

# Children and Their Families Six Months After Pakistan's Floods

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## KEY TAKEAWAYS

By February 2023, six months after the floods, economic activity, and health and education indicators are improving for most households in flood-affected areas. However, there continue to be substantial challenges for households in areas that were completely flooded.

- In completely-flooded areas, a quarter of households have returned home after living in temporary shelters. However, **one-third of households in these areas continue to reside in temporary shelters.**
- Continued areas of concern for families in flooded areas include **child mental health, food insecurity, and travel disruptions.** For example, families in flooded areas were 50 percent more likely to be worried they would run out of food than those in un-flooded areas.
- **In flood-affected areas, most schools are reopening.** Six months after the floods, the share of households in flooded areas reporting their children's schools were not operating fell from 18 percent to 9 percent. However, only about 40 percent of children have returned to school in these areas.
- **Yet, the children still out of school are less likely to return.** Parents who said their children were unlikely to return to school said the travel time increase due to flooding was their top concern.

From June to August 2022, heavy monsoon rains caused severe flooding in nearly one-third of Pakistan. By February 2023, flood waters have receded in most areas, allowing for rebuilding to begin after widespread losses.

Based on satellite imagery, the United Nations Office for the Coordination of Humanitarian Affairs reports that 1.8 million people lived near stagnant flood waters in February 2023, down from 4.5 million in January (OCHA 2023C). At the onset of the floods, an estimated 33 million people lived close to flooded areas (UNOSAT 2022). The Pakistan Post Disaster Needs Assessment estimates that economic losses from floods exceed 15 billion USD (Government of Pakistan et al. 2022).

**Using a new round of household phone survey data, this note documents the progress and pain points in rebuilding human capital in Pakistan after the floods, building upon the findings from the first-round survey.** Results from the first-round survey show the floods' widespread direct and indirect impacts (Barón et al., 2022). Direct impacts included the losses of homes, incomes, crops, and livestock. Indirect impacts included losing access to transportation, health, and education services. Children and families were particularly impacted, with an estimated one million out of school due to flooding and at risk of not returning.

**Both rounds of the survey focus on the impacts of the floods on children and families.** Each survey round sampled two cohorts of 4,000 families with children ages 3 to 17. The first survey was administered in late September 2022, and the second began roughly six months later, in February 2023. The surveys were designed to be nationally representative. (See the final section of this note for more on the methodology and caveats about the interpretation of results.)

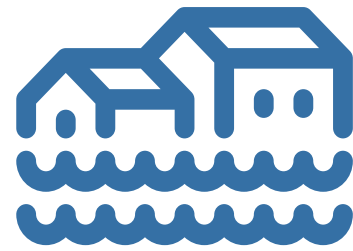
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**Specifically, this note focuses on groups who may be left behind as others recover.**

The second-round phone survey reveals that households in areas most hit by flooding are the least recovered. By some indicators of recovery, such as time spent in temporary shelters, all households appeared to recover at similar rates, regardless of their wealth or education levels. However, by other indicators, such as child work due to flooding, less-educated households need to catch up to their more-educated counterparts. These findings suggest that policymakers could ensure relief reaches the areas hardest hit by flooding and target at-risk groups in specific intervention areas.

#### **EQUITABLE IMPACT**

Findings suggest that policymakers could ensure relief reaches the areas hardest hit by flooding and **target at-risk groups in specific intervention areas.**



Households in areas most hit by flooding **are the least recovered.**

**The note also examines indicators of recovery of particular relevance to children.** For example, prior research has shown that even when adults are given substantial compensation following natural disasters and fully recover economically, such as the 2005 earthquake in Pakistan, children may continue to incur physical and educational deficits well beyond the impact of school closures (Andrabi, Daniels, and Das 2021). As such, this note reports on both typical indicators of educational recovery, such as time out of school, and more holistic indicators of well-being, like child mental health, which will continue to impact the educational and economic outcomes of children in Pakistan for years to come.

# I. Economic impacts on families with children six months after the floods

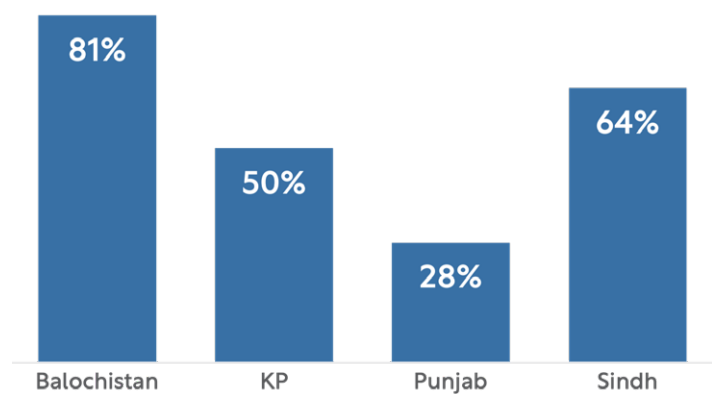
The floods disproportionately impacted some provinces (**Figure 1**) and poorer households. While households in much of the country are recovering economically, families in severely-impacted areas continue to struggle, with many still residing in temporary shelters.

