

Do reindeer and children know something that we don't? Pediatric inpatients' belief in Santa Claus

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I am 8 years old. Some of my little friends say there is no Santa Claus. Papa says, 'If you see it in *The Sun*, it's so.' Please tell me the truth, is there a Santa Claus? — Virginia O'Hanlon

Virginia, your little friends are wrong. They have been affected by the scepticism of a sceptical age. They do not believe except [what] they see. They think that nothing can be which is not comprehensible by their little minds. All minds, Virginia, whether they be men's or children's, are little. In this great universe of ours, man is a mere insect, an ant, in his intellect as compared with the boundless world about him, as measured by the intelligence capable of grasping the whole of truth and knowledge. Yes, Virginia, there is a Santa Claus.

— Editorial by Francis Church, *New York Sun*, 1897

Although Santa Claus is one of the most popular mythical figures of childhood in Western culture, there is surprisingly little medical literature on the topic.^{1,4} Prentice and colleagues, in their study of children in the general population, showed a decline in belief with increasing age.³ They also showed that children's level of causal reasoning increased with age and was related to the decline in belief in Santa.^{3,4} To my knowledge, there are no published data on belief in Santa Claus among children who are hospital inpatients, so I decided to investigate this question. Based on both the literature and on common sense, I anticipated that belief in Santa would decrease with age. Furthermore, I assumed that a general predisposition to fantasy would parallel belief in Santa.

Methods

The 45 children studied consisted of 22 girls and 23 boys, conveniently selected for their ability to communicate and the presence and approval of their parents. All the families involved were Christian (Catholic or Protestant). The study was carried out in a general pediatric ward and a pediatric intensive care unit of a university-affiliated hospital in late April 2002.

A modified structured Santa Claus Interview was used.³ It consisted of an initial open-ended request to "tell me about Santa." Answers to this question provided a good indication of the content and intensity of the child's belief. Questions about knowledge of the myth (Santa's costume, the colour of Santa's beard and the geographical location of his house) were asked if the child did not spontaneously provide that information. Answers considered correct were, respectively, a red suit, a white beard and at or near the North Pole, although it emerged later in my research that the real location of Santa's house was elsewhere (see Interpretation). Each child's belief in Santa was scored by the principal investigator using a 5-point scale of belief in Santa: 0 = definite disbelief, 1 = probable disbelief, 2 = ambivalent opinion, 3 = probable belief, 4 = definite belief. Children with scores ≥ 3 were considered believers in Santa.

Parents' belief in Santa was investigated as an indirect marker of fantasy predisposition. This question was asked in the absence of the child to prevent any "forced belief" by parents. If parents did not believe in Santa, they were asked to evaluate the age at which they stopped believing in Santa. In order to investigate other imaginary figures of childhood, a 5-point scale of belief in the tooth fairy and the Easter bunny was developed and used to question the

children. I also asked about the existence of imaginary friends. The age at which parents stopped believing in Santa was summed with the children's scores on the tooth fairy and Easter bunny questions to give a final score (HOHO score) of family fantasy predisposition.

Data were analyzed initially using univariate techniques. Univariate association with belief in Santa was evaluated with Fisher's exact test for nominal variables and the Mann-Whitney test for continuous variables. I attempted to develop a multivariate model. Factors with statistically nonsignificant (using a conservative significance level of $p > 0.25$) univariate association with belief in Santa were excluded from further consideration. The remaining factors were entered into a multiple logistic regression model, with belief in Santa as the outcome variable.

Results

There were no significant differences in belief in Santa between boys and girls. Factors considered in the univariate analysis are presented in Table 1. Belief in Santa diminished with increasing age (Fig. 1).

Candidate predictor variables by univariate association with a p value that was less than 0.25 were included in a logistic regression model. Two predictors remained in the final model: age less than 8 years (odds ratio [OR] 46.0, 95% confidence interval [CI] 3.8–557.0; $p = 0.003$) and parents' age at which they stopped believing in Santa above the age of 10 years (OR = 59.5, 95% CI 3.5–1003.0). Because I placed high value on sensitivity, I sought to define predictive factors with the highest possible sensitivity. The presence of any one of these variables predicted belief in Santa with a sensitivity of 0.96 (95% CI 0.85–0.99) and a specificity of 0.83 (95% CI 0.66–0.89).

