Forced Displacement Detrimental to the Health of Children in Colombia

By Nina Wald

Colombia has the highest number of internally displaced refugees in the world after Syria. The decade-long ongoing armed conflict between the Colombian police and the armed forces, paramilitaries, and guerilla groups has caused 5.7 million people—more than ten percent of the population—to flee their homelands. Many of them are women and children, driven off their lands, in most cases, to the misery of precarious living conditions and poor hygiene in destitute urban districts. A study by DIW Berlin shows that this forced displacement is detrimental to the health of children in Colombia, with displaced infants and toddlers, for example, suffering from malnourishment more frequently than non-displaced children of the same age group. Parents from displaced households also perceived their children's state of health to be considerably worse. In addition, their probable lack of health insurance hampers access to health services and medicine.

Numerous studies conducted in industrialized countries have examined the alleged influence of exogenous shocks—such as environmental pollution or parents' job loss—on children's health. Similar studies dealing with, for example, the impact of natural disasters on children's health, also exist for developing countries. Up until now, however, a further exogenous shock caused by war and displacement was found to impact children's health in a number of countries in Africa and Asia only, where infants and toddlers were found to be particularly prone to malnourishment and low birth weight.[1] To date, very few such studies exist for Latin America, in particular Colombia.[2]

One of the main contributory factors assigned to normal age-appropriate development is good health. Indeed, a child's health has a long-term and marked effect on cognitive skills, influencing, for example, educational success and socio-economic factors such as income, labor market participation, and health in adulthood.[3] For this reason, the present study by DIW Berlin looks at

1 See, for example, R. Akresh, P. Verwimp, and T. Bundervoet, "Civil War, Crop Failure, and Child Stunting in Rwanda," *Economic Development and Cultural Change,* 59(4) (2011): 777-810 T. Bundervoet, P. Verwimp, and R. Akresh, "Health and Civil War in Rural Burundi," *Journal of Human Resources*, 44(2) (2009): 536-563; H. Mansour and D. Rees, "Armed Conflict and Birth Weight: Evidence from the Al-Aqsa Intifada," *Journal of Development Economics,* 99(1) (2012): 190-199.

2 A study on Colombia by Camacho (2008) shows that landmine explosions during pregnancy result in lower birth weights of affected children. See A. Camacho, "Stress and Birth Weight: Evidence from Terrorist Attacks," *American Economic Review* 98(2) (2008): 511-515.

3 An abundance of literature exists on this, for example: D. Almond and J. Currie, "Killing Me Softly: The Fetal Origins Hypothesis," *Journal of Economic Perspectives* 25(3) (2011): 153-172; A. Case, A. Fertig, and C. Paxson, "The Lasting Impact of Childhood Health and Circumstance," *Journal of Health Economics* 24 (2005): 365–389; P. Glewwe, H. Jacoby, and E. King, "Early Childhood Nutrition and Academic Achievement: a Longitudinal Analysis," *Journal of Public Economics* 81(3) (2001):45-368; . Maurer, "Height, Education and Later-Life Cognition in Latin America and the Caribbean," *Economics & Human Biology* 8(2) (2010):168-176;
G. Van den Berg, M. Lindeboom, and F. Portrait, "Economic Conditions Early in Life and Individual Mortality," *American Economic Review* 96(1) (2006): 290-302.

Box 1

Displacement in Colombia

There are two causes of displacement: the conflicts between paramilitary and guerilla groups and the military, on the one hand, and the fact that these armed groups threaten individuals and entire communities, on the other hand. Afro-Colombians and indigenous peoples are disproportionately affected to a greater extent by displacement.[1]

The majority of internally displaced people leave their home communities as small groups or families; mass flight is not particularly common in Colombia. In most cases, people flee from the country to the cities, although movement from one city to another has also been observed recently. In addition, unlike in many other refugee regions worldwide, there are no refugee camps in Colombia. Instead, the displaced people take to the slums on the outskirts of the cities, where the living conditions are usually very poor, without adequate living space and with limited opportunities to earn a living. Here, too, they are frequently threatened by armed groups. Although access to aid programs for refugees has been improved in recent years, only very few have actually received financial aid to date. Often the relevant authorities are unable to cope with the organization involved.[2]

1 Internal Displacement Monitoring Centre (2013), "Colombia: Internal Displacement in brief," accessed October 21, 2014, *http://www.internal-displacement.org/americas/colombia/summary/*.