**The first-round phone survey showed that certain provinces experienced more flooding than others.** Poorer and less-educated families were more likely to live in flooded areas, but families with higher socio-economic status were also impacted (Barón et al., 2022). The provinces of Balochistan, Sindh, and KP each had at least half of all families living in flooded areas. To better understand the impact of the floods on affected families, the second-round survey included more respondents from these areas (we stratified to guarantee that 50 percent of the sample came from partially- or completely-flooded areas at the time of the initial floods). In the second round survey, half of the households from Balochistan, and 40 percent of households from Sindh, reported that their area remained completely inundated.

**Evidence from the second-round survey suggests that families are recovering from the loss of income, particularly in less-flooded areas.** In the first-round survey (September 2022), two-thirds of families in flood-affected areas reported partial or complete income loss. Six months later, just 8 percent of families reported partial or complete income loss. Families from completely-flooded areas were 31 percent more likely to have lost their primary means of earning a living, compared to somewhat flooded areas. As areas that were hit less severely recover, families from completely-flooded areas are at risk of being left behind.

**Figure 1. The provinces of Balochistan and Sindh had the highest share of survey respondents from flooded areas.**

*Households reporting flooding by province*



**Despite evidence of income recovery, about a third of families still expect their children will need to work due to the economic conditions caused by the floods.** In the round 1 and round 2 surveys, respondents were asked, “Do you envision your child will need to work in the future due to the economic difficulty caused by the floods?” One month after the floods, 28 percent of families believed their children would need to work. Six months later, 33 percent of families held this expectation. The interpretation of these numbers is complex as this could compound the additional impacts of overall economic conditions in the country, including high inflation and economic slowdown.

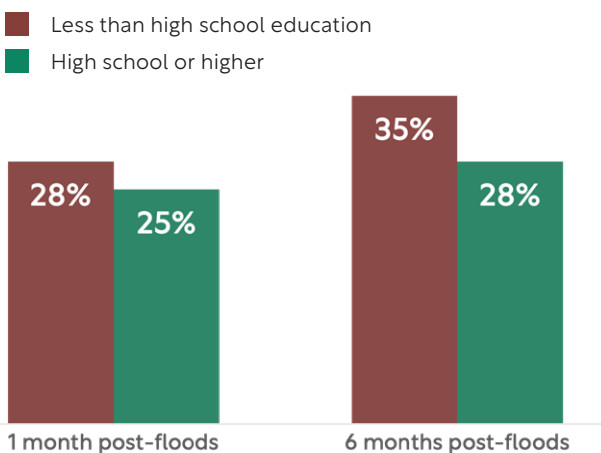
**40%**

**Percent of respondents in flooded areas who reported losing their homes**

**Families where the primary breadwinner had less than a secondary education (class 10 or higher) were more likely to expect their children would need to work.** Moreover, the gap in expectation of work based on household education level grew larger six months after the floods, compared with one month after the floods, as shown in **Figure 2**.

This reflects family responses to economic hardship documented by Khan and Hussain (2022); many parents who lost income due to the floods withdrew children from school and put them to work. Girls are particularly vulnerable to being compelled to work or marry after climate disasters (Chuang et al. 2023). It is worth noting that even among more-educated households there is no decline in the proportion who expect their children will need to work.

**Figure 2. Six months after the floods, families from less educated households were more likely to believe their children would need to work due to the economic difficulty caused by the floods.**



**Asset losses are contributing to the poor economic outlook in flooded areas.** New evidence suggests household assets will be difficult to recover, given the magnitude of losses. A new question in the second round about the value of losses to household goods and other assets provides additional insight into the magnitude of the losses. About 23 percent of respondents from flooded areas reported a loss of household goods or other assets. The self-reported average value of lost household goods was approximately 2,479 USD, 1.4 times the average annual income in Pakistan.<sup>1</sup> The value of lost assets

