Published in final edited form as:

Psychol Health. 2016 ; 31(3): 292–309. doi:10.1080/08870446.2015.1085986.

Associations of Spontaneous Self-Affirmation with Health Care Experiences and Health Information Seeking in National Survey of US Adults

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Abstract

Objective—Self-affirming—such as by reflecting on one's strengths and values—reduces defensiveness to threatening information, reduces negative effects of stereotype threat, and promotes prosociality. These outcomes may promote physical health, highlighting a need to examine the role of self-affirmation in medical and health contexts.

Design—Data were collected as part of the nationally representative, cross-sectional, 2013 Health Information National Trends Survey. Items were completed by 2,731 respondents.

Main Outcome Measures—Respondents answered questions about spontaneous self-affirmation tendencies, perceptions of providers and health care, involvement in medical appointments, health information seeking, and engagement in medical research.

Results—Spontaneous self-affirmation was associated with more positive perceptions of communication with one's provider, better perceived quality of care, greater likelihood of asking questions in a medical appointment, greater information seeking for oneself, and multiple indices of surrogate information seeking (i.e., seeking information for others). Four of eight significant

associations remained significant when controlling for optimism. The associations of self-affirmation with aspects of the patient-provider relationship were not modified by factors likely to be associated with stereotype threat (e.g., race or BMI).

Conclusion—Spontaneous self-affirmation was related to positive outcomes in health contexts. Experimental research is needed to further explore the causal nature of these associations.

Keywords

Health Information National Trends Survey; self-affirmation; information seeking; patient-provider relationship

Introduction

Self-affirmation involves reflecting on attributes such as one's strengths and values, and serves as a way to maintain self-integrity, or a sense of oneself as moral, adaptive, and in control of important outcomes (Cohen & Sherman, 2014). Self-affirmation has benefits in numerous domains and is often beneficial when people feel psychologically threatened (Cohen & Sherman, 2014). For example, when people are instructed to self-affirm, they engage in more health behaviours (Epton, Harris, Kane, van Koningsbruggen, & Sheeran, 2015), perform better academically (Cohen, Garcia, Apfel, & Master, 2006; Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009), are more likely to help other people (Lindsay & Creswell, 2014), and report increased well-being (Nelson, Fuller, Choi, Lyubomirsky, 2014). Although the mechanisms underlying the benefits of self-affirmation are yet to be fully elucidated, evidence suggests that when people focus on valued aspects of their identity, they view information as less threatening to the self (Sherman, 2013), and cognitive resources can be redirected from worrying about a threat or protecting their image to the task at hand or to help others. In the present study, we examined whether spontaneous self-affirmation (SSA)—the extent to which individuals spontaneously focus on their values or strengths in response to everyday threats or anxiety—was associated with positive outcomes in medical and health settings.

There are multiple mechanisms through which self-affirmation may be beneficial in medical settings. One mechanism is a reduction in defensiveness to threatening information. Health messages can be threatening when they provide news of elevated disease risk (Sweeny, Melnyk, Miller, & Shepperd, 2010), serve as reminders of not previously engaging in health behaviours, or obligate unwanted behaviour change (Howell & Shepperd, 2013). As such, people engage in various “defensive” strategies aimed at protecting their self-integrity and/or reducing negative emotion caused by the threat (McQueen, Vernon, & Swank, 2013; van't Riet & Ruiters, 2013). Because people often learn about their risk of disease or recommended health behaviours in a medical context, they may avoid health information by not seeking medical care when they perceive their disease risk to be high, by not searching for health information, or by not engaging in medical research studies (e.g., Persoskie, Ferrer, & Klein, 2014). Importantly, when people are instructed to self-affirm in experimental studies, they pay more attention to threatening information (e.g., Correll, Spencer, & Zanna, 2004) and are less likely to avoid health information (Howell & Shepperd, 2012; van Koningsbruggen

& Das, 2009). Thus, self-affirmation may promote willingness to seek potentially threatening health information.

