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Is there any link between the perception of extreme weather events (floods) and fertility preference? a study on rural Bangladesh

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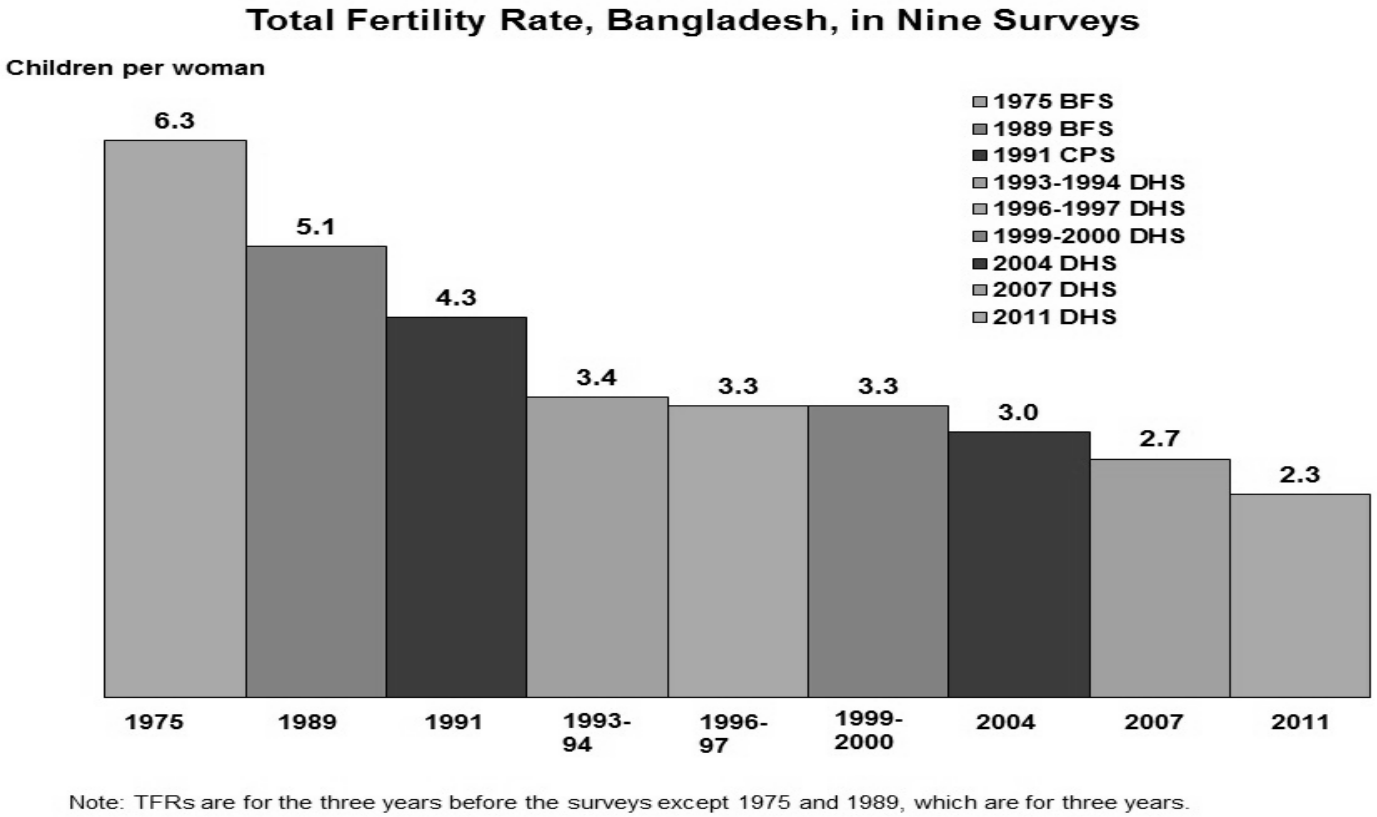
Introduction and background

Population scenarios in Bangladesh

- From 160 million to 220 million in 2050 (Belt 2011)
- From 36.8 million in 2001 to 60.8 million in 2030 in vulnerable areas (Ahmad 2004)
- High population growth in vulnerable areas than national growth (PDO-ICZM 2003)

Trends of fertility decline (Bangladesh)



BFS: Bangladesh Fertility Survey; CPS: Contraceptive Prevalence Survey: DHS: Demographic and Health Survey