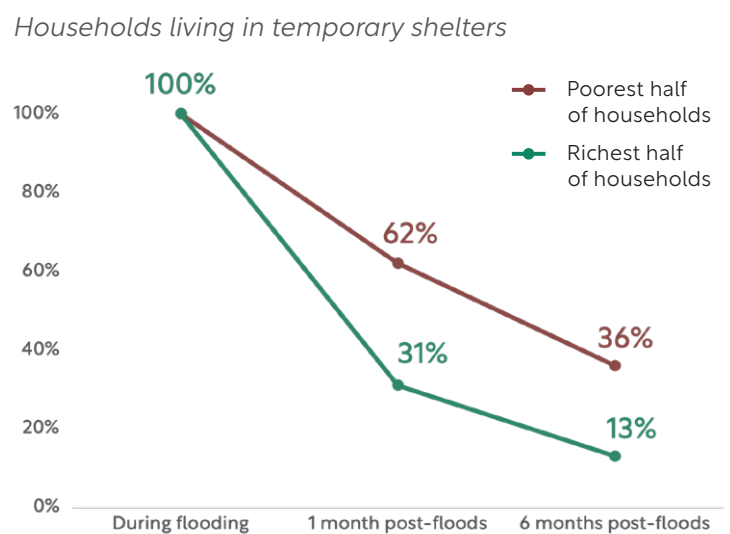
<sup>1</sup> Estimate derived using household income provided in the Pakistan Economic Survey 2021–22 (Government of Pakistan, Finance Division, 2022)

was 1.7 times higher in completely-flooded areas relative to somewhat-flooded areas.

**In addition to losing household goods, nearly 40 percent of households in completely-flooded areas lost their houses.** However, rebuilding occurs, and many families in these areas have left temporary shelters. More than half of families in completely-flooded areas lived in a temporary shelter following the floods. Approximately 43 percent of families in completely-flooded areas had left temporary shelters by February 2023. The average time spent in a temporary shelter was five weeks.

**Yet, many poor families in completely-flooded areas still reside in temporary shelters.** As shown in the literature, disasters have a greater impact on poorer families (Hallegatte et al. 2020; Kousky 2016). **Figure 3** displays this discrepancy between the rich and poor in their likelihood of residing in a temporary shelter and continued residence six months later. Poorer families (in the bottom half of households by assets) were 30 percent more likely than wealthier families (in the top half by assets) to live in temporary shelters and nearly three times as likely to still reside in a temporary shelter six months after the floods.

**Figure 3. Poorer families in completely flooded areas were more likely to live in temporary shelters following the floods and continue residing in shelters six months later.**



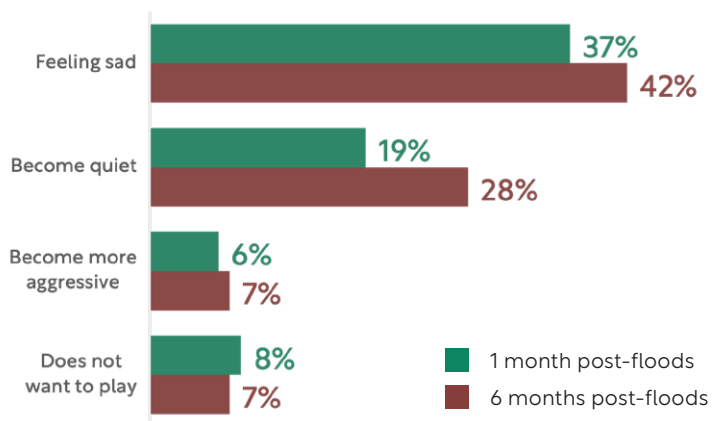
## II. Barriers to education and continued impacts on families

There is strong global evidence that disasters negatively impact education and have potentially cumulative and long-lasting effects (Baez, de la Fuente and Santos 2010). The immediate direct effect on education can be found in the destruction of schools or reduced access to them due to the destruction of other critical infrastructure (e.g., roads, bridges). When instruction is disrupted, quality suffers and children’s human capital accumulation opportunities are reduced, in both the immediate and long term (Andrabi, et al. 2021; Husted, et al. 2022).

### A. Child Mental Health

**The mental health of children in flood-affected areas seems to be getting worse.** Prior research has shown that natural disasters profoundly impact child mental health, including sleep disturbances and depression (Kousky 2016). In the second-round survey, a larger share of parents reported that after the floods their child felt sad regularly (42 percent) or that their child had become more quiet (28 percent) relative to parents in the first round (37 percent and 19 percent, respectively) (**Figure 4**).

**Figure 4. More parents reported their child felt sad or became quiet six months after the floods than one month after.**



**Additionally, 20 percent of parents nationwide reported that their child seemed anxious, nervous, or worried daily or weekly.** Twenty percent also reported that their child seemed sad daily or weekly. The second-round survey asked parents about the frequency of sadness and anxiety in their child as part of a nine-question module on child disability. These questions were derived from the UNICEF/Washington Group Module on Child Functioning (UNICEF 2022B). The overall rate of child disability in the survey population was 30 percent,<sup>2</sup> significantly higher than the estimated 11 percent for the Southeast Asia region found by UNICEF (2022A) using the same survey questions. The high rate of disability in our survey is driven, at least in part, by the high rate of poor mental health in children in both flooded and unflooded areas.

