

Improved Compliance of Daily Sunscreen Application Through a Simple, Daily, Goal-Setting Reminder

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Abstract

Introduction:

Sunscreen is crucial in preventing sunburn, skin cancers, and premature aging, yet consistent usage remains a challenge despite widespread awareness efforts.

Methods:

In a prospective and randomized study, participants were assigned to use previously weighted sunscreen alone or with a calendar-based tracking system. Eligible individuals were randomly assigned, educated on sunscreen benefits, and provided with a two-month supply of SPF-30 sunscreen. The calendar group was instructed to mark each day of sunscreen application and told to not “break the chain.” The volume remaining in the distributed sunscreen was measured at follow-up appointments 6 weeks later.

Results:

Among 53 participants, the calendar group demonstrated significantly higher sunscreen utilization compared to the control group. The control group used 15.96% of the sunscreen, the calendar group used 29.92% of the sunscreen, resulting in an 23.34% of more usage of sunscreen in the calendar group ($p<0.001$). There was a significant difference in volume of sunscreen used between the study arms, with the calendar group using 0.84 ounces more than the control group ($p<0.001$)

Conclusion:

Integrating practical tools like calendars alongside education may effectively reinforce sunscreen application habits. These findings highlight the potential of such interventions in promoting sustained sunscreen adherence and reducing sun-related skin damage. Further research is needed to validate these results on a larger scale, but they offer valuable insights for future public health initiatives aimed at improving sunscreen compliance.

Introduction

Sunscreen mediates preventing sunburn, skin cancers, and premature aging caused by sun exposure. Over time, dermatologists and academic institutions as well as commercial and non-profit organizations have consistently worked to educate the public about the importance of proactive sunscreen use. Despite widespread awareness of its benefits, many individuals still fail to incorporate sunscreen into their daily routine for various reasons. Further research into interventions to increase compliance rates is needed.¹⁻⁴

Objective

To demonstrate the feasibility of improving compliance with the daily application of sunscreen by performing a simple, daily, goal-setting reminder.

Methods

This randomized, parallel-group study design involved participants randomly assigned to either Sunscreen Group (sunscreen instruction only) or Calendar Group (sunscreen instruction + calendar). All participants received education on daily sunscreen benefits, completed a baseline questionnaire on skin cancer history and photoprotection motivations, and received a weighted 2-month supply of of broad spectrum SPF-30 sunscreen (La Roche Posay Product). Calendar Group additionally received a calendar to track daily sunscreen use, with instructions to mark each day sunscreen was applied and aim to maintain a continuous "chain" of marks without breaks. Participants were instructed to return after 6 weeks for sunscreen weighing and questionnaire completion. The primary outcome measured the difference in remaining sunscreen volumes between groups. Regression modeling assessed group differences, considering participant characteristics. Secondary outcomes included counts of marked calendar dates, evaluated for group differences and correlations with sunscreen weight differences. IRB approval preceded the study start.

