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Colorectal cancer prevention and intentions to use low-dose aspirin: A survey of 1000 U.S. adults aged 40–65

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ABSTRACT

Objective: The Translating Research into Action (TRIA) study was initiated to gather dissemination information on emerging cancer control recommendations. Daily, low-dose aspirin has been identified as a promising means of preventing colorectal cancer, and stakeholders are already calling for research to facilitate dissemination. Thus, the current study sought to identify factors related to intention to use aspirin for colorectal cancer prevention.

Methods: In April 2014, U.S. adults aged 40–65 ($N = 1000$) were recruited to participate in a survey grounded in the health belief model.

Results: Older, Black males were more likely to intend to use low-dose aspirin to prevent colorectal cancer. Smokers, and those with a history of polyps, were also more receptive to initiating daily, low-dose aspirin use. Five psychosocial factors were related to intention including self-efficacy, response efficacy, perceived barriers, perceived susceptibility to colorectal cancer, and cancer information overload.

Conclusion: Initial campaigns/interventions designed to increase daily, low-dose aspirin for colorectal cancer prevention may be more effective if they target receptive populations (older, Black males) using messages informed by the health belief model.

Emerging evidence increasingly supports the daily use of low-dose aspirin (henceforth, aspirin) as a means of primary prevention for colorectal cancer (CRC) in adults at moderate-to-high risk [1–4]. Aspirin is available, relatively cheap (a 20 year supply costs $150/per person), and already a widely-used preventive measure for cardiovascular disease (CVD) [3]. For instance, surveys have shown that 48.5% of adults 65 and older take aspirin for CVD [5,6] including 70.8% of seniors with a history of CVD [7]. More recently, meta-analytic data has suggested that long-term aspirin use can substantially reduce incidence of CRC among individuals already taking the medication for primary or secondary CVD prevention [8]. In light of growing evidence, the U. S. Preventive Services Task Force drafted a recommendation in 2015 supporting low-dose aspirin use for primary prevention of CRC in older adults at moderate to high risk [9]. In order to aid implementation of this recommendation for high risk groups, it is time for behavioral researchers to start developing and evaluating interventions designed to increase aspirin use.

Unfortunately, there are barriers that could significantly undermine the efficacy of an intervention. First, national surveys reveal that many U.S. adults have troubling beliefs about cancer prevention in general. More than a quarter of adults (28%) believe "There's not much people can do to lower their chances of getting cancer," more than half (54%) agree "It seems like almost everything causes cancer," and three quarters (75%) think that "There are so many recommendations about preventing cancer, it's hard to know which ones to follow" [10]. Additional research suggests that these beliefs demonstrate widespread cancer fatalism—the belief that nothing can be done to prevent cancer—and cancer information overload—feeling overwhelmed by the amount of cancer-related material [10,11]. Not surprisingly, these perceptions are negatively correlated with adherence to cancer prevention recommendations [10,11].

Second, U.S. adults may be concerned about a number of real or imagined side effects. Aspirin increases the likelihood of

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gastrointestinal (GI) bleeding, a side effect that impacts the risk-reward ratio such that aspirin is only recommended for adults at moderate-to-high colorectal cancer risk [12]. GI bleeding is a real side-effect of aspirin use that will need to be communicated accurately; however, there also could be a number of imagined side-effects that need to be identified and possibly dispelled. Lay adults often perceive illnesses, and corresponding prevention strategies, in ways that differ substantially from scientific understanding [13].

Third, to obtain the chemoreduction benefits for colorectal cancer, patients must consistently use low-dose aspirin for long periods of time. Recent research suggests that the chemoreduction benefits may require a time period ranging from a minimum several years and up to a decade of consistent aspirin use [14]. In the U.S., the current recommendation is that patients maintain a routine daily regimen for a period of at least 10 years [3,9]. Thus, identifying real or perceived barriers to long-term maintenance is essential. For instance, in the case of stroke patients, past research has revealed that older adults (65+), individuals on higher dosages (300 mg vs. 30 mg), and those using aspirin to treat symptoms are less likely to adhere over time [15].

