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Patterns of Internet-based Health Information Seeking in Adult Survivors of Childhood Cancer

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Abstract

Background—To assess where, when, and why survivors of childhood cancer seek health information.

Procedure—Data from the Childhood Cancer Survivor Study (CCSS) cohort (n=1386) and Health Information National Trends Survey (HINTS) (n=2385) were analyzed to determine the health information seeking strategies of childhood cancer survivors. Descriptive frequencies, chi-square analyses, t-tests, and multivariable logistic regression models were used.

Results—To seek health-related information for themselves, 54% (n=742) of the childhood survivors reported using the Internet in the past 12 months, compared to 45% of the general population (adjusted OR: 2.76; 95% CI: 2.40-3.19). Childhood cancer survivors who used the internet for health information were more likely to be female, between the ages of 18-34, have received some college education or be a college graduate, and report being in poor health. Although survivors were less likely than the general population to trust health information from the Internet (P<0.01), they indicated that they would like a secure website that uses information from their medical records to provide individualized health-related information.

Conclusion—Use of the Internet to access health information among the childhood cancer survivors was over 50%. Information on late effects was a high priority for most survivors, as was their interest in websites related to late effects and a website on patient information tailored to

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personal situations. Identification of factors associated with searching the Internet for cancer information may provide direction for development of effective cancer communication interventions for this at-risk population.

Keywords

childhood cancer; survivors; health information; Internet; late effects

Introduction

Each year, more than 10,000 new cases of childhood cancer are diagnosed in the United States [1, 2]. For many of these cancers, improvements in treatment since the mid-1970s have led to increased survival rates, which have grown from 58% in 1975 to over 84% in 2014 [3]. This increasing population of childhood cancer survivors is faced with a variety of late effects resulting from treatment. These late effects are the leading causes of morbidity and mortality in adult survivors of childhood cancer [4-6]. Therefore, in order to maintain health and improve quality of life, it is important that childhood cancer survivors have knowledge of the potential late effects of treatment.

Survivors diagnosed with cancer during childhood can benefit from early diagnosis and preventive care targeted at reducing the risk for these late effects [7]. Many survivors are not aware of the health risks, possible late effects, and the importance of regular check-ups [8, 9]. Thus, it is appropriate to educate them in regards to the risks of potential adverse late effects and provide access to beneficial and trustworthy information regarding these issues. Access to effective health information could assist survivors in making decisions related to their health, leading to improved health status.

Internet usage in the US has increased, with young adults ages 18-29, increasing their usage from 89% in 2007 to 96% in 2016 [10]. Internet usage is similar among race/ethnicity and gender, but usage is lower in individuals with lower income and lower education levels. It is unclear, however, the reasons for Internet usage, and whether it varies in different sub-groups. The National Cancer Institute's Health Information National Trends Survey (HINTS) data collection program was created to understand how adults 18 years and older use different communication channels, including the Internet, to obtain vital health information. This study was undertaken to characterize the health information seeking practices of adult survivors of childhood cancer and examine what sources are most trusted by comparing participants in the Childhood Cancer Survivor Study (CCSS) cohort to participants in the HINTS cohort.

Methods

Survivor Population

The CCSS is a retrospective cohort study of childhood cancer survivors diagnosed between 1970 and 1986. Details of the study design and characteristics of the cohort have been published previously [11]. In brief, this cohort consists of childhood cancer survivors from 26 centers across the United States and Canada. Participants met the following eligibility

criteria: (1) diagnosis of leukemia, central nervous system (CNS) malignancy, Hodgkin lymphoma, non-Hodgkin lymphoma, kidney cancer, neuroblastoma, soft tissue sarcoma, or malignant bone tumor; (2) diagnosis and initial treatment at a collaborating CCSS institution; (3) age younger than 21 years at the time of diagnosis; and (4) survival of at least five years from the time of diagnosis. The CCSS protocol and contact documents were reviewed and approved by the Human Subjects Committee at each participating institution.