Source: Population Reference Bureau

Factors affecting demographic trends (1)

- Low level of education (Rahman and Sumaiya 2010)
- Low accessibility to health care and lack of maternal care

  Lack of employment opportunities (especially for women)
- Religion and traditional belief (Amin et al. 2006)

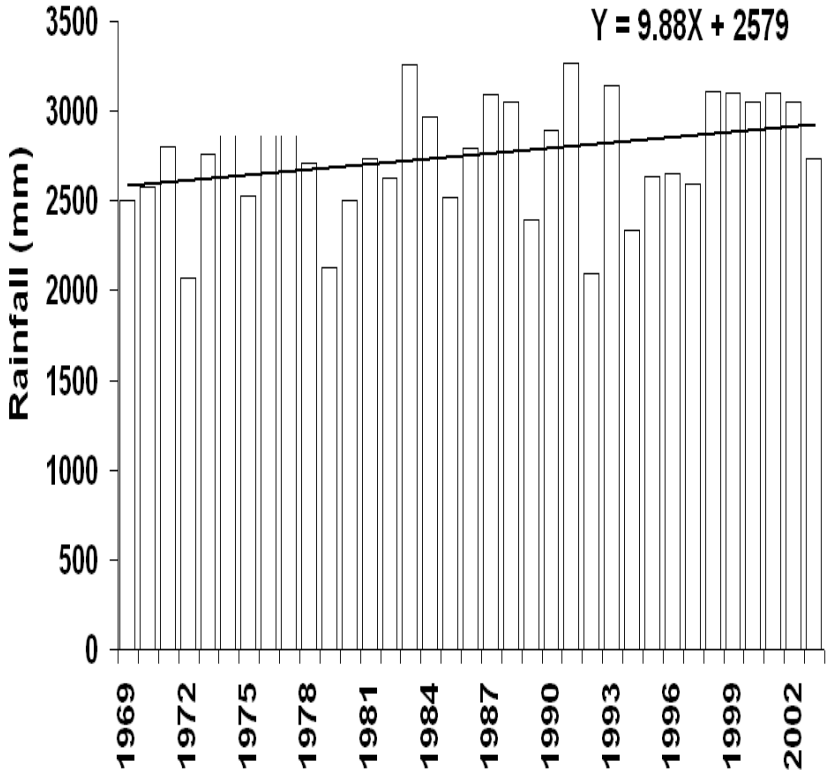
Factors affecting demographic trends (2)

- Son preference; children as labor force and insurance
- Birth intervals depend on the sex composition of children already born
- Long intervals after the birth of a boy than the birth of a girl; shorter intervals for women with no son (Ruth and Rebecca 1997)

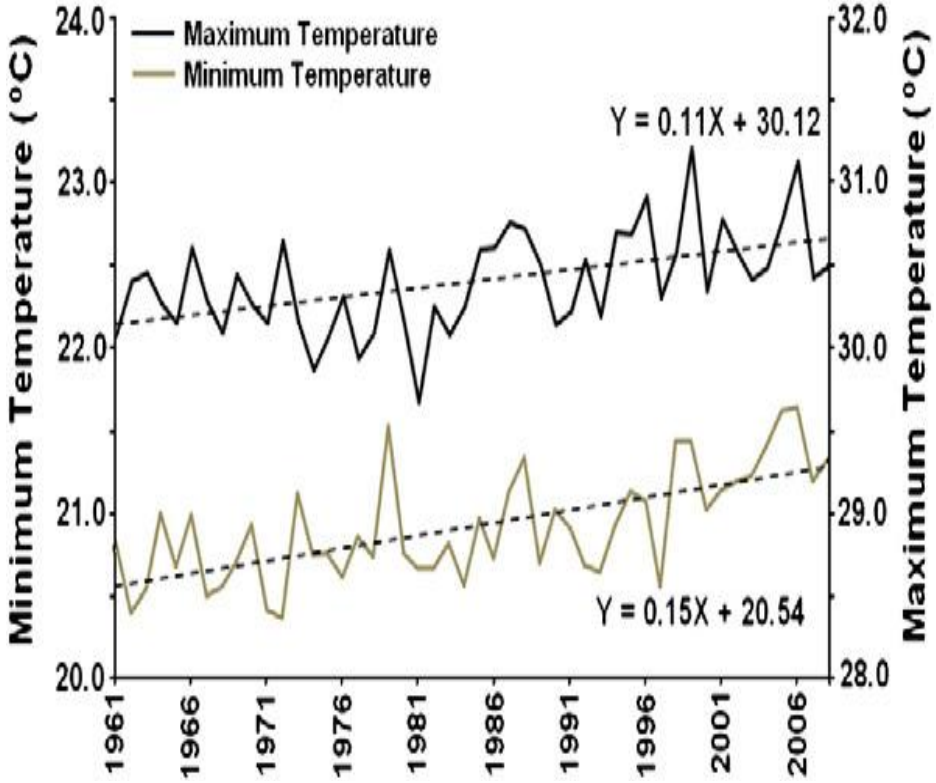
Climate change scenarios (Bangladesh)

