Sacrificing Civilians to Save Soldiers: Public Support for Counterterrorism/Counterinsurgency Operations in Mosul and Basra, Iraq

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Ethical Conduct of Research

Scholars have raised concerns about a lack of clear disciplinary standards for ethical conduct of human subject research for some time (Wood 2006; Ford et al. 2007; Fujii 2012; Campbell 2017; Cronin-Furman and Lake 2018). The *American Political Science Association* (2022) has recently updated the discipline's recommended Human Subjects Research Principles and Guidelines (Section III, p. 3-10). Our research adheres to those guidelines. First, we obtained IRB to conduct this study. However, we support APSA's (2022) general principle II that "political science researchers have an individual responsibility to consider the ethics of their research-related activities and cannot outsource ethical reflection to review boards, other institutional bodies, or regulatory agencies." (p. 5). We discuss the main principles adopted by the APSA in further detail, where we reflect by providing our responses to core guidelines.

Power

Our research seeks to adhere to principles concerning an awareness of power differentials between researcher and researched. We do not have a direct power relationship over any of the respondents in our study. Our enumerators are local civilians from the region where the study was conducted. Respondents are recruited randomly without any influence from local authorities or employers in the recruitment process. Our enumerators are also not affiliated with local authorities, and this is conveyed to respondents in the study. Respondents are also provided with contact information for the academic researchers who are conducting this study. We do not engage in covert or deceptive research practices. Subjects are not paid for their participation in this study. Participation is strictly voluntary, and subjects may refuse to answer questions or leave the study at any time for any reason.

Consent

Our research seeks to adhere to principles of informed and voluntary consent "from individuals who are directly engaged by the research process, especially if research involves more than minimal risk of harm or if it is plausible to expect that engaged individuals would withhold consent if consent were sought". All subjects in our study are clearly informed about the nature of our research by our consent. The consent form states that respondents may refuse to answer questions and may stop participating at any time in the study.

Deception

Our research does not engage in covert or deceptive research practices. Subjects are informed about the identity of the researchers in the consent form and debriefing statement.

Harm and Trauma

Our research seeks to adhere to principles surrounding harm and trauma, by avoiding and minimizing harm, traumatization and re-traumatization whenever possible. First, we acknowledge that no study is fully without risk. We minimize risk to respondents by acknowledging topics to be covered in the survey and the respondent's right to refuse to answer any question for any reason and may stop participating in the study at any time. Our research mainly focuses on attitudes toward out-groups in Mosul. We do not actively seek out or identify respondents in our study. We also provide signaling in the survey about topics to be covered in upcoming questions so respondents are prepared to either answer or refuse to answer questions before the actual questions

are directed to them. Given the post-conflict nature of our study, our goal is to minimize risks associated with re-traumatization and discomfort with any survey questions, especially conflict-related victimization questions, and privacy concerns addressed in the consent protocols. Our research was conducted in the aftermath of Covid19. We included a set of protocols based on US Centers for Disease Control Guidelines for survey administrators. We also provide contact information for our IRB as well as individual researchers associated with the study where respondents may report any concerns with the conduct of the study. No adverse events were reported in the conduct of this study either directly to enumerators or directly to us or our IRB. Also, our enumerators were local, experienced professionals who conducted interviews with an understanding of the sensitivities to trauma in the local community, and trained according to IRB guidelines by one of the authors of this study. In the event of an adverse psychological reaction to our questions, our enumerators were instructed to stop the interview and offer to provide respondents with assistance through local NGOs and medical professionals specializing in care for post-traumatic stress. Enumerators were also instructed to maintain emergency response contacts (police, paramedics, local hospitals) in the event of unforeseen adverse events. In summary, we took seriously our ethical responsibilities to minimize risks in the conduct of this research project.

In past studies in Mosul we also collected emotional para-data (questions about fear, stress, worry, anger, sadness, happiness) to see whether emotional states changed over the course of our interview and coded whether respondents felt uncomfortable answering specific questions more than others. We have not found our surveys to be anxiety or stress producing based on prior data collection efforts. We do not see evidence of high refusals to answer specific questions or attrition suggesting that respondents stopped the interview due to a lack of comfort with victimization-related questions. In past research, we have found that most respondents (>95%) indicated that they felt "very comfortable" answering our research questions. The remaining 5% indicated that some questions made them "somewhat comfortable", but no one indicated feeling uncomfortable or very uncomfortable answering victimization questions. In the end, respondents are empowered to refuse to answer questions and not to report victimization experiences when asked. Enumerators never pressured respondents to answer victimization-related questions. Participation was voluntary and respondents were not provided financial incentives to participate in this study.

Confidentiality

Our research seeks to adhere to the principles of keeping the identities of research participants confidential. During the study, we collected no personally identifying information on participants. All participants received a consent form, but we requested a signature waiver to protect privacy and anonymity in the data collection process.

Impact

Our research seeks to adhere to principles surrounding the consideration of the "broader social impacts of the research process as well as the impact on the experience of individuals directly engaged by the research". This study allows subjects to express their own feelings in survey responses about meaningful social and political problems in Iraq. We found subjects to be quite willing to take part in the study, with low refusal rates: they want to express their opinions on important social and political issues and they derive some satisfaction from taking part in the research. We are deeply aware of the fact that we are interested in social attitudes in an environment where little is known about public opinion. Alongside the ways described above, we do not

intentionally provoke or encourage subjects to engage in political behavior or other political processes or outcomes in the conduct of this study. Our research does not condone or support violence against anyone in Iraq. It also does not condone or support political violence in any other form concerning authorities or groups in Iraqi society.

