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Sleep duration in Mexican American children: Do mothers' and fathers' parenting and family practices play a role?

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Summary

This study examined parenting styles, parenting practices and family practices that may be associated with weeknight sleep duration among 8- to 10-year-old Mexican American (MA) children. This cross-sectional study of MA children used baseline data from a 2-year cohort study of mother–child pairs ($n = 308$) with additional data on fathers ($n = 166$). Children's weeknight sleep duration was accelerometer estimated and averaged for 2 weeknights. Parents reported on their parenting styles and practices regarding food and family food-related practices. Multivariable linear regression analysis was used to examine sleep duration with parenting styles and practices, and family practices, and adjusting for child gender and body mass index. Model 1 included mothers' parenting styles and practices; Model 2 included both mothers' and fathers' parenting styles and practices. Children's average sleep duration was 9.5 ($SD = 0.8$) hr. Mothers who used pressure to encourage their children to eat and those who used food to control behavior had children with longer sleep duration ($\beta = 0.21$, $p < 0.01$; $\beta = 0.15$, $p = 0.03$, respectively). Mothers who reported their children ate dinner with the TV on and those who valued eating dinner as a family had children with shorter sleep duration ($\beta = -0.16$, $p = 0.01$; $\beta = -0.18$, $p = 0.01$, respectively). Fathers who restricted the amount of food their children ate had children with shorter sleep duration ($\beta = -0.27$, $p = 0.01$). Mothers' and fathers' feeding practices, the child's eating dinner with the TV on, and valuing family dinners, played a role in children's weeknight sleep duration among Mexican American families. Parental feeding practices and family mealtime contexts may have an effect on children's weeknight sleep duration.

KEYWORDS
correlates, family practices, Latino children, parental feeding, parenting practices, sleep duration

1 | INTRODUCTION

The optimal recommended duration of sleep for children aged 6–12 years is 9 hr (American Academy of Sleep Medicine, 2016).

However, 36%–41% of elementary school-age children are not obtaining the recommended amount of sleep (Hawkins & Takeuchi, 2016).

There has been a decline in sleep duration (1980–2008), which parallels the rise in obesity (1985–2012) in the USA (Finucane et al., 2011; Ford, Cunningham, & Croft, 2015). The elevated risks of short sleep and obesity have been observed in Latino children (Peña, Rifas-Shiman, Gillman, Redline, & Taveras, 2016; Skinner & Skelton, 2014), with concomitant calls for a more comprehensive approach to obesity prevention, especially among Latinos (US Department of Health and Human Services, 2011). Targeting sufficient sleep duration may be a potential intervention to reduce childhood obesity (Haines et al., 2013). However, little is known regarding modifiable factors for improving sleep duration, particularly among elementary school-age children, and few interventions have focused on improving sleep duration to prevent childhood obesity (Hamre et al., 2006; Yoong et al., 2016).

We examined potential parenting and family factors related to children's sleep duration. Parenting styles in the domains of parental warmth (e.g. supportiveness, responsiveness and acceptance) and parental control (e.g. being demanding and monitoring) have often been examined in the context of child functioning, such as academic performance (Aunola & Nurmi, 2004; Darling & Steinberg, 1993), but few studies have examined parenting styles in relation to children's sleep. In one study, a parenting style that encouraged social maturity was related to longer sleep duration, less night-to-night variability in sleep (for girls), and a bedtime before 23:00 hours (Spilsbury et al., 2005). Another study of low-income adolescents found that parental control was related to fewer difficulties initiating sleep, and that Latino adolescents had fewer difficulties maintaining sleep, which resulted in longer sleep duration than their non-Latino counterparts (Roblyer & Grzywacz, 2015). The authors attributed longer sleep in Latino adolescents to family stability, specifically a two-parent household, which is similar to findings in Black and White adolescents (Troxel, Lee, Hall, & Matthews, 2014).

