

## RESEARCH LETTER

# Perceived Effectiveness and Overall Satisfaction of Using a Toilet Stool to Prevent or Treat Constipation: An Analysis of Online Comments

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**Introduction:** Constipation is a common complaint in the general population. Squatting (using a toilet stool) is associated with faster and more complete bowel emptying, and could therefore help prevent or treat constipation. We analyzed the reviews of online buyers of a toilet stool to assess perceived effectiveness, overall satisfaction and potential side effects.

**Methods:** In this exploratory mixed-method study, we collected all plain text reviews left between November 2013 and March 2020 by buyers of a toilet stool on Amazon. We adapted the Framework method to perform a seven-step process to analyze user reviews. We assigned numerical values from −5 (minimum) to +5 (maximum) to perceived effectiveness and overall satisfaction.

**Results:** We included comments left by 10,027 customers who purchased 19 different types of toilet stools (79.1% seven-inch stools, 16.1% folding stools, 4.8% other stools). Perceived effectiveness and overall satisfaction were high (median = 5 and interquartile range = 0 for both variables). Eighty-one individuals reported adverse events related to toilet stool use, mainly musculoskeletal pain (N = 26), numbness in the lower limbs (N = 16), falls (n = 11), constipation (N = 9), anorectal symptom (N = 8), and cramps (N = 6).

**Conclusion:** Perceived effectiveness and overall satisfaction were rated high by those who purchased a toilet stool online. In addition, their use seems to be safe (<1% reported adverse effects). Our results suggest a good risk-benefit ratio. The device may offer an inexpensive option to treat or prevent constipation, and may reduce the frequency of medical visits and the risks associated with long-term use of laxatives. (J Am Board Fam Med 2022;35:836–839.)

**Keywords:** Commerce, Constipation, Gastroenterology, Laxatives, Personal Satisfaction, Primary Health Care, Risk Assessment

## Introduction

Constipation is a common complaint in the general population. It accounted for approximately 3 million visits in the United States in 2016.<sup>1</sup>

Nonpharmacological remedies provide a cost-effective alternative for affected individuals. In a recent survey, general practitioners reported that squatting during defecation (using a toilet stool) was an effective nonpharmacologic remedy for constipation.<sup>2</sup>

Squatting is associated with faster and more complete bowel emptying.<sup>3,4</sup> A study on 52 individuals showed that toilet stools positively influenced bowel movement duration, straining patterns and bowel evacuation.<sup>5</sup> The device could therefore help prevent or treat constipation.

When individuals purchase toilet stools online, they can provide feedback on their purchase. Analysis of these comments represents a simple and indirect way to explore the perception and experiences of toilet stool users.<sup>6</sup>

This article was externally peer reviewed.

Submitted 28 November 2021; revised 30 January 2022; accepted 3 February 2022.

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**Funding:** None.

**Conflicts of interests:** None.

**Data availability:** The data underlying this article are available from the corresponding author on request.

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**Table 1. Methodology Used to Collect and Analyze the Reviews**

	Actions	Members of the research team involved in the step
Step 1: Extraction	We manually extracted all available verified plain text reviews left between November 1, 2013 and March 22, 2020 by buyers of a toilet stool on Amazon.	CQ MV MV
Step 2: Familiarization with the comments	We randomly selected 30 reviews. Six members of the research team read them.	CQ MV EV MQ CC HM
Step 3: Coding	We extracted the ideas expressed in the 30 reviews selected in step 2, in relation to reported satisfaction, efficacy and side effects.	CQ MV EV MQ CC HM
Step 4: Developing the predefined set of codes (or coding frame)	We agreed on the rating in order to assign numerical values on a scale from −5 to +5 to the expressed effectiveness and overall satisfaction. For effectiveness, negative values were associated with the report of a side effect. Examples of rating for effectiveness* and satisfaction are given below.	CQ MV EV MQ CC HM
Step 5: Applying the predefined set of codes	Phase 1 coding was done in duplicate on the first 2,000 comments. The interrater agreement was assessed using weighted kappa.	CQ MV (coding) PS (analysis)
	Phase 2 Coding was done in single for the next 8000 comments.	CQ MV
Step 6: Charting the data into a database	All data were entered into a database using the Qualtrics® platform.	CQ MV MAM
Step 7: Quantitative analysis of the data	We used medians and interquartile ranges (IQRs) to summarize the effectiveness and satisfaction data (non-normal distribution), and compared the data for the three main device types using Kruskal-Wallis rank tests. All analyses were carried out with STATA 15.1 (College Station, USA).	PS DH HM

\*Effectiveness.

−5: *After a few months of using the Step and Go, I started experiencing sharp pains in the back of my right knee. They felt like powerful electric shocks and lasted about five seconds, sometimes causing me to scream. Sometimes, the pain would cause my legs would buckle under me. In the beginning, the pains would happen on a weekly basis, then progressed to daily, sometimes a few times a day. I realized the stool was causing the pains after I stopped using the stool.*

−4: NA.