Laws, Regulations, and Prospective Review

Our research seeks to adhere to principles surrounding the awareness "of relevant laws and regulations governing their research-related activities". We did not seek approval from Iraqi government authorities to conduct this study. However, we are not aware that asking questions about social and political attitudes in Iraq violates any Iraqi law. Questions in our survey have been asked by other researchers in Iraq, including those who conducted the latest round of the World Values Survey (2017-2020) including in Mosul. In our consultation with established survey research firms in Iraq, we understand that government approval of survey research is not routinely required or requested. Furthermore, as mentioned previously, our research does not condone or support violence or other unlawful behavior against anyone in Iraq. It also does not condone or support political violence or other unlawful behavior concerning authorities or groups in Iraqi society. We do not actively seek out or identify participants in our study. Our research was also conducted in compliance with laws within the United States, as established by our IRB, and to our knowledge is in accordance with Iraqi law regarding conduct of human subjects research and data collection using survey research methods.

IRB # FY2022-039

References

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Survey Questionnaire

Interviewer name or ID_____survey number:_____
Today's Date _____day_____month
Interview Location (neighborhood)_____

Subject Gender (INTERVIEWER RECORD)

Male	0
Female	1
Non-binary/Other	2

Part 1. Demographics

First, I would like to ask you some basic questions about your background.

How old are you? (Note: must be 18 to complete survey.)

Record age in years: _____

What is the highest level of education that you have completed?

None	1
Primary	2
Secondary	3
Higher	4

What type of work have you been doing over the past year?

Employer/ manager of firm	1
Professional worker (lawyer, accountant, teacher, doctor)	2
Office worker, secretary	3
Manual worker	4
Farmer: has own farm	5
Agricultural worker	6
Member of armed forces, security personnel	7
Was not working/unemployed	8
Student	9
Pensioner	10
Other _____(write in)	11

Which of these statements comes closest to describing your household income now?

1. Our household income does not cover our expenses and we face significant difficulties in meeting our needs
2. Our household income does not cover our expenses and we face some difficulties in meeting our needs
3. Our household income covers our expenses without notable difficulties
4. Our household income covers our expenses well and we can save

What is your religion?

Sunni	1
Shia	2
Christian	3
Other	4
None	5

What is your ethnicity?

Arab	1
Kurd	2
Turkmen	3
Other	4

Pre-ISIS Violence in Iraq (Mosul and Basra)

First, I would like you to think back about life in Iraq before 2014 to include during Saddam Hussein's rule and in the years after the 2003 Iraq war.

To the best of your recollection, were any family members killed or injured during any of the following periods?

	Yes
a) Due to Iran-Iraq War	1
b) Due to the 1990 Persian Gulf War	1
c) Due to Repression/Persecution under Saddam Hussein's rule before 1990	1
d) Due to Repression/Persecution under Saddam Hussein's rule after 1990	1
e) Due to the Iraq War 2003	1
f) Due to political violence after the Iraq War 2003-2014	1
g) Due to criminal activity by various groups after the Iraq War 2003-2014	1
h) Due to any type of violence after 2014	1

ISIS-related Violence (Mosul Only)

Next I would like you to think back about how life changed once ISIS took control of Mosul and before the Mosul Operation to defeat ISIS.

Did any of the following happen to you while ISIS was in control of Mosul from 2014 through 2017?

	Yes
a) Were you punished in any way for violating ISIS rules?	1
b) Were immediate family members punished for violating ISIS law?	1
c) Were you injured by ISIS fighters, police, or supporters?	1
d) Were any of your immediate family members injured?	1
e) Were any of your immediate family members killed?	1
f) Were you detained or imprisoned by ISIS?	1
g) Did you flee your home due to threats from ISIS?	1
h) Was your home or property occupied or looted by ISIS?	1
i) Women or other family members abused or assaulted by ISIS?	1

During battles in 2017 to retake Mosul from ISIS, did any of these things happen to you? To the best of your knowledge who was responsible?

	By ISIS Forces	By Iraqi Forces	By Airstrikes
a) Were you Wounded?	1	2	3
b) Were any of your immediate family members wounded?	1	2	3
c) Were any of your immediate family members killed?	1	2	3
d) Was your home damaged/destroyed?	1	2	3
e) Detained or imprisoned?	1	2	3
f) Forced to flee home?	1	2	3
g) Home or property looted?	1	2	3
h) Women or other family members abused or assaulted?	1	2	3

Were you personally sexually assaulted during ISIS occupation and/or after the liberation of Mosul by the Iraqi military?

No	1
Yes, during ISIS occupation	2
Yes, during liberation by the Iraqi military	3
Yes, both	4

Social Distance

To what extent do you agree or disagree that Iraqi authorities should do more to protect the following people from violence (randomize order)?

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
Iraqi Sunni	1	2	3	4
Iraqi Shia	1	2	3	4
Yazidi	1	2	3	4
Iraqi Kurds	1	2	3	4
Iraqi Christians	1	2	3	4
Foreigners	1	2	3	4
Gay people	1	2	3	4

How much do you trust the following institutions to do what is best for the country?

	A great deal	A fair amount	Not very much	None at all
a) Iraqi Armed Forces	1	2	3	4

Military Experiment

Treatment Group: During the 2017 liberation of Mosul, the Iraqi military used drones, artillery, and aerial bombardment to drive ISIS from the city. The Iraqi military estimates that while these weapons resulted in civilian deaths, they also reduced the number of soldiers who would have been killed during the liberation operations.