A second mechanism by which self-affirmation may have benefits in medical settings is by reducing the negative consequences of stereotype threat. Stereotype threat occurs when people worry that their behaviour might confirm stereotypes about a group of which they are members, such as their race or gender (Steele & Aronson, 1995). Concern over confirming a negative stereotype often leads individuals to inadvertently confirm such stereotypes. For instance, in one study Black students were reminded of their race prior to completing a standardised test that was framed as diagnostic or non-diagnostic of intelligence. Because framing the test as diagnostic of intelligence activated stereotype threat, this condition led to worse performance than when the test was framed as non-diagnostic (Steele & Aronson, 1995). Self-affirmation has been shown to mitigate the negative consequences of stereotype threat (Cohen et al., 2006; Cohen et al., 2009; Frantz, Cuddy, Burnett, Ray, & Hart, 2004; Martens, Johns, Greenberg, & Schimel, 2006; Shapiro, Williams, & Hambarchyan, 2013; Taylor & Walton, 2011). Indeed, one study of minority students demonstrated that self-affirmation led to improved academic performance not only in the semester following self-affirmation, but up to two years later (Cohen et al., 2009).

Patients can also experience stereotype threat in medical settings (Aronson, Burgess, Phelan, & Juarez, 2013; Burgess et al., 2014; Burgess, Warren, Phelan, Dovidio, & Van Ryn, 2010; Havranek et al., 2012). Patients may feel threatened if they expect discrimination or that medical professionals will perceive them in accordance with stereotypes (Aronson et al., 2013; Burgess et al., 2010). As minority populations (including Blacks and overweight individuals) have reported or experienced discrimination and perceived bias in medical settings (Penner et al., 2010; Phelan et al., 2014; Van Ryn & Burke, 2000; Van Ryn & Fu, 2003), these groups may experience stereotype threat in interactions with health care providers. Researchers have argued that concerns about stereotype threat could impair patients' communication with their health care providers by leading to less self-disclosure and 'colder' interactions (Aronson et al., 2013; Burgess, 2011; Burgess et al., 2010; Havranek et al., 2012). As such, self-affirmation may be beneficial: Black patients who self-affirmed before a medical appointment gave and asked for more information and had a more positive tone, although self-affirmation did not affect trust or visit satisfaction (Havranek et al., 2012; but see Burgess et al., 2014). In the present study, we hypothesized that patients higher in SSA would report more positive interactions with, greater engagement with, and higher quality care from, their health care providers.

A third mechanism by which self-affirmation may have benefits in a medical setting is prosociality. Recent research has examined whether self-affirmation has beneficial effects due to bolstering self-resources or by fostering self-transcendence (Lindsay & Creswell, 2014). According to a self-transcendence account, self-affirmation frees people from focusing on their own self-image concerns to focus on the concerns of others (Lindsay & Creswell, 2014; Thomaes, Bushman, de Castro, & Reijntjes, 2012). Indeed, self-affirmation has led to increased prosocial feelings (Thomaes et al., 2012), greater prosocial behaviour (Lindsay & Creswell, 2014; but see Schnall & Roper, 2012), decreased defensiveness in relationships (Jaremka, Bunyan, Collins, & Sherman, 2011), and increased positive "other-

directed feelings” such as love and empathy (Crocker, Niiya, & Mischkowski, 2008). To build on these findings, we explored whether participants higher in SSA reported engaging in more prosocial behaviour in a health context, such as searching for health information for other people. Additionally, people who self-affirm may rate their interactions with health care providers more positively given that self-affirmation promotes feelings of connectedness and can lead to a less tense social demeanor (Stinson, Logel, Shepherd, & Zanna, 2011). Finally, engagement in medical research may indicate prosociality, as altruism is a motivator of research participation (Fazio et al., 2011).

Most prior research has experimentally induced self-affirmation by instructing people to self-affirm (Cohen & Sherman, 2014). People also seem to differ in how likely they are to affirm in everyday life when feeling threatened or anxious (Harris, Napper, Griffin, Schuez, & Stride, 2015; Pietersma & Dijkstra, 2012), although it is unknown whether spontaneous self-affirmation is a personality trait or is more habitual in nature. About 76% of the nationally representative sample we examine in the current study reported spontaneously self-affirming (see Emanuel et al., 2015). Blacks and Hispanics compared to Whites and older adults were higher in SSA; education and gender were unrelated to SSA.

The tendency to self-affirm can reduce defensiveness; for example, participants’ information avoidance tendencies were less strongly associated with intentions to learn potentially threatening genetic health information for participants high versus low in SSA (Taber et al., 2015a). SSA has been associated with health-related benefits such as lower calorie intake (Cornil & Chandon, 2013) and fewer physical health symptoms (Creswell et al., 2007). Using the same Health Information National Trends Survey used for the current study, SSA has also been associated with greater positive affect and well-being both in the full sample (Emanuel et al., 2015) and among cancer survivors only (Taber, Klein, Ferrer, Kent, & Harris, 2015), greater likelihood of seeking information about cancer among cancer survivors only (Taber et al., 2015b), and more quit attempts and quit intentions for smokers who lived in states with more comprehensive smoke-free laws (Persoskie et al., 2015).

