

# Comparing Resident Engagement in Appalachian and Non-Appalachian Kentucky Skilled Nursing Facility Settings using Bingocize®



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## Background

### Bingocize®<sup>1,2</sup>



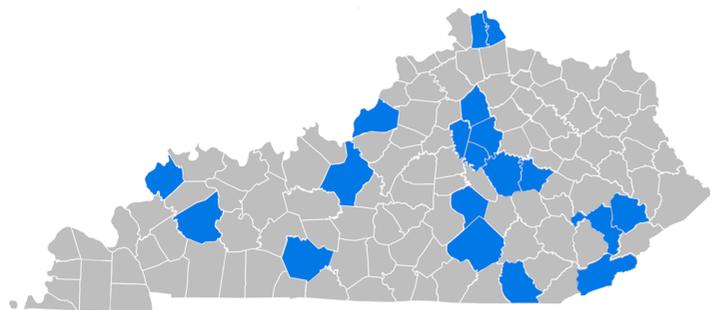
### The Gap

- Skilled nursing facilities (SNF) in the Appalachian region often face substantial challenges related to socioeconomic and healthcare disparities, such as staffing inequities and higher costs per beneficiary.<sup>3</sup>
- Bingocize—offered at no cost via this UK-led research project—is an adaptable program that supports resident activity needs, particularly in facilities that may have limited staffing and resources.
- This research compares Bingocize participant engagement in Appalachian and non-Appalachian Kentucky SNFs over a year in 12-week cycles.

## Key Findings

- There was **no significant difference** in the number of **unique or active participants** between Appalachian and Non-Appalachian facilities.
- Unique** participation was **highest in the first cycle** before **stabilizing** in later cycles, and **active** participation **remained stable** across all cycles.

Figure 1. UKY Bingocize Project Participating Nursing Facilities



## Results

### Independent T-Tests

Appalachian and non-Appalachian sites **did not significantly differ** in participation type.

### Unique Participants

- Appalachian (M = 49.00, SD = 15.49)
- Non-Appalachian (M = 63.60, SD = 30.09);  $t(15) = -1.172$ ,  $p = .260$ ,  $d = -0.58$ .

### Active Participants

- Appalachian (M = 265.71, SD = 72.79)
- Non-Appalachian (M = 295.20, SD = 140.05);  $t(15) = -0.508$ ,  $p = .619$ ,  $d = -0.25$ .

A separate independent t-test found no significant differences in bed capacities ( $p = 0.305$ ), supporting comparable facility sizes.

### Repeated Measures ANOVAs

#### Unique Participants

- The number of unique participants significantly changed across cycles ( $F(3, 45) = 49.687$ ,  $p < .001$ ,  $\eta^2p = 0.768$ ).
- No significant interaction between Time and Geographic Type ( $F(3, 45) = 0.778$ ,  $p = .512$ ,  $\eta^2p = 0.049$ ).
- Unique participation significantly changed across cycles ( $F(3, 45) = 49.687$ ,  $p < .001$ ,  $\eta^2p = 0.768$ ). Participation was highest in Cycle 1 and significantly differed from Cycles 2–4 ( $p < .001$ ). Cycles 2–4 did not significantly differ ( $p > .05$ ).

#### Active Participants

- There were **no significant main effects**.

Sphericity violated ( $p = .046$ ); Greenhouse-Geisser corrections applied.

## Methods

### Data Collection

- Attendance data collected through de-identified paper logs of 17 skilled nursing facilities participating in the Kentucky CMP Project.
  - 7 Appalachian sites
  - 10 Non-Appalachian sites
- Data were entered into Qualtrics and exported to Excel.
- Eligibility criteria included facilities actively implementing Bingocize with a minimum of 12 months of attendance data at the time of analysis.
- Facility locations were cross-referenced with the Appalachian Regional Commission's list of "Appalachian counties," where each county was then categorized as either Appalachian or Non-Appalachian.<sup>4,5</sup>

### Statistical Analyses

- Excel pivot tables were used to produce **unique** and **active** participant data for each facility.
- Unique participants: First-time attendees, counted once per facility.**
- Active participation: Total sessions attended by each participant per month.**
- Totals for unique and active participation were imported into SPSS 28.0, where Appalachian/non-Appalachian status was the independent variable.
- Independent t-tests were conducted to compare total unique and active participants between Appalachian and non-Appalachian facilities over 12 months.
- Repeated measures ANOVA were conducted to analyze participation data across four 3-month (12 week) cycles.
  - The Bingocize manual is organized into 12-week cycles of sessions. Upon completing a cycle, facilities restart the manual to begin the next cycle.