- Increase in precipitation by 20-30% and sea level rise by 30-100 cm by 2100 (IPCC 2001)
- 60% living less than 6 meters above sea level
- 70% of the country can be flooded during extreme floods (Mirza 2002)
- 32% populations is highly vulnerable (PDO-ICZM 2003)

- Global warming can change rainfall and temperature range (Shahid et al. 2012)



Source: Shahid and Khairulmaini 2009



Source: Shahid et al. 2012

Future projections (Bangladesh)

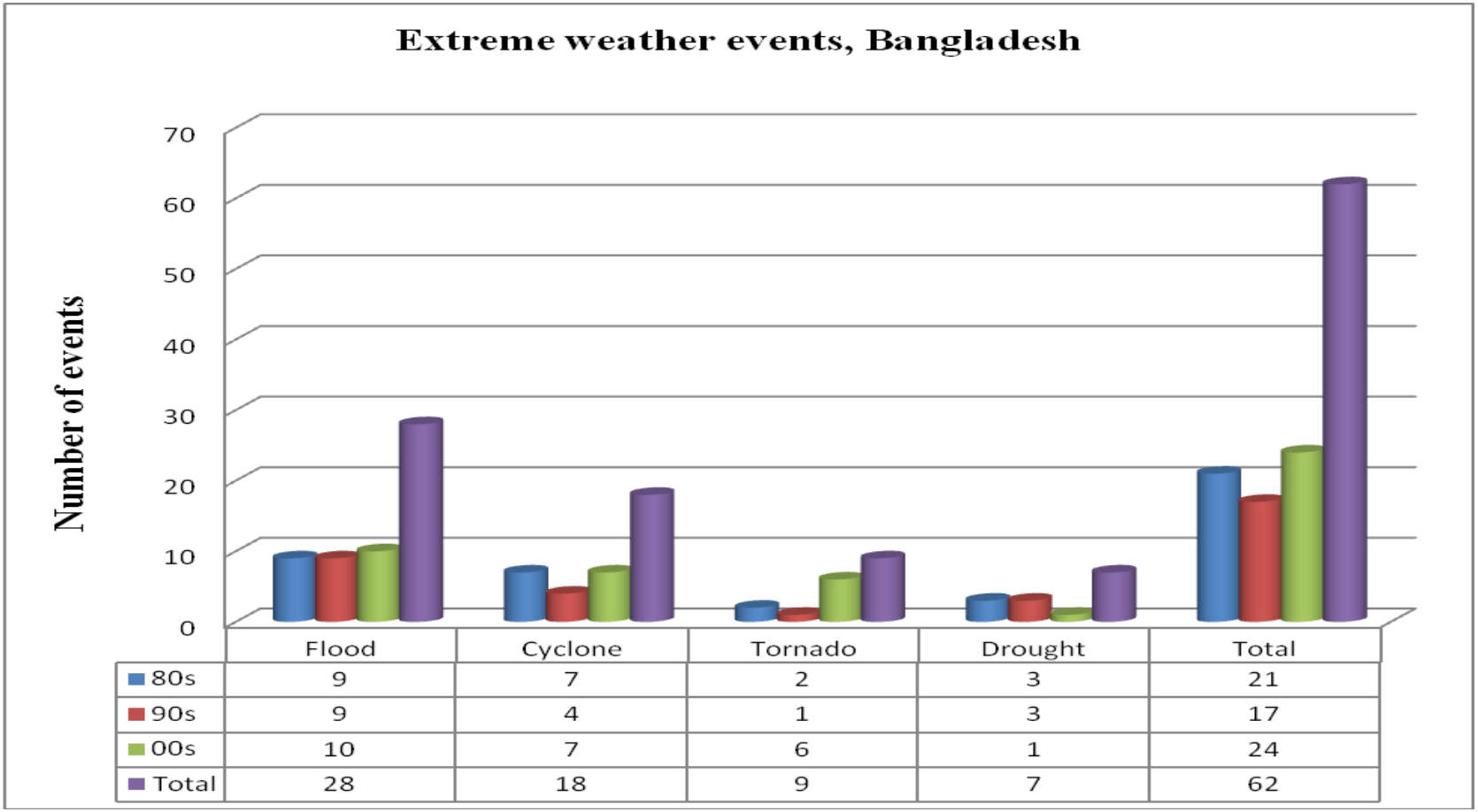
Year	Global increase in mean temperature	Increase in mean temperature for Bangladesh	Increase in mean precipitation for Bangladesh
2030	0.8° C	1° C	3.8%
2050	1.2° C	1.4° C	5.6%
2100	2° C	2.4° C	9.7%