Fourth, past research has revealed that many patients struggle to understand what their medication is and how it should be administered. For chronic illnesses, approximately half of all medicines are taken incorrectly [16]. Identifying obstacles to comprehension is a necessary step in the creation of effective health communication, especially if the patient population might include individuals with low or limited literacy [17,18].

In light of these concerns, a survey was launched as part of the Translating Research into Action (TRIA) study. The TRIA study was initiated to facilitate the dissemination of emerging cancer control recommendations. The goal of the TRIA study is to enhance the translation of scientific discoveries into meaningful health outcomes by providing stakeholders (scientists, public health practitioners, journalists) with dissemination-relevant data before a recommendation is positioned for the public. To that end, we surveyed 1000 adults aged 40–65—a logical age range to initiate low-dose aspirin usage—to assess current knowledge, attitudes, and beliefs about utilizing aspirin as a colorectal cancer prevention strategy. The survey assessed cancer fatalism and cancer information overload, real or imagined side effects, barriers to initiation and adherence, and obstacles to comprehension. From a theoretical standpoint, the survey was situated within the health belief model (HBM). As one of the most widely applied theories of health behavior [19], the HBM posits that five psychosocial variables predict health behavior: risk susceptibility, risk severity, benefits to action, barriers to action, self-efficacy [20–23]. The HBM posits that people will take action to prevent illness if they regard themselves as susceptible to a condition (perceived susceptibility), if they believe it would have potentially-serious consequences (perceived severity), if they believe that a particular course of action would reduce the susceptibility or severity or lead to other positive outcomes (perceived benefits), and if they perceive few negative attributes related to the health action (perceived barriers). Additionally, HBM research later suggested that self-efficacy—the belief that one can successfully complete the behavior of interest—be added to the model [24]. The HBM was originally formulated to model the adoption of preventive health behaviors in the U.S., and has been used for that purpose for several decades [25,26].

RQ1: What demographics, CRC risk factors, and/or psychosocial variables are related to intentions to take aspirin for CRC prevention in adults aged 40 to 65 in the United States?

1. Method

1.1. Participants

Adults ($N = 1000$) aged 40–65 ($M = 56.65$, SD = 6.87) were recruited via Qualtrics Panels to participate in a survey study. The survey was stratified by age (40–65), sex, education, and race. Sex was stratified so that there were equal numbers of men and women. Education and race were stratified to conform to U.S. Census demographics. Approximately 28.5% of the U.S. population has a bachelor's degree or more, so the sample was stratified such that 71% of the participants had less than a bachelor's degree. Though not directly relevant to the current study, it is important to note that Utah participants ($N = 300$) were oversampled in this survey to facilitate Utah vs. non-Utah comparisons for other state-specific research endeavors. Table 1 reports age, sex, education, race/ethnicity, and income for all participants. A university Institutional Review Board approved all procedures.

1.2. Measures

1.2.1. Demographics

Participants completed a survey that measured basic demographics including age, sex, education, race/ethnicity, and household income.

1.2.2. Colorectal cancer risk factors

The National Cancer Institute has validated a model for calculating absolute colorectal cancer risk for adults 50–75 [27]. Unfortunately, that model is not valid for adults under the age of 50 (the age of half the study participants). Moreover, adults may not be aware of their absolute risk or possess accurate knowledge

Table 1
Demographics—age, sex, education, race/ethnicity, and household Income.