Parenting practices, such as instilling family meals and routines, as compared with parenting styles, have also been examined in relation to a range of lifestyle-related health behaviours, including children's eating and diet (Shloim, Edelson, Martin, & Hetherington, 2015). Studies have found that family practices around eating overlap with children's sleep practices. Family meals have been shown to be related to more healthful dietary intake and longer sleep in children (Ray & Roos, 2012). In addition, instilling routines (e.g. schedules, family meals) and limits around screen time has been shown to be protective of children's sleep duration (Koulouglioti et al., 2014; Ray, Kalland, Lehto, & Roos, 2013). One relationship that has not been examined is that of parental feeding practices in relation to children's sleep duration. Parental feeding practices refer to the goal-directed behaviours used by parents to influence a child's eating (Shloim et al., 2015). Certain parental feeding practices, specifically restricting certain foods and using food to control behaviour, have been shown to increase the risk of childhood obesity (Tschann et al., 2015). Moreover, there is little known about the role of fathers' parenting practices in addition to mothers' in the relationship between parental feeding practices and children's sleep duration, especially among Latino families.

We posited that parental styles, parent feeding practices and family practices related to meals and television are associated with children's sleep, as they are for eating behaviours. Because parenting styles and practices in different domains might be interconnected (Jones, Pollard, Summerbell, & Ball, 2014), it is also possible that these factors are related to longer sleep duration in children. We explored the association of mothers' parenting styles, parenting practices and family practices with weeknight sleep duration among 8- to 10-year-old Mexican American children (n = 308). Additionally, we explored these relationships in families in which both mothers and fathers participated in the research (n = 166). This research has the potential to shed light on parenting and family contextual factors to improve sleep duration, and possibly reduce the burden of obesity among Mexican American children.

2 | METHODS

2.1 | Participants and data collection

A total of 322 Mexican American children and their mothers who were members of Kaiser Permanente Northern California, an integrated health care delivery organization, were recruited to participate in a cohort study to understand parental influences on obesity in Mexican American children. Letters were sent to parents, who were then invited to participate in a 2-year study if (a) the mother was of Mexican decent (born in the USA/Mexico) and (b) their child was 8–10 years of age and had no major illnesses. Bilingual interviewers obtained parental informed consent and child assent to participate in the research. Parents and children were interviewed in their homes in the participants' preferred language. Of the 322 mother–child pairs, 174 fathers opted to participate and were also interviewed. For the current cross-sectional study, we used baseline data and included families with complete information on children's sleep duration, resulting in 308 mother–child pairs. Of these mother–child pairs, a total of 166 fathers had complete information on parenting. The study was approved by the University of California San Francisco and Kaiser Permanente Northern California Research Foundation Institutional Review Boards.

2.2 | Dependent variable

2.2.1 | Child sleep duration

Sleep duration was assessed for three consecutive nights (two weeknights and one weekend night) and, as previously reported, was estimated using the hip-worn Actical accelerometer (Philips Respironics, Bend, OR, USA) (Martinez et al., 2014b). The monitor was attached to an elastic belt and positioned on the child above the iliac crest of the right hip. Research assistants provided both verbal and written instructions for care and placement of the monitor at the time of the home visit. Children were instructed to wear the monitor at all times

for three consecutive days, with the exception of when bathing. Data were collected at 1-minute intervals at a specified start time (Butte et al., 2014). Data were downloaded to a computer, and data output included the time stamp and total accelerometer counts. Data completeness was verified against the participant's log, and times of and reasons for monitor removal were coded in the file. A single trained research assistant conducted visual inspections and cross-checked bedtimes and wake times with the child-reported diaries, using a plot of activity counts per minute for each 24-hr period. A plot of activity counts per minute for each 24-hr period was used to identify the time of sleep onset and end. During the night-time sleep period, activity counts were usually zero. Sleep periods were cross-checked with the participants' wear log for "off" times. Any minutes scored as awake were removed from the sleep duration variable. For the current study, we used weeknight sleep duration because parents are more likely to engage in routines on weekdays compared with weekends, which may be less structured. We observed a higher mean of sleep duration at weekends than on weekdays, with weekend sleep averaging 23 minutes longer (SD = 78 minutes).

2.3 | Independent variables

2.3.1 | Parenting styles and practices

Parenting styles of warmth (10 items; e.g. tells child that what he/she tries to do or achieve is appreciated) and control (six items; e.g. child is punished if he/she misbehaves) were assessed using the Blocks' Child Rearing Practices Report as adapted by Aunola & Nurmi (2004). Response options ranged from never/strongly disagree [1] to always [5]/strongly [4] agree. For each subscale, mean scores were calculated ($\alpha_{mothers}$ = 0.71, $\alpha_{fathers}$ = 0.78) and centred with scores ranging from −2 to 2; higher scores represented more use of that parenting style.

