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Father Absence, Social Networks, and Maternal Ratings of Child Health: Evidence from the 2013 Social Networks and Health Information Survey in Mexico

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Abstract

Objectives To bridge the literature on the effect of father absence, international migration, and social networks on child health, we assess the association between father absence and maternal ratings of child poor health (MCPH). Next we test whether social networks of immediate and extended kin mediate the relationship between fathers' absence and MCPH. *Methods* Nested logistic regression models predicting MCPH are estimated using the 2013 Social Networks and Health Information Survey, collected in a migrant-sending community in Guanajuato, Mexico. These unique data distinguish among father absence due to migration versus other reasons and between immediate and extended kin ties. *Results* Descriptive results indicate that 25% of children with migrant fathers are assessed as having poor health, more often than children with present (15.5%) or otherwise absent fathers (17.5%). In the multivariate models, fathers' absence is not predictive of MCPH. However, the presence of extended kin ties for the mother was associated with approximately a 50% reduction in the odds of MCPH. Additionally, mother's poor self-assessed health was associated with increased odds of MCPH while the presence of a co-resident adult lowered the odds of MCPH. In sensitivity analysis among children with migrant fathers, the receipt of paternal remittances lowered the odds of MCPH. *Conclusions for Practice* Social networks have a direct and positive association with MCPH rather than mediating the father absence-MCPH relationship. The presence of extended kin ties in the local community is salient for more favorable child health and should be considered in public health interventions aimed at improving child health.

Keywords Maternal rated child health · Social networks · Mexico · Father absence · Immigration

Significance

What is already known on this subject? Father absence due to international migration has mixed health implications for children remaining in the home country. Locally-based social networks positively influence child health outcomes, but show mixed results when looking at the types of social ties according to kinship.

What this study adds? We assess the role of father absence and social networks on maternal ratings of child poor health (MCPH) jointly for children residing in a migrant-sending community in Mexico. We are able to determine whether fathers are absent due to international migration versus other reasons and between immediate and local kin support. Father's absence does not predict MCPH while kin networks are associated with lower odds of MCPH.

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Introduction

A burgeoning literature examines the implications of migration on the health of children left behind in migrant-sending countries (Heymann et al. 2009; Hildebrandt et al. 2005; Kanaiaupuni et al. 2005; Schmeer 2009). This literature often focuses on two processes. The first is the role of parental absence and subsequent remittances on child health and well-being (Nguyen 2016; Lu 2015). The second

is the influence of social networks on child health. These are linked processes given that the structure, composition, and living arrangements of families and households may reflect the availability of parents, caregivers, and resources. Arguably, social networks operate to fill the void after a migrant's departure. In turn, these factors influence the health and well-being of children (Lahaie et al. 2009). To date, much of the literature has examined these processes independently (Heymann et al. 2009; Kanaiaupuni et al. 2005; Nobles 2011) and finds mixed evidence as to the impact of these processes on the health of children left in the origin (Heymann et al. 2009; Frank and Hummer 2002) or does not distinguish networks based on the composition of its members. Therefore, the aim of this research is to bridge the literature on parental absence and social networks to bring additional evidence to bear on the impact of migration on child health.

Children's health is sensitive to changes in household structure and composition (Bumpass and Lu 2000; Fomby and Cherlin 2007; Osborne and McLanahan 2007). A common transition is the departure of a father which shifts the household structure to resemble single motherhood. Children raised in single-parent households experience poorer health outcomes than children in two-parent homes due to household disruption (Slade et al. 2015). While the impetus for a father's absence influences child well-being (Nobles 2011), our focus is the absence of Mexican fathers due to international migration. Mexico is the largest single migrant-sending country to the U.S. and children feel its impact: an estimated 1 in 25 Mexican children has a U.S. migrant father and 1 in 11 children will likely experience father absence due to migration before age 15 (Nobles 2013). Absence due to international migration has arguably been associated with positive child health outcomes as migration is a means of acquiring economic resources (Antón 2010; Hildebrandt et al. 2005), but there may be a lag in well-being improvements while waiting for remittance income (Lu 2015) and an overestimation of remittance income (Heymann et al. 2009). Conversely, paternal migration may be associated with negative child health outcomes due to the reduction in resources available to the child, specifically parental time and the restructuring and strain on families (Fuller-Iglesias 2015; Heymann et al. 2009; Dreby 2015).