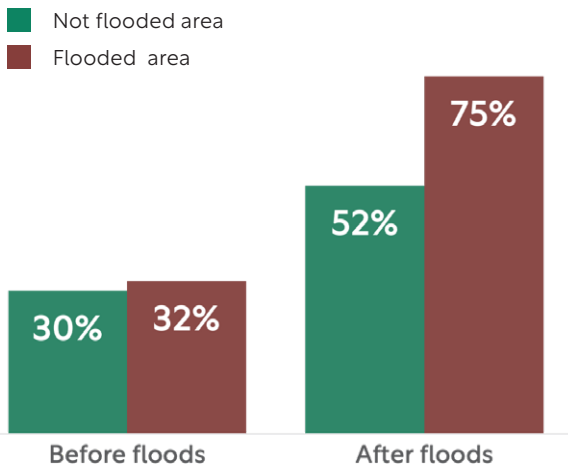
### Policy interventions to address child mental health

In a recent literature review of interventions that could help to address the child mental health crisis in Pakistan, Cheema et al. (2023) recommend three interventions. The first two interventions could be implemented relatively cheaply using existing school personnel.

- 1. Psychological First Aid (PFA)** – Several models of PFA have been developed for use after natural disasters (see Wang et al. 2021). For example, the National Child Stress Network (NTSN) has adopted a PFA model specifically for training school personnel to address the needs of children after disasters (NTSN 2014). Its eight core principles include stabilizing distressed individuals and providing information about stress reactions and coping strategies to reduce distress.
- 2. Play and art therapies** – Play and art therapies can help children to express their emotions after natural disasters. Case studies in Pakistan concluded that drawing improved children’s mental health, even if teachers were not formally trained in art therapy (Ahmed and Siddiqi 2006).
- 3. Telepsychiatry services** – Phone or video conferencing can provide psychological evaluations and therapy to children and teenagers.

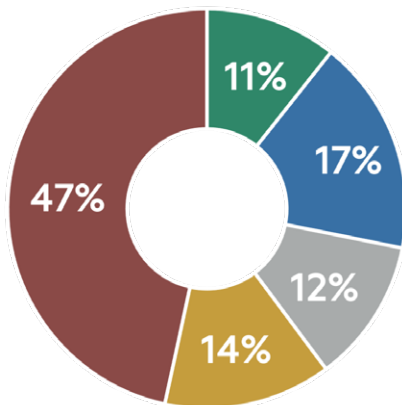
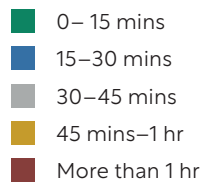
<sup>2</sup> This disability rate excludes children who may have a disability solely based on their difficulty getting dressed. Thirty-four percent of parents reported that their child needed help getting dressed daily. Additional research is required to assess the reliability and validity of this instrument for assessing disability when using phone surveys.

**Figure 5.** Concern over running out of food has increased for families, particularly in flooded areas.

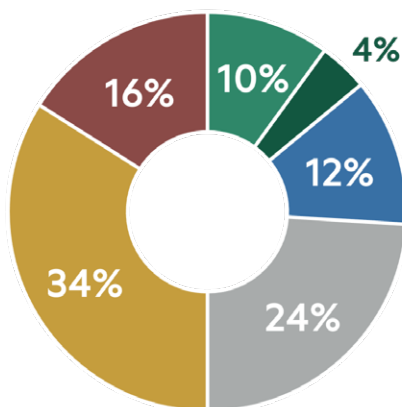


**Figure 6.** For the 16 percent of households with disrupted commutes, almost half report their commute time increased by more than one hour.

A. Increase in commute time for daily trips among households whose commutes are still disrupted



B. Time for travel services to return to normal



## B. Food Insecurity

**Compounded by inflation, food insecurity is more severe six months after the floods.** As shown in **Figure 5**, before the floods, households in flooded areas had a similar level of concern about food insecurity to households not in flooded areas (30 percent vs. 32 percent). After the floods, 75 percent of respondents in flooded areas were worried their household would run out of food. In areas unaffected by the floods, the share of households worried about food security increased to 52 percent. Inflation has contributed to food insecurity. In rural areas, food inflation has increased to 45 percent (OCHA 2023C). The United Nations estimates that 1.1 million people are at risk of sliding from acute food and livelihood crisis (IPC3) situations to humanitarian emergency (IPC4) food security situations (OCHA 2023B).

**Malnutrition can harm children’s development and learning ability.** Children who are hungry and undernourished have trouble focusing, have problems with attention and memory, and get sick more often, leading to missed school days (UNICEF 2019). In Punjab, malnourished 6–8 graders perform worse in school and have lower attendance and understanding than their well-nourished peers (Shabbir et al. 2019). Malnutrition is especially harmful during the critical first two years of a child’s life. It can cause stunted growth and permanent damage to cognitive processes that can’t be fixed with proper nutrition later, leading to long-term effects on their ability to learn and achieve their potential (Hioui 2019).