Mothers and fathers reported on their own child-feeding behaviours using the 55-item Parental Feeding Practices (PFP) Questionnaire (Musher-Eizenman & Holub, 2007). In our prior research with Mexican American children aged 8–10 years, we validated the PFP questionnaire and identified the following four parental feeding practices: use of food to control behaviour, pressure to eat, restriction of food amount and positive involvement in child eating (Musher-Eizenman & Holub, 2007). Using this questionnaire, we have found that restrictive feeding practices and pressure to eat predicted future increases in a child's weight (Tschann et al., 2015). The PFP subscale items include: nine items on use of food to control behaviour (e.g. gives child food in exchange for good behaviour or to lift mood), 24 items on positive involvement in child eating (e.g. encourages child to eat healthy foods before less healthy foods; sets limits on sweets, junk food and sodas), 10 items on pressure to eat (e.g. child has to eat everything on his/her plate) and 12 items on restriction of amounts of food (e.g. tells child when he/she has eaten enough) ($\alpha_{mothers}$ = 0.77–0.88; $\alpha_{Fathers}$ = 0.70–0.91). All questions were worded in terms of frequency of behaviour, and response options range from never [1] to always [5] (Tschann et al., 2013). For each

subscale, mean scores ranged from 1 to 5; higher scores represented more use of that feeding practice.

Lastly, parental screen time monitoring was assessed using the scale developed by Robinson (1999) and included eight items (e.g. keeps track of the amount of time child spends watching TV/videos; limits the amount of time a child spends watching TV/videos during the week). Response options ranged from never [1] to always [5]. A mean score was computed ($\alpha_{mothers}$ = 0.84, $\alpha_{fathers}$ = 0.86), ranging from 1 to 5; a higher score indicated more TV monitoring.

2.3.2 | Family practices regarding TV

Mothers and fathers were asked to report on the number of TVs in the home, whether there was a TV where the child slept, and whether there was a computer where the child slept (no/yes).

Mothers and fathers were asked to report the number of days in a week the child ate breakfast or dinner in a room where a TV was on. Response categories were never, 1–2, 3–4, 5–6 and 7 days per week. Numeric values were assigned to the categories (0, 1.5, 3.5, 5.5 and 7, respectively), to construct approximately continuous measures in days per week.

2.3.3 | Family practices regarding dinner

Two items measured family practices regarding dinner. First, mothers and fathers reported on the value of family dinners, which included "In my family, we expect everyone to be home for dinner." Response options ranged from strongly disagree [1] to strongly agree [4], and were collapsed into categories of disagree [1] and agree [2], given the very low frequency of responses in the strongly disagree category. Mothers and fathers also reported on the frequency of shared family dinners in the last 7 days. Response categories were never, 1–2, 3–4, 5–6 and 7 days per week. Numeric values were assigned to the categories (0, 1.5, 3.5, 5.5 and 7, respectively), to construct approximately continuous measures in days per week.

2.3.4 | Covariates and descriptive variables

Mothers and fathers reported on parents' age, education, household income, marital status, single-parent household, foreign-born status, years in the USA, and number of hours worked per week. Parent participation was tested as a covariate and was coded as follows: married mothers with fathers' participation (reference), married mothers without fathers' participation, single mothers with fathers' participation, and single mothers without fathers' participation. Research assistants collected child gender from mothers and measured child height and weight. Height and weight were obtained using standard procedures in duplicate while the participants were wearing light indoor clothing and no shoes (Lohman, Roche, & Martorell, 1989; Stallings & Fung, 1999). Body mass index (BMI) was calculated (BMI = weight (kg) height (m)^2), converted to age- and gender-specific percentiles, and converted to z-scores using Centers for Disease Control (CDC) growth charts. Cut-offs at the 85th

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percentiles for overweight status and 95th percentiles for obese status were used for descriptive purposes (Centers for Disease Control and Prevention, 2002).