−3: *I have had digestive problems such as IBD/IBS, hemorrhoids, ulcers, all of it. The first couple times I used it I was amazed and blown away. But after about a week it's giving me hemorrhoids and I won't use it anymore.*

−2: *I'm 5'8" and the stool was too high. It created a tingling sensation in my legs. I gave this to a family member with constipation and this was a game changer for them.*

−1: NA.

0: *I can't say if I would recommend these or any other type like this, because we haven't seen a difference, or felt a difference.*

1: *It might be a little helpful, but I did not feel much of a difference while using this stool.*

2: *Works from time to time.*

3: *Not life changing but it's definitely more comfortable than not using one.*

4: *Took some getting used to, but it's a great product. So simple, yet effective.*

5: *There are no words to express my gratitude for the makers of this product. Such a simple item, yet has been the single most life-changing thing I have purchased in a long time. Everyone should poop like this, whether you use a squatty potty or your own stool.*

°Satisfaction.

−5: *Worthless product. I didn't notice any difference from sitting normal or sitting very uncomfortably with the Squatty Potty. Its cumbersome, and kinda annoying when not in use. Also, if you're not limber or thin definitely DO NOT PURCHASE. I am 6 ft and about 230lbs and i found very uncomfortable to use. Overall this is an unnecessary item. DON'T FALL FOR BOGUS MARKETING CLAIMS!*

−4: *Improved my bowel movement. Earlier I had to sit 15 minutes, now five minutes is all it takes. Update after using for 3 months: it seems the effectiveness of this wears out after a few months. now it doesn't make any difference whether i use this stand or not. my leg actually numbs now because of the awkward posture. lowering the rating to 2 stars.*

−3: *Arrived on time. Sturdy. I don't think it really makes a lot of difference, takes up a lot of room.*

−2: *I used it for the very first time the day I received and didn't feel as comfortable as I thought. . . perhaps, I will have to get used to it.*

−1: *I've had regularity issues my entire life and hoped the SP would make a difference for me. 3 weeks later. . . no change. It made no difference to my BM schedule. Honestly - I don't hate this product (it was helpful at identifying when I needed to change my toenail polish), but it didn't work for as advertised.*

0: *It's not too bulky and find but it's not a life changing poop tool I thought it be. Maybe not worth buying if your movements are normal.*

1: *It doesn't do really much for our bowel movements like other reviews say but it definitely makes seating in the toilet more comfortable lol.*

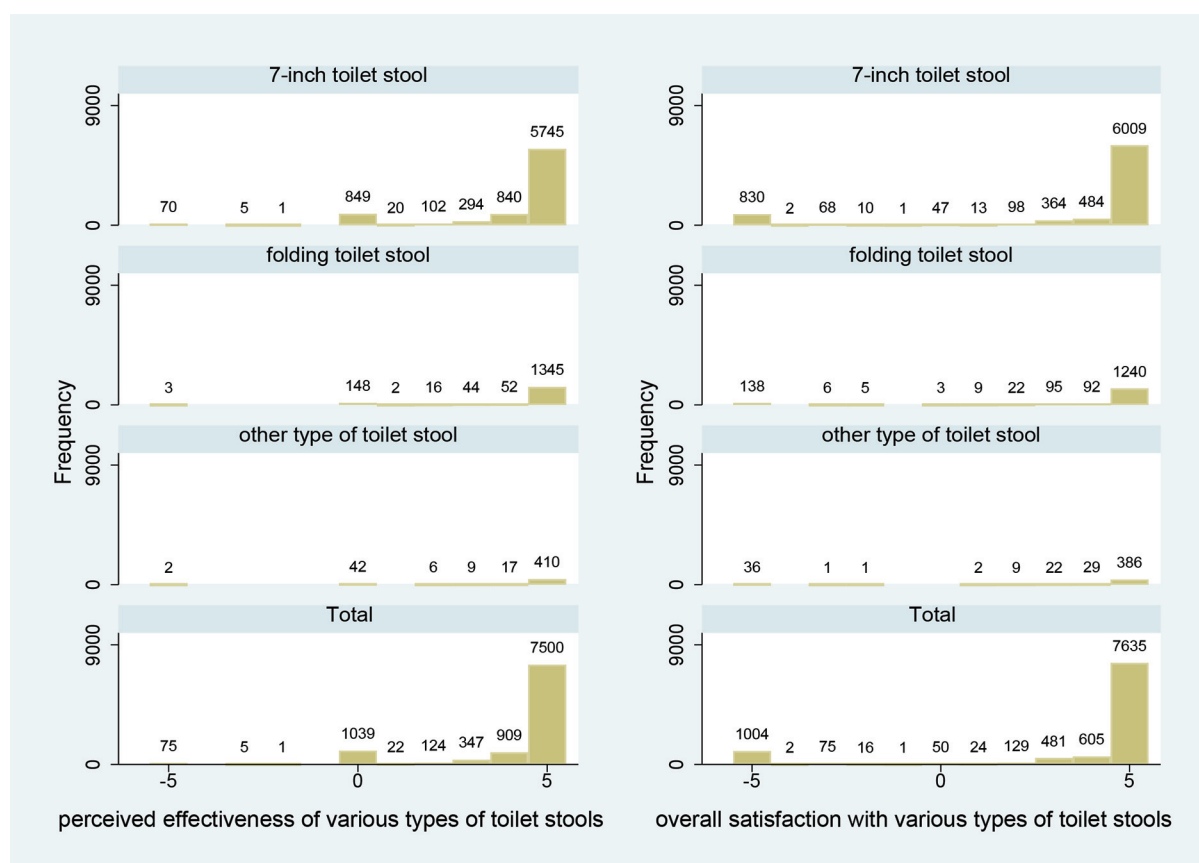
2: *What can I say. You poop better. But not every time. Don't know if it's because of body size or height but, doesn't work often. When it does, boy oh boy tell your family to run away.*

