies, methodological studies, mathematical models, longitudinal studies. This type of research remains instrumental in conducting demographic studies but the number of such work is quite meager in the past 37 years.

Figure 4.2: Studies conducted during 1980-2017 by type of study (All topics)



It is important to mention that none of the representative surveys collect data on cause of death, so the studies so far have not been able to investigate this thread. Thereby, making information on the causes of death is a glaring gap in the available body of research within demographic research and understanding. Pakistan clearly needs to revamp research on all areas of population dynamics. The recent falling trends on demographic research calls for special surveys, particularly at sub-national and district levels to cater for the diversity across Pakistan.

### Under-research topic identified through literature search

The review of literature shows that there is high need for both descriptive and deterministic type of studies. Following topics are identified as least-research areas of population dynamics.

1. Stagnant and high demand for children
2. The intergenerational patterns of family formation
3. Changing age at marriage and composition of families
4. Profile of economically in-active population
5. Disable, old-age, vulnerable and socially excluded populations
6. Integration of population dynamics into economic planning
7. Population economics and demographic dividend
8. Causes of death
9. Labour market transition of higher education graduates
10. Migration
11. Business demography
12. Gender analysis and population dynamics
13. Population and environment nexus

# Chapter 5

## *Views of Experts*

## Views of experts about studies on population dynamics in Pakistan

After analyzing the areas and scope of available research on population dynamics, this section presents the views of field experts on areas that remain under-researched. The experts were asked about under-researched topics and they type of research and surveys required for the topics they suggest for future examination. These findings are based on 10 interviews with population experts.

### Under-researched topics in Pakistan

The experts were asked to identify at least three less researched topics in demography and cross-cutting themes since 2010. Experts prioritized these areas, 1 as being most important to 3 as less important.

**Demography:** Demographic dividend and technical demography were highlighted as under-researched areas by most of the experts. Further, on technical demography, specific aspects underlined included research methods, techniques, measuring data, dealing with inaccuracies of data, issues on age reporting and under enumeration. Respondents also mentioned fertility, social determinants of fertility behavior, its stagnation, mortality, population growth, and migration as other understudied areas.

Other important areas that were identified as understudied included distribution of population in remote areas, aging population and their survival, morbidity, family planning, size, and composition and stillbirths. In view of a few of the experts, additional understudied areas were the unmet need and contraceptive use, life expectancy, life tables, and marriage.

**Cross cutting topics:** With respect to cross-cutting issues, majority of the experts identified education, political economy, gender issues particularly in terms of females' reproductive health issues, low attention to female education, low paid work for working women, non-supportive household environment as most neglected and understudied areas. Moreover, health, population and environment, and its challenges, labor economics, were also identified as understudied cross-cutting issues. One of the respondents also mentioned the Vital Registration System as the more important but understudied issue.

According to few of the respondents, acceptance of disability in society, e.g. child disability by birth (Autism and Down Syndrome), population economics, urbanization, social protection, violence, and injuries are also understudied in Pakistan. Few of the respondents also mentioned that topics of labor rights awareness, inter-spousal communication, labor economics, childhood development, health, and water and sanitation are not given their due attention.

The list of understudied areas identified for both demographic and cross-cutting issues reflects a consensus among the respondents on certain topics (mentioned as most important) but there was diversity of opinion in the range of different topics that are considered as understudied by the experts of the field.

### Type of research analysis required

In reference to the topics recognized as understudied, experts were further asked about the type of

research analysis they would recommend as the appropriate and required method to study those particular demographic and cross-cutting topics. They were asked about what topics should be researched using incidence, coverage, prevalence, and descriptive research analysis and which ones should use deterministic research (cause and effect) analysis. This question was asked separately for demographic and cross-cutting issues with reference to topics each individual had identified earlier. The experts' suggestions were dichotomous for some of the identified areas, while some topics were marked to be analyzed through both type of analyses.

It is worth noting that there was not always a clear consensus among the respondents while identifying the understudied topics and further suggesting the type of research analysis to employ in the investigation, but the proceeding description is based on what emerged as the majority responses.

**Demographic topics:** For demographic terms, respondents suggested using **incidence/ coverage/ prevalence/ descriptive research analysis** for topics on technical demography, life expectancy, life tables, population growth, and ageing. On the other hand, respondents suggested using **deterministic (cause n effect) research analysis** for topics on demographic distribution in remote areas, problems of ageing population, demographic dividend, FP, and unmet need for FP.

The demographic topics for which both types of research analysis were recommended included morbidity and mortality, migration, fertility stagnation, size and composition, growth, still births and injuries.

**Cross-cutting topics:** Responding on cross-cutting areas, experts proposed **incidence/ coverage/ prevalence/ descriptive research analysis** for environment challenges, rural women's life health and economic issues, gender and labor rights awareness, and vital registration (births and deaths).