Though sparse, evidence as to the impact of fathers' migratory absence in Mexico is contradictory. Donato and Duncan (2011) found Mexican children living in households with migrants have increased odds of good health compared to children in non-migrant households.[1] In contrast, father absence specifically due to international migration was associated with an increase in the odds of child illness, which the author attributed to a lack of parental time (Schmeer 2009). Similar results were found when looking at caregiver absence in migrant households in Mexico (Heymann et al. 2009).

Mothers running one-parent households often have less time and/or money to invest in their children, and thus draw on their local social networks for support and assistance (DiGirolamo and Salgado de Snyder 2008) which may be particularly salient after the departure of a migrant father. These local social networks expand the resources available to a mother and her offspring and diversify the support available to households (Kanaiaupuni et al. 2005). Generally, a mother's social network is positively associated with child health (Adams et al. 2002; Oesch and Dunbar 2015).[2] Important distinctions can be made between types of social network ties as extended kin ties (i.e., grandparents, aunts, friends, or neighbors) improve a child's health (Donato and Duncan 2011; Kanaiaupuni et al. 2005) while immediate kin ties (i.e., siblings), have a negative association with child health in Mexico given the competition for scarce network resources or increases in a mother's stress level (Donato and Duncan 2011). These findings suggest extended kin ties can offer support that immediate kin cannot.

To date, scant research examines father absence and social networks on child health jointly due to data limitations. While household migration data sets (e.g., Mexican Family Life Survey or Mexican Migration Project) provide useful information regarding the family structure, they overlook a mother's social relationships in her local community and focus solely on family members in the household. On the other hand, the social networks and health literature demonstrates how relationships in the community, including those with friends, neighbors and others not related to women by blood or marriage, are key sources of support for mothers and their children. For this reason, we build on Kanaiaupuni and colleagues' conceptual framework (2005) for understanding the role of social networks on child health using unique data collected from mothers with at least one child aged 10 or younger in a Mexican migrant-sending community. These data allow us to assess whether fathers' status/absence type is associated with child health status and whether immediate and extended kin mediate this relationship.

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[1] It is important to note that this research does not specify current migrant households as those with migrating fathers.

[2] Recent evidence suggests that migrant networks are associated with higher BMIs for Mexican children (Creighton et al. 2011).

Data and Measures

The 2013 Social Networks and Health Information Survey (SNHIS) was conducted in a migrant-sending community in the state of Guanajuato, Mexico. Guanajuato is a traditional sending state for US migrants, (Durand et al. 2001) with the largest share of international migrants of all Mexican states (Instituto Nacional de Estadística y Geografiía (INEGI) 2011). In this municipality of roughly 80,000 residents, >16% of all households reported having an international migrant in 2010 (Instituto Nacional de Migración 2010).

Though this municipality contains peripheral rural communities, sampling for the SNHIS was limited to urban residences and was proportional to the number of households in a given census block (*manzana)*. Eight households were randomly selected from each block to be a part of the sample, but participation was limited to mothers with at least one child aged 10 years or younger residing in the households. In the case that there were two mothers with young children in a household, the mother with the most recent birthday was interviewed. Of the households with eligible respondents, 87% participated in the survey. The interviews were conducted in Spanish by female community members and collected information on a mother's social relationships, physical and emotional health, and health of her children. Unlike conventional Mexican household surveys, the SNHIS includes extensive information about a woman's social network and her interactions with network members. SNHIS respondents completed a detailed network roster of co-resident and migrant household members, cross-border friends and family, and local friends and family. Women listed up to five ties on the local friend and family rosters. The 343 sample women responded on the health of 559 children aged 10 or younger. Roughly 3% of children sampled had missing data for study variables and are excluded from the analysis, resulting in an analytic sample size of 328 mothers with 542 young children. This study was approved by the university Institutional Review Board of the first author.

The dependent variable of *maternal ratings of child poor health* (MCPH) is based on mothers' responses regarding the health of their children aged 10 years or younger. MCPH was assessed on a four-point scale (4 = excellent, 3 = good, 2 = fair, 1 = poor)[3] at the time of the interview and dichotomized to indicate poor health (1 = poor/fair health; 0 = good/excellent health), a standard commonly used procedure in the child health literature (Hardie and Landale

2013; Kanaiaupuni et al. 2005). Although subjective health measures may be prone to error, they accurately and consistently predict subsequent morbidity and mortality (Case and Paxson 2001; Idler and Benyamini 1997) and are reliable indicators that do not require a physician's assessment.