3: *this is a great device, it could slide more easily from under the bowl, but I understand it needs the rubber feet in place for when your tushin' gets to pushin'. Highly recommend this as your poop will glide out of your body faster than the 4 man bobsled out the gate! Poop like a champ! .*

4: *Better poops since getting this thing. Do yourself a favor and try it out.*

5: *It DOES help with bowel movements, very much; which is why I think I instinctively started using my kids stools in the first place. After watching the Squatty Potty YouTube videos, the science behind it really made a lot of sense to me. NEXT, I've read how others just use a kids stool (like myself) or can get something similar for cheaper BUT, none of those options really allow you to store the stool under the toilet when your done which I really liked because it's annoying to have stools sitting in your bathroom you have to kick around. I like that I can just kick it back under the toilet when I'm done & don't have to touch it. It's very sturdy & well balanced.*

**Figure 1. Perceived effectiveness and overall satisfaction of using a toilet stool to prevent or treat constipation (n = 10,022; missing values = 5) (data presented overall, and by type of toilet stool).**



Our objective was to analyze the reviews of online buyers of a toilet stool to assess perceived effectiveness, overall satisfaction and potential side effects.

## Methods

In this exploratory mixed method study, we collected all verified plain text reviews left between November/2013 and March/2020 by buyers of a toilet stool on Amazon. As described in Table 1, we adapted the Framework method<sup>7</sup> to perform a 7-step process to analyze perceived effectiveness, overall satisfaction and potential side effects. We grouped the devices into 3 categories: 7-inch, folding and other toilet stools.

## Results

We included comments left by 10,027 customers (114 in 2013 to 2014, 364 in 2015 to 2016, 5,274 in 2017 to 2018 and 4,257 in 2019 to 2020; unknown

date = 18). Customers purchased 19 different types of devices (10,023 available data: 7-inch stools = 79.1%, folding stools = 16.1%, other stools = 4.8%).

Perceived effectiveness (median = 5, IQR = 0) and overall satisfaction (median = 5, IQR = 0) are shown in Figure 1, both overall and for the 3 types of devices. The distribution curves were bimodal with 2 distinct peaks. The differences in distribution were not significant for perceived effectiveness ( $P = 0.08$ ). By contrast, the distribution curves were statistically different for overall satisfaction ( $P < .001$ ) because, despite identical medians, the distribution curve for 7-inch stools was slightly more spread out (IQR = 1, vs zero for the other 2 devices). Interrater agreement for step 5 of the Framework was high (weighted kappa = 0.72 for effectiveness, 0.86 for satisfaction).

Eighty-one individuals reported adverse events related to the use of a toilet stool, mainly musculoskeletal pain ( $n = 26$ ), numbness in the lower limbs ( $n = 16$ ), falls ( $n = 11$ ), constipation ( $n = 9$ ), anorectal symptom ( $n = 8$ ) and cramps ( $n = 6$ ).

## Discussion

Analyzing the comments left on an online sales platform by buyers of a toilet stool, we found that perceived effectiveness and overall satisfaction were high. Yet the distribution of the curves was bimodal. One in 9 individuals reported that the toilet stool was not useful (effectiveness  $\leq 0$ ). Similarly, although the majority were satisfied with the device, 1 in 9 were of the opposite opinion (satisfaction  $\leq 0$ ). Their use seems to be safe ( $<1\%$  adverse effects). However, users, especially the elderly, should be aware of the risk of falling.

This study did not allow us to determine whether people truly purchased a toilet stool with the objective to prevent or treat constipation. In addition, selection bias is inevitable: individuals are probably more likely to leave a comment when they are either (very) satisfied or (very) dissatisfied. There is also a risk that some negative reviews were removed from the platform.

Further studies are therefore needed to assess the overall effectiveness of the toilet stool and to determine subgroups of people for whom the device would be particularly recommended. Yet, our results are consistent with previous trends<sup>2,5</sup> and suggest a good risk-benefit ratio. The device may offer an inexpensive option to prevent or treat constipation. It may reduce the frequency of medical visits and the risks associated with long-term use of laxatives.

We warmly thank Dr Emmanuel Viry, Martine Quinio, Clara Cuzin for their assistance in steps 2, 3 and 4 of our study, and Mathias Viry and Mohamed Amir Moussa for their help in steps 1 and 6.

To see this article online, please go to: <http://jabfm.org/content/35/4/836.full>.

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