

# A Survey of Aspirin Knowledge Among the General Public



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## INTRODUCTION

Approximately one-third of the general public self-reports regular aspirin use<sup>1,2</sup> for either primary or secondary prevention of cardiovascular disease.<sup>3</sup> Aspirin is not benign, and decisions regarding aspirin utilization should incorporate knowledge of potential benefits and risks, which include gastrointestinal irritation, ulcers, and bleeding.<sup>4</sup>

## OBJECTIVE

The 2019 American College of Cardiology/American Heart Association (ACC/AHA) Guideline on the Primary Prevention of Cardiovascular Disease has modified primary prevention indications for aspirin, stating it be considered in higher risk adults, between ages 40 and 70, who are not at increased bleeding risk.<sup>5</sup> In light of these recent updates, we sought to evaluate the general public's knowledge of aspirin and its risks.

## METHODS

A 22-item questionnaire was distributed via Amazon Mechanical Turk, a crowdsourcing marketplace where individuals complete surveys for a nominal payment. An overall “knowledge score” was computed using the results of 8 true-false items regarding aspirin risks and attributes. We employed an age-stratified distribution to minimize over-sampling of younger age groups. Respondents who completed the survey faster than the benchmark time (150 s) were excluded due to concerns about validity. The study was approved by the Institutional Review Board at Saint Louis University.

## FINDINGS

Among the 416 respondents, 388 (or 93%) were included in the analyses. Demographics and “knowledge scores” are described in Table 1. Overall, 87% reported ever taking aspirin,

and 26% reported taking aspirin daily/almost daily. Only 60% of daily aspirin users report aspirin on their medication list shared with doctors. About 38% of total respondents had seen a cardiologist for medical care, compared to 51% of daily aspirin users.

Of the 102 daily aspirin users, 56% were classified as using aspirin for primary prevention, 23% as secondary prevention, and 21% for pain management/other. In the primary prevention group, 74% were within the appropriate age group of 40–70 years old, 76% started at the recommendation of a physician, and 17% reported use of a second prescription anticoagulant.

Of the 24% of respondents that reported self-directed aspirin usage (not at the recommendation of a physician), 8% took it at the recommendation of a friend or family member and 15% cited “self” as the reason for taking it. Of the self-directed aspirin users, about half reported pain management as the main indication, and the other half cited primary prevention.

With respect to knowledge of aspirin, 77% of all respondents answered that aspirin's effects last 1 day or less, and 14% were uncertain of the duration. While 70% identified baby aspirin as a blood thinner, only 51% recognized it could cause bleeding, 41% bruising, and 40% serious side effects (Fig. 1). There were no significant differences in mean knowledge scores between daily aspirin users and others. Statistical analyses by t-test also revealed no group differences in mean knowledge scores by gender, educational level, location (e.g., rural), or ethnicity.

## DISCUSSION

In this survey, limited overall knowledge of aspirin characteristics and risks was observed across age groups and educational levels. We found it notable that daily aspirin users (n=102) did not have greater knowledge than other respondents (n=286), including aspirin's duration of action or potentially serious side effects. The percent of respondents who answered “aspirin is a blood thinner” correctly was 88% and 70% for full and baby doses, respectively. However, substantially fewer respondents correctly associated aspirin with bruising and bleeding, which suggests actual knowledge of aspirin's anticoagulant effects is low. For example, 63% and 41% of respondents correctly identified bruising as a risk for full and baby dose, respectively. Moreover, it is concerning that 40% of daily aspirin users do not report aspirin use to

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**Table 1** Survey Respondent Demographics and Knowledge of Aspirin Risks/Attributes, n (%)

	Primary prevention	Secondary prevention	Pain/other	Non-ASA user	All
	58 (14.9)	23 (5.9)	21 (5.4)	286 (73.7)	388
Female	29 (14.3)	8 (3.9)	12 (5.9)	154 (75.9)	203
Male	28	16	9	132	185
Age					
< 50 years	10 (8.4)	15 (12.6)	5 (4.2)	89 (74.8)	119
≥ 50 years	47 (17.5)	9 (3.3)	16 (5.9)	197 (73.2)	269
Race/ethnicity					
Asian	6 (13.3)	11 (24.4)	1 (2.2)	27 (60)	45
Black	3 (18.8)	0 (0)	2 (12.5)	11 (68.8)	16
Hispanic	1 (6.3)	2 (12.5)	1 (6.3)	12 (75)	16
White	47 (15.2)	11 (3.5)	17 (5.5)	235 (75.8)	310
Prefer not to say	0	0	0	1 (100)	1
Knowledge score (mean)	5.1	5.0	4.9	5.0	5.0

their physicians, possibly explaining aspirin use outside of clinical practice guidelines. Since current data on aspirin suggests that its use for primary prevention in older patients may be associated with greater harm from bleeding than cardiovascular benefits<sup>5</sup>, this represents an area of significant clinical education and intervention based upon current guidelines.<sup>5</sup>

Despite the limitations of a web-based survey, this study is an important reminder of the discordance between evidence-based guidelines and practical use of aspirin. Our data demonstrates that patients do not consistently report their aspirin use to clinicians and that they have limited knowledge of aspirin, suggesting that patients can benefit from increased education on the potential harms of aspirin and that clinicians

need to actively ask patients about aspirin use and reassess the appropriateness of continuation.

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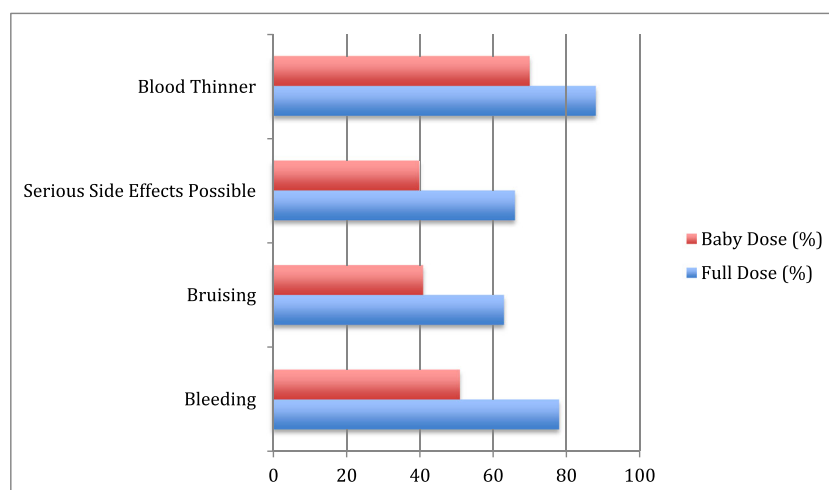
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#### Declarations:

**Conflict of Interest:** The authors declare that they do not have a conflict of interest.

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**Figure 1** Percent of survey respondents who correctly identified aspirin risks/attributes (n=388).

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