An advantage of these data is the detailed information about the father's presence in the child's home or reason for absence. We distinguish between *fathers absent due to international migration* and *fathers absent for other reasons* compared to present fathers.[4] *Fathers absent for other reasons* indicates that the father is not living in the same domicile as the child, but is not an international migrant. Fathers could be absent from the household due to divorce/separation, simply not living with or having a relationship with the mother (i.e., single, unmarried mothers), or because they are living somewhere else in Mexico for work. In sensitivity tests, we include variables unique to children with fathers absent due to international migration to ascertain whether time and money matter when looking at child health. *Father remits monthly or more* indicates whether the child's mother receives remittances from the child's father on a monthly or more frequent basis. *Father separation in months* refers to the number of months a child's mother (and by association, the child) has been separated from the father of her children at the time of the interview.

Mothers' social networks are examined according to relationship type and closeness and are based on social relationships reported separately in the local family and friend rosters. Women could list up to five social ties on each roster. *Immediate kin ties* includes adult siblings, parents, or adult children a mother has in the local community. *Extended kin ties* includes other adult relatives, such as cousins, aunts or uncles, grandparents, in-laws, and friends or neighbors in the local community. Mothers reported the frequency of contact with each tie (1 = less than yearly, 2 = yearly, 3 = monthly, 4 = weekly, 5 = daily). Since the communication frequency with a social tie has shown to predict level of social support received (Oesch and Dunbar 2015), only ties with whom the mother reported communicating with on a weekly or daily basis were included in the kinship measures.[5] *Immediate kin ties* and *extended kin ties* are dichotomized to represent the presence of these kinds of ties.

Maternal education, self-rated health, and employment serve as control variables. *Education*: ≤ *Primary* refers to 6 years or less of formal schooling for a mother. *Mother's poor health* was based on responses to the question, "In

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[3] The names of the original categories in Spanish are as follows: '4' (Excelente), '3' (Buena), '2' (Regular), '1' (Pobre). Although translation issues associated with self-rated health questions have been suggested in multilingual immigrant populations in the U.S., this concern is minimized in this study since all questions were asked in Spanish.

[4] "Fathers" and "spouses" will be used interchangeably in this paper depending on the whether we are referring to the viewpoint of the mother or of the child.

[5] Respondents communicated with 81.7% of social ties in the local community on a weekly or daily basis.

general, would you say your health is excellent, very good, good, fair, or poor?" and reflects the mother's evaluation of her own health status. Similar to other research (Kanaiaupuni et al. 2005) we dichotomized this measure to indicate fair or poor health. We control for mother's self-reported health for several reasons. First, mothers' reports of child health may reflect subjective worries or concerns for children rather than objective health status, which would also be reflected in her assessment of her own health (Waters et al. 2000). Second, mother's poor health captures the emotional well-being of the mother (Su et al. 2013; Spencer et al. 2009; Bzostek et al. 2007; Franzini and Fernandez-Esquer 2004), which may impact reporting of child health status. Third, including mother's poor health controls for maternal transmission of poor health to her child. Finally, mothers' own poor health may operate as a proxy for household need (Kanaiaupuni et al. 2005). *Employed outside the home* indicates that the mother is employed in the community. Controls for child characteristics include *sex (1 = female)* and *age in years*. Household level controls include the total number of children in a household, referred to as *household size* and a dichotomous variable indicating shared living arrangements with at least one adult other than a spouse, *co-resident adult*.

Analysis

First, we examine indicators of child health according to father status and test for differences between children with fathers absent due to international migration and those with fathers absent for other reasons. Logistic regression analysis is used to analyze the relationship between father absence and MCPH. Model 1 examines the relationship between father absence according to type and MCPH. We add control variables for child characteristics in Model 2, maternal characteristics in Model 3, and household characteristics in Model 4. In the final model, we add indicators of immediate and extended kinship networks. Robust confidence intervals are implemented to account for the clustering of poor health in families and multiple children per mother. We test whether social networks mediate the effect of father absence on child health, using the user-written KHB method in Stata 14, which is most appropriate for non-linear models (Kohler et al. 2011). As a sensitivity check, we compared models for the full sample (n = 542) with models limited to the youngest child per mother (n = 328) and found similar results. This table is available upon request. To assess factors unique to children with international migrant fathers thought to impact their health (e.g., Antón 2010; Schmeer 2009), we ran analyses on children with absent migrating fathers (n = 52) including indicators for remittance receipt and duration of absence. To address concerns of limited statistical

power in a relatively small sample, we calculated that for a two-sided confidence interval of 95% (alpha = 0.025), we would need a sample of 398 to achieve 90% power[6] (Chow et al. 2008). Since our study has 542 respondents, the study is sufficiently powered. All analysis for this study was performed using Stata 14 using unweighted models.