1. Were you aware that the Iraqi military used drones, artillery, and aerial bombardment to drive ISIS from Mosul? (Yes = 1, No=0)
2. Were you aware that these actions resulted in civilian casualties but also reduced the number of soldiers killed during the operation? (Yes=1, No=0)

Control Group

How much do you support or oppose the use of the following by the Iraqi military as part of counter-terrorism operations?

	Strongly Support	Somewhat support	Somewhat Oppose	Strongly oppose
Drone attacks against suspected terrorists	1	2	3	4
Aerial bombardment of suspected terrorists (with human piloted aircraft)	1	2	3	4
Artillery shelling of suspected terrorists	1	2	3	4
Sending Iraqi soldiers into hostile areas to fight suspected terrorist groups	1	2	3	4
Relying on US military assistance to fight suspected terrorist groups in Iraq	1	2	3	4
Relying on Iranian military assistance to fight suspected terrorist groups in Iraq	1	2	3	4

Pre-Analysis Plan

We received IRB approval for the project on January 24, 2022. Our pre-analysis plan was registered with EGAP on Friday, March 4, 2022 at 1:35 PM. Fieldwork was completed between March 31-April 5, 2022. Our pre-analysis plan focused primarily on sections of the survey related to our survey experiments related to sectarianism and political activism. The military CTO/COIN elements were not submitted as part of the initial pre-registration due to an error of omission. Our pre-registration was transferred from EGAP to OSF and a blinded version can be accessed here. However, this pre-registration deals with items not included in the analysis discussed here as the CTO/COIN survey experiment was a late edition to the end of the survey. The pre-registered PAP focused on ethnic, sectarian violence, conflict victimization, and political mobilization, but not CTO/COIN support or tolerance of civilian casualties.

We initially anticipated that priming on civilian casualties would reduce CTO/COIN support while priming on saving soldiers would increase CTO/COIN support relative to control. In contrast, we see that priming on civilian casualties counterintuitively increased CTO/COIN support as well, a result that appears driven primarily by support for drone and human-piloted actions in subcomponent analysis, possibly signaling a belief that such actions can more effectively pinpoint terrorist cells within civilian populations than artillery shelling or costly ground campaigns. The direction of the treatment effect for Saving Soldiers falls within our expectations, consistent with H1.

Sampling Locations

The following sampling locations were selected in East and West Mosul. Experiments were randomized to treatment and control by neighborhood. This was done to avoid confusion in the field over different paper-pencil survey versions in circulation, reducing the likelihood of error in recording which respondents received treatments relative to control. 278 respondents completed the study in Mosul from the following neighborhoods:

West Mosul Locations: 17 Tammuz, Al Jadidah (34% of sample)
East Mosul Locations: Al Arabi, Al Sukar, Al Hadbaa, Al Jazaer (66% of sample)

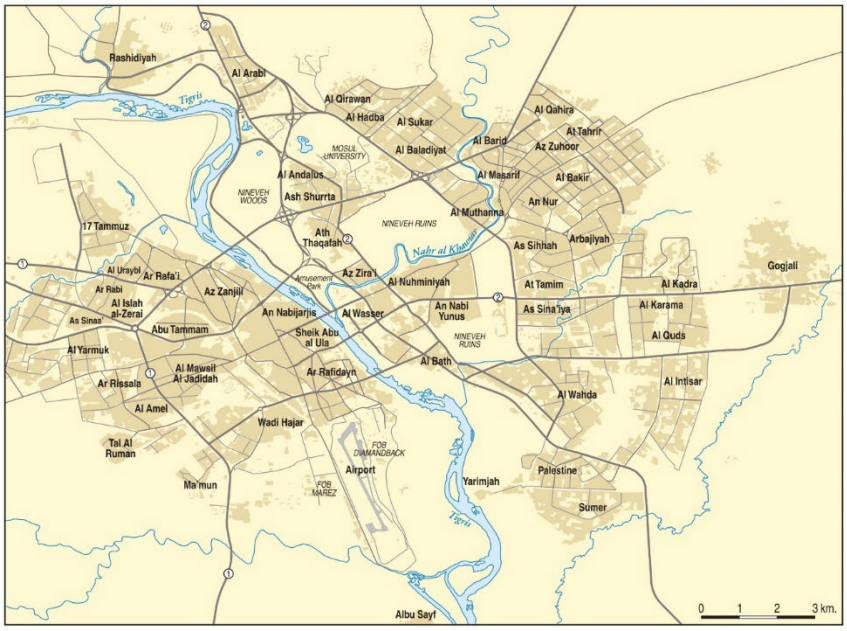
In Basra, 216 respondents were sampled in six locations: Al Ashar, Al Hakemeyah, Al Taleeaa, Al Jabela, Karmat Ali, and Bareha.