Experts did not mention any particular topic for which they proposed exclusive **deterministic (cause and effect) research analysis** is required. For majority of the identified understudied topics, respondents proposed applying both types of analysis. The range of topics included gender, health, education, accepting disability in society, political economy, population economics, politics of 'low attention to female education', inter-spousal communication, labor economics, population and environment, urbanization, population growth, social protection, violence and injuries, education, water and sanitation.

## Population groups not adequately studied

Respondents were also inquired about particular population groups that are not adequately covered in Pakistan. The pre-coded choices were infant, child, adolescent/youth, men/women, and old age, but they were also asked to specify any special population/social group or sub-groups they think is not adequately studied in Pakistan.

Since the majority of the respondents mentioned demographic dividend as an important understudied topic, almost all respondents mentioned that adolescent and youth group has not been adequately examined in Pakistan within demographic research. Respondents identified both infant/child and senior citizens with almost the same strength as understudied population groups. Few respondents also mentioned men/women as neglected in the population group, while few respondents mentioned

transgender and policymakers.

While identifying understudied population groups in cross-cutting areas, majority reiterated adolescent and youth with substantial strength but also stated that population group of men and women are also not been adequately studied in Pakistan, followed by old age group. Population group of infant/child was less mentioned by experts under cross-cutting areas. Two respondents also cited that migrants and nomads are also often neglected in research studies.

## Proposed topics for future research on population dynamics

Experts were also asked to propose topics on population dynamics that should be researched in the future. The responses received are broadly aligned with the topics they identified as understudied topics in Pakistan. These proposed topics are given below as major themes and sub-themes where applicable. Respondents proposed a range of sub-topics under population growth, morbidity, and fertility while some other themes were also proposed but without details about the range of sub-topics.

### Population Growth:

- Determinants and factors for high population growth in Pakistan
- Unplanned Urban Growth and Urbanization
- Why family planning programs have no significant affect in controlling population growth rates in Pakistan?

### Morbidity/ Health issues

- Deaths due to disease/ morbidity and life expectancy
- Husbands' perspective about women healthcare
- Role of husband in post-partum healthcare of young women
- Why people go for tertiary healthcare units instead of primary healthcare units?
- Autism and Down Syndrome in infants by birth (possible reasons, awareness of such disability, acceptance of such group in society and helping them in schooling)

### Fertility

- Changing family structure and its impact on fertility, gap between demand and supply towards FP services (multi sectoral and multi method approach)
- What factors are associated with unintended pregnancy?
- Dynamics of social norms, what shapes individual behavior to take decision on fertility
- Is poverty still a major factor in fertility and FP goal achievement?

- Why Pakistan struggles with high unmet need and stagnant CPR?
- Life course analysis of the reproductive attitudes and behaviors—important to understand the couples' fertility decision making
- Drivers and factors associated with unintended fertility with particular focus on couples
- Fertility transitions – identification of barriers and way forward and interlinkages between fertility and mortality which is most under researched area in Pakistan to devise policy.

## **Internal and external migration across all ages and regions of Pakistan**

- Mortality needs to be understood for all ages and all regions of Pakistan.
- Technical Demographic and Vital Statistics
- Gender and awareness of rights, female labor force participation
- Challenges of Ageing Population in urban rural areas
- Demographic methods and data issues

## **Marginalized/ under researched geographic areas**

Majority of the experts highlighted that province of Balochistan is a severely under-researched geographic area. Even in major surveys, many areas of Balochistan are not accessed and it needs special attention because less is known about its areas and patterns. Besides Federally Administered Tribal Areas (FATA), especially since its merger and Federally Administered Northern Areas (FANA), deserts of Sindh and southern Punjab are also marked as understudied geographic areas.

Another perspective of the experts was that regions that reflect a particular demographic or population patterns should be studied with rural-urban divide. The particular patterns are found in southern Punjab, some districts of Sindh and districts of KP where population growth rate is high as compared to other districts. This differential should be investigated to ascertain the root causes. Similarly, in remote areas of northern areas and Balochistan, minimal change in FP and fertility indicators, extreme malnutrition, and prevalent misconceptions about breastfeeding practices demand more regional studies. Moreover, it was also proposed that major urban areas of Pakistan can be better studied for topics of disability and urbanization. According to experts, out of school, on the street, rural, poor, and peripheral settings are largely ignored and understudied.