These benefits of SSA are consistent with the beneficial effects identified so far for induced self-affirmations. However, it remains to be seen whether spontaneous and induced self-affirmations function similarly. Research in areas such as regulatory focus (Higgins et al., 2001) and emotion regulation (Gross & John, 2003) has demonstrated the importance of examining both experimental inductions and individual difference measurements of constructs. It is also unknown to what extent any benefits of SSA are similar to benefits of other “self-resources” such as dispositional optimism (see Creswell et al., 2005), suggesting a need to determine whether effects involving SSA hold when controlling for other resource constructs.

Here, we used cross-sectional data from a nationally representative survey of U.S. adults to test whether differences in the tendency to self-affirm were associated with five categories of medical/health constructs: 1) perceptions of providers and health care, 2) involvement in medical appointments, 3) information seeking (personal), 4) information seeking (social), and 5) engagement in medical research. Items in these categories were chosen based on theoretical predictions that they would be influenced by SSA through the mechanisms

outlined above. Specifically, *reduced defensiveness* was hypothesized to promote greater involvement in medical appointments due to lower likelihood of defensively withholding information about health behaviors, and greater personal information seeking and engagement in medical research due to increased willingness to learn health information. *Reduced stereotype threat* was hypothesized to promote more positive perceptions of providers and health care and greater involvement in medical appointments, as stereotype threat may harm the quality of patient-provider interactions (Havranek et al., 2012). Finally, *increased prosociality* was hypothesized to promote more positive perceptions of providers and health care, greater social information seeking, and willingness to participate in medical research. The mechanisms themselves were not measured – just the predicted consequences. Thus, we tested the robustness of previously established relationships among SSA and health information seeking, and expanded the inquiry to include patient-provider interactions and prosocial behaviours in a health context.

Self-affirmation is often shown to be most effective for those who need it the most and when people are faced with threat (Harris & Epton, 2009). Therefore, we also tested whether participants hypothesized to be most likely to face stereotype threat in interactions with health care professionals—minority and overweight or obese respondents—were more likely to benefit from SSA in outcomes concerning interactions with health care providers.

Methods

Study Design and Population

Data were collected as part of the Health Information National Trends Survey (HINTS) 4, Cycle 3 from September to December 2013. HINTS is a cross-sectional nationally representative survey of non-institutionalized U.S. adults; full details of the study design are available at hints.cancer.gov (Nelson et al., 2004; Rutten et al., 2007). The survey was completed by 3,185 individuals. Analyses are restricted to the 2,731 participants with non-missing data for the set of variables used in all analyses (i.e., self-affirmation, age, gender, income, and race and ethnicity); the exact sample size differs across analyses due to missing data on individual outcome variables. Associations of SSA with two measures reported here (i.e., health and cancer information seeking) among the subsample of cancer survivors in this same dataset are reported elsewhere (Taber et al., 2015b). The associations of SSA with health and cancer information seeking were similar when controlling for personal history of cancer, and cancer history did not interact with SSA to influence either measure, suggesting that the associations identified here among SSA and information seeking are not driven by the cancer survivor subsample.

Measures

The complete survey appears online at http://hints.cancer.gov/docs/HINTS_4_Cycle_3_English_Annotated_508c_3_21_2014.pdf. Table 1 lists each measure used in this study and their respective scales, including reliabilities and response endpoints. Our predictor was a two-item index of spontaneous self-affirmation. These items were taken from a longer SSA scale currently in development that includes two key subscales assessing strengths and values with high reliability; the two items load highly on their respective subscales and

reliability decreases when these particular items are omitted (Harris et al., 2015). A similar two-item index has previously been used successfully to examine SSA (Ferrer et al., 2014; Taber et al., 2015a). Here, we used this index to predict items and scales in five categories: 1) perceptions of providers and health care, 2) involvement in medical appointments, 3) information seeking (personal), 4) information seeking (social), and 5) engagement in medical research. We also examined sociodemographic factors including age, gender, income, education, race and ethnicity, and BMI (calculated from height and weight). Contiguously, dispositional optimism was assessed with one item taken from the LOT-R (Scheier, Carver, & Bridges, 1994): “I’m always optimistic about my future” from 1 (*Strongly Disagree*) to 4 (*Strongly Agree*).