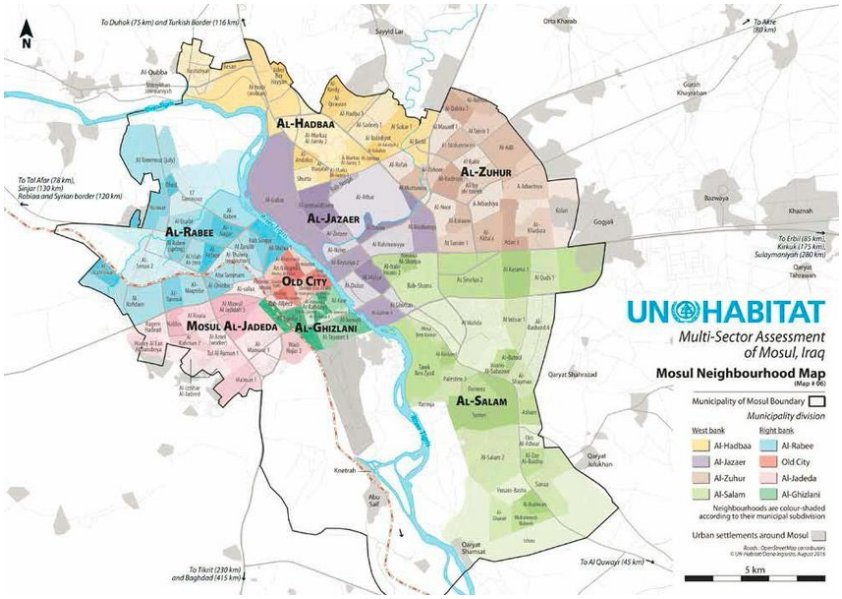
Sampling took place using the following procedures: Neighborhoods in Mosul and Basra are randomly selected from a list of community districts. They served as the primary sampling units or PSUs for randomization. Within each PSU, interviewers randomly selected a starting point using available street intersections and performed a random walk at each intersection. Respondents stopped at the fifth dwelling or housing complex and in the case of apartment buildings, they selected every 5th apartment in the building. Only one member of each dwelling or household could be interviewed (adults only); that individual was determined by the most recent birthday date as the final selection key. Only 5 respondents could be randomly selected on each route, after which the process was restarted at a new sampling location.

Sample Summary Statistics

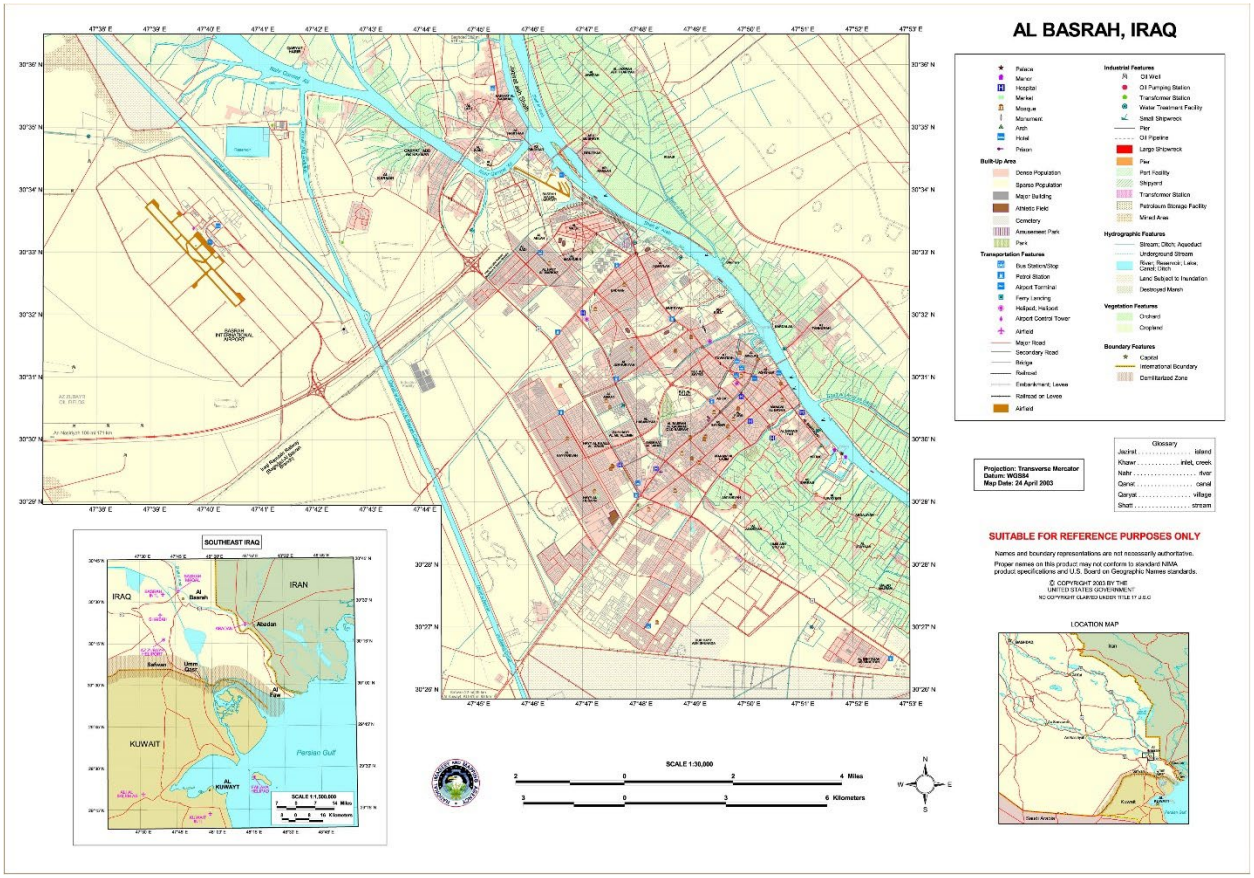
	Basra			Mosul		
	N	Mean	StDev	N	Mean	StDev
Women	216	0.34	0.48	278	0.15	0.36
Age	216	30.12	8.13	278	33.96	13.89
Education	215	3.53	0.80	278	3.46	0.68
Unemployed	216	0.16	0.37	278	0.10	0.31
Sunni	216	0.51	0.50	278	0.99	0.12
Shia	216	0.48	0.50	278	0.01	0.08
Christian	216	0.01	0.10	278	0.01	0.08
Arab	215	0.95	0.22	278	0.97	0.18
Kurd	215	0.05	0.21	278	0.03	0.16
Turkmen	215	0.00	0.07	278	0.01	0.08

