

Health Literacy and Vaccination in Kansas: Barriers and Opportunities

Melissa Medina, Twyla Hill, PhD; Laila Cure, PhD; Ajita Rattani, PhD; Rhonda Lewis, PhD; Amy Chesser, PhD, MA; Nikki Keene Woods, PhD



Wichita State University Institute for Health Equity 4

BACKGROUND

- Health Literacy is the ability of people to meet the complex demands of health in a modern society.¹
- Health Literacy is associated with many undesirable health outcomes, including: poor health, hospitalization, mortality, and healthcare costs.
- Vaccines are an important component of preventive health but coverage varies across populations and settings.
- Comprehending vaccine information requires specific literacy and numeracy skills.¹
- In 2019, one in two Kansas adults age 18 or older did not get immunized. Individuals who were males, uninsured, or had lower SES status previously reported to be less likely to be vaccinated in Kansas.²
- Approximately one-third of infants received the pneumococcal and less than one-fourth received the rotavirus vaccine.²
- Health Literacy also impacts the ability to engage in preventive health activities such as screenings.¹
- Additional studies are needed to further understand the measurement of health literacy and the role of health literacy in predicting vaccine uptake.

OBJECTIVE

Explore the association between health literacy and vaccination rates in Kansas.

METHODS

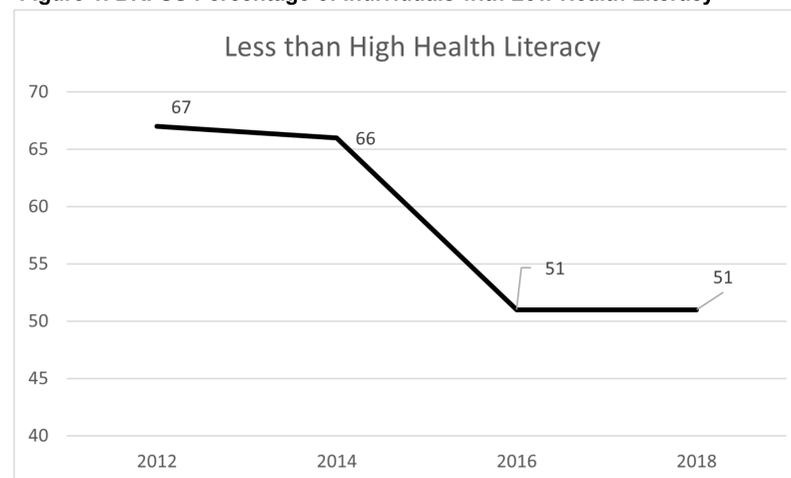
- The Centers for Disease Control and Prevention and state health departments coordinate the world's largest telephone survey of population health risks called the Behavioral Risk Factor Surveillance System (BRFSS).
- Kansas residents are surveyed yearly. Questions include demographics (such as gender, age, race/ethnicity, education, income, and insurance status), as well as health literacy and health outcomes.
- Data sources: Kansas BRFSS Survey (2012, 2014, 2016, 2018) and Kansas Health Matters (2011-2012, 2013-2014, 2015-2016, 2017-2018).³
- Health literacy measurement: Kansas residents who participated in the BRFSS assessment.
- Statistics: Descriptive statistics were used to summarize data.