Results

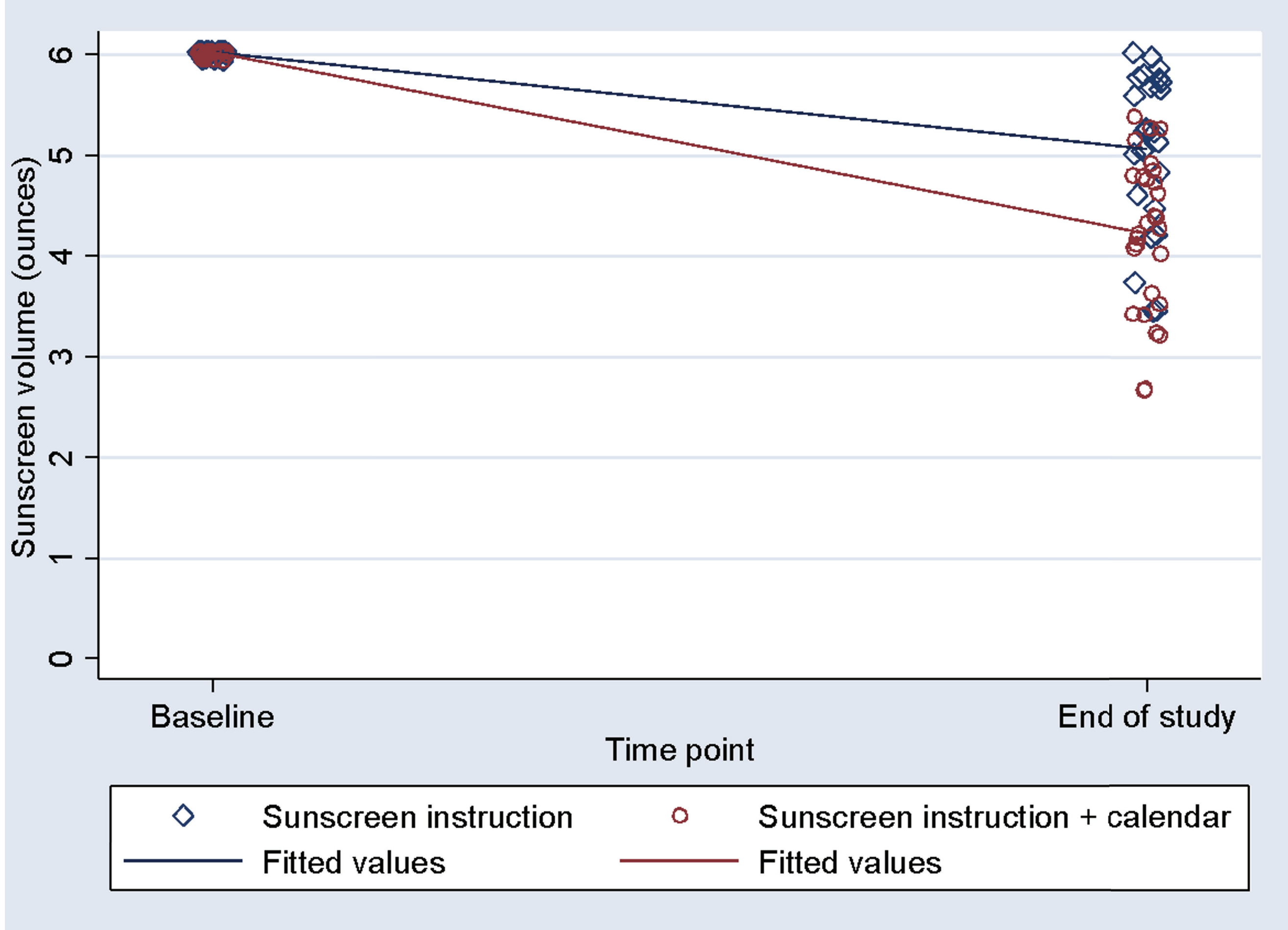


Figure 1. Scatterplot of sunscreen volumes at the two evaluation time points by study group (n=53).