Mosul – Reference Maps





Basra – Reference Map



Summary Statistics - Mosul

Variable	N	Mean/%	SD	Range	
Close to Shia	278	4.47	2.87	0	10
Close to Yazidi	278	3.99	2.97	0	10
Close to Kurds	275	5.65	3.23	0	10
Close to Christians	278	4.59	3.06	0	10
Close to Foreigners	276	0.45	1.26	0	10
Close to LGBT+	276	0.09	0.38	0	3
Close to Outgroups (alpha index)	278	3.22	1.58	0	7.5
1=witnessed ISIS killing Sunni	278	0.21	0.41	0	1
1=heard of ISIS killing out-groups	278	0.08	0.27	0	1
1=saw ISIS killing out-groups	278	0.02	0.15	0	1
1=punished by ISIS	278	0.18	0.39	0	1
1=reported sexual assault	278	0.06	0.23	0	1
1=family punished by ISIS	278	0.04	0.20	0	1
1=family injured by ISIS	278	0.07	0.25	0	1
1= female family members abused by ISIS	278	0.39	0.49	0	1
1=forced to flee home by ISIS	278	0.10	0.30	0	1
1=home/property damaged/looted by ISIS	278	0.20	0.40	0	1
1=injured during liberation	278	0.03	0.17	0	1
1=family injured during liberation	278	0.06	0.25	0	1
1=family killed during liberation	278	0.01	0.12	0	1
1=home/property damaged during liberation	278	0.05	0.22	0	1
1=imprisoned during liberation	278	0.14	0.35	0	1
1=forced to flee home during liberation	278	0.08	0.27	0	1
1=home looted during liberation	278	0.20	0.40	0	1
1=female family abused during liberation	278	0.39	0.49	0	1
1=family killed/injured during Iran Iraq war	278	0.15	0.36	0	1
1=family killed/injured during Gulf War	278	0.02	0.13	0	1
1=family killed/injured by Saddam forces	278	0.04	0.19	0	1
1=family killed/injured during Iraq War	278	0.03	0.18	0	1
1=family killed/injured by postwar insurgency	278	0.21	0.40	0	1
1=family killed/injured by postwar crime	278	0.31	0.46	0	1
1=had Covid-19	278	0.49	0.50	0	1
1=family or close friends died from Covid-19	278	0.31	0.46	0	1
female	278	0.15	0.36	0	1
age	278	33.96	13.89	18	84
professional	278	0.53	0.50	0	1
laborer	278	0.09	0.29	0	1
unemployed	278	0.10	0.31	0	1
1=West Mosul sampling region	278	0.35	0.48	0	1

CTO/COIN Index Construction

Factor analysis, below, indicates that the items related to drone, aerial bombardments, artillery shelling, and ground deployments align on a single latent dimension, which are combined using an interim (alpha) index for the manuscript (Cronbach's alpha = 0.87).

```
Factor analysis/correlation                      Number of obs    =        482
    Method: principal factors                    Retained factors =          2
    Rotation: (unrotated)                        Number of params =          6
```

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	2.53816	2.47604	1.0856	1.0856
Factor2	0.06212	0.18199	0.0266	1.1122
Factor3	-0.11987	0.02248	-0.0513	1.0609
Factor4	-0.14236	.	-0.0609	1.0000

```
LR test: independent vs. saturated:  chi2(6)  = 1076.20 Prob>chi2 = 0.0000
```

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Uniqueness
revdrones	0.8532	-0.0920	0.2636
revpilots	0.8115	-0.1366	0.3228
revshelling	0.8225	0.0951	0.3145
revdeploys~s	0.6894	0.1611	0.4988

Experimental Robustness Checks

The Table Below Shows how the treatment effects are consistent across index components. Results are also robust to ordered-logit specification (not reported here).

VARIABLES	(1) Drones	(2) Aerial Assaults	(3) Shelling	(4) Ground Forces	(5) Combined Index
Sacrifice Civilians Txt	0.17**	0.32***	0.08	-0.04	0.14**
	(0.07)	(0.07)	(0.08)	(0.08)	(0.06)
Save Soldiers Txt	0.28***	0.37***	0.28***	0.22***	0.29***
	(0.07)	(0.07)	(0.08)	(0.08)	(0.06)
Constant	3.38***	3.24***	3.24***	3.19***	3.26***
	(0.05)	(0.05)	(0.06)	(0.06)	(0.05)
Observations	485	486	484	485	486
R-squared	0.04	0.07	0.03	0.02	0.04
adj. r2	0.0344	0.0619	0.0245	0.0184	0.0382

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The table below shows how the support for drone attacks, aerial assaults, and artillery shelling compared to group force deployments in Basra and Mosul. There is greatest support in both Mosul and Basra for drone use than other forms of CTO/COIN operations.