## **Proposed surveys to cover identified topics**

Respondents were asked what existing surveys and what new surveys they propose to obtain information on identified understudied topics. Experts proposed that existing surveys mainly PDHS, Pakistan Social and Living Standards Measurement (PSLM), Multiple Indicator Cluster Survey (MICS), Labor Force Survey, Household Integrated Economic Survey (HIES), and Household Integrated Income and Consumption



Survey (HIICS) cover only a certain information and can be used to gather data on understudied topics particularly migration, morbidity, and mortality. Yet, respondents observed the limitation of these questionnaires as lengthy enough and adding more questions may make data collection even more challenging. One of the respondents suggested conducting a robust qualitative analysis of PDHS and other population-centered surveys.

A few respondents were of the view that these understudied topics should be studied through small scale studies to understand perceptions and barriers, similar to the studies and case studies carried out by the Population Council. Further, technical demography, which was identified as a major understudied topic, is not being covered by any survey. These are the demographers in Pakistan who need to think and work on it.

On the latter part of the aforementioned question, experts answered that topics of women labor force, adolescent and youth, nutrition, perceptions of women regarding marriage, family size, willingness to use contraception, and migration in Pakistan need new surveys because existing surveys do not capture this required information. For this purpose, they identified the need for a comprehensive and exclusive survey on health/morbidity/mortality. In addition, demographers should initiate panel data surveys to understand the cause and effect relationships and changing attitudes, behavior patterns, and decision-making process about fertility over time, because cross-sectional surveys do not provide the meaningful information on these issues.

One of the interviewed demographers advanced carrying out surveys like the National Longitudinal Survey of Youth (NLSY) of the United States, to study young children over a period of time. A few respondents highlighted the need for the revival of Pakistan Demographic Survey (PDS) to capture data on understudied topics and 'Time Use survey' to study women's employment and family conflict because more and more women are entering the labor force but familial gender roles are not changing at the same pace.

One of the respondents stated there is already sufficient data in Pakistan and there is no additional need to collect more data. Rather emphasis should be placed on in-depth analysis to get insights from the existing datasets.

# Chapter 6

## *Conclusions and Recommendations*

# Conclusions and recommendations

## Conclusions

It is evident that Pakistan's demographic transition is slower than expected. The death rates are falling but the pace of decline in fertility is slower than what is required to arrest the high population growth rate. It is now even more important to study population beyond simple reporting of its size and growth. The analysis presented here shows that research on demography in general and population dynamics in particular, is reduced to an alarming state in recent years. While few studies considered transition in fertility as their major topic in the 1980's and early 1990s, demographic transitions in mortality, migration and family formation are least studied in Pakistan.

The analysis of studies reviewed in this report suggests that research on population dynamics, particularly on technical demography, has been dwindling after the 2000s. Areas of migration, marriage, and family formation are understudied. The while cross-cutting themes related to the impact of population dynamics on political economy, labour productivity, gender dynamics, environment, and climate change are least studied. Data shows that focus of research has shifted towards reproductive health at the cost of population dynamics after 1990's.

Topics such as demographic dividend stagnant, high demand for children, causes of death, economically in-active population and business demography have not been adequately studied in past two decades. The intergenerational patterns of family formation and population economics are the least researched area within demographic research in Pakistan. Gender statistics is being added in the number of studies but these do not encompass rigorous gender analysis that influence population dynamics.

Pakistan noticeably lacks provincial and district-level research on demography. Even population census is not conducted on time since 1980. Unfortunately, the research community in Pakistan is not expanding in terms of demographers at sub-national level. Also, after the enactment of the 18th amendment, provinces have limited capacities to focus on the collection and utilization of evidence for population planning and policies. These capacities can be strengthened if institutions start collaborating with demographers. Moreover, there is no sub-national leadership in public sector to identify research needs for policy making on a regular basis.

If economic growth remains sluggish and the misallocation of resources on social service delivery persists than an incomplete demographic transition will take its damaging toll on sustainable development. It has been established that countries with incomplete demographic transition are unlikely to achieve Sustainable Development Goals by 2030. Research on population dynamics at national and sub-national levels is required to allow planning for equitable allocation of public money and achievement of Sustainable Development Agenda.

## Recommendations

Given the deteriorating situation of research on demographic areas, there is an urgent need to revive

research on demographic topics by demographers and population experts. Particularly to support evidence-based policies and programs, certain understudied areas of population dynamics demands special attention. The findings of this thorough review suggest that there is a need to take bold and upfront steps for revival of research on population dynamics with a particular focus on demography.

### ***Introduction of demography as a discipline in Pakistan***

As the pool of both senior and emerging demographers is limited in Pakistan, the discipline of demography should be introduced at a number of national universities, accompanied by handholding programs between students, seniors, and expert demographers. Without long term programs to train and prepare a fresh pool of demographers, the revival of the discipline and studies on the identified areas do not seem feasible. At the least, new scholarships must allocate a quota for population/ demographic studies in foreign countries for young and promising Pakistani scholars.

