BACKGROUND

Wheezing is a high pitched whistling sound made while breathing and is common during the preschool years with approximately 10% of children experiencing at least one wheezing episode during the first six years of life (1). While many children experience episodic wheezing, a proportion of children experience persistent wheezing, a substantial proportion will develop childhood persistent asthma (1). Many potential risk factors for childhood wheezing and subsequent asthma have been identified including shorter breastfeeding duration, younger gestational age (1), ethnicity/race, family history of asthma, family socioeconomic status, maternal smoking during pregnancy, exposure to secondhand smoke after birth (2), molds in the home, and pets (3). Smoking status and other covariates are child gender, gestational age at birth (22-31 weeks, 32-37 weeks, 38+ weeks), maternal smoking, exposure to smoking after birth (2), molds in the home, and pets (3).

INDEPENDENT VARIABLES

RESPONSE VARIABLE

The response variable is wheezing status. Never Breastfed, Breastfed Less Than 6 Months, and Breastfed At 6 Months which is based on two questions asked on the 6 months self-administered survey: ‘Has Participant been breastfed at 6 months?’ and ‘Breastfed at 6 months? (vs. Never breastfed).’

INDEPENDENT VARIABLES

Study population: The Vanguard Study enrolled and followed over 5400 birth families from preconception to 42 months across 43 counties in the U.S between 2009 and 2014. The Vanguard Study also maintains the data from the NCS Vanguard Study—a pilot study for a larger national study which is encompassing both static predictors and other variables at several different time points within the same cohort. The literature has suggested a number of variables that potentially predict childhood wheezing. While some variables are static across time, e.g., gestational age, maternal ethnicity-race, others potentially vary across time, e.g., the presence of mold, cockroaches and mold in the home; whereas pets in the home appear to be a modifiable variable, the presence of mold, cockroaches and mold in the home; whereas pets in the home appear to be a modifiable variable, and their potential effect work in concert. Consequently, this study examined predictors of wheezing at 6, 12, 18 and 24 months encompassing both static predictors and time variant predictors. The predictor that occurs most often across visits is maternal history of asthma (at 6, 12 and 24 months). While this is not a modifiable variable, the variable that occurs the next most often is breastfeeding duration at 6, 12 and 18 months which is a modifiable and protective factor. Extended breastfeeding lowers the risk of wheezing. Other non-modifiable variables that occur once across visits as potential risk factors for wheezing include low income, mother’s ethnicity-race (Hispanic or Non-Hispanic Black), prematurity, cockroaches and mold in the home; whereas pets in the home appear to have a protective influence.

METHODS

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RESULTS

Table 1 presents the results of the logical regression by visit. All covariates are entered into the models to predict wheezing. This study examined predictors of wheezing status, child gender, gestational age, maternal ethnicity-race, pets, mold, cockroaches, smokers in the home, maternal asthma, maternal smoking during pregnancy, and household income. This table contains the covariates that are significant at α = 0.05 and includes odds ratio and p values.

At the 6 month visit, never-breathing or breathing less than 6 months (vs. breathing at 6 months), 12-27 months gestational age (vs. term), maternal asthma and lower household income predict wheezing. At the 12 month visit, mothers who are Hispanic or Non-Hispanic Black (vs. Non-Hispanic White), cockroaches in the home and maternal asthma predict wheezing. At the 18 months visit, never-breathing or breathing less than 6 months (vs. breathing at 6 months), and no pets in the home predict wheezing. Finally, at 24 months, mold inside the home and maternal asthma predict wheezing.

Table 2 presents the results of the logical regression by visit. All covariates are entered into the models to predict wheezing status, child gender, gestational age, maternal ethnicity-race, pets, mold, cockroaches, smokers in the home, maternal asthma, maternal smoking during pregnancy, and household income. This table contains the covariates that are significant at α = 0.05 and includes odds ratio and p values.

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Table 3 presents the percentages of the response variable reported wheezing at each visit: 6, 12, and 24 months. The percentages of yes responses range from 14% at 6 months to the 12 months and 19% at 24 months.

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Table 1. Percentage of Wheezing During Each Visit

STUDY SAMPLE

The study sample for this presentation consists of 2,541 mother-child dyads.

RESPONSE VARIABLE

The response variable is the 6 months data for the child. The 6 month visit was selected for the purpose of this presentation due to the fact that the findings regarding the effect of breastfeeding on wheezing is available for the entire study population at this time.

INDEPENDENT VARIABLES

The independent variable is breastfeeding status. Never Breastfed, Breastfed Less Than 6 Months, and Breastfed At 6 Months which is based on two questions asked on the 6 months self-administered survey: ‘Has Participant been breastfed at 6 months?’ and ‘Breastfed at 6 months? (vs. Never breastfed).’

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REFERENCES