Support for Drones, Aerial Attacks, Artillery Assaults (paired T-tests)

Variable	Basra T-test	Mosul T-test
Drone attacks	6.56***	6.65***
Human-Piloted Aerial bombardment	4.19***	5.38***
Artillery shelling	1.11	5.38***

*** p<0.001,
Note: paired T-tests compared to support for deployment of ground forces

Experimental Balance tests

We utilized cluster randomization where neighborhoods were randomly assigned to one treatment with two neighborhoods receiving each treatment and control group (6 neighborhoods total) in Mosul and Basra. We provide balance tests below which compare the mean response on key demographics for treatment vs. control groups while clustering standard errors on the neighborhood. The treatments are well-balanced in the pooled samples. There is only an imbalance on education between the *Sacrifice Civilians txt* and *Saving Soldiers Txt* with slightly less educated respondents in the *Civilians txt* (mean 3.4 vs. 3.6). There is also an imbalance on gender in the in the *Sacrificing Civilians txt* relative to control with more women in the *Sacrificing Civilian txt* (39% vs. 16%). In contrast, we do not see clear imbalances between the *Saving Soldiers txt* and *Control*.

Balance Tests (Mosul+Basra)

		Control Group		Sacrificing Civilians		Saving Soldiers Txt
		(1)		(2)		(3)
Variable	N/Clusters	Mean/(SE)	N/Clusters	Mean/(SE)	N/Clusters	Mean/(SE)
Women	168	0.155	170	0.388	156	0.154
	4	(0.026)	4	(0.099)	4	(0.041)
Age	168	31.994	170	30.671	156	34.340
	4	(0.768)	4	(0.202)	4	(1.958)
Education	167	3.461	170	3.412	156	3.603
	4	(0.094)	4	(0.023)	4	(0.030)
Unemployed	168	0.071	170	0.212	156	0.096
	4	(0.015)	4	(0.066)	4	(0.020)
Sunni	168	0.738	170	0.753	156	0.853
	4	(0.134)	4	(0.127)	4	(0.122)
Arab	168	0.940	170	0.976	156	0.955
	4	(0.034)	4	(0.014)	4	(0.012)
Victimization	168	1.107	170	1.059	156	1.474
	4	(0.654)	4	(0.619)	4	(0.480)
Mosul	168	0.488	170	0.494	156	0.718
	4	(0.289)	4	(0.289)	4	(0.234)
Military trust	168	2.524	170	2.682	155	2.729
	4	(0.200)	4	(0.154)	4	(0.181)

Pairwise T-tests

Variable	(1)-(2) Pairwise t-test Mean difference	(1)-(3) Pairwise t-test Mean difference	(2)-(3) Pairwise t-test Mean difference
Women	-0.233**	0.001	0.234*
Age	1.323	-2.346	-3.669*
Education	0.049	-0.141	-0.191***
Unemployed	-0.140*	-0.025	0.116
Sunni	-0.015	-0.114	-0.100
Arab	-0.036	-0.015	0.021
Victimization	0.048	-0.367	-0.416
Mosul	-0.006	-0.230	-0.224
Military trust	-0.159	-0.205	-0.047

Next, we estimate treatment effects while adjusting for imbalances on gender in the Sacrificing Civilians vs. Control Group on CTO/COIN support. Average treatment effects remain robust to our estimates in manuscript Table 3 Model 1.

Treatment Effect Estimation Adjusted for Imbalances (Sacrificing Civilians vs. Control)
DV=CTO/COIN Support

A. Inverse Probability Weighted

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	0.14	0.06	2.15	0.031	0.01	0.26

B. Augmented Inverse Probability Weighted

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	0.14	0.06	2.15	0.031	0.01	0.26

C. Inverse Probability Weighted Regression Adjustment

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	0.14	0.06	2.15	0.031	0.01	0.26

D. Propensity Score Matching

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	0.14	0.06	2.14	0.032	0.01	0.26

Note: Robust standard errors

We also find that treatment effects on CTO/COIN support are generally robust to adjustments for imbalances between the Sacrificing Civilians vs. Saving Soldiers txts in Manuscript Table 3 Model 2.

Treatment Effect Estimation Adjusted for Imbalances (Civilian vs Soldier Treatments)
DV = CTO/COIN Support

A. Inverse Probability Weighted

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	0.16	0.06	2.62	0.009	0.04	0.28

B. Augmented Inverse Probability Weighted

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	0.16	0.06	2.63	0.008	0.04	0.28

C. Inverse Probability Weighted Regression Adjustment

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	0.16	0.06	2.63	0.008	0.04	0.28

D. Propensity Score Matching

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	0.11	0.06	0.071	0.036	-0.01	0.23

Note: Robust standard errors

We also find that treatment effects on civilian casualty tolerance are also robust to adjustments for imbalances between the Sacrificing Civilians vs. Saving Soldiers txts in Manuscript Table 4 Model 3.

Treatment Effect Estimation Adjusted for Imbalances (Civilian vs Soldier Treatments)
DV = Tolerance of Civilian Casualties

A. Inverse Probability Weighted

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	1.71	0.32	5.38	0.000	1.09	2.34

B. Augmented Inverse Probability Weighted

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	1.71	0.32	5.38	0.000	1.09	2.34

C. Inverse Probability Weighted Regression Adjustment

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	1.71	0.32	5.38	0.000	1.09	2.34

D. Propensity Score Matching

ATE	Coef.	Std. Err.	Z	P>|z|	[95%	CI]
Treatment = 1 vs. 0	1.40	0.33	4.22	0.000	0.75	2.05

Note: Robust standard errors

Treatment Effect Moderation

The Tables below shows how treatment effects are moderated by pre-treatment covariates and demographics. We did not see clear moderating effects between Mosul/Basra (model 1), support for outgroups (model 3), exposure to violence (model 4), and opposition to ISIS (model 5). Moderation was present for military trust where those more trusting of the military are more supportive of CTO/COIN in the treatment groups relative to control (model 2), which is consistent with our theory.