Results

Table 1 displays the descriptive statistics for the full SNHIS child sample and by father absence type (i.e., father present, father absent due to international migration, father absent for other reasons). Roughly 16% of children have poor health. Approximately 10% of children have an absent father due to international migration while a similar percentage (11.6%) have fathers absent due to other reasons.[7] On average, children are 5 years old and live in households with two to three other young children (including siblings and non-siblings). Almost 60% of children live in a household with an adult co-resident.

Differences emerge when the sample is compared according to father absence type. Children with absent fathers due to international migration are disadvantaged in terms of health: 25.0% have poor health compared to 15.5% of children with present fathers and 17.5% with fathers absent for other reasons. Children with fathers absent for other reasons have higher proportions of mothers employed outside of the home (41.3%) when compared to children with present fathers (22.7%) or migrant fathers (28.8%). Children in households where the father is absent for other reasons have mothers with the poorest health of the three groups with 31.7% rating their own health as poor or fair. This group also reports having mothers with the fewest local, immediate kin ties with whom they communicate on a regular basis (58.7%) compared to children with co-resident fathers (72.4%) and children with migrant fathers (67.3%). However, a greater proportion of children with fathers absent for any reason live in households with co-resident ties than those with present fathers. When looking at the presence of close social network ties, 86.5% of children with migrant fathers had mothers who reported having extended kin ties in the local community compared to 78.9% of children present fathers and 85.7% of children with fathers absent for other reasons, though these are not significantly different. Finally,

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[6] We used a sample size calculator (http://powerandsamplesize.com) where we input the proportion of the sample with extended kin ties having poor health (0.188) and the proportion without extended kin ties having poor health (0.265), while controlling for the sampling ratio. This indicated that we needed 398 responses.

[7] Of the father absent (other) group (n = 63), 30 are married, 9 are divorced, 16 are single, and 8 are widowed.

Table 1 Descriptive statistics for full sample and child subsamples according to father status. Data source: 2013 Social Networks and Health Information Survey (SNHIS)

	SNHIS sample (n=542)		Father present (n=427)			Father absent intl. mig. (n=52)			Father absent other (n=63)	
	Mean (%)	(SD)	Mean (%)	(SD)		Mean (%)	(SD)		Mean (%)	(SD)
Poor health (MCPH)	16.6		15.5		A	25.0			17.5	
Child's characteristics										
Age	5.3	2.96	5.4	2.99	B	5.16	2.79		4.4	2.77
Female			48.5			51.9			57.1	
Mother's characteristics										
Education: ≤primary	43.7		43.1			40.4			50.8	
Employed outside the home	25.5		22.7		B	28.8		B	41.3	
Poor health	27.7		27.4			25			31.7	
Household characteristics										
Household size (# of children)	2.4	1.22	2.4	1.15		2.5	1.6		2.4	1.32
Co-resident adult (1=yes)	58.3		51.8		A, B	78.9			85.7	
Presence of close social network ties										
Immediate kin ties	70.3		72.4		A, B	67.3			58.7	
Extended kin ties	79.9		78.5			86.5			84.1	
Father remits monthly or more[+]						75				
Father separation in months[+]						31.2	36.8			

Significant tests (indicated as p<0.05) were conducted to examine differences between groups using 2-tailed t-tests. An "A" indicates group is significantly different from father absent due to international migration, and "B" indicates group is significantly different from father absent due to other reasons

[+]Indicates that a variable is only available if father is an international migrant

Table 2 Logistic regression models of maternal-ratings of child poor health (MCPH) reported as odds ratios (n=542)