The baseline and follow-up surveys were the sources of information for demographics (age, sex, race/ethnicity), socio-demographics (education, employment, and marital status), and self-reported health status. Of the participants who completed the follow-up survey, a random sample of 1,882 survivors (stratified on cancer diagnosis and age at survey (18–25, 26–50 years)), were identified and invited to participate in a subsequent Health Information Survey (HIS). The HIS survey (available at <http://ccss.stjude.org>) was distributed between November 2005 and August 2006 and consisted of 20 questions related to cancer and health information, access and usage of the Internet, and cancer information seeking behaviors. Of those who were sent the HIS survey, 1,386 (74%) responded.

Comparison Population

The Health Information National Trends Survey (HINTS) (available at <http://hints.cancer.gov>) was created to monitor changes in the rapidly evolving field of health communication and information technology [12]. The HINTS survey was conducted in 2003, 2005, 2007, and 2011.

Surveys are conducted over a period of 24 weeks by trained HINTS interviewers. The sampling design was a list-assisted, random-digit dialing strategy utilizing all telephone exchanges in the United States. For the 2005 HINTS survey, this approach resulted in a nationally representative sample of households, yielding surveys from the US adult population (n=5,586), with an overall response rate of 20.8% [13]. For the purpose of this analysis, we excluded HINTS participants over the age of 50 years old to match the age range of CCSS participants, and those reported ever having been told that they had cancer, reducing the comparison population to 2,385 individuals.

Measures

Study variables from the HINTS and CCSS cohort included their reported Internet use to seek health and/or medical information for themselves in the past 12 months (yes or no), whether they trusted health or medical information from family or friends, the Internet, and/or doctors or healthcare professionals (A lot, Some, A little, or Not at all) (questions available in Supplemental Table S1). In addition, survivors were asked about their interest in activities from any source of information such as Internet, healthcare professionals, print, and news media (extremely/fairly interested, somewhat interested, or not very/not at all interested).

The following information was available for both the CCSS cohort and the HINTS sample: sex, race/ethnicity, age, education, marital status, employment status, and health status. Additional information available for the CCSS cohort included: cancer diagnosis, cancer treatment, time since diagnosis, and age at diagnosis.

Data Analysis

Descriptive statistics for the CCSS and 2005 HINTS populations were generated, and potential differences in demographic variables between populations were tested using chi-square tests (sex, race/ethnicity, age, education, marital status, employment status, and health status).

The prevalence of subjects who seek health information on the Internet were compared between populations in a multivariable logistic regression model with an indicator for cohort membership (CCSS vs. HINTS) and adjusted for age, gender and education. In addition, separate modified versions of this model were fit by adding each covariate listed above to the model, along with its interaction with the cohort indicator to determine which characteristics' associations with health seeking behavior differed between populations. Based on previous HINTS findings, all models were adjusted for age, gender, and education [15] with reported odds ratios (OR) and corresponding 95% confidence intervals (CI). In addition, for each source of medical information (family or friends, Internet, doctor or healthcare professional), the degree of trust (1=not at all, 2=a little, 3=some, 4=a lot) was compared between CCSS and HINTS populations using t-tests. Means, standard deviations, and p-values were reported.

All statistical analyses utilized replicated weights provided by HINTS to account for their sampling methods, with weights of 1 used for CCSS subjects. Two-sided p-values <0.05 were considered statistically significant, though the reader should view all results in the context of the large number of statistical tests that were carried out, interpreting p-values between 0.01 and 0.05 conservatively to avoid spurious conclusions. All analyses were performed using SAS 9.3.

Results

Study Participants

Table 1 describes the demographic make-up of the CCSS and HINTS cohorts. When compared to HINTS, CCSS participants were more likely to be between the ages of 18-34 years, college graduates, Caucasian, report their health as excellent/very good health, and employed (Table 1). HINTS respondents were more likely to be between the ages of 40-49, female, and married/living as married.