2 Internal Displacement Monitoring Centre, "Colombia: Internal displacement."

how flight and forced displacement affect the health and health insurance status of children in Colombia.[4]

Statistical Indicators Show...

In Colombia, the displacement of people by paramilitary and guerilla groups is a major social problem (see Box 1), which is why this issue is often covered insurveys. The data used in this analysis were taken from the Demographic and Health Survey 2010 (see Box 2). Owing to the considerable developmental disparities between children in different age groups, as well as the varying degrees of influence that displacement has on a child's health, a distinction was drawn between three groups: infants and toddlers (0-4 years), elementary school children (5-12 years), and adolescents (13-18 years).

...Displaced Children Suffer from Poorer Health

The analysis of the health-related variables shows that displaced children of any age group fare far worse than their counterparts in the control groups (see table). Children from displaced families, for example, suffer far more frequently from malnutrition, as seen in the lower height-for-age z-score, a standardized index which puts height in relation to age and gender. In addition, parents of displaced families perceived their children's state of health to be far worse. Besides malnourishment or illness, one of the main reasons for this may be the fact that children are traumatized by war and displacement. Displaced children are also less likely to have health insurance than other children, making access to medical care in the event of illness difficult.

...Children from Displaced Families are More Likely to Grow Up in Precarious Conditions

Significant differences in socio-economic background can also be found between displaced and other families. More often than not, displaced children come from larger and poorer households; the mothers are often less educated than those of the non-displaced families. With regard to education, even as early as elementary school age, displaced children will already lag behind their non-displaced counterparts (measured in years of schooling); this gap will worsen between the ages of 13 and 18. The analysis also shows that displaced children more frequently take part in welfare programs such as Familias en Acción, which would seem to be a further indication of their predicament.

Displaced children in older age groups are more likely to live in a household with a single mother. Displacement often results in a shift in roles within the family: men, the main breadwinners prior to displacement, find it more difficult to obtain work in the cities, a typical destination for displaced families. Women, on the other hand, typically find employment there, either as child-minders or home-helps, which explains why women contribute more to household income. More often than not, this will cause the males in the household to become frustrated and often lead to domestic abuse

4 This study is based on the discussion paper by N. Wald, "The Impact of Displacement on Child Health: Evidence from Colombia's DHS 2010," *DIW Discussion Papers* 1420 (2014).

Box 2

Dataset

The data used for the present study by DIW Berlin originate from the Demographic and Health Survey (DHS) 2010, a detailed and representative household survey conducted in emerging and developing countries every five years which deals with aspects relating to health, reproduction, demography, and nutrition. One focal point in the data collection is women aged 13 to 49, and children under five years. In addition to health-related data, household and individual data were also collected.

Three different health-related variables were used in this analysis. First, the height-for-age z-score: this common indicator provides information on a child's nutritional status. A value lower than -2 denotes moderate malnutrition, while lower than -3 indicates severe malnutrition.

For the second health indicator, parents were asked to rate their child's health on a scale of 1 (excellent) to 5 (poor). The advantage here is that this indicator also factors in health aspects which are impossible to measure in the short interview time, for example, psychological problems or a child's social and cognitive development. In addition, parents can be assumed to know their child best, making them the best judges of their state of health.

The third variable used looks at whether the child has health insurance or not. This question is particularly relevant in Colombia, where the state-funded insurance scheme depends directly on the relevant home municipality, which changes after displacement, very often leading to the loss of insurance cover.

Together, these three variables provide an ideal picture of the state of health of displaced children, who suffer from poor hygiene in particular. Often displaced families will live in extreme poverty and will not be able afford to buy enough food for their children. The war and violence that displaced families experience in their home towns and communities, combined with the adverse living conditions they face as internal refugees in their new places of residence, foster psychological problems such as fear, depression, or aggressive behavior. Around 67 percent of displaced households specified that they suffered from psychosocial problems. While 24 percent of these sought help, as few as 15 percent actually received support. This is due to many internally displaced persons not having any health insurance and not being able to afford medical care.[1]

1 A. Carrillo, "Internal Displacement in Colombia: Humanitarian, Economic and Social Consequences in Urban Settings and Current Challenges," *International Review of the Red Cross* 91(875) (2013): 527-546.