We tested neighbourhood environment as a potential covariate of children's sleep duration. Studies have found that neighbourhood crime and disorder are elements within the environmental domain that potentially disrupt children's sleep.(Martinez & Thompson-Lastad, 2015) Mothers and fathers reported on 27 items regarding neighbourhood perceptions of disorder (13 items; e.g. conditions such as drugs, litter and presence of gangs) and victimization (14 items; e.g. fear of going out in the neighbourhood during the day or at night, fear of being robbed and/or raped).(Coulton, Korbin, & Su, 1996) Response options ranged from never [1] to always [5]. A mean score was computed for neighbourhood disorder (α_{mother} = 0.91; $\alpha_{fathers}$ = 0.91) and neighborhood victimization ($\alpha_{mothers}$ = 0.92; $\alpha_{fathers}$ = 0.92). Mean scores ranged from 1 to 5; a higher score represented more disorder and victimization.

2.4 | Analysis

All statistics were computed using IBM SPSS 23 Statistics for Windows (IBM Corp., Armonk, NY, USA). Descriptive statistics were computed using means (SD) and frequencies for all study variables. Bivariate correlations were examined between sleep duration and all independent variables, including parental demographic factors, parenting styles and practices, and family/home practices regarding food and TV.

A multivariable linear regression model was first examined using the full sample of mother–child pairs, with mothers' reports of parenting styles and practices, and family/home practices regarding TV and dinner, as independent variables, in relation to sleep duration (hr) as the dependent variable (Model 1). Second, we fitted data on a subsample of families in which fathers also participated in the research; this model used the same variables for fathers that had been included in the model for the full sample of mother–child pairs (Model 2). Associations were significant at $p < 0.05$.

3 | RESULTS

3.1 | Participant characteristics

Table 1 presents the descriptive information for each study variable for mother–child pairs and father–child pairs. On average, children were 8.9 (SD = 0.8) years old, 53% were female, and they had a sleep duration of 9.5 (SD = 0.8) hr. The t tests comparing mothers and fathers on all variables showed that fathers were older (df = 165, t = −6.23, p < 0.001), had lived in the USA longer (df = 113, t = −3.65, p < 0.001), and engaged more in the parental feeding practices of positive involvement in child eating (df = 165, t = 4.56, p < 0.001) and use of food to control their child's behaviour (df = 165, t = −2.52, p = 0.01).

Bivariate correlations between children's sleep duration and all variables were examined. Mothers' positive involvement in child

eating, use of pressure to eat and use of food to control behaviour were correlated with longer sleep duration (ρ = 0.12, p = 0.04; ρ = 0.27, p < 0.001; ρ = 0.23, p < 0.001, respectively). Mothers' reports of children more often eating dinner with the TV on was correlated with shorter sleep duration (ρ = −0.13; p = 0.05). For fathers, pressure to eat and use of food to control behaviour were correlated with longer sleep duration (ρ = 0.23, p < 0.01; ρ = 0.16, p = 0.05), but restriction of the amount of food was nearly significantly related to shorter sleep duration (ρ = −0.14, p = 0.07). Fathers' reports that the family had dinner together more often were correlated with shorter sleep duration (ρ = −0.17, p = 0.03).

Parent characteristics, including age, education, household income, marital status, single-parent household, foreign-born status, years in the USA, hours worked per week, neighbourhood disorder and victimization, and parent participation, were not significant at the bivariate level. Family/home characteristics, including number of TVs in the home, a TV in the room where the child sleeps and the child eating breakfast with the TV on, were also not significant at the bivariate level. Variables not significant at the bivariate level and with a p value $\geq$ 0.20 were not included in final analyses for parsimony. Child gender (ρ = −0.21, p = 0.01) and BMI z-score (ρ = −0.17, p = 0.03) were significant when included in the final models.

3.2 | Multivariable linear regression analyses

3.2.1 | Mothers

Using the full sample of mother–child pairs in Model 1 (Table 2), mothers' parenting styles, parenting practices and family practices were examined with sleep duration. Pressure to eat and use of food to control behaviour were associated with longer sleep duration (β = 0.19, p = 0.01; β = 0.15, p = 0.03, respectively). The child eating dinner with the TV on and valuing family dinners were associated with shorter sleep duration (β = −0.15, p = 0.03; β = −0.18, p = 0.01, respectively). Female gender (β = −0.18, p = 0.04) was significantly related to sleep duration, whereas BMI z-score was not.