	Model 1	Model 2	Model 3	Model 4	Model 5
Father status (present excluded)					
Father absent for international migration	0.33** (0.16–0.70)	1.09 (0.47–2.54)	1.08 (0.48–2.42)	1.88 (0.75–4.72)	2.03 (0.80–5.14)
Father absent for other reasons	0.21*** (0.10–0.46)	0.60 (0.26–1.41)	0.51 (0.20–1.33)	1.04 (0.42–2.60)	1.12 (0.45–2.77)
Child's characteristics					
Age		0.82*** (0.77–0.87)	0.80*** (0.74–0.86)	0.90* (0.83–0.98)	0.94 (0.86–1.02)
Female		0.60** (0.41–0.88)	0.60** (0.40–0.88)	1.00 (0.64–1.55)	1.16 (0.73–1.85)
Mother's characteristics					
Education: ≤primary			0.70 (0.42–1.17)	0.95 (0.54–1.65)	1.03 (0.59–1.79)
Employed outside the home			1.25 (0.68–2.28)	1.47 (0.81–2.67)	1.64 (0.89–3.03)
Poor health			2.23** (1.24–4.01)	2.51** (1.36–4.66)	2.68** (1.45–4.95)
Household characteristics					
Household size (# of children)				0.60*** (0.46–0.77)	0.71* (0.54–0.92)
Co-resident adult (1=yes)				0.55* (0.32–0.94)	0.54* (0.31–0.96)
Presence of close social network ties					
Immediate kin ties					0.65[+] (0.40–1.06)
Extended kin ties					0.53* (0.31–0.90)

Robust confidence intervals for clustered data in parentheses

Data: see Table 1

***p<0.001; **p<0.01; *p<0.05; [+]p<0.10

Table 3 Logistic regression models of maternal-ratings of child poor health (MCPH) for children with absent fathers due to international migration reported as odds ratios (n = 52)

	Model 1	Model 2	Model 3	Model 4	Model 5
Presence of close social network ties					
Immediate kin ties	0.34[+] (0.10–1.16)	0.30[+] (0.08–1.14)	0.33 (0.08–1.30)	0.34 (0.09–1.34)	0.25 (0.04–1.55)
Extended kin ties	0.69 (0.24–1.96)	1.33 (0.32–5.58)	1.35 (0.34–5.37)	1.96 (0.24–16.31)	2.64 (0.27–26.21)
Child's characteristics					
Age		0.83 (0.66–1.05)	0.85 (0.68–1.05)	0.87 (0.70–1.08)	0.86 (0.67–1.10)
Female		1.92 (0.43–8.49)	2.04 (0.44–9.47)	2.21 (0.51–9.64)	1.99 (0.47–8.44)
Mother's characteristics					
Education: ≤ primary			0.59 (0.12–2.84)	0.50 (0.12–2.04)	1.14 (0.19–6.93)
Household characteristics					
Household size (# of children)				1.10 (0.77–1.55)	1.07 (0.66–1.73)
Co-resident adult (1 = yes)				0.40 (0.05–3.00)	0.78 (0.09–6.91)
Father separation characteristics					
Father remits monthly or more					0.13* (0.03–0.68)
Father separation in months					1.02[+] (1.00–1.04)

Robust confidence intervals for clustered data in parentheses

Data: see Table 1

***p < 0.001; **p < 0.01; *p < 0.05; [+]p < 0.10

75% of children with international migrant fathers have a father who sends remittances on a monthly or more frequent basis, and the mean time of separation from father in months is slightly greater than 2.5 years (mean: 31.2 months; SD 36.8).

Table 2 examines the relationship between father absence and poor child health using logistic regression analysis. Model 1, with only father absence/status, shows that the father absence due to international migration is significantly associated with reduced odds of MCPH, as is father absence for other reasons. The introduction of child characteristics in Model 2 eliminates the significance of father absence types on MCPH. Child age is associated with reduced odds of MCPH and does not change in magnitude across the models, suggesting that with increasing age, mothers rate their child's health more favorably. The inclusion of maternal characteristics (Model 3) reveals that a mother's poor health is associated with increased odds of MCPH (OR 2.68; 95% CI 1.45–4.95). When household controls are included (Model 4), the number of children in a household is associated with a reduced odds of poor child health (OR 0.60; 95% CI 0.46–0.77). Similarly, the presence of a co-resident tie is associated with a reduced odds of poor child health (OR 0.54; 95% CI 0.31–0.96). The presence of extended kin ties in Model 5 is associated with reduced odds of poor child health (OR 0.53; 95% CI 0.31–0.90). In addition, the presence of immediate kin ties is associated with reduced odds of poor child health (OR 0.65; 95% CI 0.40–1.06), but this relationship is only marginally significant (p < 0.10). The KHB results used to test the mediating effect of networks

on father absence reveal that social networks do not fully mediate this relationship (table available on request).