Source: Agrawala et al. 2003

❖Increase in intensity and extension of inundation in the near future (Mcgranahan et al. 2007)

❖More glaciers melting and an increasing runoff from the neighboring Himalayas (Cruz et al. 2007)

Extreme weather events (Bangladesh)



	Flood	Cyclone	Tornado	Drought	Total
80s	9	7	2	3	21
90s	9	4	1	3	17
00s	10	7	6	1	24
Total	28	18	9	7	62

Source: Planning Commission, Bangladesh (2009) and Annual Flood Report, Bangladesh (2012)

Relevant literatures and arguments (1)

- High dependence on natural resources and preference to bear more children (Axinn and Barber 205)
- Environmental deterioration and reducing fertility preference (Biddlecom et al. 2005)
- Impacts of environmental changes on individual and household level fertility decisions (An and Liu 2010)
- Individual views on environment to preferred or intended fertility (Preston 1986)

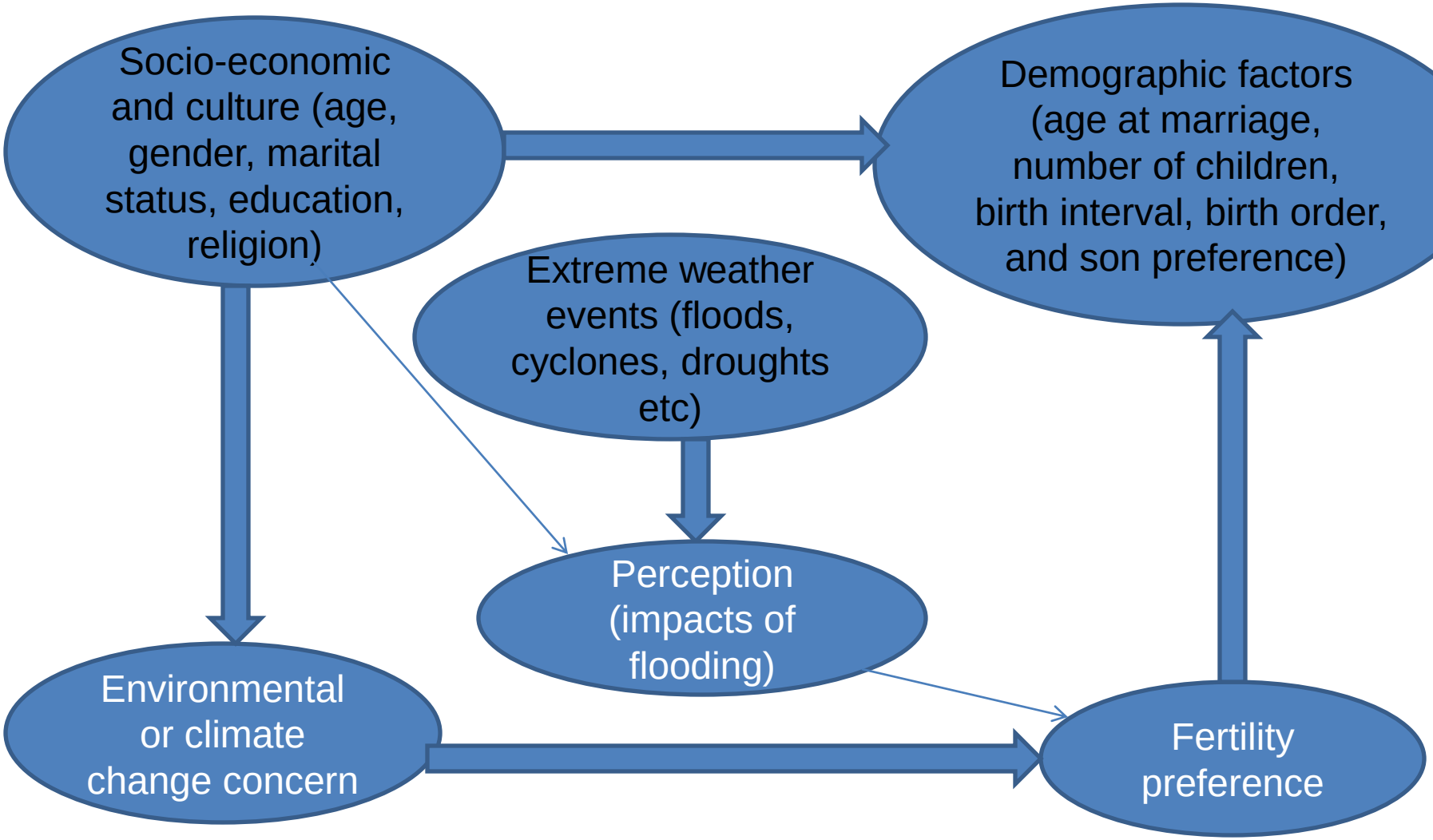
Relevant literatures and arguments (2)