	N (%)
Sex	
Male	497 (49.8%)
Female	500 (50.2%)
Education[#]	
No high school	1 (0.1%)
High school	11 (1.1%)
Some college	134 (13.7%
2 Year degree/tech	354 (36.3%)
4 Year degree	133 (13.6%)
Graduate/professional	343 (35.1%)
Race/ethnicity	
Caucasian	839 (83.9%)
Black	77 (7.7%)
Asian	44 (4.4%)
Native American[#]	15 (1.5%)
Pacific Islander[#]	6 (0.6%)
Other[#]	14 (1.4%)
Hispanic/Latino	36 (3.6%)
Household income	
Less than $10,000	24 (2.4%)
$10,000–14,999	36 (3.6%)
$15,000–24,999	73 (7.4%)
$25,000–34,999	105 (10.6%)
$35,000–49,999	139 (14.1%)
$50,000–74,999	214 (21.6%)
$75,000–99,999	180 (18.2%)
$100,000–149,999	158 (16.0%)
$150,000–199,999	33 (3.3%)
$200,000 or more	27 (2.7%)

Note. Survey of U.S. adults in April 2014.

concerning their risk factors. Thus, participants were not stratified by absolute risk – as that is not possible – but instead responded to items measuring factors known to influence colorectal cancer risk, including whether they took aspirin, personal and family cancer history, prior colorectal cancer screening, history of polyps, whether they had smoked 100 cigarettes in their lifetime, vegetable servings per week over the last 30 days, and number of months that included moderate/vigorous exercise in the last year. Table 2 reports known risk factors for all participants.

1.2.3. Intention

Participants were asked how much they agreed/disagreed with the following statement, "I intend to take daily low-dose aspirin to prevent colorectal cancer." A 5-point scale included the response options: *strongly disagree*,*disagree*, *neither agree nor disagree, agree*, *strongly agree* ($M = 3.34$, SD = 1.22).

1.2.4. Psychosocial variables

All instruments modified versions of measures utilized in past research. The measures were modified to refer to low dose aspirin and colorectal cancer. In line with the HBM, participants responded to a 10-item measure of perceived benefits of taking aspirin [28] ($M = 2.40$, SD = .57, $\alpha = .88$), a 10-item measure of perceived barriers of this behavior [28]. ($M = 3.09$, SD = .54, $\alpha = .78$), a 3-item measure of perceived threat severity [29] ($M = 4.39$, $SD = .68$, $\alpha = .89$), a 4-item measure of perceived threat susceptibility [30] ($M = 2.81$, $SD = .78$, $\alpha = .85$), and a 9-item measure of self-efficacy [28,31] ($M = 8.16$, $SD = 1.87$, $\alpha = .89$). The HBM does not include response efficacy, but other well-known health behavior theories include this variable including the extended parallel process model [29]. Accordingly, participants responded to a 4-item measure of response efficacy [29,30] ($M = 3.27$, $SD = .62$, $\alpha = .95$). Finally, given widespread feelings of cancer information overload, participants completed an 8-item cancer information overload (CIO) scale [11] ($M = 2.73$, SD = .71, $\alpha = .87$). Appendix A includes items for all psychosocial measures.

1.3. Analysis

To examine which factors predicted intentions to take aspirin for colorectal cancer prevention, a hierarchical linear regression was conducted and blocked in the following order: demographics, risk factors, and psychosocial variables. The advantage of a hierarchical regression is that it examines whether variables explain variance in the outcome above and beyond previous blocks. To examine the relationship of individual barrier/self efficacy items, two follow-up hierarchical linear regressions were carried out with demographics in block 1, risk factors in block 2, psychosocial variables in block 3, and either the individual barrier or self-efficacy items in block 4.

2. Results

Approximately 30% of participants reported daily low-dose aspirin use. The goal of this analysis is to identify factors that significantly predict intentions to use aspirin for colorectal cancer prevention (RQ1).

A hierarchical regression identified factors significantly related to intention (see Table 3). The regression was significant at the first, second, and third blocks (reported at block 3): $r = .61$, $R^2 = .37$, $F(22, 937) = 25.134$, $p < .001$. Demographics explained 2.5% of the variance in intention to use aspirin. Participants that were older, male, and Black had higher intention scores. Colorectal cancer risk factors explained an additional 18.7% of the variance in intention. Those who took aspirin already had lower intention scores. Those with a history of polyps and individuals who had smoked more than 100 cigarettes were more likely to intend to use aspirin. Psychosocial variables explained another 15.9% of the variance in

Table 2
CRC risk factors.

