

The Impact of Ramadan on Student Performance and Productivity: Evidence from a Field Study

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Ramadan and Education: Media Coverage

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בגרות נדחתה לרמדאן: 'משרד החינוך משפיל'

לאחר שהבגרות בעברית למגזר הערבי הודלפה ונדחתה, הודיע משרד החינוך שתתקיים באחד מימי הצום. התלמידים זועמים: "אם היה צום במגזר היהודי היו מבטלים את הבחינות, אבל בנו לא מתחשבים. להיפך, מזלזלים"

שחר חי וחסן שנילאן | פורסם: 03.06.15, 21:51

נבחרים לבגרות (ארכיון)
צילום: חסין קמחי



Muslim educators fear holding NAPLAN during Ramadan will disadvantage students

By Lachlan Bennett Education

Sun 16 Mar



מערכת החינוך הבדואית בנגב נגד בחינות ברמדאן: "אין התחשבות מהמערכת"

יפה אוריין בלדוב
עורך | 24.3.2025 | 12:27

תלמיד מערערה בנגב ומנהל בית ספר מכסיפה מתארים את הקשיים בהשתתפות בבחינות במהלך חודש הרמדאן. "יש תלמידים שהיו צריכים לבחור בין לשמור את הצום לבין להיות מרוכזים במבחן"

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Exams timetabled to accommodate Ramadan

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This Paper

- Studies how Ramadan affects student performance and test-taking endurance.
- Leverages a natural variation in 8th grade math test timing before and during Ramadan.
- Uses item-level data to track performance across test sections.
- Employs a within-subject design to control for baseline ability.

Literature & Contribution

Ramadan and Education

- **Negative impact on performance:**
Afifi (1997), Oosterbeek and van der Klaauw (2013), Wang et al. (2023), Hanemaaijer et al. (2023)
- **No significant effect:**
Nuryakin et al. (2022), Andersen and Houmark (2025)
- **Post-Ramadan effects:**
 - **Girls' decline:** Kökkizil (2022)
 - **Overall improvement:** Hornung et al. (2023)
- **This paper:** First within-subject design; younger students (13–14); item-level endurance analysis

Literature & Contribution

Ramadan and Productivity

- **Lower productivity during Ramadan:**
Campante and Yanagizawa-Drott (2015), Schofield (2020)
- **Reduced work hours during Ramadan:**
Bertoli et al. (2020) – Israel, Spain
- **This paper:** Micro-level evidence of lower hourly productivity during test-taking

Design & Context

- Field study in Israel, Spring 2017
- 4 Arab schools (2 Muslim, 2 Christian)
- 8th Grade, Math test
- Within-subject design:
 - Test 1: Low-stakes (no grade)
 - Test 2: High-stakes (40% of final grade)
- Natural experiment: One school's delay → Ramadan overlap
→ High-stakes + Ramadan

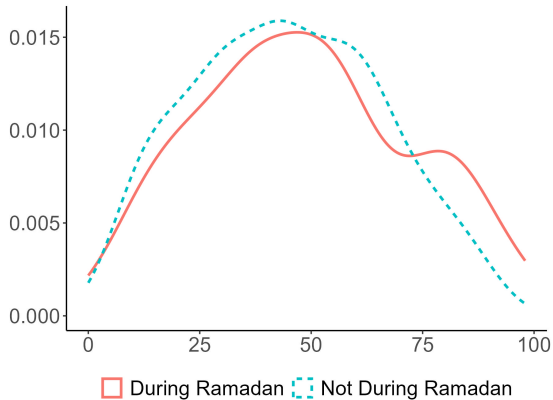
Data

	Not During Ramadan	During Ramadan
N	229	123
Female (%)	56	65
Low-Stakes Percentile	49.2	53.7
High-Stakes Percentile	75.0	49.9
Schools	3	1

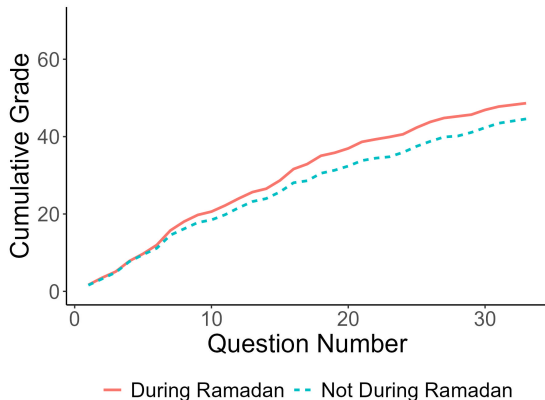
Baseline Performance

No significant differences between the groups

Distributions of Test Scores



Average Cumulative Test Scores



Findings: Test Performance

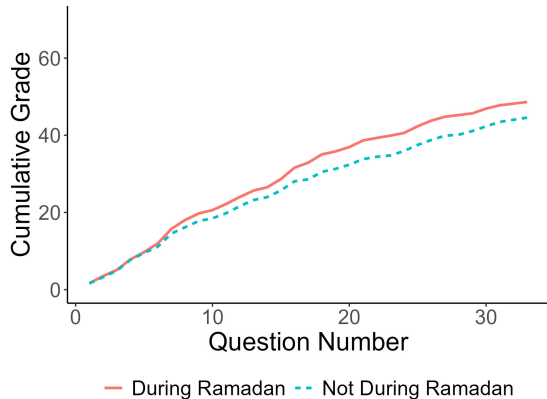
Regression Results

	Second Test Score		
	Percentile Rank	Z-Score	Score
	(1)	(2)	(3)
Ramadan	-25.3***	-1.1***	-23.6***
	(6.5)	(0.23)	(5.1)
Ramadan × Male	-6.6	-0.11	-2.5
	(5.9)	(0.23)	(5.0)
LS Score Control	✓	✓	✓
Male FE	✓	✓	✓