Health Information Seeking - comparison of CCSS to HINTS

Childhood cancer survivors were more likely than the general population to seek health or medical information for themselves from the Internet in the past 12 months (54% vs. 45%). In multivariable logistic regression models, childhood cancer survivors were found to more often report use of the Internet for health-related information for themselves in the past 12 months than HINTS respondents (OR: 2.76; 95% CI: 2.40-3.19), when controlling for age, gender, and education. Based on global interaction tests, the relationship between Internet usage and characteristics such as sex, education, and employment status differed significantly and was marginally significant for health status between CCSS and HINTS (Table 2). There was a smaller difference between the proportion of CCSS females versus

male survivors seeking information than there was among the HINTS population. Also, increased education appears to have a larger impact on seeking information among the HINTS population. There was a somewhat larger difference between the proportion of survivors reporting excellent/very good health status versus poor health status and seeking health information than there was among the HINTS population. In addition, not working/retired versus working subjects, were less likely to seek health information in the CCSS cohort, while those in the HINTS population were more likely to do so.

Health Information Seeking - CCSS

When looking within the CCSS cohort, childhood cancer survivors between the ages of 35-49 were less likely than the survivors between the ages of 18-34 to seek health or medical information for themselves from the Internet in the past 12 months. Also, female survivors were more likely than male survivors to seek health or medical information for themselves from the Internet in the past 12 months (OR: 1.28; 95% CI: 1.24-1.32). Survivors with some college education (OR: 2.04; 95% CI: 1.90-2.20) and those who are college graduates (OR: 1.68; 95% CI: 1.49-1.90) were more likely to seek health or medical information for themselves from the Internet in the past 12 months than those with less than a high school education. However, those who were just high school graduates were less likely than those with less than a high school education to seek health or medical information for themselves from the Internet in the past 12 months (OR: 0.85; 95% CI: 0.79-0.91). In addition, survivors who were married/living as married (OR: 0.81; 95% CI: 0.68-0.97) and those who were not working/retired (OR: 0.80; 95% CI: 0.69-0.92) were less likely to seek health or medical information for themselves from the Internet in the past 12 months. Finally, those who perceived their health status as poor (OR: 2.07; 95% CI: 1.73-2.49) and those who were students (OR: 1.43; 95% CI: 1.21-1.70) were more likely to seek health or medical information for themselves from the Internet in the past 12 months.

Sources of Health Information - comparison of CCSS to HINTS

Provided in Table 3 are comparisons of the survivor and HINTS populations on trusted sources of information, which demonstrates statistically significant differences between family and friends, Internet, and doctor or healthcare professional. Both populations reported having the greatest trust in information coming from their doctor and healthcare professionals, and the least trust in information obtained from the Internet. However, the HINTS population showed more trust in the Internet than the CCSS population ($P < 0.01$), while survivors reported more trust in family and friends ($P < 0.01$) and doctor or healthcare professionals ($P < 0.01$). These findings were consistent among each population, with several significant differences within subgroups of the populations.

Interest in Health Information - CCSS

The interest of childhood cancer survivors in specific health-related topics was examined (Figure 1). Among survivors, 62% were extremely/fairly interested in learning more about the kind of cancer or related illness they had when they were younger, 65% in learning more about their treatment for cancer, 61% in screening tests their doctor might recommend, 73% in things they can do to avoid future health problems, and 55% in hearing stories about people with health histories like their own. Additionally, 61% of survivors showed a strong

preference toward being able to ask an expert questions about symptoms that concern them and 57% reassurance about their health.

When survivors were asked what would motivate them to seek health information, the majority responded (data not in figure): being diagnosed with a new health problem (96%); having unanswered questions after a visit to the doctor or clinic (86%); being prescribed a new medication, test, or course of treatment (83%); or having a medical condition, like diabetes or high blood pressure (81%). Other reasons included: learning more about the effects of treatment for the cancer or similar illness they had when they were younger (83%); hearing or seeing something in the news that they wanted to learn more about (77%); desiring to change their diet or exercise habits (72%).

More than half of survivors indicated that they would like a website where they could type in personal information, such as age, health history, and smoking habits, etc., to receive health information specific to themselves, as well as a secure website that uses information from their medical records to provide specific health-related information (Figure 2).