	N (%)
Take aspirin[#]	
Yes	303 (30.3%)
No	624 (62.5%)
Don't know	72 (7.2%)
Personal Cancer History	
Yes	127 (12.7%)
No	873 (87.3%)
Family cancer history	
Yes	583 (58.4%)
No	416 (41.6%)
Prior CRC screening	
Yes	630 (63.0%)
No	370 (37.0%)
History of polyps	
Yes	246 (24.6%)
No	753 (75.4%)
Smoked 100 cigarettes	
Yes	430 (43.0%)
No	570 (57.0%)
	M (*SD*)
Vegetable servings/30 days	5.09 (1.43)
Mod. Exercise/12 Months	10.36 (3.34)
Vig. Exercise/12 Months	5.67 (4.82)

Note. Survey of U.S. adults in April 2014.

Table 3
Hierarchical regression—Intentions to take aspirin for CRC prevention.

	β	*t*	R^2 Δ
Block 1: demographics			.025***
Age	.11	3.25**	
Sex	−.09	−2.80**	
Education	−.04	−1.17	
Caucasian	.03	.68	
Black	.09	2.16*	
Household Income	.003	.08	
Block 2: CRC risk factors			18.70***
Take aspirin	−.42	−14.10***	
Personal cancer history	−.01	−.02	
Family cancer history	.02	.61	
Prior CRC screening	.01	.19	
History of polyps	.08	2.42*	
Smoked 100 cigarettes	.07	2.13*	
Vegetables servings/30 days	−.03	−.97	
Mod. exercise/12 months	−.05	−.156	
Vig. exercise/12 months	.05	1.49	
Block 3: Psychosocial variables			15.90***
Perc. CRC susceptibility	.07	2.38*	
Perc. CRC severity	.03	.93	
Perc. Benefits of aspirin	.02	.50	
Per. Barriers for aspirin	.07	2.17*	
Response Efficacy of aspirin	.22	7.68***	
Self-Efficacy for aspirin	.22	6.79***	
Cancer Info overload (CIO)	−.07	−2.39*	

Note. Survey of U.S. adults in April 2014. Hierarchical regression analysis with R^2 Δ reported at each block, and standardized betas (β) reported for each variable. *$p < .05$ **$p < .01$ ***$p < .001$.

intention; perceived susceptibility, barriers, response efficacy, and self-efficacy were positively related to intention. CIO was negatively related to intention such that those with higher overload were less likely to intend to take aspirin. All together, the model explained 37.1% of the variance in intentions to take aspirin.

Given the exploratory nature of this analysis, readers may be interested in what items within the perceived barriers and self-efficacy scales were significantly related to intention. In the perceived barriers regression, five perceived barrier items were significantly related to intention in block 4 (see Table 4). Items 3 and 6 were negatively related to intention, such that those with concerns about interactions with other medications and the quality of research evidence were less likely to intend to take aspirin. Items 4, 8, and 10 were positively related to intention. Perceptions that aspirin had benefits beyond colorectal cancer prevention and that other people their age were receiving the same advice, notably from a doctor, were positively related to intention. In the self-efficacy regression, six self-efficacy beliefs were positively related to intention (items 2, 4, 5, 7, 8, and 9 in Table 4). Once again, beliefs about medication interactions/side effects predicted intention. Beliefs about the cost of a bottle of pills, finding the time, figuring out what aspirin to take, and committing to daily usage were also related to intention. Perceived barrier and self-efficacy items that are significantly related to intention are marked with an asterisk in the appendix.

3. Discussion

Public health practitioners and health communication specialists will soon be tasked with the responsibility of developing interventions that increase aspirin intake for adults at moderate-to-high risk of developing colorectal cancer. The current study serves as a foundation for that work, and the corresponding research that will accompany it, as it identifies factors that significantly predict intentions to pursue aspirin as a means of preventing colorectal cancer.