Overview of Analyses

We first report participant characteristics. We do not report the association of self-affirmation with demographic factors, as other research using HINTS has examined these associations (Emanuel et al., 2015). Depending on the nature of the outcome variable, either logistic or linear regressions were used to test the associations among SSA and the outcomes, controlling for age, race/ethnicity, education, and gender. Income was not covaried because it is not adjusted for cost of living by locality, rendering it an imprecise measure of socio-economic status (SES). Instead, education was included as a proxy for SES, consistent with previous research in national datasets (Almeida, Neupert, Banks, & Serido, 2005). Next, we computed effect sizes (r) for each outcome and meta-analysed these effects to determine the average relationship between SSA and each of the five categories of variables (Cooper, Hedges, & Valentine, 2009). To calculate effect sizes of jackknife replicated weighted survey data, we used a $df = 50$ (based on the design DF) and the formula $r = (t^2 / (t^2 + df))^{0.5}$. In prior research using large-scale survey data with 2-item SSA scales, some effects of a shortened optimism scale have been similar to that of SSA (Taber et al., 2015a; Taber et al., 2015b). Thus, in supplementary analyses we tested whether any previously significant or marginally significant associations of SSA with outcomes remained so when controlling for optimism. Finally, using the same covariates as the primary analyses, secondary analyses tested whether race (non-Hispanic Black=1, not non-Hispanic Black=0) and BMI (overweight or obese =1, average or underweight=0) moderated the association of SSA with aspects of the patient-provider relationship. Race was coded to be consistent with prior self-affirmation research in medical contexts that focused exclusively on Black respondents (Burgess et al., 2014; Havranek et al., 2012).

To account for the complex sampling design, a set of 50 jackknife replicate weights was used to generate nationally representative parameter estimates (Nelson et al., 2004). With the exception of the meta-analysis, all analyses were conducted using SAS-callable SUDAAN version 11.0. All frequencies are unweighted and all percentages are weighted.

Results

Sample characteristics and means and standard errors of each outcome appear in Table 2. The relationships among SSA and each of our outcomes, controlling for sociodemographic factors, appear in Table 3. Figure 1 presents the effect sizes and confidence intervals for each

outcome, the meta-analytic association between SSA and each category of outcome, and the overall meta-analytic effect.

As shown in Figure 1, greater spontaneous self-affirmation was significantly positively associated with each of the 5 categories (r s=0.17 to 0.29) as well as the outcomes as a whole (r =.24, $CI_{95\%}$ = [.18, .30]), indicating that greater SSA was associated with more positive health care experiences and behaviours. The associations of SSA with individual items were more varied. As shown in Table 3, 8 of the 18 associations tested reached statistical significance: individuals higher in SSA reported increased perceived quality of communication and quality of care, and greater likelihood of asking providers for explanations, of seeking health information for oneself, of having sought health information for someone else, of family and friends soliciting their advice on health topics, and of having heard of patient engagement in medical research and having previously engaged in medical research.

SSA and optimism were moderately correlated (r = .42, p < .001). As shown in Table 3, 4 of the 8 previously significant associations remained significant when controlling for optimism (i.e., ask for explanations, health information seeking, health information mavenism, and heard about medical research), with two additional items becoming marginally significant (i.e., health information surrogate-seeking, participated in medical research). The associations of SSA with communication and quality of care were no longer significant when controlling for optimism.

We next tested whether race or BMI moderated any of the associations between SSA and outcomes in the ‘perceptions of providers and health care’ and the ‘involvement in medical appointments’ categories. Contrary to hypotheses, none of the interactions of SSA by race/ethnicity or BMI (controlling for the main effects and other demographic variables) reached statistical significance.