In Table 3, we present analysis on the sample of children with international migrant fathers (n = 52) using variables for father separation characteristics specific to this subgroup. Table 3 shows the salience of these migration-specific characteristics on poor child health as *father remits monthly or more* and *father separation in months* are the only variables that are significantly associated with poor health. Receiving regular remittances is associated with a reduced odds of poor child health (OR 0.13; 95% CI 0.03–0.68). Although the duration of father separation is associated with increased odds of poor child health (OR 1.02; 95% CI 1.00–1.04), it is marginally significant (p < 0.10) and likely constrained by small sample size. Additionally, in the full model neither type of kin ties is predictive of MCPH.

Discussion

Although father absence and social networks are both salient to child health, existing research has examined their roles separately. For that reason, we assess the role of father absence on child health and test whether social networks operate as a mediating factor in the father absence-child health relationship. In doing so, we aim to add clarity to the previously mixed findings while focusing on a different health outcome, MCPH. In migrant-sending communities in Mexico, such as the one we studied, we anticipated that the

void left by an absent father would be filled by members of the mother's social network, who may influence child health.

Bivariate results indicate that poor child health is higher for children with absent fathers due to international migration; however, the multivariate results did not provide support that father absence is associated with MCPH. Instead of finding that social networks mediate the relationship between father absence and child health, we find extended kin have an independent association with child health, lowering the odds of MCPH. While somewhat surprising that we did not find a relationship between fathers' absence due to migration and MCPH in either direction, the results add nuance to the ways in which family structure and paternal absence jointly impact child health.

Though father absence is insignificant in the multivariate models, other parental characteristics are associated with MCPH. The self-assessed health of the child's mother is significantly associated with MCPH. Having a mother in poor health is associated with 2.6 higher odds of poor child health, a relationship with the largest odds of all the covariates. The presence of an adult co-resident, however, is connected to reduced odds of poorer child health, indicating that having other adults in the household is helpful to a mother and benefits the health of her child. Other adults in the household may be able ease the burden of child care, for example, or engage in other forms of support that promote child well-being (Schmeer 2009). In the context of this migrant-sending community, the presence of other adults in a child's household matters for the child's health.

Furthermore, our findings demonstrate that a mother's social network in the local community is salient to child health. Holding other variables constant, mothers who report having regular contact with extended social ties in their community rate the health of their children more favorably. We hypothesize that the social ties serve as a proxy for the mother's social integration into her community which she can use to promote the health of her child(ren). For instance, a mother may be able to use her social ties to locate resources in the community that ultimately promote the well-being of her family. In contrast to other research that points to the negative implications of immediate kin ties (Cramer and McDonald 1996; Donato and Duncan 2011), we find that the presence of immediate kin ties in the local community is marginally associated with child health. These findings highlight how a mother's access to a broad range of social relationships benefits the well-being of her offspring.

In the sensitivity analysis for children with fathers absent due to international migration, characteristics specific to this type of absence are associated with child health, highlighting the importance of distinguishing between types of father absence (Nobles 2011). We find that when fathers migrate internationally, money and, to a lesser extent, separation is tied to their child's health. Remittances are associated with more favorable child health ratings, while each additional month of separation is marginally associated with poorer child health. Hamilton and colleagues echo this tension when examining infant mortality in Mexican migrant households suggesting that "remittances are helpful, but the departure and absence of household members is disruptive" (Hamilton et al. 2009, p. 139). Unexpectedly, we do not find that social networks are predictive of child health for this group. Although small sample size may have contributed to the lack of significance for social network measures, the salience of the length of a father's absence and receipt of financial support from a father could indicate that other processes are at play. In recent years, increasingly restrictive immigration policies have contributed to the human and economic costs of international migration for immigrants and their family members in the origin (Dreby 2015). Previously circular migration patterns have been supplanted with longer durations or continuous U.S. residence, establishing a more permanent type of father absence (Massey and Riosmena 2010; Passel and Cohn 2009). Scholars have found that long-term parental absence is more detrimental on child health than shorter term migrations (Nguyen 2016), which was substantiated in our sensitivity analysis. Social networks may not be sufficient for coping with the instability, lack of support, or insufficient parental surveillance (Hoang and Yeoh 2012; Lahaie et al. 2009) associated with father migration in this context. Whether international migration is a path to improved well-being for Mexican families remains an open question requiring future research.