Table 1: Characteristics of pediatric inpatients and their Santa-related beliefs

Characteristic	Belief in Santa Claus; no. of children*		<i>p</i> value
	Yes (<i>n</i> = 27)	No (<i>n</i> = 18)	
Mean age (and SD), yr	7.8 (4.4)	11.5 (3.5)	< 0.001
Female:male sex	14:13	9:9	0.90
Chronic disease	17	7	0.14
Life-threatening illness	6	1	0.21
First-born child in family	12	14	0.035
Mean no. of children in family (and SD)	2.1 (0.8)	1.9 (0.5)	0.64
Parents' belief in Santa, yes:not	0:24	0:16	> 0.99
Age at which parents stopped believing (and SD), yr	11.9 (1.5)	6.7 (1.8)	< 0.001
Mean HOHO score (and SD)‡	16.5 (3.0)	7.1 (2.0)	< 0.001
Child has imaginary friends	2	1	0.80
Child knows the colour of Santa's suit	25	17	0.80
Child knows the colour of Santa's beard	24	17	0.50
Child knows the location of Santa's house	13	17	0.001

Note: SD = standard deviation.

*Unless otherwise indicated.

‡Some data are missing for parents' belief in Santa Claus.

§See Methods for definition.

Interpretation

Among this sample of children who were hospital inpatients, awareness of Santa Claus was universal. All the children in this study were quite familiar with Santa Claus, even if they did not view Santa as real. This study also demonstrated that belief in Santa is inversely proportional to a child's age and directly proportional to the age at which their parents stopped believing in Santa. This last information might be relevant to more fantasy-oriented families in which parental encouragement for the child to believe was very strong.²

A study of children who were not hospital inpatients showed that they generally discover the truth on their own at the age of 7 years. Children reported predominantly positive reactions on learning the truth: 2 of 3 said that they felt a sense of pride in figuring out the truth about Santa. Half of them thought that even though Santa was not real, they liked the idea of Santa. Parents, however, described themselves as predominantly sad in reaction to their child's discovery.² However, it is not until the middle childhood period (from 7 to 12 years) that children are able to think about Santa Claus simultaneously in 2 different ways: as a pleasing idea that helps them enjoy Christmas and as someone who is not real.

Fourteen of 27 believers in Santa in this study did not know the location of Santa's house. This can be explained by the fact that contrary to popular belief, and to what I had believed, Santa Claus most likely does not live at the North Pole. He lives in Lapland, in northern Finland, where the reindeer roam. In 1927, a Finnish radio program pinpointed Santa's location on Lapland's Korvatunturi, or

"Ear Mountain." The area resembles a rabbit's ears, from which Santa can hear if the boys and girls of the world are being naughty or nice.

The fact that the HOHO score failed to be related to belief in Santa in the multivariate analysis is puzzling. The HOHO score, a measure of fantasy predisposition, may reflect more an assimilation of cultural folklore than independent fantasy predisposition. Initial belief in Santa might be an example of a myth inspired by parents seeking to fulfill their own infantile needs,³ but the chronic believers might be more fantasy-oriented children. Thus, the HOHO score might be more predictive in the older group. Further studies are needed to clarify the use of the HOHO score in an older population of children.

The limitations of this study are numerous. The timing of the questionnaire (late April 2002) might overestimate the rate of belief in the Easter bunny and underestimate the rate of belief in Santa. Furthermore, I did not study what functions children's belief in Santa fulfill for their parents, nor the contribution of the parents to the internalization and subsequent relinquishing of the myth.

So what is the truth about Santa Claus? I agree with the famous reply of Francis Church who wrote in the *New York Sun* in reply to a letter from an 8-year-old girl, "Yes, Virginia, there is a Santa Claus. He exists as certainly as love and generosity and devotion exist." Children who are hospital inpatients and either aged less than 8 years or whose parents believed in Santa for more than 10 years are more likely to believe in Santa Claus and, I hope, in love, generosity and devotion.

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Competing interests: The author (still) believes in Santa Claus.

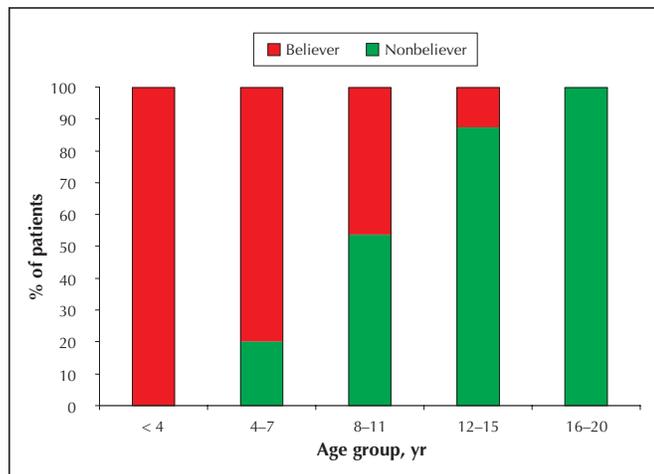


Fig. 1: Belief in Santa Claus by age group.

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