3.2.2 | Fathers

Using the subsample of mother–child pairs with fathers' participation in Model 2 (Table 2), mothers' and fathers' parenting styles and practices and family practices were examined with sleep duration. Fathers' restriction of the amount of food children had was associated with shorter sleep duration (β = −0.25, p = 0.03). Mothers' reports of valuing family dinners were associated with shorter sleep duration (β = −0.24, p = 0.02). Child gender and BMI z-score were not significantly related to sleep duration.

4 | DISCUSSION

Research is needed to understand how to ensure sufficient duration of sleep among elementary school-age children. To our knowledge, this is

TABLE 1 Mother (n = 308), father (n = 166) and child characteristics of Mexican American family participants in the San Francisco Bay Area (CA)

	Mothers Mean (SD) or %	Fathers
Child characteristics		
Female	53%	50%
Age	8.9 (0.8)	9.6 (0.8)
BMI z-score	0.97 (1.01)	0.92 (1.0)
BMI ≥ 85th percentile	21%	19%
BMI ≥ 95th percentile	30%	27%
Weeknight sleep duration	9.5 (0.8)	9.5 (0.8)
Parent characteristics		
Age[a]	37.3 (6.3)	39.8 (6.8)
Education (years)	11.4 (3.7)	11.0 (3.7)
Married/living with a partner (n = 247)[b]	80%	
Mother-only participation (n = 94)	31%	
Mother and father participation (n = 153)	50%	
Single-parent household (n = 57)[b]	19%	
Mother-only participation (n = 46)	15%	
Mother and father participation (n = 11)	4%	
Annual household income		
≤$40 000	41%	26%
$40 001–70 000	34%	39%
≥$70 001	26%	36%
Employed	91%	100%
Hours worked per week	34.3 (12.2)	42.4 (9.3)
Years in the USA[a]	17.2 (7.3)	20.4 (7.6)
Born in Mexico	78%	74%
Parenting style and practices		
Warmth[c]	1.1 (0.5)	1.0 (1.1)
Control[c]	0.7 (0.8)	0.6 (0.6)
Positive involvement in eating[d]	3.4 (0.6)	3.1 (0.7)
Pressure to eat[d]	2.3 (0.9)	2.4 (0.9)
Use of food to control behaviour[d]	1.5 (0.5)	1.6 (0.5)
Restriction of amount of food[d]	2.3 (0.4)	2.3 (0.5)
Monitors screen time[d]	3.2 (0.9)	3.1 (1.0)
Family practices regarding food and TV		
Number of TVs in the home	2.9 (1.2)	2.9 (1.2)
TV in room where child sleeps	70%	66%
Child eats breakfast with TV on (days/week)	1.8 (1.2)	1.7 (1.2)
Child eats dinner with TV on (days/week)	1.8 (1.2)	1.7 (1.1)
Frequency of shared family dinners[e]	5.2 (1.9)	5.1 (2.0)
Values family dinners	76%	80%

(Continues)

TABLE 1 (Continued)

	Mothers Mean (SD) or %	Fathers
Neighbourhood environment		
Disorder[f]	1.5 (0.6)	1.6 (0.6)
Victimization[f]	2.4 (1.1)	2.3 (1.0)

na, not applicable. Fathers in this sample were the spouse of the mother in mother–child pairs.

[a]t test of differences between mothers and fathers significant at $p < 0.05$.

[b]Denominator for percentages is 308; four families did not reply; therefore, percentages do not total 100%.

[c]Higher score means more use of that parenting style, ranging from −2 to 2.

[d]Higher score means more use of that feeding practice, ranging from 1 to 5.

[e]Score ranging from 1 to 7 days.

[f]Higher score means more perceived disorder or victimization, ranging from 1 to 5.

the first study to examine mothers' and fathers' parenting styles and practices and family/home practices in relation to children's weeknight sleep in Mexican American children. In analyses using the full sample of mother–child pairs, we found that mothers who pressured their child to eat and who used food to control behaviour had children who had longer sleep duration. Eating dinner with the TV on and valuing family dinners were both related to shorter sleep duration. In the subsample that included both mothers and fathers, we found that fathers who restricted the amount of food children ate had children with shorter sleep duration. The findings suggest that pressure to eat and controlling behaviour with food (parent directives), but not restriction and certain family practices, may positively impact children's sleep and result in longer sleep duration.