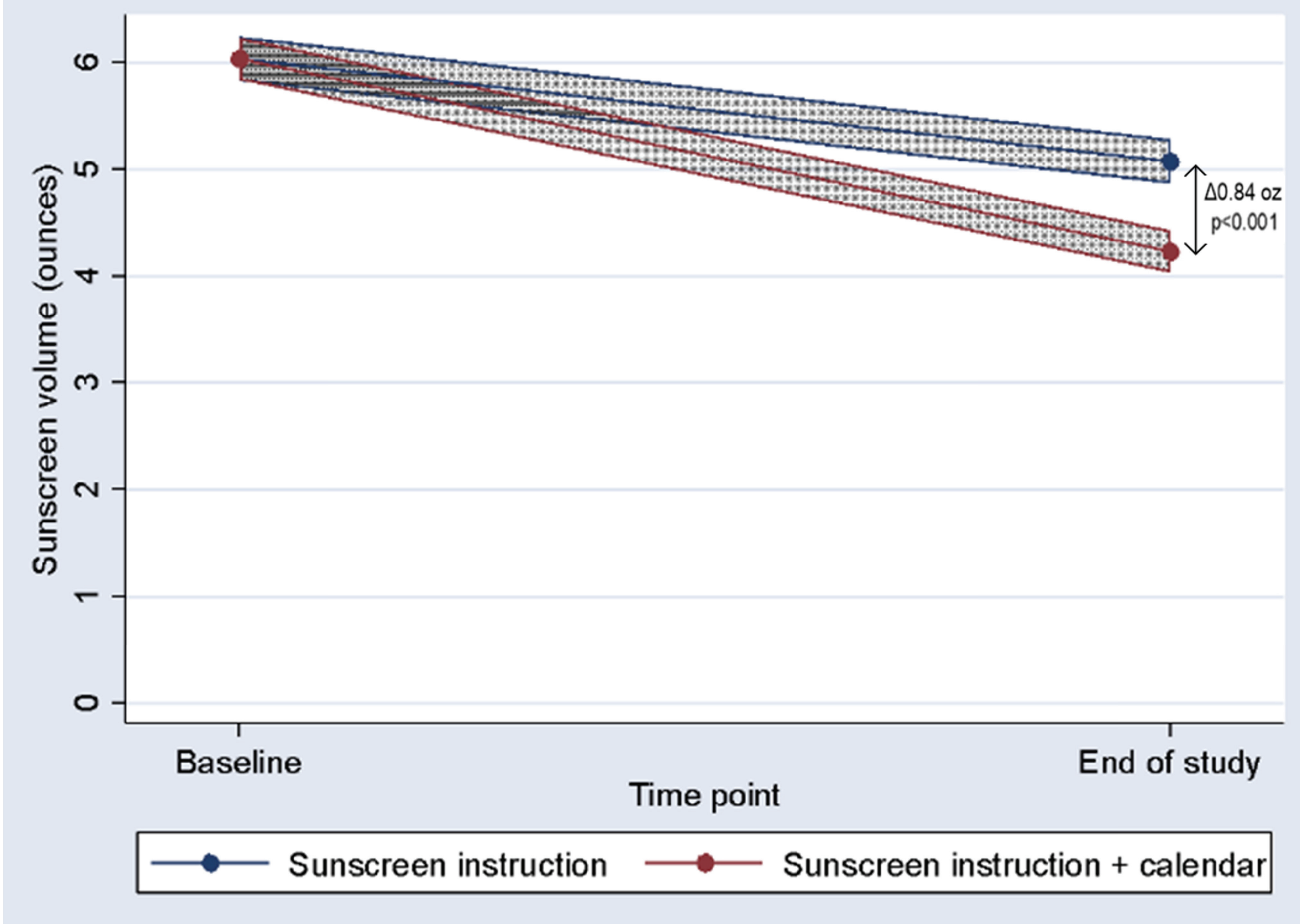


Figure 2. Plot of sunscreen volume trajectories in the two groups by evaluation time point (n=53).

Results

Table 1. Results of sunscreen measurements at baseline and follow-up evaluations along with percent change from baseline.

Group	n	Mean at Baseline	Mean at Follow-Up	Median at Follow-Up	Percent Change From Baseline
Sunscreen Instruction	25	6.03 (SD=0)	5.07 (0.77)	5.13 (IQR=1.1)	-15.96%
Sunscreen Instruction + Calendar	28	6.03 (SD=0)	4.22 (0.75)	4.27 (IQR=1.2)	-29.92%
Overall	53	6.03 (SD=0)	4.62 (0.86)	4.76 (IQR=1.2)	-23.34%

A total of 53 individuals partook in this study. The control group included 25 participants, while the calendar group included 28 participants. Of the 53 total participants, 52 (98%) participants used at least some of the sunscreen over the course of the evaluation period (**Figure 1**). There was no difference in age between the two study arms.

The pre-weight of the sunscreen administered was 6.03 ounces for all participants. The mean and median sunscreen volumes at follow-up were, respectively, 5.07 (0.77) ounces and 5.13 (IQR=1.1) ounces for the control group, 4.22 (0.75) ounces and 4.27 (IQR=1.2) ounces for the calendar group, and 4.62 (0.86) ounces and 4.76 (IQR=1.2) ounces on average (**Table 1**). The control group used 15.96% of the sunscreen, the calendar group used 29.92% of the sunscreen, and 23.34% of the sunscreen was used on average (**Table 1**). A notable difference existed in the volume of sunscreen utilized by participants in each study group, with those in the calendar group applying an additional 0.84 ounces compared to the reference group ($p<0.001$) (**Figure 2**). These discrepancies were statistically significant across all observed measures ($p<0.001$).

Discussion

The study demonstrated that integrating calendars as a tracking tool alongside sunscreen application instructions may increase compliance compared to the control group. This suggests that practical strategies like calendar use can reinforce positive health behaviors, such as daily sunscreen application. While further research is needed to validate these findings in larger populations, the results offer valuable insights for designing effective public health interventions to promote sustained sunscreen adherence and reduce sun-related skin damage and diseases.

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