Discussion

Childhood cancer and its treatment place survivors at an increased risk for a broad range of chronic conditions and poor health-related quality of life [4-6, 14]. The CCSS is a well-characterized cohort that has provided extensive information about late effects following treatment for childhood cancer. CCSS provides an opportunity to characterize health information seeking practices of adult survivors of childhood cancer. In the present study involving a random sample of 1,386 CCSS survivors, Internet use to access health information was high, exceeding 50%, and predicted by younger age, male gender, having a higher education level (some college or college graduate), reporting poor health status, and being a student. These findings have potential implications for effective cancer communication interventions for childhood cancer survivors.

The HINTS program, sponsored by the National Cancer Institute, routinely collects nationally representative data about the American public's use of cancer-related information, and provides publically available data for secondary analysis [12]. Previous investigations have utilized HINTS data to evaluate health information seeking behavior in cancer patients who participated in one of the HINTS surveys. Chou et al. reported Internet use in 52% of adults diagnosed with cancer that was associated with younger age, Caucasian race, a higher education level, and better self-reported health [15]. In another investigation using 2005 HINTS, individuals who had a personal history of any cancer were more likely to seek health information from the Internet (63%) than HINTS participants with no cancer history [16]. Similar to the current study, HINTS cancer survivors were more likely to prefer information from their health care providers (68%) over information available on the Internet (20%) [16].

A Delphi study examined ways to improve the current status of care for childhood cancer survivors [17]. A dominant theme throughout this study was the importance of survivors being able to find and access information regarding their cancer diagnosis and treatment.

Survivors emphasized the importance of having specific information available on both the cancer diagnosis and treatment, and not being able to obtain this critical information could threaten the survivor's future health. Since this finding, technology enabled health care has rapidly expanded. Computer technologies have created opportunities to deliver health information to individuals and improve their communication with health care providers via electronic health (eHealth). Information technologies are also developing to specifically examine and improve cancer-related health behaviors through the use of mobile phones and other portable health information technologies (mobile health or mHealth). Early literature on eHealth and mHealth approaches suggest these technologies could enhance the wellbeing of childhood cancer survivors [18]. With these rapidly changing technologies, a follow-up query to the CCSS cohort is warranted to assess changes in information seeking practices.

Results from this study point to the need for a credible and useful website that can provide survivors of childhood cancer with information regarding their current and long-term health. Since many childhood cancer survivors do not regularly attend or have access to a long-term follow-up clinic, alternative resources to access to health information can be beneficial for maintaining their health and encouraging follow up [19-21]. Initial findings from previous studies evaluating the usability and adoption of websites in which childhood cancer survivors can access their cancer diagnosis and treatment information have shown potential to help survivors manage their health and healthcare [22, 23]. Initial findings have also shown that this can provide the knowledge needed for childhood cancer survivors to actively participate in follow up and self-care. Understanding who uses the Internet can identify potentially underserved populations, such as individuals with a lower literacy level, allowing for development of strategies to meet their needs for access to health information.

Certain limitations to this analysis should be considered when interpreting the results. Some childhood cancer survivors who were invited to participate did not complete the HIS survey, and some who completed this survey did not complete the follow-up survey. Thus, current demographics data were missing (e.g., educational level, marital, health, and employment status) for some of the eligible participants. Nevertheless, the available data provided a relatively large sample for the survivor population, and participants for the study were randomly selected to minimize selection bias and confounding. Another limitation, given the speed of technological change, is the introductions of Smartphones has made the Internet more accessible, with Internet access increasing by 7% in the US over the past 10 years [24]. However, individuals trust in the Internet as a source of information has only declined slightly over a similar period, from 18% in 2005 to 13% in 2013 [25]. Similarly, the reasons for health-related Internet information seeking preferences and behaviors have remained constant as well. Of note, the data for these analyses were collected during the same time period for both the CCSS and HINTS, with significant differences noted in regards to need for health information in the survivor population when compared to the general population.