We found that mothers' feeding practices previously found to be associated with children's weight status were also related to children's longer sleep duration (Tschann et al., 2015). We used parenting practices specific to child feeding as proxies for parenting in the context of sleep, given that more direct measures of parenting practices regarding children's sleep were not available in the dataset used in this study. Nevertheless, it is likely that parenting in one domain is closely related to parenting in other domains, such as eating, screen time and sleep (Jones et al., 2014). In the current study, mothers used parent-centred feeding directives that may be parallel to parent-centred directives regarding bedtime. Pressuring a child to eat is indicative of feeding a child even when the child is not hungry, and it is possible that mothers may also pressure children to sleep even when they are not willing or sleepy. Controlling behaviour with food may also translate to controlling behaviour with children's sleep, in that mothers may enforce child bedtime schedules and/or reward their child for going to bed. Future studies should assess parent-centred directives related to sleep and their role in improving children's sleep duration.

Given that fathers are not well represented in prior paediatric research, we examined fathers' parenting practices in addition to

TABLE 2 Multiple variable linear regression models examining parenting styles and practices, and family practices, in relation to sleep duration in Mexican American children. Model 1 includes the full sample of mother–child pairs and Model 2 includes a subsample of children with mothers' and fathers' participation (values are standardized regression coefficients)

	Child sleep duration (hr)	
	Model 1: mothers only (n = 308)	Model 2: mothers + fathers (n = 166)
Mothers' styles and practices		
Warmth	−0.04	−0.11
Control	0.01	<0.01
Positive involvement	−0.07	−0.11
Pressure to eat	0.19[a]	0.21
Controls behaviour with food	0.15[a]	0.18
Restriction of amount of food	0.08	0.10
Monitors screen time	0.03	0.06
Fathers' styles and practices		
Warmth		−0.15
Control		0.15
Positive involvement		0.03
Pressure to eat		0.07
Controls behaviour with food		0.08
Restriction of amount of food		−0.25[a]
Monitors screen time		−0.07
Family practices regarding TV and dinner		
Child eats dinner with the TV on (mother reported)	−0.15[a]	−0.03
Frequency of shared family dinners (mother reported)	<0.01	−0.14
Values family dinners (mother reported)	−0.18[a]	−0.24[a]
Child eats dinner with the TV on (father reported)		−0.05
Frequency of shared family dinners (father reported)		−0.05
Values family dinners (father reported)		0.09
R^2	0.10	0.13

Note. Models are adjusted for child gender and child body mass index z-score.
*Significant at $p < 0.05$; **Significant at $p < 0.01$.

mothers' parenting practices in a subset of families. In families with both mothers' and fathers' participation, we did not find an association between mothers' parenting styles and practices and children's sleep duration. Rather, we found that fathers who used a restrictive feeding practice had children with shorter sleep duration. Interestingly, this feeding practice has been shown to predict greater child weight over time in the same study sample (Tschann et al., 2015). It is possible that restrictive parenting practices, especially coming from fathers, in general lead to negative health outcomes. Interestingly, fathers' influence was significant over and beyond that of mothers' parenting practices. Similarly, Tavassolie et al. found that when fathers were more strict and harsh than mothers, children experienced more behaviour problems (Tavassolie, Dudding, Madigan, Thorvardarson, & Winsler, 2016). More research that includes fathers is needed to understand how differences between mothers' and fathers' parenting may influence children's sleep.

Several studies focusing specifically on parenting practices and children's sleep have found reading to children at bedtime (Brown, Rhee, & Gahagan, 2016) and instilling bedtime rules to be protective of longer sleep in preschool-age children (Jones et al., 2014). In Finnish 10- to 11-year-old children, parents who practised more rules around eating (e.g. eating at the table), bedtime and screen time had children who slept longer (Ray et al., 2013). Similarly, we found several findings suggesting that family dinnertime practices are related to children's sleep duration. First, we found that mothers who valued eating dinner as a family had children with shorter sleep duration, and this was true for all mother–child pairs as well as the subsample of families with both mother's and father's participation. This finding was unexpected, given previous research reporting that family meals as part of children's daily routines are related to longer sleep duration, less screen time, and higher fruit and vegetable intake (Ray & Roos, 2012). In focus groups of Latino preschoolers, we found that children wait up for their parents to get home when they work late schedules (Martinez & Thompson-Lastad, 2015). In the full study sample, only 5% of mothers reported having a late-night work shift. Therefore, it is possible that mothers/fathers arrive home past the typical dinnertime for children because of their work schedules and commute, which would therefore result in late night dinners that delay bedtime. It is also possible that some children stay up to spend time (e.g. watching TV and/or eating) with the entire family when everyone is home.