## C. Travel Disruptions

**Although travel disruptions have lessened significantly in flooded areas, the disruption is significant for households whose commutes to work and school remain disrupted.** About 16 percent of households report that their commutes remain disrupted. Nearly half of these households with disrupted commutes report that their commute time has increased by more than one hour (**Figure 6A**). Additionally, more than one third of respondents reported it took four or more weeks for transportation services to return to normal (**Figure 6B**). As discussed in the next section, these disruptions impacted children’s ability to return to school following the floods and continue to impact families whose children are out of school.

### III. Children’s education in recovery

Six months after the floods, many children have returned to school. Yet, children whose education is still disrupted are at risk of falling severely behind their peers.

**Schools are reopening.** The share of households in flooded areas reporting their children’s schools were not operating fell from 18 percent to 9 percent. Among households that reported schools had closed and reopened, the average time school was out of session was seven weeks.

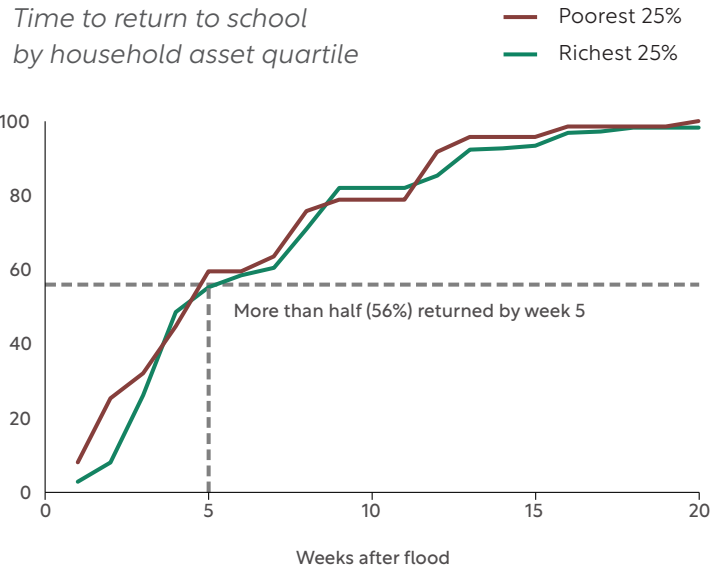
**There were few differences in weeks out of school based on observed household and child characteristics such as household wealth, education level, and gender of the child.** As shown in **Figure 7**, the number of weeks for children to return to school was similar among rich and poor households. The severity of the flooding was a major determinant of time out of school, with children in completely flooded areas spending three more weeks out of school than children in somewhat flooded areas.

**Though many children have returned to school, those who are still out of school six months after the floods are unlikely to return.** The share of unenrolled children in flood-affected areas in surveyed families fell from 3.2 percent in September 2022 to 1.9 percent in February 2023, indicating that about 40 percent of unenrolled children returned to school. In the first round of the survey, 52 percent of households with children out of school reported that their children were extremely likely to return. In round 2, just 20 percent were extremely likely to return, reflecting that children who can have already returned to school (see **Figure 8**). Among households where schools remained closed six months after the floods, 92 percent still needed to learn when school would resume operation.

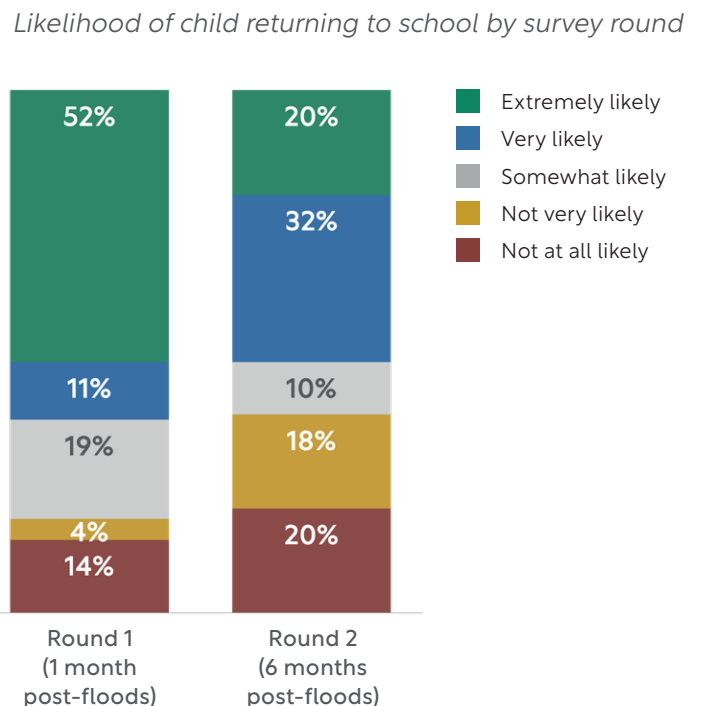
#### FLOOD DAMAGES AFFECT MILLIONS

The Pakistan Post-Disaster Needs Assessment reported that **over 6,000 schools were fully damaged** by the floods, and nearly 11,000 schools were partially damaged, **impacting over 2.6 million enrolled children** (Government of Pakistan et al., 2022).