RESULTS & DISCUSSION

Table 1. BRFSS Demographics Low Health Literacy

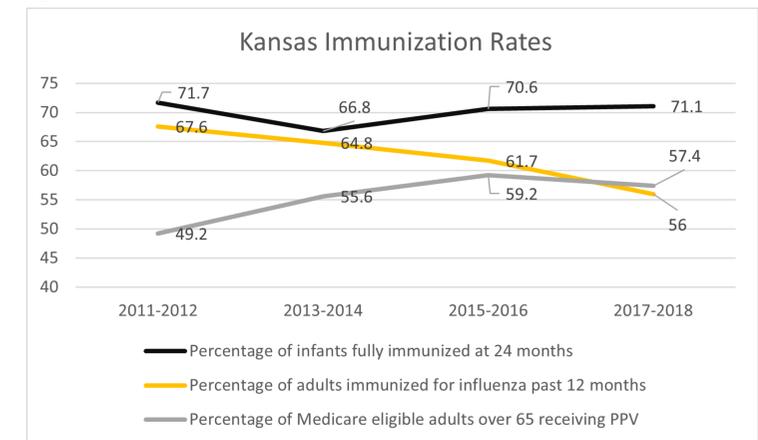
(N=2,916,381)	
Sex:	
Male	43% (n=20,870)
Female	57% (n=27,668)
Age (in years):	
18-24	6% (n=2,827)
25-34	10% (n=4,986)
35-44	12% (n=5,603)
45-54	16% (n=7,824)
55-64	22% (n=10,596)
65 and older	34% (n=16,718)
Race:	
White	87% (n=41,844)
Black	4% (n=1,986)
Other	2% (n=1,137)
Multirace	2% (n=730)
Hispanic	5% (n=2,349)
Education:	
Did not graduate high school	6% (n=2,729)
High school graduate	28% (n=13,327)
Some college or technical school	30% (n=14,273)
Graduated college or technical school	36% (n=18,035)
Income:	
<\$10,000	4% (n=1,473)
<\$15,000	4% (n=1,853)
<\$20,000	7% (n=2,739)
<\$25,000	9% (n=3,826)
<\$35,000	12% (n=4,845)
<\$50,000	16% (n=6,576)
<\$75,000	18% (n=7,170)
≥\$75,000	30% (n=12,417)
Insurance Status:	
Has health-coverage	91% (n=43,792)
Does not have health-coverage	9% (n=4,534)

Figure 1. BRFSS Percentage of Individuals with Low Health Literacy



- Most participants were female (57%), 65 years or older (34%), white and non-Hispanic (87%), married (57%), and graduated from college or a technical school (37%).
- Health literacy was classified in two categories as 'high health literacy' and 'less than high health literacy' based on scored questions from the BRFSS.
- The percentage of individuals with 'less than high health literacy' decreased from 67% in 2012 to 51% in 2018.

Figure 2. Kansas Health Matters Immunization Data



- Influenza immunizations decreased from 2011 to 2018 from 67% to 56%.
- Percentage of infants fully immunized remained at 71% in 2011 and 2018.
- Those adults eligible for Medicare over the age of 65 years old who received a Pneumococcal Polysaccharide Vaccine (PPV) increased from 49% in 2011 to 57% in 2018. Deaths from these diseases are one of the most preventable among adults in the US.

CONCLUSIONS

- Strengths: large sample size and first visual analysis of health literacy data over time.
- Limitations to the BRFSS include limiting samples to only non-institutionalized adults, not oversampling at-risk populations, and reliance on self-reported data (recall and social desirability biases).³ Other study limitations include descriptive study design.
- Comprehending vaccine information requires specific literacy and numeracy skills, which can be challenging for people with lower health literacy levels.^{1,4}
- The findings highlight how population surveys can help educate public health and clinical health services workforce to provide better care and address health disparities for high-risk populations.^{5,6}

REFERENCES

- Lorini, C., Santomauro, F., Donzellini, M., Capecci, L., Bechini, A., Boccalini, S., Bonanni, P., & Bonaccorsi, G. (2018). Health literacy and vaccination: A systematic review. *Human Vaccines & Immunotherapeutics*, 14(2), 478–488. <https://doi.org/10.1080/21645515.2017.1392423>
- Kansas Department of Health and Environment. (2021). Health Risk Behaviors of Kansas. Norman, L., Goss, A., Lester, R., and Sergeant, J.
- Kansas Health Matters (2021). Community Health Dashboards. www.kansashealthmatters.org
- Biasio, L. R. (2017). Vaccine hesitancy and health literacy. *Human Vaccines & Immunotherapeutics*, 13(3), 701–702. <https://doi.org/10.1080/21645515.2016.1243633>
- Athamneh, L. N., & Sangsri, S. S. (2014). Influenza vaccination in patients with diabetes: disparities in prevalence between African Americans and Whites. *Pharmacy Practice*, 12(2), 0–0. <https://doi.org/10.4321/s1886-36552014000200008>
- Centers for Disease Control and Prevention. People at High Risk of Developing Serious Flu-Related Complications. CDC website. 2020. Available at: https://www.cdc.gov/flu/about/disease/high_risk.htm. Accessed November 25, 2020