Table

Differences between Displaced and Non-Displaced Children

	Age group: 0 to 4 years			Age group: 5 to 12 years			Age group: 13 to 18 years		
	Non-displaced	Displaced	Difference	Non-displaced	Displaced	Difference	Non-displaced	Displaced	Difference
Height-for-age z-score	−0.862	−1.129	0.267***	−0.716	−0.892	0.176***	−0.464	−0.713	0.249***
Subjective state of health[1]	2.709	2.881	−0.173***	2.735	2.916	−0.181***	2.801	2.976	−0.175***
Has Health insurance	0.83	0.685	0.145***	0.9	0.767	0.133***	0.895	0.747	0.148***
Household size	5.478	6.41	−0.932***	5.448	6.164	−0.715***	5.424	6.16	−0.736***
Female-headed household	0.27	0.268	0.003	0.286	0.329	−0.043***	0.319	0.423	−0.104***
Poor family	0.637	0.695	−0.058**	0.604	0.709	−0.106***	0.553	0.691	−0.138***
Participation in *Familias en Acción*	0.166	0.214	−0.047**	0.292	0.356	−0.064***	0.194	0.274	−0.080***
Mother: number of years in education	4.021	3.59	0.430***						
Child: number of years in education				2.129	1.821	0.309***	7.564	6.432	1.132***
Afro-Colombians	0.11	0.149	−0.040**	0.104	0.129	−0.025**	0.099	0.122	−0.023
Indigenous minority	0.135	0.125	0.009	0.122	0.145	−0.023*	0.103	0.197	−0.093***
Observations	15,679	295		25,885	691		16,200	376	

*Statistical significance of the differences observed: *** = one-percent mark. ** = five-percent mark and * = ten-percent mark*
1 Higher values correspond to a poorer state of health.
Source: Demographic and Health Survey 2010; calculations by DIW Berlin.

Statistical indicators show that displaced children differ starkly from non-displaced children.

Box 3

Study Method

There are many ways to ascertain whether forced displacement has a causal effect on a child's health, in other words, whether it is the direct cause of the health impairments observed. All the strategies are based on a comparison of the state of health of displaced children with that of non-displaced children. For this reason, the children were divided up into two groups: displaced children and a control group of non-displaced children.

It must be pointed out, however, that the children in both groups differ with regard to other characteristics that also have an impact on their health. Ignoring these aspects will produce distorted findings. To isolate the effect of displacement, other variables which also affect children's health and membership in a health care scheme, are also included in the calculation. The results shown here are based on the following linear regression model:

$$\Delta Reg_{ATT} = E(Y_1 - Y_0 | X, D=1) = X(\beta_1 - \beta_0) + E(U_1 - U_0 | X, D=1)$$

where Y_1 represents the results for the group of displaced children and Y_0 denotes the results of the control group. X refers to the remaining independent variables; U_1 and U_0 are the error terms for the displaced children and the control group, respectively. D is a dichotomous variable which assumes the value 1 for displaced persons. This equation shows that the displacement effect is calculated as the difference between displaced and non-displaced children, taking into account as many other independent variables that also affect health as possible. In addition, this effect is calculated using propensity score matching.[1]

Here, Y stands for the three health-related variables height-for-age z-score, subjective state of health, and health insurance membership. X controls for individual and household characteristics such as age, gender, education, participation in welfare programs, household size, and access to infrastructure.

1 These results are described in detail in N. Wald, "The Impact of Displacement on Child Health: Evidence from Colombia's DHS 2010," *DIW Discussion Papers* 1420 (2013).

towards the wife and children.[5] In the long run, men will abandon their families or the families will leave them, which accounts for the larger percentage of women among the internally displaced.

Over and above this, displaced children more often come from ethnic minority groups such as Afro-Colombians or indigenous peoples. This is probably due to the regions where ethnic minorities live being affected by armed conflict to a disproportionate degree, meaning they are the ones most affected by displacement.[6]

Regression Analyses Confirm...

It still remains unclear as to whether war and displacement really are the cause of the poor health of displaced children or whether we are dealing with mere statistical correlations here and the aforementioned socio-economic factors are in fact the main determinant. One possible explanation for the poorer health of displaced children is, for example, the mother's level of education or the family's financial means. A causal assessment based on regression analysis must be conducted in order to examine the actual influence of forced displacement. In this case, among others, propensity score matching is used (see Box 3), which involves finding statistical twins for displaced children, i.e., non-displaced children with virtually identical socio-economic characteristics (see Table). The children in the sample are therefore otherwise identical, the sole difference being whether they are from displaced or non-displaced families.