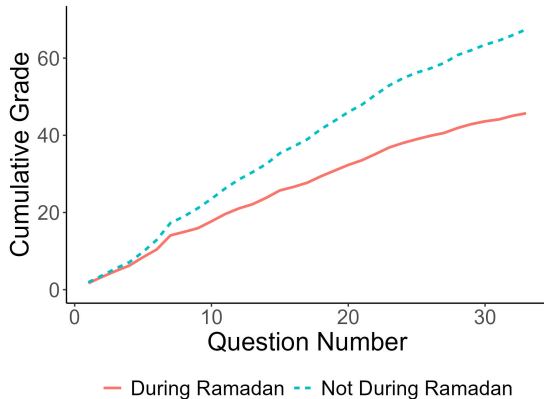
Findings: Per Item Performance

Performance gap emerges only in the high-stakes test

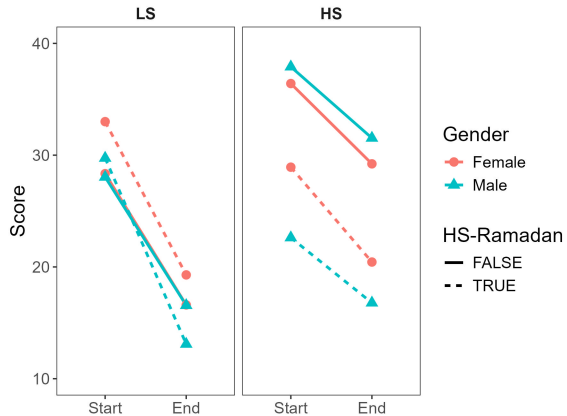
First (LS) Test



Second (HS) Test



Test-Taking Endurance



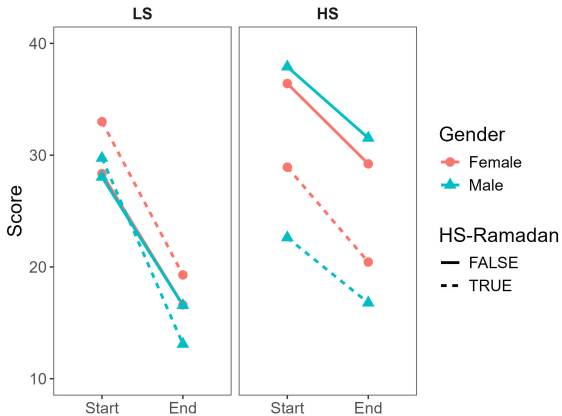
Test-Taking Endurance

Endurance Measure:

$$\text{Endurance}_i = \frac{\text{Score}_{2\text{nd half}_i}}{\text{Score}_{1\text{st half}_i}}$$

Results:

- Non-Ramadan: 0.81
- Ramadan: 0.66



Discussion

Effect-size

- Performance was **1.1 SD lower** for students taking the test during Ramadan
- Prior studies typically find effects between **0.06 and 0.25 SD**
- Possible explanations for the larger effect:
 - Younger students (ages 13–14 vs. 16–18)
 - Stakes were lower than for high-stakes exams (e.g., Bagrut, Psychometric)
 - Lack of credible consequences for underperformance

Discussion

Productivity

- Prior research documents a decline in output during Ramadan
- Often attributed to reduced inputs, such as shorter working hours
- In our setting: fixed test duration, yet performance drops - even on easier items
- Points to reduced hourly productivity as a key driver of lower output during Ramadan

Discussion

Limitations

- Results rely on a single treated school
- Test timing delay was not randomly assigned
- Alternative explanations to consider:
 - Weather impact: up to **-0.13 SD**
 - Pollution impact: between **-0.04** and **-0.15 SD**
 - Test labeled as low-stakes (around -1 SD), but this was disputed by school staff
 - **Observed effect size: -1.1 SD**

Policy

- Exam scheduling should account for Ramadan, including in non-Muslim countries
- In particular, major assessments should be scheduled outside of Ramadan and its immediate aftermath
- When unavoidable, consider holding exams early in the morning

Conclusion

- Students who took exams during Ramadan scored substantially lower - **1.1 SD** on average.
- The drop appeared early in the test, including on easier items, indicating reduced **hourly productivity**, not just a lack of preparation.
- The effect size exceeds previous estimates (typically **0.06–0.25 SD**), broadening our understanding of Ramadan's impact on education.
- Results underscore the need to avoid scheduling major assessments during Ramadan.

Thank You!

Questions?

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