**Figure 7. Children from rich and poor families spent a similar amount of time out of school.**



**Figure 8. Parents of children who were still out of school six months after the floods were much less likely to report that their children were likely to return compared to one month after the floods.**



### **In the survey sample, there are no difference between boys and girls across different outcomes.**

Unfortunately, the phone surveys did not have a large enough sample size of households with out-of-school children to accurately measure differences between the share of boys and girls out of school. There are also challenges in using phone surveys to reach families of out of school children. However, findings from the Pakistan Social and Living Standards Measurement (PSLM) have shown that girls are disproportionately represented among out-of-school children. For example, in 2019 and 2020, 54 percent of out-of-school children were girls compared to 46 percent of boys, with an even greater difference in the share of girls versus boys in rural areas (Pak Alliance for Maths and Science 2021). Due to lower enrollment rates, 37 percent of children in flooded schools were girls and 63 percent were boys (Pakistan Education Sector Group, EiE, 2022).

### **The most common reasons for children being unlikely to return were the increase in travel time due to flooding (22 percent), the cost of schooling (18 percent), and the child needing to work due to economic difficulty caused by flooding (18 percent).**

In the first-round survey, the cost of schooling was the most frequently cited reason. The increase in travel time and cost of schooling are likely related since increased travel time increases the overall cost of sending children to school. In the communities hardest hit by the floods, children can return to school once travel infrastructure is rebuilt and children have access to safe commutes to school.

**The use of schools as temporary shelters in flooded areas may also continue to impact the quality and quantity of education children receive.** Nearly 30 percent of respondents in the second-round survey reported that schools were temporary shelters for flood victims after the floods, compared to 17 percent in the first round. Twenty-six percent reported schools are currently in use as temporary shelters. Among households that reported schools were no longer used as temporary shelters, the average time schools were used as a shelter was five weeks.

**Learning recovery remains challenging even among schools that are operating normally.** Mazari et al. (2023) interviewed flood-affected parents, teachers, and other key stakeholders in flood-affected areas. Teachers interviewed felt they had yet to receive official guidance on curricular adjustments, as they had received after Covid-19 school closures. Teachers were often tasked with responsibilities after the floods in addition to managing their classrooms, such as delivering a new curriculum or collecting data for the national census.

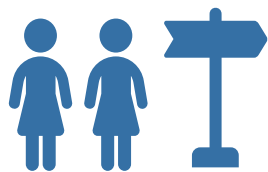
## **Using mobile phones to help address challenges in education**

(Mazari et al. 2023)

Mazari et al. (2023) interviewed flood-affected parents, teachers, and other key stakeholders in flood-affected areas. They suggest that technology has the potential to at least partially address some of the challenges that prevent access to learning:

1. Returns to school can be improved through **digital peer networks (over mobile phones)** that can provide psychosocial support while providing information on options for learning and relief.
2. Flexible learning environments, like temporary learning centers or community-based learning environments, can be **enhanced through multimodal EdTech approaches.**
3. **Mobile phones can support remedial learning** by delivering formative assessments and educational content for some children.

**The authors recommend that Pakistan invest in a more holistic strategy** that identifies appropriate multimodal teaching and learning content for emergencies while acknowledging the challenges of using cellular technology.



**Improving ease of travel and developing safe school commute plans for children in the hardest hit areas will help more children return to school.**

## IV. Flood relief and health impacts

At the International Conference on Climate Resistant Pakistan hosted by the U.N. in Geneva in January, multilateral and bilateral organizations pledged over 10 billion USD for reconstruction and relief activities (Nabi 2023). The Government of Pakistan has also created and prioritized interventions through its Resilient Recovery, Rehabilitation, and Reconstruction Framework (4RF) (Government of Pakistan 2022). Yet, awareness of relief activities has remained low six months after the floods.

**Awareness of flood relief activities has changed little in the six months since the floods.** In the first round of the survey, 80 percent of respondents from flooded areas reported no relief activities for flood victims. In the second round, 82 percent reported no relief activities. Nevertheless, the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) estimates that seven million people, roughly 21 percent of people in flood-affected areas, have received aid (OCHA 2023B). This close correspondence between the OCHA percentage receiving aid (21 percent) and the percentage reporting flood relief activities in our surveys suggests that families who are aware receive aid. Raw food distribution had the highest level of awareness; 13 percent of flood-affected households reported raw food distribution to victims in their area (**Table 1**).