Discussion

In the present study, spontaneous self-affirmation was associated with more positive health care experiences and behaviour at a meta-analytic level. At an individual item level, SSA was associated with eight out of 18 of the measures assessed; significant associations emerged for perceived quality of communication and care in a medical setting, being more likely to ask for explanations during medical appointments, greater health information seeking for oneself and others, being more likely to have heard about and participated in medical research, and being approached more often by others for medical advice. These data provide support for prior research showing that self-affirmation may improve interactions in medical settings (Havranek et al., 2012) and may be associated with greater engagement with and attention to health information (Howell & Shepperd, 2012; van Koningsbruggen & Das, 2009). These data also suggest that self-affirmation is associated with prosocial attitudes and behaviours in a health context. Consistent with the hypothesis that self-affirmation promotes positive outcomes through enhanced feelings of love and connectedness (Crocker et al., 2008), and with the “self-transcendence” explanation of self-affirmation more broadly (Lindsay & Creswell, 2014), participants higher in spontaneous

self-affirmation had more favourable perceptions of communication with their provider, were more likely to have recently sought health information for someone else versus themselves only, and were more likely to have friends and family looking to them for health information.

Importantly, a meta-analysis provided support for the association of SSA with positive outcomes in each category of construct as well as overall, suggesting that self-affirmation may be associated with positive outcomes in health care settings. However, the associations—with all but one in the hypothesized direction—were not universally significant at the item level. These data point to specific aspects of the patient-provider relationship and involvement in medical appointments that may be associated with self-affirmation. Specifically, participants higher in SSA reported higher perceived quality of communication and care and greater likelihood of asking their doctor to explain tests or treatments. This latter item represents a behaviour that self-affirmation may be especially likely to bolster—asking one's doctor questions requires actively seeking out health information, risking looking unintelligent or uninformed (i.e., confirming negative stereotypes), and being willing to engage in a social interaction. Thus, the specific behaviour of asking questions during medical appointments may be important to assess in future experimental work. However, the pattern of significant results at the item level does not suggest clear implications as to which specific proposed mechanisms are most likely to account for the SSA associations, or as to a specific type of outcome that is more likely to be associated with SSA.

SSA was significantly associated with health information “mavenism” and having heard about engagement in medical research. We chose the label for the former item based on a “health information mavenism” scale that included items such as “People ask me for information about health” (Kontos, Emmons, Puleo, & Viswanath, 2011). Those higher in mavenism had larger social networks than those who scored lower, but did not have health beliefs that were more consistent with health recommendations, and did not pay more attention to health information. These data suggest that being an “information maven” may have to do with sociality rather than knowledge. As such, health information mavenism may be a useful indicator of prosociality.

With respect to the item concerning having heard about engagement in medical research, this might be an indicator of more active responding at an early stage of becoming involved in medical research. The association of SSA with having heard about medical research may be a result of paying more attention to health information, which might be caused by reduced defensiveness to health information, but not necessarily a result of actively seeking out health information (ancillary analyses showed that the association remained significant when controlling for health information seeking). Future research is necessary to replicate this effect.

It is as yet unclear to what extent SSA is distinct from other psychological or “threat management self-resources” such as self-esteem or dispositional optimism, although ongoing work is examining these issues (Harris et al., 2015). SSA is measured here with only a 2-item version of the full scale (see Harris et al., 2015). These constructs may appear

more similar here than they truly are, perhaps due to methodological issues such as the contiguous placement of the SSA items and the optimism item, or due to the lower reliability involved when using two items to measure constructs. For example, in work with the full SSA scale the correlation with the full measure of optimism (the LOT-R) is closer to .2 ($r = .23$; Harris et al., 2015). Likewise, the correlation of SSA with self-esteem is typically between .3 and .4.

Conceptually, SSA, optimism, and self-esteem are distinct constructs. Self-esteem is “an individual's subjective evaluation of her or his worth as a person” (Donnellan, Trzesniewski, & Robins, 2011, p. 718). In other work, researchers conceptualized a tendency to self-affirm in daily life as “the use of one's self-esteem resources” (Pietersma & Dijkstra, 2012). Pietersma & Dijkstra's scale of self-affirmation tendencies was also only moderately correlated at $r = .31$ with self-esteem. SSA and self-esteem may also be related in that it may be easier for individuals to self-affirm if they are high in self-esteem and can easily bring to mind positive attributes. However, the positive effects of induced self-affirmation require focusing on only one value or strength, such as kindness, which is less likely to be dependent on self-esteem. Further, self-affirmation refers to when individuals feel threatened or anxious and is thus context dependent, whereas trait self-esteem is not. Finally, self-esteem is generally not increased when self-affirmation is induced, and the effectiveness of self-affirmation sometimes depends on self-esteem (see Armitage & Rowe, 2011; During & Jessop, 2015; Creswell et al., 2005; for a discussion, see McQueen & Klein, 2006), suggesting that self-affirmation and self-esteem are distinct constructs.