With the increased risk of developing long-term difficulties such as physical, emotional, and cognitive problems following cancer and its treatment, adult survivors of childhood cancer may benefit from access to the appropriate information about their current and future health. Our results support that childhood cancer survivors are interested and could benefit from information on diagnosis and treatment, late effects, and preventive care. Future research

initiatives are needed to evaluate how online health information access can assist survivors in making decisions regarding their health and improve their current and future health status.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Abbreviation

CCSS	Childhood Cancer Survivor Study
HINTS	Health Information National Trends Survey
US	United States
CNS	central nervous system
HIS	Health Information Survey
OR	odds ratios
CI	confidence intervals
eHealth	electronic health
mHealth	mobile health

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Figure 1.
Survivors' interest in the following activities from any source of information, such as news media, print, internet, and health care professionals

Figure 2.
Survivors' interest in health information topics

Table 1

Demographics for Childhood Cancer Survivors (n=1386) and HINTS 2005 Participants (n=2385)

Demographic Variables	Childhood Cancer Survivors (n=1386) n (%)	HINTS 2005 Population (n=2385) n (weighted %)	p-value
Age at survey distribution			<.0001
18–34	858 (62%)	1008 (52%)	
35–39	314 (23%)	438 (16%)	
40–44	129 (9%)	483 (17%)	
45–49	85 (6%)	456 (15%)	
Sex			0.76
Male	699 (50%)	892 (38%)	
Female	687 (50%)	1493 (62%)	
Education			<.0001
Less than high school	49 (4%)	262 (13%)	
High school	241 (17%)	552 (27%)	
Some college	389 (28%)	679 (34%)	
College graduate	587 (42%)	807 (22%)	
Missing	120 (9%)	85 (4%)	
Race/Ethnicity			<.0001
Caucasian	1264 (91%)	1568 (63%)	
African American	51 (4%)	214 (11%)	
Hispanic	22 (2%)	356 (18%)	
Other	49 (3%)	154 (8%)	
Marital Status			<.0001
Single	552 (40%)	560 (29%)	
Married/Living as married	620 (45%)	1438 (58%)	
Widowed/Divorced/Separated	84 (6%)	301 (9%)	
Missing	130 (9%)	86 (4%)	
Health status			<.0001
Excellent/Very Good	708 (51%)	999 (38%)	
Good/Fair	544 (39%)	836 (37%)	
Poor	23 (2%)	480 (21%)	
Missing	111 (8%)	70 (4%)	
Employment Status			<.0001
Working	955 (69%)	1628 (67%)	
Not Working/Retired	220 (16%)	526 (20%)	
Student	74 (5%)	143 (9%)	
Missing	137 (10%)	88 (4%)	
Diagnosis:			
Leukemia	211 (15%)		
CNS Tumor	171 (12%)		
Hodgkin lymphoma	129 (9%)		
Non-Hodgkin lymphoma	181 (13%)		

Demographic Variables	Childhood Cancer Survivors (n=1386) n (%)	HINTS 2005 Population (n=2385) n (weighted %)	p-value
Kidney Tumors	188 (14%)		
Neuroblastoma	159 (12%)		
Soft Tissue Sarcoma	198 (14%)		
Bone Tumors	148 (11%)		
Type of Treatment			
Chemotherapy	364 (26%)		
Radiation	139 (10%)		
Chemotherapy and Radiation	621 (45%)		
Neither	130 (9%)		
Unknown	132 (10%)		
Time since diagnosis			
15–19 years	275 (20%)		
20–24 years	548 (40%)		
25–29 years	320 (23%)		
30+ years	243 (17%)		
Age at diagnosis			
0–4 years old	595 (43%)		
5–9 years old	305 (22%)		
10–14 years old	275 (20%)		
15–20 years old	211 (15%)		

p-value = chi-square comparison of CCSS versus HINTS cohorts

Table 2

Characteristics and multivariable model results of individuals seeking health or medical information using the Internet in the past 12 months