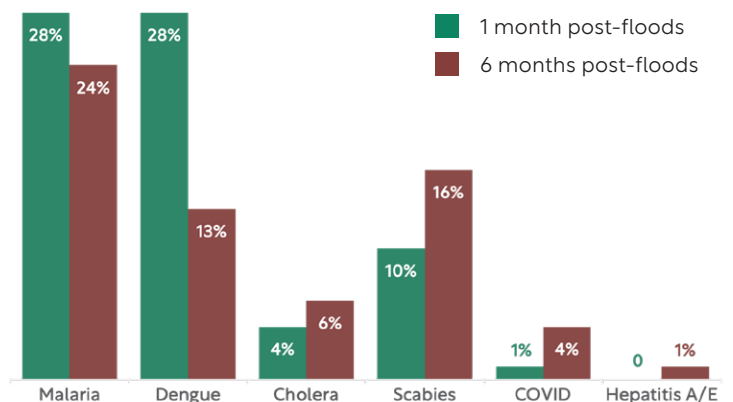
**Although awareness and receipt of relief activities were low, one quarter of respondents from flooded areas received cash transfers from the Benazir Income Support Programme (BISP).** Starting in 2007, the government of Pakistan began providing BISP funds to the neediest families who are identified using a poverty scorecard (Government of Pakistan 2023). About 22 percent of respondents in flooded areas reported receiving BISP in the second-round survey, compared to 18 percent of respondents in areas unaffected by the floods.

**Additionally, interventions around mosquito-borne seemed to have worked.** As shown in **Figure 9**, disease outbreaks have remained relatively stable, with the incidence of dengue decreasing significantly. The reduction in stagnant flood waters where mosquitoes breed and early diagnosis at over 4,000 medical camps has helped to decrease the incidence of mosquito-borne diseases (Vohra et al. 2023).

**Table 1.** Awareness of flood relief activities could have been higher across relief activity types.

Relief Type	Flood-Affected Households Reporting (Percentage)
Raw food distribution	12.7
Clothing	4.4
Distribution of cooked/prepared foods	4.3
Medicine	4.1
Tents	2.7
Potable water	1.6
Shelter	1.4
Seed distribution	0.5
Productive assets such as livestock	0.4
Temporary learning centers	0.1

**Figure 9.** Fewer households reported outbreaks of mosquito-borne diseases six months after the floods compared to one month after.



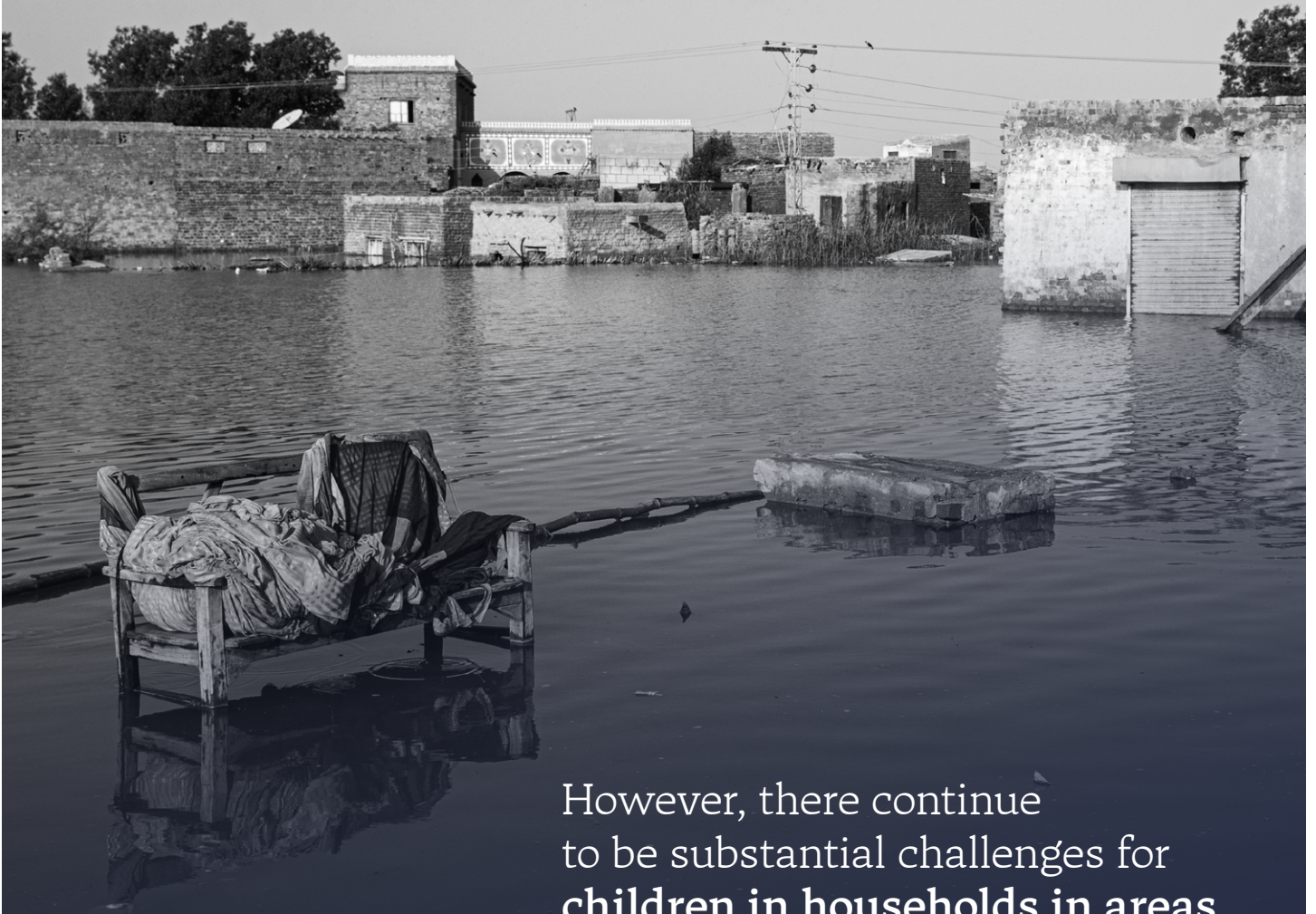
Suspected malaria cases in camps fell from 38,000 cases in October 2022 to 5,000 cases in December 2022 (OCHA 2023A).