Intervention specialists are interested in populations that seem ready for change as these groups can represent ideal targets for early efforts. Older, Black males are more open to the idea of using aspirin to prevent colorectal cancer. This is a promising finding from a prevention standpoint as Black men have higher colorectal cancer incidence and death rates compared to other racial groups [32]. Thus, campaigns might initially target older, Black men or include targeted components for this demographic. The data also suggest the value of targeting smokers, and those with a history of polyps. Interventions designed to target the former should guard against smokers using aspirin to offset their risk. Past research has shown, for example, that smokers sometimes increase their smoking behavior after initiating behaviors that decrease cancer risk (e.g., multivitamins) [33].

From a health behavior theory standpoint, the results of the current study support an intervention grounded in the HBM [19] or the extended parallel process model [29]. Self-efficacy and response efficacy are both strongly related to intention to use aspirin, suggesting that interventions might target either/both first. Indeed, Jones et al. [22] recently argued that efficacy could be a moderator variable in the HBM and thus a logical target of early intervention work [22]. A first wave intervention designed to increase efficacy beliefs is also consistent with extended parallel process model research suggesting that campaigns may benefit from targeting efficacy independent of threat (see [34]). Perceived susceptibility and barriers could be targeted at the same time, or in later waves of the intervention. For example, self-efficacy, has been found to moderate the impact of both [22]. Designing and testing interventions – informed by either/both theories – is a meaningful next-step in the research process.

Consistent with past research, CIO was negatively related to intention. Information overload is a significant concern for cancer prevention as it has the potential to undermine intervention efficacy. The findings of the current study only strengthen previous calls to identify message strategies/interventions that reduce overload or are effective with high CIO populations [11]. To that

Table 4
Specific Barriers and Self-Efficacy Items Related to Intentions to take Aspirin.

Perceived barriers	β	t
1. Having concerns about the cost of daily low-dose aspirin.	−.01	−.05
2. Having concerns that insurance won't cover low-dose aspirin.	−.05	−1.30
3. Believing that low-dose aspirin could negatively interact with other medications you are taking.	−.07*	−2.20
4. Believing that low-dose aspirin helps prevent more than one chronic disease.	.14*	3.64
5. Concerns that using low-dose aspirin could eliminate your ability to take aspirin for pain relief.	.02	.57
6. Believing that the recommendation to use low-dose aspirin is not supported by strong evidence.	−.16*	−5.50
7. Believing that members of your immediate family think you should take low-dose aspirin to prevent colorectal cancer.	.05	1.57
8. Believing that most people your age are being told they should take low-dose aspirin to prevent colorectal cancer.	.10*	3.01
9. Believing that your friends think you should take low-dose aspirin to prevent colorectal cancer.	.02	.64
10. Believing that your doctor thinks you should take low-dose aspirin to prevent colorectal cancer.	.12*	3.33
Self-efficacy	β	t
1. I can schedule an appointment to talk with my healthcare provider about low-dose aspirin and colorectal cancer prevention.	−.04	−1.25
2. I can find the money to buy large bottles of low-dose aspirin.	.11*	3.15
3. I can remember to take low-dose aspirin every day.	.01	.16
4. I can find the time to take low-dose aspirin every day.	−.17*	−3.08
5. I can commit to taking low-dose aspirin every day.	.21*	4.49
6. I can get support from my friends and family to take low-dose aspirin.	−.03	−.88
7. I can figure out whether low-dose aspirin negatively interacts with my current medication.	−.10*	−2.82
8. I can manage the side effects of taking low-dose aspirin.	.23*	6.59
9. I can figure out what aspirin to take.	.08*	2.12

Note. Results of two follow-up hierarchical regressions where barriers and self-efficacy items were entered separately in a fourth block. The goal of the analysis is to identify which barriers and self-efficacy items were significantly related to intention. * $p < .05$.

end, message tailoring has demonstrated efficacy with high CIO adults, although that finding requires replication [35].