In the past 12 months, have you looked for health or medical information for yourself while using the internet?	CCSS (n=1386) OR (95% CI)	HINTS (n=2385) OR (95% CI)	P-value for interaction
Age			
18–34	1.0	1.0	0.48
35–39	0.79 (0.71–0.88)	1.03 (0.69–1.55)	
40–44	0.78 (0.73–0.84)	0.99 (0.71–1.39)	
45–49	0.89 (0.82–0.96)	0.96 (0.66–1.41)	
Sex			
Male	1.0	1.0	0.014
Female	1.28 (1.24–1.32)	2.00 (1.41–2.85)	
Education			
Less than high school	1.0	1.0	0.001
High school graduate	0.85 (0.79–0.91)	2.08 (0.91–4.73)	
Some college	2.04 (1.90–2.20)	3.06 (1.25–7.51)	
College graduate	1.68 (1.49–1.90)	4.79 (1.99–11.54)	
Race			
Caucasian	1.0	1.0	0.99
African American	0.79 (0.30–2.06)	0.75 (0.45–1.26)	
Hispanic	0.75 (0.18–3.06)	0.82 (0.50–1.35)	
Other	1.16 (0.58–2.31)	1.18 (0.66–2.09)	
Marital Status			
Single	1.0	1.0	0.52
Married/Living as married	0.81 (0.68–0.97)	0.88 (0.58–1.31)	
Widowed/Divorced/Separated	1.01 (0.83–1.23)	1.39 (0.78–2.46)	
Health status			
Excellent/Very Good	1.0	1.0	0.050
Good/Fair	0.96 (0.92–1.00)	1.33 (0.98–1.80)	
Poor	2.07 (1.73–2.49)	1.68 (1.06–2.67)	
Employment Status			
Working	1.0	1.0	<0.001
Not Working/Retired	0.80 (0.69–0.92)	1.81 (1.20–2.75)	
Student	1.43 (1.21–1.70)	1.49 (0.82–2.69)	

Note: Multivariable logistic regression models were fit to both cohorts together (CCSS and HINTS). An interaction term between each characteristic and an indicator of cohort membership allowed separate evaluation of ORs within cohort and a global test for the interaction. Participants with missing values were removed from specific analysis. All models are adjusted for sex, age, and education. Reported ORs are within population relative to the indicated reference group. **Bold type** indicates significant OR within cohort at p-value < .05.

A significant p-value for interaction indicates that the relationship between the characteristic and internet usage differs between CCSS and HINTS.

Table 3
Comparison of level of trust of health or medical information from specific sources

How much do you trust information about health or medical topics from sources listed below?	Family or Friends			Internet			Doctor or Healthcare Professional		
	CCSS Mean (SD)	HINTS Mean (SD)	* p-value	CCSS Mean (SD)	HINTS Mean (SD)	* p-value	CCSS Mean (SD)	HINTS Mean n(SD)	* p-value
Total	3.00 (0.78)	2.89 (0.80)	<0.01	2.76 (0.83)	2.88 (0.76)	<0.01	3.77 (0.50)	3.63 (0.62)	<0.01
Age									
18–34	3.02 (0.78)	2.89 (0.81)	<0.01	2.77 (0.82)	2.81 (0.74)	0.493	3.78 (0.49)	3.65 (0.62)	<0.01
35–39	3.01 (0.73)	2.86 (0.77)	0.052	2.73 (0.83)	2.96 (0.76)	<0.01	3.74 (0.52)	3.64 (0.62)	0.04
40–44	2.88 (0.81)	2.94 (0.77)	0.343	2.82 (0.91)	2.95 (0.77)	0.438	3.84 (0.40)	3.65 (0.61)	<0.01
45–49	2.90 (0.79)	2.84 (0.79)	0.105	2.78 (0.88)	2.92 (0.80)	0.058	3.70 (0.60)	3.57 (0.65)	<0.01
Sex									
Male	2.98 (0.79)	2.86 (0.85)	0.02	2.70 (0.84)	2.76 (0.78)	0.361	3.76 (0.52)	3.60 (0.68)	<0.01
Female	3.02 (0.76)	2.91 (0.76)	<0.01	2.84 (0.83)	2.95 (0.74)	<0.01	3.78 (0.47)	3.65 (0.59)	<0.01
Education									
Less than high school	2.91 (0.92)	2.87 (0.96)	0.215	2.40 (0.96)	2.74 (0.94)	0.04	3.60 (0.68)	3.47 (0.80)	<0.01
High school	3.08 (0.78)	2.88 (0.83)	<0.01	2.56 (1.00)	2.86 (0.82)	<0.01	3.73 (0.53)	3.56 (0.66)	<0.01
Some college	3.03 (0.76)	2.90 (0.75)	<0.01	2.81 (0.78)	2.85 (0.75)	0.388	3.75 (0.51)	3.64 (0.60)	<0.01
College graduate	2.96 (0.75)	2.89 (0.73)	0.03	2.85 (0.75)	2.93 (0.73)	<0.01	3.81 (0.42)	3.75 (0.49)	<0.01
Missing	2.99 (0.91)	2.90 (0.93)	0.151	2.74 (0.92)	2.91 (0.64)	<0.01	3.77 (0.60)	3.51 (0.76)	0.04
Race/Ethnicity									
White	3.00 (0.77)	2.91 (0.74)	<0.01	2.77 (0.83)	2.87 (0.75)	0.03	3.77 (0.49)	3.69 (0.57)	<0.01
Black	3.02 (0.91)	2.76 (0.93)	<0.01	2.64 (0.99)	2.95 (0.83)	0.02	3.74 (0.49)	3.54 (0.69)	<0.01
Hispanic	3.05 (0.86)	2.86 (0.88)	<0.01	2.60 (0.88)	2.89 (0.83)	<0.01	3.62 (0.74)	3.52 (0.70)	<0.01
Other	2.88 (0.82)	3.00 (0.84)	0.160	2.91 (0.80)	2.96 (0.75)	0.892	3.81 (0.50)	3.58 (0.71)	<0.01
Marital Status									
Single	3.11 (0.76)	2.92 (0.81)	<0.01	2.72 (0.86)	2.82 (0.75)	0.02	3.77 (0.50)	3.65 (0.60)	<0.01
Married, Living as married	2.91 (0.76)	2.89 (0.77)	0.049	2.81 (0.80)	2.88 (0.77)	0.491	3.78 (0.47)	3.65 (0.61)	<0.01
Widowed, Divorced, Separated	2.90 (0.76)	2.82 (0.85)	0.202	2.72 (0.83)	2.99 (0.77)	<0.01	3.69 (0.52)	3.55 (0.67)	<0.01
Missing	3.02 (0.87)	2.89 (0.93)	0.140	2.72 (0.90)	2.93 (0.64)	<0.01	3.78 (0.60)	3.51 (0.76)	0.03
Health status									