Limitations

Our findings from one migrant-sending community in Mexico provide a careful assessment of how social networks and father absence predict child health. However, there are several limitations to this study. First, though the literature examines both dichotomous MCPH and a continuous measure, children tend to be in favorable health and our sample precludes the use of the outcome measured continuously. Second, our data are missing variables, such as household income, that could impact child health, yet we do include other SES related controls for mother's educational attainment and employment status. Whether or not a father is present likely has important implications on household income and could not be assessed in this study, which could be confounding the relationship between father absence and child health. Third, the cross-sectional nature of our data and geography are important limitations of this study. Ideally, longitudinal data that are representative of sending communities throughout Mexico would be best equipped to examine how child health is impacted by father migration in Mexico. While our findings provide a snapshot of

how social networks may be connected to child health, longitudinal research would be better suited to examine the causality between these relationships and the long-term health implications of father absence due to international migration. Finally, our sample was relatively small, potentially hindering the statistical power to discern differences between father status groups. Therefore, the relationship between social networks and child health may actually be larger than what was observed. Father status type may have an independent association that could not be detected given the small sample size.

Conclusions

Despite its limitations, this study provides important insights into how family and social networks may impact child health and provide potential avenues for future research. Given the current era of increasing immigration restrictions, longer-term absences may represent a reality that many children in migrant households will face, with social networks becoming even more crucial to promoting and enhancing child well-being. The support that families in these situations may need represents an important avenue of research and intervention development in public health. In addition, as deportations from the U.S. increase, it will be crucial to monitor the health of children who experience additional household instability and transitions as fathers return to Mexico (Dreby 2015). The shifting contexts that new immigration policies create provide challenges and opportunities to analyze the dynamics of social relationships and their implications on child health.

References

Adams, A. M., Madhavan, S., & Simon, D. (2002). Women's social networks and child survival in Mali. *Social Science & Medicine, 54*(2), 165–178.

Antón, J. I. (2010). The impact of remittances on nutritional status of children in Ecuador. *International Migration Review, 44*(2), 269–299.

Bumpass, L., & Lu, H.-H. (2000). Trends in cohabitation and implications for children s family contexts in the United States. *Population Studies, 54*(1), 29–41.

Bzostek, S., Goldman, N., & Pebley, A. (2007). Why do Hispanics in the USA report poor health? *Social Science & Medicine, 65*(5), 990–1003.

Case, A., & Paxson, C. (2001). Mothers and others: Who invests in children's health? *Journal of Health Economics, 20*(3), 301–328.

Chow, S., Shao, J., & Wang, H. 2008. *Sample size calculations in clinical research* (2nd ed.). Chapman & Hall/CRC Biostatistics Series, p. 106. Boca Raton: CRC Press

Cramer, J., & McDonald, K. (1996). Kin support and family stress: Two sides to early childbearing and support networks. *Human Organization, 55*(2), 160–169.

Creighton, M. J., Goldman, N., Teruel, G., & Rubalcava, L. (2011). Migrant networks and pathways to child obesity in Mexico. *Social Science & Medicine, 72*(5), 685–693.

DiGirolamo, A. M., & Salgado de Snyder, N. (2008). Women as primary caregivers in Mexico: Challenges to well-being. *salud pública de méxico, 50*(6), 516–522.

Donato, K. M., & Duncan, E. M. (2011). Migration, social networks, and child health in Mexican families. *Journal of Marriage and Family, 73*(4), 713–728.

Dreby, J. (2015). US immigration policy and family separation: The consequences for children's well-being. *Social Science & Medicine, 132*, 245–251.

Durand, J., Massey, D. S., & Zenteno, R. M. (2001). Mexican Immigration to the United States: Continuities and Changes. *Latin American Research Review, 36*(1), 107–127. https://doi.org/10.2307/2692076.

Fomby, P., & Cherlin, A. J. (2007). Family instability and child well-being. *American Sociological Review, 72*(2), 181–204.

Frank, R., & Hummer, R. A. (2002). The other side of the paradox: The risk of low birth weight among infants of migrant and nonmigrant households within Mexico. *International Migration Review, 36*(3), 746–765.

Franzini, L., & Fernandez-Esquer, M. E. (2004). Socioeconomic, cultural, and personal influences on health outcomes in low income Mexican-origin individuals in Texas. *Social Science & Medicine, 59*(8), 1629–1646.

Fuller-Iglesias, H. R. (2015). The view from back home: Interpersonal dynamics of transnational Mexican families. *Journal of Ethnic and Migration Studies, 41*(11), 1703–1724.

