



Susceptibility, likelihood to be diagnosed, worry and fear for contracting Lyme disease



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Summary Risk perception and psychological concerns are relevant for understanding how people view Lyme disease. This study investigates the four separate outcomes of susceptibility, likelihood to be diagnosed, worry, and fear for contracting Lyme disease. University students ($n = 713$) were surveyed about demographics, perceived health, Lyme disease knowledge, Lyme disease preventive behaviors, Lyme disease history, and Lyme disease miscellaneous variables. We found that women were associated with increased susceptibility and fear. Asian/Asian-American race/ethnicity was associated with increased worry and fear. Perceived good health was associated with increased likelihood to be diagnosed, worry, and fear. Correct knowledge was associated with increased susceptibility and likelihood to be diagnosed. Those who typically spend a lot of time outdoors were associated with increased susceptibility, likelihood to be diagnosed, worry, and fear. In conclusion, healthcare providers and public health campaigns should address susceptibility, likelihood to be diagnosed, worry, and fear about Lyme disease, and should particularly target women and Asians/Asian-Americans to address any possible misconceptions and/or offer effective coping strategies.

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Introduction

Lyme disease is transmitted by ticks and had 329,000 cases per year in the United States during 2005–2010 [1]. Symptoms of Lyme disease vary greatly in terms of severity, and include fever, headaches, fatigue, stiff neck, and muscle and joint

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aches [2]. In the United States, Lyme disease is most prevalent in the northeastern region and also in the additional states of Minnesota, Wisconsin and Virginia, with 96% of the confirmed cases occurring in these areas in 2014 [3].

Susceptibility to contracting Lyme disease is analyzed in a number of studies. In a community in which many individuals perceived that they were susceptible to Lyme disease, blood testing for Lyme disease was provided. As many of the blood tests did not confirm Lyme disease, the self-reported incidence of Lyme disease decreased in subsequent years [4]. Slightly more than 10% of participants from high-incidence Lyme disease states reported that their likelihood of ever contracting Lyme disease was 50% or more [5]. Additionally, individuals' perceived susceptibility to Lyme disease was not associated with checking their skin for the presence of ticks to prevent Lyme disease [6]. Susceptibility to Lyme disease was greater for women than men for ages 35–54 years [7]. Slightly more than half perceived themselves to be at risk for Lyme disease; this risk perception did not differ between indoor and outdoor workers [8].

To our knowledge, we are only aware of three studies about concern or worry for contracting Lyme disease. Those who were somewhat concerned to very concerned about being bitten by ticks were associated with engaging in behaviors to prevent tick bites [5]. Both Canadian and Swiss samples reported high levels of being worried about contracting Lyme disease. Women reported greater worry than men among those in the Swiss sample of those aged 55 and older [7]. Increased worry about Lyme disease was associated with engaging in Lyme disease preventive behaviors [6].

One research team combined susceptibility, worry, and a number of other factors together as an aggregate measure of risk perception for Lyme disease [7] [9]. Increased risk perception was associated with engaging in preventive behaviors for Lyme disease [9]. In the Canadian sample, women and increased knowledge of Lyme disease were associated with increased risk perception. Those in the 18–34 and 35–54 age groups were associated with decreased risk perception. Knowing someone with Lyme disease was not associated with risk perception overall. However, in the Swiss sample, knowing someone with Lyme disease was associated with increased risk perception. Knowledge, sex, and age were not associated with risk perception. In both samples, a personal history of Lyme disease, a relative having Lyme disease, and outdoor exposure were not associated with risk perception [7].

Most studies of susceptibility, likelihood, and worry about Lyme disease use susceptibility, likelihood and worry as predictors for understanding Lyme disease preventive behaviors [6,9,5]. The one multivariate study with an aggregate measure including susceptibility and worry as an outcome variable reported conflicting results depending on whether the sample was from Canada or Switzerland [7]. This study [7] did not include engaging in preventive behaviors as a predictor variable. While one study focused on the fear of contracting the mosquito-transmitted disease of malaria [10], we are not aware of any research about the fear of contracting Lyme disease. Although fear can be related to worry, they are different constructs [11]. We study with a United States sample four separate outcome variables of susceptibility, likelihood to be diagnosed, worry, and fear for contracting Lyme disease. We use a multivariate framework and include demographic variables, perceived health, Lyme disease knowledge, Lyme disease preventive behaviors, Lyme disease history and miscellaneous Lyme disease-related variables as predictor variables.

Methods

Participants

The sample was 713 undergraduate students who anonymously completed a survey at a public university located in New York City. A total of 757 students were approached; 21 refused to participate, 22 individuals who were older than 36 were excluded to maintain a more conventional college-aged group, and 1 person failed to answer the outcome variables. The response rate was 97.1% from the 735 completed surveys $[(735/757) * 100\%]$. The study was approved by the college Human Research Protection Program and was ethically conducted in accordance with the guidelines of the Declaration of Helsinki. All participants provided informed consent and were surveyed from September through October 2014.

Measures

Demographics

Demographics consisted of age (years), sex (man or woman), and race/ethnicity [white, African-American, Hispanic-American, Asian/Asian-American, South Asian (India, Pakistan, surrounding areas), and other].

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