Our second finding was that children who ate dinner in a room with a TV on had shorter sleep duration. Combining family meals with screen time is possibly a result of hectic family schedules, which have led to family-oriented rituals that may extend late into the evening. Fiese, Hammons, and Grigsby-Toussaint (2012) found that what matters more during mealtimes is the time spent gathered together engaged in positive forms of communication among families with healthy-weight children compared to overweight or obese children (Fiese et al., 2012). The concept of co-viewing TV as "family time" is a practice that has been described among Latino families (Thompson et al., 2015) and is likely to occur during dinner. Research has also found that more TV time is related to shorter sleep duration in 6- to 7-year-old children (Peña et al., 2016). An additional consideration is that late-night exposure to blue-light emitting devices (LEDs) may delay sleep onset and impact sleep duration and quality (Cajochen et al., 2011). In the current study, we were unable to assess whether TV light exposure while eating dinner was bright enough or close enough to bedtime that it could impact

children's sleep duration. Future research could help to determine the effect of LED light exposure during dinner or evening hours on sleep quantity and quality. Overall, research is needed to better understand whether parental schedules and family routines impact bedtime routines and sleep hygiene in children.

We did not detect significant associations between parenting styles and children's sleep duration. It remains unclear whether general parenting styles, such as warmth and control, are related to sleep duration among Latino children. A strong emphasis on the cultural values of *familismo* (emphasizes loyalty and solidarity among family members) and *respeto* (emphasizes obedience to authority, deference and decorum) has been associated with high levels of parental monitoring, the expectation of obedience, and the perceived need to use harsh parenting to teach children these cultural values (Romero & Ruiz, 2007). We did not capture these cultural values in relation to parenting styles. Future studies should consider including such constructs to increase understanding of parenting styles and their role in the development of children's sleep-related practices.

At the bivariate level, we did not find the number of TVs in the home, having a TV in the room where a child sleeps or children eating breakfast with the TV on to be associated with children's sleep duration. Interestingly, 70% of children had TVs in their bedrooms; however, the average number of TVs in the home was three, meaning that children might not be watching TV in bed. Lastly, neighbourhood environmental factors that were not associated with children's sleep duration included neighbourhood disorder and victimization based on parents' perceptions. Perhaps neighbourhood contexts should be assessed from a child's perspective.

A strength of this study is that we examined parenting practices among both mothers and fathers in relation to children's sleep duration. To date, fathers have been under-represented in research on health behaviours related to child obesity. Another strength of this research is that we used accelerometer-estimated weeknight sleep duration, which has been used in prior research on children's sleep duration and is more reliable than parent report (Martinez et al., 2014a). A limitation of this study is that we did not assess parental rules regarding bedtime or any other child behaviours besides sleep duration. Additionally, this study was conducted in a Mexican American sample of 8- to 10-year-old children, which limits the generalizability of findings to other ages and ethnic/cultural groups. Lastly, this study was cross-sectional and causality cannot be addressed.

5 | CONCLUSIONS

The current study suggests that when considering only the mother's behaviours, a mother's pressure to eat, use of food to control behaviour, allowing a child to eat dinner with the TV on and valuing family dinners may play a role in children's weeknight sleep duration among Mexican American families. Among children with both mothers' and fathers' participation in the study, a father's restriction of food was associated with shorter sleep duration. These findings suggest that family context as a whole matters with regard to children's

sleep duration, which is also in accord with findings from other studies focusing on obesity in Latino children (Berge & Everts, 2011). Future research should examine the role of fathers and parental schedules in relation to children's sleep. Furthermore, interventions should consider tapping into domains of parenting related to family practices and routines to improve children's sleep quantity and quality as a strategy to prevent paediatric obesity.

CONFLICT OF INTEREST

The authors have no conflicts of interest to disclose.

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