Hamilton, E. R., Villarreal, A., & Hummer, R. A. (2009). Mother's, household, and community US migration experience and infant mortality in rural and urban Mexico. *Population Research and Policy Review, 28*(2), 123–142.

Hardie, J. H., & Landale, N. S. (2013). Profiles of risk: Maternal health, socioeconomic status, and child health. *Journal of Marriage and Family, 75*(3), 651–666.

Heymann, J., Flores-Macias, F., Hayes, J. A., Kennedy, M., Lahaie, C., & Earle, A. (2009). The impact of migration on the well-being of transnational families: New data from sending communities in Mexico. *Community, Work & Family, 12*(1), 91–103.

Hildebrandt, N., McKenzie, D. J., Esquivel, G., & Schargrodsky, E. (2005). The effects of migration on child health in Mexico [with comments]. *Economia, 6*(1), 257–289.

Hoang, L. A., & Yeoh, B. S. (2012). Sustaining families across transnational spaces: Vietnamese migrant parents and their left-behind children. *Asian Studies Review, 36*(3), 307–325.

Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: A review of twenty-seven community studies. *Journal of Health and Social Behavior, 38*, 21–37.

Instituto Nacional de Estadística y Geografía (INEGI). (2011). Censo de Población y Vivienda 2010. Mexico City, Mexico.

Instituto Nacional de Migración. (2010). Estadisticas Migratorias del INM 2009. Mexico City, Mexico.

Kanaiaupuni, S. M., Donato, K. M., Thompson-Colon, T., & Stainback, M. (2005). Counting on kin: Social networks, social support, and child health status. *Social Forces, 83*(3), 1137–1164.

Kohler, U. B., Karlson, K. B., & Holm, A. (2011). Comparing coefficients of nested nonlinear probability models. *The Stata Journal, 11*(3), 420–438.

Lahaie, C., Hayes, J. A., Piper, T. M., & Heymann, J. (2009). Work and family divided across borders: The impact of parental migration on Mexican children in transnational families. *Community, Work & Family, 12*(3), 299–312.

Lu, Y. (2015). Internal migration, international migration, and physical growth of left-behind children: A study of two settings. *Health & Place, 36*, 118–126.

Massey, D. S., & Riosmena, F. (2010). Undocumented migration from Latin America in an era of rising US enforcement. *The Annals of the American Academy of Political and Social Science, 630*(1), 294–321.

Nguyen, C. V. (2016). Does parental migration really benefit left-behind children? Comparative evidence from Ethiopia, India, Peru and Vietnam. *Social Science & Medicine, 153*, 230–239.

Nobles, J. (2011). Parenting from abroad: Migration, nonresident father involvement, and children's education in Mexico. *Journal of Marriage and Family, 73*(4), 729–746.

Nobles, J. (2013). Migration and father absence: Shifting family structure in Mexico. *Demography, 50*(4), 1303–1314.

Oesch, N., & Dunbar, R. I. M. (2015). Influence of kin network on maternal and infant health and illness. *Journal of Pregnancy and Child Health, 2*(2), 146.

Osborne, C., & McLanahan, S. (2007). Partnership Instability and Child Well-Being. *Journal of Marriage and Family, 69*(4), 1065–1083.

Passel, J., & Cohn, D. V. (2009). *Mexican immigrants: How many come? How many leave?* Washington DC: Pew Hispanic Center.

Schmeer, K. (2009). Father absence due to migration and child illness in rural Mexico. *Social Science & Medicine, 69*(8), 1281–1286.

Slade, A. N., Beller, A. H., & Powers, E. T. (2015). Family structure and young adult health outcomes. *Review of Economics of the Household, 15*, 175–197.

Spencer, S. M., Schulz, R., Rooks, R. N., Albert, S. M., Thorpe, R. J., Brenes, G. A., et al. (2009). Racial differences in self-rated health at similar levels of physical functioning: An examination of health pessimism in the health, aging, and body composition study. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 64B*(1), 87–94.

Su, D., Wen, M., & Markides, K. S. (2013). Is self-rated health comparable between non-Hispanic whites and Hispanics? Evidence from the health and retirement study. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 68*(4), 622–632.

Waters, E., Doyle, J., Wolfe, R., Wright, M., Wake, M., & Salmon, L. (2000). Influence of parental gender and self-reported health and illness on parent-reported child health. *Pediatrics, 106*(6), 1422–1428.