SSA is also conceptually distinct from dispositional optimism, which is a personality trait characterized by a general tendency to hold positive expectations about the future (Carver & Scheier, 2002). Optimism functions as a psychological resource conferring health benefits, but is not necessarily deployed in the face of threat (as SSA is hypothesized to be). Nevertheless, only 4 of 8 significant associations of SSA remained significant when controlling for optimism. This may have been due to several reasons. First, optimism and SSA may be multiple means to the same end. For example, similar to self-affirmation, optimism promotes attention to threatening health information (Aspinwall & Brunhart, 1996) and optimists tend to use more active coping strategies, which may promote attention to threat (Nes & Segerstrom, 2006). Alternatively, SSA may be manifested through more positive expectations (i.e., greater optimism), or conversely, more optimistic people may be more likely to use self-affirmation as a coping strategy when feeling threatened. The pattern of results concerning which SSA associations remained significant when controlling for optimism does not suggest support for any of these explanations; for example, it is unclear why optimism would reduce the association of SSA with perceived quality of communication and care with providers, but not with health information seeking. Research using full scales of each construct is underway to determine whether these constructs are distinct (Harris et al., 2015).

The effect sizes in the present study were generally small to medium (Cohen, 1992), consistent with the relatively small effect sizes of induced self-affirmations on message acceptance, intentions, and behaviour in health contexts (Epton et al., 2015; Sweeney & Moyer, 2015). Only 8 of 18 associations reached statistical significance; however, there was

an overall positive association of SSA with the aggregate of measures, and all but one effect was in the predicted direction. Further, whether an association reaches statistical significance may be distinct from whether an association is likely to indicate clinically meaningful effects for an individual or whether the association is likely to be meaningful at a population level. For example, at the population level, if the 31 million people with an SSA score of 2 (somewhat disagree) underwent an intervention that changed their SSA score to a 3 (somewhat agree), this would correspond to an increase of approximately 1.26 million more people looking for health information.

SSA was assessed as a general tendency to affirm in the face of threat without reference to a specific threat or time frame. Thus, instances of SSA are aggregated over multiple events and contexts, and this generality may partly explain the lack of consistent associations of SSA with assessments of health care experiences and information seeking. In contrast, in an experimental study participants can be asked to affirm immediately prior to a threat and outcomes can be assessed during or immediately after the threat, which should increase the likelihood or magnitude of self-affirmation effects. As an analog, although an individual may be high in a specific emotion regulation strategy such as reappraisal (Gross & John, 2003), he or she is unlikely to universally employ this strategy every time when faced with negative emotion. Induced affirmations may also be more powerful given that they have been honed by researchers to be maximally effective. However, even with these limitations, the present study suggests that SSA may be associated with specific benefits in health contexts.

Due to the cross-sectional and archival nature of our data, we could not determine the mechanisms by which SSA was associated with positive outcomes, as measures of the proposed mechanisms (i.e., increased prosociality and reduced defensiveness and stereotype threat) were not included in the survey. Future research should test these specific mechanisms. The data supported the mechanisms of reduced defensiveness and greater prosociality, but evidence was not consistent with stereotype threat reduction. According to a stereotype threat approach, the observed positive outcomes should have been enhanced among those most likely to face stigma—Black and/or overweight and obese respondents. However, these moderation effects were not present, which may reflect our use of demographic factors as proxies for threat. Prior studies using self-affirmation interventions in a medical setting recruited only Black patients (Burgess et al., 2014; Havranek et al., 2012) and did not test whether self-affirmation benefits other populations in a medical setting. The present data suggest that self-affirmation may not only be beneficial for stigmatized groups. Individual perceptions of threat may better predict the efficacy of self-affirmation than may group membership; in one study, self-affirmations benefitted participants whose self was targeted, but not those whose group was targeted (Shapiro et al., 2013). Another explanation for the failure to detect these moderation effects may be that SSA is less sensitive to the degree of threat than are induced self-affirmations.

Another limitation of the correlational nature of the data is that we cannot establish the hypothesized causal link between SSA and health-related outcomes. Indeed, people who are more likely to engage with health information may become more likely to self-affirm. Although we controlled for several sociodemographic factors, other confounding factors

could have accounted for associations seen here. An additional limitation is the single or two-item scales used for many key constructs, including SSA. This strategy is typical in large scale, nationally representative studies, but is suboptimal. Fortunately, two-item measures of self-affirmation have shown predictive validity in other studies (Ferrer et al., 2014; Taber et al., 2015a). Future research should replicate these findings using the full scale of SSA (Harris et al., 2015).