### ***Collaborations with existing local forums***

One of the reasons behind the debilitating research situation in the area of population dynamics is that institutes and organizations work in isolation and do not tap into potentials of existing forums. At the local level, government's research institutes and non-profit organizations should establish population research centers at local universities where students can gain guidance and conduct research on issues that have been identified as under-researched in this report.

### ***Collaborations with existing global forums***

This is important that the National Institute of Population Studies analyze existing opportunities at the national and global level to strengthen capacities of the institute in terms of research on population-related areas. Through such collaborations, the institute should can provide patronage to young researchers and demographers for training in technical demography and carrying out research.

### ***Establish demographic surveillance area***

The most immediate need is to establish demographic surveillance areas in each province of Pakistan. The stagnant demand for children and lack of fertility regulation would require deterministic research studies to highlight cause and effects. Also, it will help to examine the changing or stagnant family formation patterns in Pakistan. This can only be done either with panel surveys or establishing a once-for-all demographic research area to avoid multiple small-scale research and wastage of meager resources available for research. The National Institute of Population Studies can take operational responsibility and can collaborate with national and international organizations for funding. The present-day technology will ease the multiple round surveys in the surveillance areas and results can be integrated in policy making on timely basis.

## Annexure 1: List of interviewed population experts

<p><b>Dr. Yasmeen Sabeeh Qazi</b> Senior Country Advisor, Population Program The David and Lucile Packard Foundation Karachi</p>
<p><b>Dr. Asad Hafeez</b> Director General, M/o NHR&amp;C, LG&amp;RD Complex, Sector G-5, Islamabad</p>
<p><b>Dr. Tauseef Ahmad</b> Freelance Consultant, Islamabad</p>
<p><b>Dr. Rabia Awan</b> Director (Sample &amp; Design) Pakistan Bureau of Statistics (PBS)</p>
<p><b>Dr. Nasira Tasneem</b> Professor/Consultant, Mother and Child Health Center Pakistan Institute of Medical Sciences (PIMS)</p>
<p><b>Dr. Najma Javed Awan</b> Senior Medical Officer, PHRC, Islamabad</p>
<p><b>Dr. Durr-e-Nayab, Joint Director,</b> PIDE, Quaid-e-Azam University, Islamabad Islamabad</p>
<p><b>Syed Mubashir Ali</b> Freelance Consultant, Islamabad</p>
<p><b>Ms. Uzma Zia</b> Senior Research Economist, PIDE Islamabad</p>
<p><b>Dr. Saima Bashir</b> Senior Demographer, PIDE Islamabad</p>

## Annexure 2: Questionnaire for population experts

SRNO:

Name:

Designation:

Address:

#	PLEASE identify the under-research area/ research gap by type of research study, population groups and geographic region in Pakistan since 2010.	<b>a. Area of Demography</b> Size, growth, composition, distribution, fertility, marriage, migration, morbidity, mortality, family, ethnicity, and demographic dividend. Technical demography (methods, techniques and measures)	<b>b. Cross cutting</b> Education, Health/ RH Environment, Labor Economic Political economy, Gender Any other (specify)
<b>Q1</b>	Choose <b>three important topics</b> that are under researched in Pakistan since -  (Please specify)	Topic A:	For Topic D:
		Topic B:	For Topic E:
		Topic C:	For Topic F:
<b>Q2</b>	Type of research analysis needed for topic(s) mentioned in Q1. (Please code) <b>Code 1</b> = Incidence/ coverage/ prevalence/ descriptive <b>Code 2</b> = Deterministic (cause n effect) research	For Topic A:	For Topic D:
		For Topic B:	For Topic E:
		For Topic C:	For Topic F:
<b>Q3</b>	Population group not adequately studied. (Please code) <b>Code 3</b> = Infant/ child <b>Code 4</b> = Adolescent/ youth <b>Code5</b> = Men/ women <b>Code 6</b> = Old age <b>OR</b> specify special population/ social group sub-group	For Topic A:	For Topic D:
		For Topic B:	For Topic E:
		For Topic C:	For Topic F:

**Q4.** Overall, which topic of population dynamics would like for future research in Pakistan (please specify)?

**Q5.** Which geographic area (marginalized/under covered in terms of research) need attention in future research?

**Q6.** Which existing survey(s) can cover the topics you have identified?

**Q7.** Which new survey(s) would you like to propose to cover the topics you mentioned for future research on population dynamics in Pakistan?





*Research for Better Future*

## **National Institute of Population Studies**

Population, Reproductive Health & Family Planning



### **National Institute of Health**

Block NIPS Park Road, Chak Shahzad, Islamabad-Pakistan

Tel: 051-9255937, Fax: 051-9255932

[www.nips.org.pk](http://www.nips.org.pk)