- Empirical studies on the relationship between environment and demography at micro or individual level (Pebley 1998)
- Perception of environmental changes and its influence on fertility preference-an important predictor for environmental awareness and fertility behavior (Ghimire and Mohai 2005)

This study question:

- How perception about the impacts of extreme weather events (floods) influence fertility preference in vulnerable areas in Bangladesh?

Theoretical/conceptual framework



Methodology

Study location:

Sharat Pur (Jamalganj),

Sunamganj District

In Sharat Pur (2011),

Total population: 808

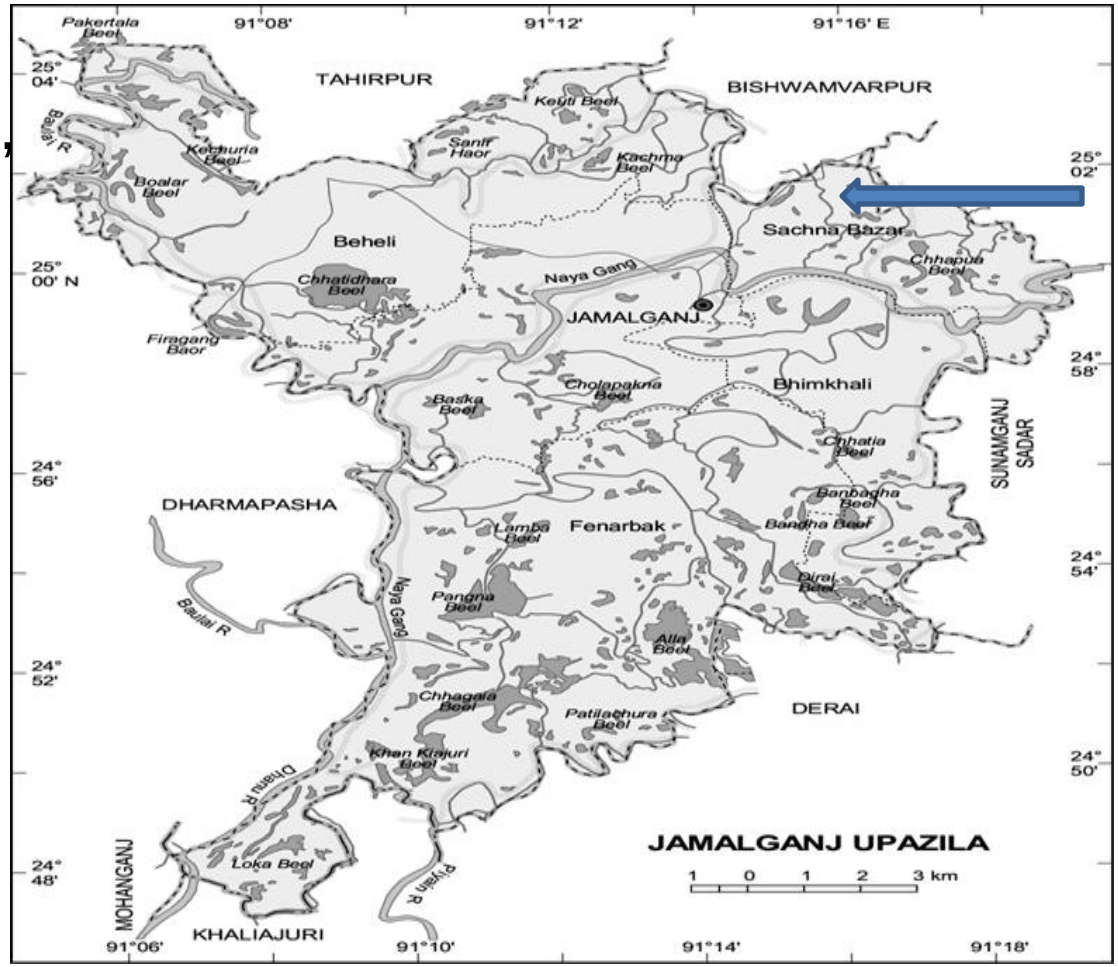
(including children)