...Displacement Causes Malnutrition among Toddlers

Under consideration of other factors such as poverty, household size, mother's education, age, or gender, the regression analyses confirm that displacement has a negative impact on the nutritional status of toddlers (see Fig-

5 V. Calderón, M. Gáfaro, and A. Ibáñez, "Forced Migration, Female Labor Force Participation, and Intra-household Bargaining: Does Conflict Empower Women?" *MICROCON Research Working Paper* 56 (2011).

6 Internal Displacement Monitoring Centre, *Colombia: Internal Displacement in brief* ((2013), accessed October 21, 2014, http://www.internal-displacement.org/americas/colombia/summary/.

ure 1). Studies give a number of reasons for this.[7] First, harvests are often destroyed in conflict regions, causing many families to leave their homelands and flee to the cities. Second, displaced families often suffer from food shortages or available food has low nutritional value.

Conversely, for older children between five and 18 years, displacement no longer affects their nutritional status significantly. These children appear to be less prone to malnutrition and draw on stored body reserves.

...Parents of Displaced Children Perceive Their Children's Health To Be Far Worse

In families that are subjected to flight and forced displacement, parents often regard their children's state of health to be worse than that of children whose families have not been displaced (see Figure 2). This effect remains unchanged even if other factors affecting health are also taken into account. There are many possible reasons for this: first, parents will consider their children's general state of health to be poorer if they suffer from illness or are malnourished, which is more frequently the case with displaced children. Second, psychological problems, cognitive and social developmental deficiencies, as well as trauma in the children can all cause parents to see their children's state of health as poor. Displaced children in Colombia are known to suffer from psychological problems more often than their counterparts in the control group. Once again, this is directly related to the armed conflict.[8]

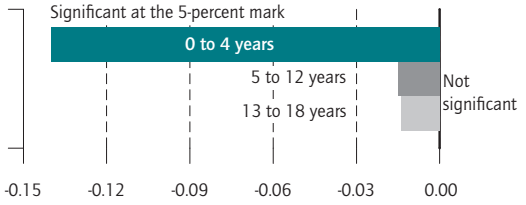
...Displaced Children Less Often Have Health Insurance

Children who have been victims of forced displacement have health insurance far less often: the probability of having health insurance decreases by 12-15 percentage points across all age groups (see Figure 3). This effect can be attributed to the nature of the health insurance system in Colombia (see Box 4). Health insurance provision is linked to the relevant municipality which supports the poor financially. If families choose or are forced to leave their municipality, they lose their health insurance cover and have to apply for this again in the new municipality. The problem here, however, is that in each municipality health insurance is available to a limited number of people only. In addition, displaced persons fear for their lives so much that they would often rather do without health insurance than disclose their new address to their old municipality. Displaced children consequently lose their insurance cover despite needing it all the more due to health-related problems and their financial situation.

Figure 1

Effect of Displacement on Nutritional Status

Marginal effect on nutritional status (height-for-age z-score)[1]



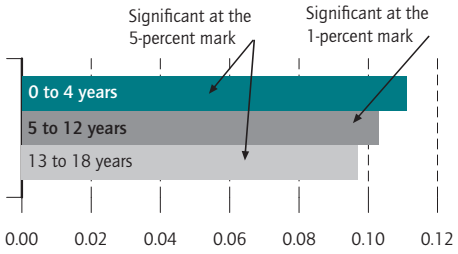
1 1 The regressions include additional explanatory variables not shown here. Each bar represents a regression equation.
Sources: Demographic and Health Survey 2010; calculations by DIW Berlin.

Displacement worsens the nutritional status of infants and toddlers by 14 percent from the standard deviation.

Figure 2

Effect of Displacement on the Subjective State of Health[1]

Marginal effect[2]



1 Higher values correspond to a poorer state of health.
2 The regressions include additional explanatory variables not shown here. Each bar represents a regression equation.
Sources: Demographic and Health Survey 2010; calculations by DIW Berlin.

In displaced families, parents perceived their children's health as far poorer.