Treatment effect Moderation (OLS regression)

VARIABLES	(1) CTO/COIN support	(2) CTO/COIN support	(3) CTO/COIN support	(4) CTO/COIN support	(5) CTO/COIN support
Civilian Txt	0.14**	-0.57**	-1.27***	0.15**	0.07
	(0.06)	(0.27)	(0.37)	(0.06)	(0.44)
Soldier Txt	0.01	-0.28	-0.21	0.11*	0.63
	(0.06)	(0.21)	(0.44)	(0.06)	(0.39)
Mosul	0.91***				
	(0.06)				
Civilian Txt x Mosul	-0.07				
	(0.08)				
Soldier Txt x Mosul	0.10				
	(0.08)				
Trust Military		0.48***			
		(0.06)			
Civilian Txt x Trust Mil		0.23**			
		(0.10)			
Soldier Txt x Trust Mil		0.17**			
		(0.08)			
Support for Outgroups			0.42***		
			(0.07)		
Civilian Txt x Outgroups			0.45***		
			(0.11)		
Soldier Txt x Outgroups			0.10		
			(0.13)		
Exposure to violence				0.36***	
				(0.03)	
Civilian Txt x Violence				-0.01	
				(0.04)	
Soldier Txt x Violence				0.03	
				(0.04)	
Opposition to ISIS					0.25***
					(0.09)
Civilian Txt x anti-ISIS					0.01

					(0.15)
Soldier Txt x anti-ISIS					-0.13
					(0.13)
Constant	2.81***	2.06***	1.91***	2.86***	2.55***
	(0.04)	(0.14)	(0.22)	(0.04)	(0.27)
Observations	486	485	486	486	479
R-squared	0.64	0.36	0.26	0.55	0.07
adj. r2	0.637	0.348	0.248	0.545	0.0574

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Among demographics, we did not see clear treatment effect moderation on age, education, unemployment, religion (Sunni/Shia), or ethnicity (Arab/non-Arab) in models 2-6. Moderation on gender (Model 1) indicated that women in the Saving Soldiers txt were more supportive of CTO/COIN relative to men.

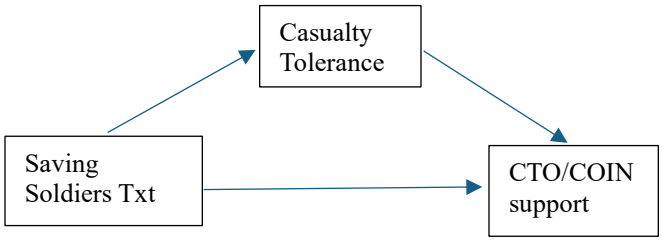
Demographic Moderation (OLS Regression)

VARIABLES	(1) CTO/COIN support	(2) CTO/COIN support	(3) CTO/COIN support	(4) CTO/COIN support	(5) CTO/COIN support	(6) CTO/COIN support
Civilian Txt	0.15**	0.08	0.32	0.15**	0.24**	1.13***
	(0.07)	(0.18)	(0.29)	(0.07)	(0.10)	(0.20)
Soldier Txt	0.22***	0.15	0.03	0.30***	0.11	0.64**
	(0.07)	(0.15)	(0.31)	(0.07)	(0.08)	(0.28)
Women	-0.41***					
	(0.09)					
Civilian xWom	0.20					
	(0.13)					
Soldier xWom	0.43***					
	(0.15)					
Age		0.01***				
		(0.00)				
Civilian x Age		0.00				
		(0.00)				
Soldier x Age		0.00				
		(0.00)				
Education			-0.06			
			(0.06)			
Civilian x Ed			-0.05			
			(0.08)			
Soldier x Ed			0.08			
			(0.09)			
Unemployed				0.12		

				(0.24)		
Civilian x Une				-0.15		
				(0.26)		
Soldier x Une				-0.14		
				(0.27)		
Sunni					0.75***	
					(0.07)	
Civilian x Sun					-0.17	
					(0.12)	
Soldier x Sun					0.11	
					(0.10)	
Arab						0.54***
						(0.19)
Civilian x Arab						-1.03***
						(0.21)
Soldier x Arab						-0.38
						(0.28)
Constant	3.32***	2.96***	3.46***	3.25***	2.71***	2.75***
	(0.05)	(0.12)	(0.21)	(0.05)	(0.05)	(0.19)
Observations	486	486	485	486	486	486
R-squared	0.08	0.10	0.05	0.04	0.30	0.07
adj. r2	0.0662	0.0872	0.0415	0.0334	0.295	0.0565

Mediation Analysis

We perform a mediation analysis on the indirect effect of the Saving Soldiers Txt on CTO/COIN support that operates through trust in the Iraqi armed forces. We found that the effect of the Saving Soldier Treatment on CTO/COIN support is fully mediated by civilian casualty tolerance using structural equation modeling using Baron and Kenny and Lao et al. approaches to mediation.