The significance level was set at  $p \leq 0.05$ .

Figure 2. Unique Participants Across Cycles by Facility Type

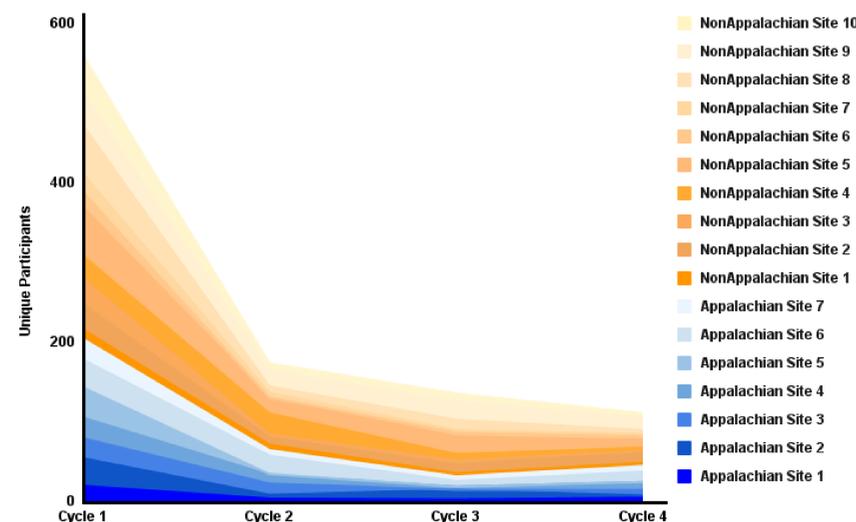
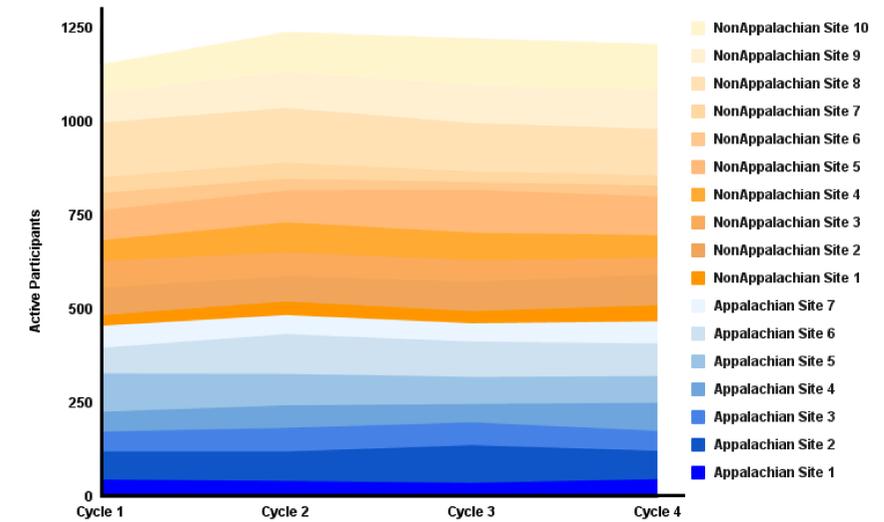


Figure 3. Active Participants Across Cycles by Facility Type



## Discussion and Conclusions



- The decline in unique participation after the first cycle may reflect typical attrition as novelty fades or may indicate a need for program refinement.<sup>6,7</sup>
- The stabilization of unique participation and consistency in active participation shows Bingocize's ability to sustain residents' interest across varied settings.
- The smaller standard deviation in active participation at Appalachian (SD = 72.79) versus non-Appalachian (SD = 140.05) facilities suggests a core group of participants. This pattern may reflect the regional differences in programming availability, making Bingocize a reliable choice for engagement.<sup>3</sup>
- Offering programming like Bingocize® that sustains engagement and provides physical and mental benefits to residents is critical in **improving quality of life for the aging population**.

## Funding

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## References