Males: 403; Females: 405

(Source: Family planning worker)

Number of respondents:158

Males: 60; Females: 98



Retrieved at http://www.sonalisylhet.com/jamalganj.php

Sampling methods and techniques of analysis

- Convenience sampling: Availability for an interview
- Quota sampling: Different age groups (e.g.16-25, 26-35 etc
- Data collection: Questionnaire; In-depth interview
- Techniques of data analysis
- Mix-method approach (Hummel et al. 2012; Schult and Elliott 2012)
- Descriptive statistics: Crosstab, central tendency and dispersion
- Statistical analysis: Chi-square tests, ANOVA tests, correlation, and factor analysis

Arithmetic mean and scaling

Reaction level	Score		Scale of perception level
Strongly agree	5	**Arithmetic mean (for a particular item)=(Summing of all scores for a particular item)/Total number of respondents**	High level (between 4.0 to 5.00) Medium level (between 3.5 and 4.0) Unsure (between 2.5 and 3.5) Low level (below 2.5)
Agree	4		
Unsure	3		
Disagree	2		
Strongly disagree	1		

Results and Discussion

Fertility aspects and socio-cultural factors

- ❖ Age at marriage for women
  - ➢ Between11 and 15 years (45% and especially elderly people); before reaching 20 years (95%)
  - ➢ For women, 46% married at 11-15 years and 48% married at 16-20 years (0-2 years of schooling)
- ❖ Contraceptive use and discussion with health workers

Variables	Yes % (N)	No % (N)
Never using contraception	38 (47)	62 (76)
Current use of contraception	29 (34)	71(85)
Ever discuss with family planning workers	44 (47)	56 (60)

Gender preference and it's rationale

- Preference to have both (male and female children) but at least one more son than the number of daughters
- Married women feel secured giving birth of a child
- Having sons strengthen marital life and lead to a strong bond with husband and other family members

Perception, fertility preference and extreme weather events (floods)

"if we have more boys, we do not need to borrow money with high interest from business men or NGOs and we will not face so many repayment problems"

"boys can move possessions to a safe place, can save others and can swim, but most girls cannot swim"

"boys can handle any difficult situation since they are physically able to work hard and are able to tackle crises"