4. Limitations

The current study had several limitations. First, the cross-sectional nature of the design prohibits causal claims. Future research should consider longitudinal designs to allow for a more stringent test of causality. Second, participants were asked to assess their attitudes, beliefs, and barriers concerning an emerging behavioral recommendation. How these perceptions will evolve as people become more aware of the cancer preventive benefits of low dose aspirin is unknown. Of course, that is the concept behind the TRIA approach, and the goal of this research program is to use these perceptions to craft meaningful messages to shape the evolution of belief. Third, the present study assessed CRC risk factors using the National Cancer Institute's model. That model does not accurately assess the risk of individuals with inflammatory illness such as Crohn's disease [27]. Fourth, the current analysis included CRC risk factors as controls in a hierarchical linear regression. Future research could split the data along particular CRC risk factors (e.g., family history). Finally, the rationale for the current study draws upon the mounting body of evidence supporting the chemopreventive benefits of aspirin use, culminating in the recent U.S. Preventive Services Task Force draft recommendation [9,8]. However, simultaneous research in international contexts has reached differing conclusions about the benefits vs. harms of sustained aspirin use, particularly at the population level [36–38]. Thus, more research is needed to determine whether recommendations for daily, low dose aspirin use for cancer prevention will be appropriate to extend to the general population beyond individuals with heightened risk.

5. Conclusion

The current study provides researchers with a foundation for designing interventions/campaigns to increase aspirin use for colorectal cancer prevention. It also provides researchers with measures for constructs for two prominent health behavior theories. As such, researchers are now adequately equipped to conduct health behavior theory comparisons in this area, similar to work carried out by Gerend and Shepherd [39] and called for by many others [40–42].

Contributions of authors

Jensen, Holton, Krakow, Weaver, Donovan, and Tavtigian all contributed to the concept, design, acquisition of data, analysis and interpretation of data, drafting and revising of the article, and final approval.

Conflict of interest

None.

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Appendix A. Instructions

Instructions

Emerging data supports the use of low-dose aspirin to prevent colorectal cancer risk for individuals with a family history of the disease (i.e., moderate to high risk individuals). However, individuals considering this course of action should consult with a healthcare provider first to make sure it fits with their overall health situation.

At times, the next few questions will feel repetitive. Our goal is to develop a campaign to help people understand whether they should/should not use low-dose aspirin to prevent colorectal cancer. Your answers help us understand subtle benefits and barriers that people perceive about this possible course of action. Moreover, your answers will significantly influence the shape and direction of the campaign.

1. Perceived Benefits (10 items)

Please indicate how important each reason below is to your decision of whether or not to take low-dose aspirin to prevent colorectal cancer. Response options: *not important, somewhat important, important, very important*.

1. Believing that taking low-dose aspirin gives you a better chance to prevent colorectal cancer.
2. Having peace of mind that you are doing something to prevent colorectal cancer.
3. Believing that low-dose aspirin is safe with few serious complications.
4. Believing that those close to you will be relieved if you take low-dose aspirin to prevent colorectal cancer.
5. Believing that low-dose aspirin can prevent colorectal cancer.
6. Understanding that low-dose aspirin can can prevent the growth of polyps in the colon.
7. Realizing that the benefits of taking low-dose aspirin outweigh any difficulty that you might have.
8. Believing low-dose aspirin is an easy way to reduce colorectal cancer risk.
9. Believing low-dose aspirin can cause serious side effects.
10. Believing that low-dose aspirin can cause bleeding from stomach irritation.

1. Perceived Barriers (10 items)

Please indicate how important each reason below is to your decision of whether or not to take low-dose aspirin to prevent colorectal cancer. Response options: *not important, somewhat important, important, very important*.