7 See, for example, Bundervoet et al., "Health and Civil War".

8 See, for example, I. Flink, M. Restrepo, D. Blanco, M. Ortegon, C. Enriquez, T. Beirens, and H. Raat, "Mental health of internally displaced preschool children: a cross-sectional study conducted in Bogotá, Colombia," *Social Psychiatry and Psychiatric Epidemiology* 48(6) (2013): 917-926.

Box 4

Health Insurance Scheme in Colombia

Officially, every Colombian has access to basic health care. Three different systems are in place. The first is what is called the contribution scheme, which is mandatory for employed and self-employed persons who earn at least twice the minimum wage. The second is a subsidized scheme that was introduced to give poor households access to basic health care which they would not otherwise be able to afford. To be registered for state-funded health insurance, Colombians have to apply to their local authority, which then determines whether the applicant meets the requirements, i.e., whether they qualify as poor. If this is the case and the municipality has free capacity in their health insurance system, the applicant is issued a health insurance card providing him or her with access to medical care and assistance in that municipality. However, since the subsidized scheme only has limited capacity, there is also another scheme: the vinculados model, which is intended for those temporarily not insured under the other two schemes.[1] Here, people have access to treatment in emergencies but have to bear 30 percent of the treatment costs themselves, which is a huge burden for poor households.[2]

The design of the health care system brings about challenges for the internally displaced: the majority of the displaced are so poor before they take flight that they are insured in either the subsidized or the vinculados scheme. If a person who is a member of a subsidized health insurance scheme flees, leaving their hometown behind, they have to apply for membership in a subsidized health care insurance system in their new municipality. This results in a number of difficulties. First, the displaced are not insured for a transitional period—at least while they are on the move. Second, the former municipality has to release the health records of the insured which, unfortunately, does not always happen.[3] Third, the subsidized health care scheme may have no free capacity, leaving the displaced with no other choice but to sign up for the vinculados scheme. In addition, many people who have been displaced refrain from applying for health insurance in their new municipality, since this would mean disclosing a previous one in their application, revealing their new place of residence to their old municipality, which might put their lives in danger[4]

1 E. Cabrera, "The Subsidized Health-care Scheme in the Social Protection System – Colombia," in *UNDP: Sharing Innovative Experiences. Successful Social Protection Floor Experiences*, vol. 18, (New York: 2011): 211-238.

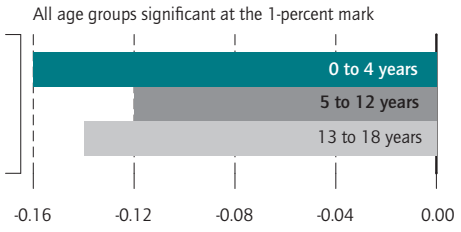
2 Human Rights Watch, "Colombia: Displaced and Discarded. The Plight of Internally Displaced Persons in Bogotá and Cartagena," *Human Rights Watch Report* 17 4(B) (New York: 2005).

3 P. Webster, "Treating the Displaced," *Canadian Medical Association Journal* 184(6) (2012): 291-292.

4 Human Rights Watch, "Colombia: Displaced."

Figure 3

Effect of Flight on Insurance Status
Marginal effect on health insurance status[1]



1 The regressions include additional explanatory variables not shown here. Each bar represents a regression equation.
Sources: Demographic and Health Survey 2010; calculations by DIW Berlin.

Children from displaced families are far less likely to have health insurance.

Conclusion

Flight and displacement in Colombia significantly impair children's health. The study by DIW Berlin shows that this applies in particular to infants and toddlers. In fact, this group is found to suffer from malnutrition more often than their peers from non-displaced families. Negative health impacts can also be seen in other age groups—among all children from birth up to the age of 18. This finding can be attributed to both somatic and psychological illness, often a direct consequence of war and displacement experiences. The study findings further show that flight will frequently result in a discontinuation of health insurance cover and that displaced children will very often continue to be uninsured either due to a lack of capacity in the state-funded health insurance system or because their parents do

not wish to divulge their new place of residence to their former municipality.

Healthcare policy-makers and organizations that look after the displaced urgently need to find out through what channels displacement affects children's health in order to take the necessary action to combat the problems. In Colombia, one possible starting point might be, for example, providing food parcels designed specifically to meet the nutritional needs of young children and psychological support for displaced families, as well as facilitating registration in the new insurance system without the former municipality being disclosed. This would give displaced children the chance to grow up healthier and make better use of their potential for later life.

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