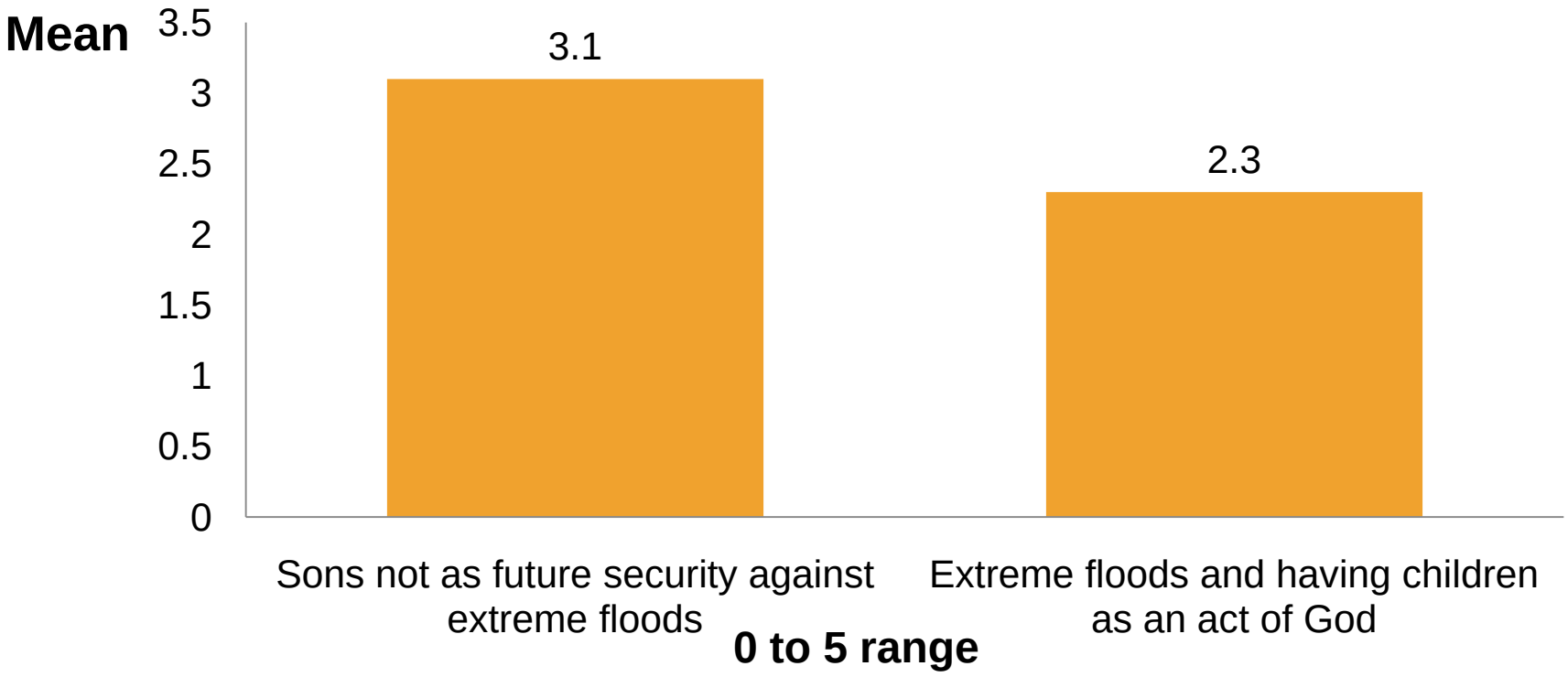
Perception and risk of dying during extreme floods

“everything depends on Allah’s wish whether I will have any additional children or not and that whether they and all of us survive or die depends on the wish of God”

“it is uncertain whether her children will die during flood periods or not”

“it doesn’t matter how many children I have, but I should keep them in a safe place. If God wants to take one of them away from me, then what I can do”

Having more sons as future security and influence of religious values



Score: 5 = strongly agree, 4 = agree, 3 = unsure, 2 = disagree and 1 = strongly disagree
Scaling: High level perception (between 4.0 to 5.0); Medium level perception (between 3.5 and 4.0); Unsure about a particular issue (between 2.5 and 3.5); Low level perception (below 2.5)

Conclusions (1)

- Low age at marriage for women; number of children (about 4 per couple)
- Influence of religious values
- Preference to sons over daughter
- Influence of family members on reproductive decision
- Religious reasons (e.g. sinful activities, telling lies etc) for occurrence of extreme floods

Conclusions (2)

- A majority of unmarried people are concerned about the influence of human activities on the occurrence of extreme floods
- People with age group 16-25 years and 65+ had low level of perception regarding the impacts of extreme floods on fertility preference
- Preference to having more sons (earning money, helping to repay loan and repair damages)
- Not adequate support from government or NGOs during extreme events

Future research

- Considering the influence of different extreme weather events such as cyclones, drought etc on fertility preference/son preference
- How the lack of adequate supports from government or NGOs during extreme events influence fertility preference/son preference
- Further research may consider a larger sample size from different areas vulnerable to different extreme weather events