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IN SUMMARY

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In summary, by February 2023, six months after the floods, economic activity, health, and education indicators are improving for most households in flood-affected areas.



However, there continue to be substantial challenges for **children in households in areas that were completely flooded and where destruction was widespread.**

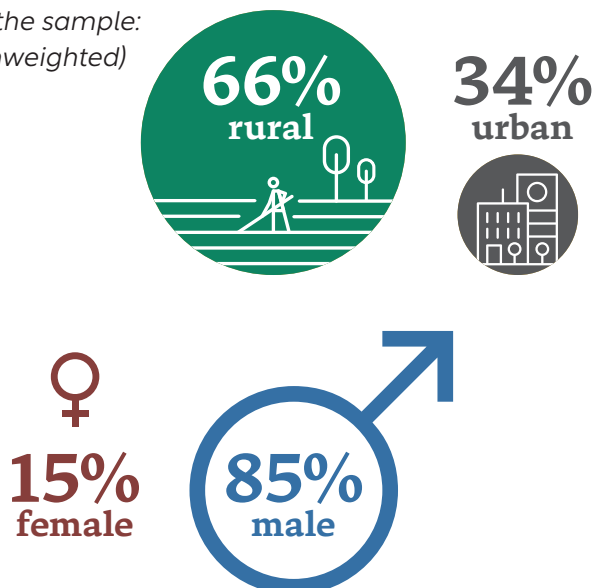
## Methodology

The data used in this note come from a nationally representative phone survey designed by the World Bank and implemented by Gallup Pakistan. Data collection was carried out in February 2023.

**The survey was carried out using random digit dialing (RDD) of mobile phones using all four telecom providers with active numbers across Pakistan.** Approximately 93 percent of households have access to a mobile phone (Government of Pakistan 2021). Despite the high-penetration rate of mobile phones, lower-income households are overrepresented in the remaining 7 percent of those who do not have access to mobile technology. This likely means that in many cases, the results presented show an underestimation of the true impacts of the floods on families and their children in Pakistan.

**Each random number was called to survey households until a call was answered (with a maximum of three attempts).** Calls were placed at different times on different days of the week to maximize the response rate. Once an individual was contacted on his or her mobile phone, consent was obtained, a screening questionnaire was administered, and a unique study identification number was generated for the respondent. Next, interviewers entered data into a tablet with Survey CTO software that had the preloaded questionnaire with automatic skipping patterns (Computer Assisted Telephone Interviewing, CATI).

*In the sample:  
(unweighted)*



# 4,000

### Completed surveys in the study

**The survey's target population was parents or caregivers of children ages 3 to 17.** If more than one child lived in the household, one child was randomly selected as the subject of inquiry. The gender of the child stratified the sample. The survey also oversampled households that reported any impact of floods, aiming for a sample of at least 1,000 households that suffered the effects of floods in their area. In addition, the survey collected information on the education status of children, food security, child work, health, environment, and household composition. A limited set of sociodemographic characteristics was also collected, including parents' education, assets, gender, family composition, rural, urban, district, and province.

**The survey randomly called 40,375 numbers, reaching 18,083 individuals who answered the phone, of which 5,449 agreed to the interview, 1,449 with incomplete surveys, and 4,000 that have a complete survey.** The survey was carried out using random digit dialing (RDD) of mobile phones using all four telecom providers with active numbers across Pakistan, except that 345 respondents from flood-affected areas in the first-round survey also participated in the second round. To better capture the aggregate impact, weights are created using quintiles from province, rural/urban, gender and education of household head. All graphs in this note show weighted statistics.

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