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	CCSS Mean (SD)	HINTS Mean (SD)	* p-value	CCSS Mean (SD)	HINTS Mean (SD)	* p-value	CCSS Mean (SD)	HINTS Mean n(SD)	* p-value
Excellent/Very Good	3.02 (0.73)	2.89 (0.76)	<0.01	2.81 (0.81)	2.92 (0.75)	0.063	3.81 (0.45)	3.72 (0.57)	<0.01
Good/Fair	2.97 (0.80)	2.95 (0.78)	0.75	2.71 (0.84)	2.86 (0.76)	<0.01	3.71 (0.53)	3.70 (0.55)	<0.01
Poor	2.87 (0.97)	2.80 (0.87)	0.02	2.85 (1.04)	2.81 (0.82)	0.237	3.91 (0.42)	3.63 (0.60)	<0.01
Missing	3.00 (0.90)	2.83 (0.92)	0.02	2.72 (0.92)	2.95 (0.79)	<0.01	3.77 (0.61)	3.48 (0.74)	0.046
Employment Status									
Working	2.96 (0.76)	2.88 (0.79)	<0.01	2.79 (0.79)	2.88(0.76)	0.086	3.78 (0.48)	3.64 (0.61)	<0.01
Not Working/Retired	3.12 (0.79)	2.90 (0.81)	<0.01	2.70 (0.94)	2.91 (0.85)	0.02	3.74 (0.53)	3.51 (0.69)	<0.01
Student	3.04 (0.79)	2.95 (0.66)	0.163	2.75 (0.81)	2.83 (0.64)	0.169	3.78 (0.42)	3.74 (0.50)	0.129
Missing	3.04 (0.87)	2.91 (0.92)	0.123	2.71 (0.97)	2.89 (0.70)	<0.01	3.78 (0.58)	3.51 (0.76)	0.02

Note: Scale 4=A lot 3=Some 2=A little 1=Not at all;

* p-value - t-test with weighted Mean and Standard Deviation reported.