The present study suggests multiple directions for future research. First, given that self-affirmations can be easily induced, researchers should continue to examine whether self-affirming prior to a physician's appointment could lead to greater satisfaction with a doctor's visit not only for Black patients (Burgess et al., 2014; Havranek et al., 2012), but also for other groups of patients facing potential threat in the context of a medical appointment. Second, researchers might examine whether individuals can be taught to spontaneously self-affirm when facing threatening medical situations, as prior research suggests that people can learn to self-affirm as a tool to manage stereotype threat in academic contexts (Cohen et al., 2006).

The outcomes examined in the present study, such as perceptions of communication with health care providers, have been linked to multiple health consequences including improved medication adherence, health care utilization, and health outcomes (Arora, 2003; Moore et al., 2004; Stewart, 1995; Zolnieriek & Dimatteo, 2009). The present work suggests that spontaneously self-affirming may be an effective way to promote positive health care experiences, which may promote subsequent physical health.

Acknowledgements

None.

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Note: The estimates and CI95% are based on 50 DF

Figure.
Standardised effect (r) of spontaneous self-affirmation with health outcomes.

Table 1

Measures and hypotheses.

Construct	Item	Scale Endpoints (As Analysed)
Spontaneous Self-Affirmation ($r = .70$)		
	When I feel threatened or anxious I find myself thinking about my strengths	1 (<i>Strongly Disagree</i>) to 4 (<i>Strongly Agree</i>)
	When I feel threatened or anxious I find myself thinking about my values	
Perception of Providers and Health care		
Communication ($\alpha = .94$)	How often did [all doctors, nurses, or other health professionals you saw during the past 12 months]:	
	Give you a chance to ask all the health-related questions you had?	1 (<i>Never</i>) to 4 (<i>Always</i>)
	Give you the attention you needed to your feelings and emotions?	
	Involve you in decisions about your health care as much as you wanted?	
	Make sure you understood the things you needed to do to take care of your health?	
	Explain things in a way you could understand?	
	Spend enough time with you?	
	Help you deal with feelings of uncertainty about your health care?	
Quality of Care	Overall, how would you rate the quality of health care you received in the past 12 months?	1 (<i>Poor</i>) to 5 (<i>Excellent</i>)
Provider Reliability	In the past 12 months, how often did you feel you could rely on your doctors, nurses, or other health care professionals to take care of your health care needs?	1 (<i>Never</i>) to 4 (<i>Always</i>)
Trust Information from Doctor	In general, how much would you trust information about health or medical topics from [a doctor]?	1 (<i>Not at all</i>) to 4 (<i>A lot</i>)
Time since Checkup	About how long has it been since you last visited a doctor for a routine checkup?	1 (<i>In the past year</i>), 0 (<i>Any other response</i>)
Involvement in Medical Appointments		
	In general how often do you...	
Bring List of Questions	Take with you to your doctor visits a list of questions or concerns you want to cover?	1 (<i>Never</i>) to 4 (<i>Always</i>)
Ask for Explanations	Ask your doctor to explain a test, treatment or procedure to you?	
Internet Information Sharing	How willing would you be to exchange [lifestyle behaviors (e.g., physical activity, food intake, sleep patterns, etc.)] with a health care provider electronically through your mobile phone or tablet?	1 (<i>Not at all</i>) to 4 (<i>Very</i>)
Information Seeking (Personal)		
Health Information Seeking	Have you ever looked for information about health or medical topics from any source?	1 (<i>Yes</i>), 0 (<i>No</i>)
Cancer Information Seeking	Have you ever looked for information about cancer from any source?	
Internet Information Seeking	In the last 12 months, have you used the Internet [to look] for health or medical information for yourself?	
Information Seeking (Social)		
Trust in Social Sources	In general, how much would you trust information about health or medical topics from [family or friends]?	1 (<i>Not at all</i>) to 4 (<i>A lot</i>)
Health Information Surrogate-Seeking	The most recent time you looked for information about health or medical topics, who was it for?	0 (<i>Myself</i>), 1 (<i>Someone else</i> or <i>Both myself and someone else</i>)