1. Having concerns about the cost of daily low-dose aspirin.
2. Having concerns that insurance won't cover low-dose aspirin.
3. Believing that low-dose aspirin could negatively interact with other medications you are taking.*
4. Believing that low-dose aspirin helps prevent more than one chronic disease.*

5. Concerns that using low-dose aspirin could eliminate your ability to take aspirin for pain relief.
6. Believing that the recommendation to use low-dose aspirin is not supported by strong evidence.*
7. Believing that members of your immediate family think you should take low-dose aspirin to prevent colorectal cancer.
8. Believing that most people your age are being told they should take low-dose aspirin to prevent colorectal cancer.*
9. Believing that your friends think you should take low-dose aspirin to prevent colorectal cancer.
10. Believing that your doctor thinks you should take low-dose aspirin to prevent colorectal cancer.*

*Items marked with an asterisk are related to intention (independent of the scale as a whole).

1. Perceived Threat Severity (3 items)

Now we are going to ask you about colorectal cancer. Colorectal cancer is also known as “colon cancer” or “cancer of the colon or rectum." Please answer how much you agree/disagree with each statement below. Response options: *strongly disagree, disagree, neither agree nor disagree, agree, strongly agree*.

1. I believe that colorectal cancer is severe.
2. I believe that colorectal cancer is serious.
3. I believe that colorectal cancer is significant.

1. Perceived Threat Susceptibility (4 items)

Please answer how much you agree/disagree with each statement below. Response options: *strongly disagree, disagree, neither agree nor disagree, agree, strongly agree*.

1. The chance that I might develop colorectal cancer is high.
2. Compared with other persons my age, I am at lower risk for colorectal cancer.
3. It is very likely that I will develop colorectal cancer or polyps.
4. The chances that I will develop colorectal polyps are high.

1. Self-Efficacy (9 items)

Below are several different activities. Rate how confident you are that you can do them on a 0 – 10 scale. An answer of ‘0′ means you are not confident at all that you can do the task. An answer of a “10” means you are very confident that you can do the task.

If you are not planning to take low-dose aspirin, answer these questions as though you were planning to do so. That is, tell us how confident you are in your ability to do these tasks if you wanted to take low-dose aspirin. Response options: an 11-point scale with not very confident and very confident at the extremes, and moderately confident at the midpoint.

1. I can schedule an appointment to talk with my healthcare provider about low-dose aspirin and colorectal cancer prevention.
2. I can find the money to buy large bottles of low-dose aspirin.*
3. I can remember to take low-dose aspirin every day.
4. I can find the time to take low-dose aspirin every day.*
5. I can commit to taking low-dose aspirin every day.*
6. I can get support from my friends and family to take low-dose aspirin.
7. I can figure out whether low-dose aspirin negatively interacts with my current medication.*
8. I can manage the side effects of taking low-dose aspirin.*
9. I can figure out what aspirin to take.*

*Items marked with an asterisk are related to intention (independent of the scale as a whole).

1. Response Efficacy (4 items)

Please answer how much you agree/disagree with each statement below. Response options: *strongly disagree, disagree, neither agree nor disagree, agree, strongly agree*.

1. Low-dose aspirin can prevent the growth of polyps in the colon.
2. Taking low-dose aspirin can reduce colorectal cancer risk.
3. Low-dose aspirin can save lives by preventing colorectal cancer.
4. A person that takes daily low-dose aspirin is less likely to develop colorectal cancer than someone who does not.

1. Cancer Information Overload (8 items)

Please answer how much you agree/disagree with each statement below.

1. It has gotten to the point where I don't even care to hear new things about cancer.
2. No one could actually do all of the cancer recommendations that are given.
3. Information about cancer all starts to sound the same after a while.
4. I forget most cancer information right after I learn it.
5. Most things I hear or read about cancer seem pretty far-fetched.
6. I feel overloaded by the amount of cancer information I am supposed to know.
7. There are so many different recommendations about cancer, it's hard to know which ones follow.
8. I don’t have enough time to carry out cancer recommendations.

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