Construct	Item	Scale Endpoints (As Analysed)
Internet Surrogate-Seeking	In the last 12 months, have you used the Internet [to look] for health or medical information for others?	1 (<i>Yes</i>), 0 (<i>No</i>)
Health Information Mavenism	Do family members and friends ask you for information or advice on health topics?	1 (<i>Yes</i>), 0 (<i>No</i>)
Engagement in Medical Research		
	More and more, people...are <i>partnering</i> with medical researchers to help decide <i>what</i> research is done and <i>how</i> it is done....This is sometimes called “patient engagement” in research. Have you ever...	
Heard About	Heard about “patient engagement” in medical research?	1 (<i>Yes</i>), 0 (<i>No</i> or <i>Not sure</i>)
Participated	Have you ever engaged in medical research in this way?	
Willingness	Would you ever be interested in engaging in research this way?	

Table 2

Demographic characteristics of survey respondents, n=2,731.

Characteristics	Mean (SE)
Age	46.3 (0.22)
Spontaneous self-affirmation (2-item scale)	2.75 (0.02)
	<i>n</i> (%)
Household income	
<\$20,000	597 (19.23)
\$20,000 to <\$35,000	376 (14.24)
\$35,000 to <\$50,000	369 (14.97)
\$50,000 to <\$75,000	410 (17.62)
\$75,000 or more	758 (33.94)
Gender	
Male	1060 (48.19)
Female	1671 (51.81)
Education	
Less than high school education	232 (8.68)
High school graduate or some college	1427 (57.26)
College graduate	1072 (34.06)
Race/ethnicity	
Hispanic or Latino	448 (13.71)
Non-Hispanic White	1613 (68.07)
Non-Hispanic Black or African-American	453 (10.88)
Non-Hispanic biracial or other	217 (7.34)

Note. Sample sizes are unweighted and proportions are weighted.

Table 3

Associations of spontaneous self-affirmation with multiple aspects of the doctor patient relationship, health information seeking, and health information knowledge and attitudes, controlling for age, gender, education, and race and ethnicity.

	Association with Spontaneous Self-Affirmation					
Outcome	Mean (SE)	β	SE	95% CI	t	p
Perception of Providers and Health care						
Communication‡	3.32 (0.03)	.09	.03	.02, .15	2.79	0.008
Quality of Care‡	3.99 (0.03)	.14	.04	.05, .22	3.34	0.002
Provider Reliability	3.36 (0.02)	.06	.04	−.01, .13	1.67	0.10
Trust Information from Doctor	3.66 (0.02)	−.03	.02	−.07, .01	−1.37	0.18
Time since Checkup	0.67 (0.01)	.03	.10	−.16, .23	0.32	0.75
Involvement in Medical Appointments						
Bring List of Question‡	2.15 (0.03)	.09	.05	−.00, .18	1.93	0.06
Ask for Explanations*	2.82 (0.03)	.13	.04	.05, .21	3.37	<0.001
Internet Information Sharing	2.47 (0.04)	.05	.04	−.03, .14	1.29	0.20
Information Seeking (Personal)						
Health Information Seeking*	0.78 (0.01)	.28	.13	.03, .54	2.24	0.03
Cancer Information Seeking‡	0.56 (0.01)	.19	.10	−.01, .40	1.87	0.07
Internet Information Seeking	0.80 (0.02)	.24	.15	−.06, .55	1.60	0.12
Information Seeking (Social)						
Trust in Social Sources	2.67 (0.02)	.03	.02	−.02, .08	1.35	0.18
Health Information Surrogate-Seeking †	0.42 (0.01)	.24	.09	.05, .42	2.57	0.01
Internet Surrogate-Seeking	0.69 (0.02)	.17	.10	−.03, .38	1.67	0.10
Health Information Mavenism*	0.55 (0.01)	.04	.02	.00, .08	2.23	0.03
Engagement in Medical Research						
Heard About*	0.14 (0.01)	.44	.14	.16, .72	3.16	0.003
Participated†	0.03 (0.01)	.70	.29	.13, 1.28	2.46	0.02
Willingness	0.32 (0.01)	.09	.10	−.12, .30	0.84	0.41

Notes. Each row represents a separate regression analysis; predictors listed in this table were not entered simultaneously. Whether the regression was logistic or linear depended on the nature of the dependent variable.

When controlling for dispositional optimism, items marked with * remained significant, those marked with † became marginally significant, and those marked with ‡ were no longer significant.