Significance testing of indirect effect (standardised)

Estimates	Delta	Sobel	Monte Carlo
Indirect effect	0.196	0.196	0.197
Std. Err.	0.037	0.038	0.039
z-value	5.310	5.192	5.073
p-value	0.000	0.000	0.000
Conf. Interval	0.123 , 0.268	0.122 , 0.269	0.127 , 0.273

```
Baron and Kenny approach to testing mediation
STEP 1 - revdeathsacceptable:civsoldiertxt (X -> M) with B=0.287 and p=0.000
STEP 2 - alphactoindex:revdeathsacceptable (M -> Y) with B=0.682 and p=0.000
STEP 3 - alphactoindex:civsoldiertxt (X -> Y) with B=-0.047 and p=0.261
         As STEP 1, STEP 2 and the Sobel's test above are significant
         and STEP 3 is not significant the mediation is complete!


Zhao, Lynch & Chen's approach to testing mediation
STEP 1 - alphactoindex:civsoldiertxt (X -> Y) with B=-0.047 and p=0.261
         As the Monte Carlo test above is significant and STEP 1 is not
         significant you have indirect-only mediation (full mediation)!


RIT  =   (Indirect effect / Total effect)
         (0.196 / 0.149) = 1.313
```

We find similar results when using the potential outcomes framework with the mediation package in STATA. The natural direct effect (NDE) of the Saving Soldier Treatment is fully mediated by an increase in tolerance for civilian casualties such that the total effect (TE) is driven by the natural indirect effect (NIE) through the mediator.
see also

Mediation Analysis – Potential Outcomes

VARIABLES	(1) POmeans	(2) NIE	(3) NDE	(4) TE	(5) CTO/COIN Support	(6) Casualty Tolerance
Y0M0	3.40***					
	(0.04)					
Y1M0	3.31***					
	(0.05)					
Y0M1	3.59***					
	(0.04)					
Y1M1	3.56***					
	(0.04)					
Soldier Txt = 1 vs 0		0.25***	-0.08	0.16***		
		(0.05)	(0.05)	(0.06)		
Soldier Txt					-0.29**	1.69***
					(0.13)	(0.32)
Casualty Tolerance					0.11***	
					(0.01)	
Soldier x Casualties					0.03**	
					(0.02)	
Constant					2.70***	6.21***
					(0.09)	(0.23)
Observations	316	316	316	316	316	316

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Mediation Analysis – Hicks/Tingley

We find similar mediating effects using the medeff and medsens mediation packages in STATA provided by Hicks and Tingley (2011).

Effect	Mean	[95% Conf.	Interval]
ACME	.2175581	.1328353	.3086464
Direct Effect	-.0512687	-.1420452	.0383042
Total Effect	.1662893	.0450946	.2920313
% of Tot Eff mediated	1.287122	.7436046	4.692705

Sensitivity results

Rho at which ACME = 0	.6604
R^2_M*R^2_Y* at which ACME = 0:	.4361
R^2_M~R^2_Y~ at which ACME = 0:	.2206

Ultimately, causal mediation analysis rests on assumptions of sequential ignorability (no confounding of the treatment, mediator, and outcome pathways). While treatment randomization reduces concerns about treatment-mediator and treatment-outcome confounding, the mediator variable is not randomized, and thus subject to potential confounding due to potential unobserved omitted variables. The medsens packages gives one estimate of the sensitivity of the average causal mediating effect (ACME) where rho indicates the correlation between the error terms for the direct and mediator models that are needed to produce an ACME=0, as well as the product of each model's R-squared. We also use the previously discussed sensitivity analysis (Oster 2019, Diegert et al. 2022) to estimate the breakdown points of the mediator-outcome relationship. The breakdown point using the DMP method is 46.4% meaning that the relationship between casualty tolerance and CTO/COIN support is greater than zero ($\beta > 0$) as long as selection on unobservables is no more than 46.4% as large as selection on observables. For our study, this is generally a positive sign for the robustness of our results. Results are robust to the use of the Oster (2019) method at 32.0%.

References

Baron, Reuben M., and David A. Kenny. "The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations." *Journal of personality and social psychology* 51, no. 6 (1986): 1173.

Hicks, Raymond, and Dustin Tingley. "Causal mediation analysis." *The Stata Journal* 11, no. 4 (2011): 605-619.

Zhao, Xinshu, John G. Lynch Jr, and Qimei Chen. "Reconsidering Baron and Kenny: Myths and truths about mediation analysis." *Journal of consumer research* 37, no. 2 (2010): 197-206.

Sensitivity Analysis – Mosul/Basra Differences in CTO/COIN Support

Below we report the results of sensitivity analysis on the effect of Mosul on CTO/COIN support based on Table 3 using methods developed by Altonji et al. (2005) as well as recent advances by Diegert et al. (2022a-b). We start with the approach by Altonji et al. (2005) which is most familiar. It uses the coefficients from regression models estimating the average treatment effect with and without covariate conditioning to assess how much greater the influence of unobservable factors would need to be, relative to observable factors, to explain away treatment effects. The ratio is calculated as $\beta_f/[\ \beta_r-\beta_f]$ where β_f is the full model with conditioning on covariates and β_r is the restricted model without conditioning. The smaller the difference in the coefficients, the less the difference is affected by selection on observables, which means the larger the selection on unobservables needs to be relative to observables, to explain away the treatment effect. Using the coefficients from Manuscript Table 3 without conditioning (Model 3) and with conditioning on all the independent variables (Model 4), we estimate the ratio to be 6.9 which means that the effect of unobservables would need to be nearly 7 times greater than observables to explain away the association between Mosul and CTO/COIN support.

MS Table 2	β_r	β_f	$\beta_f/[\ \beta_r-\beta_f]$
Mosul	0.92	0.81	6.9

Next, we utilize Diegert, Master, and Poirier's (2022) and Oster's (2019) approaches with the same covariates and the **regsensitivity** package in STATA. We start with DMP, which estimates the sensitivity parameter using the ratio of selection on unobservables to observables (rxbar), where rx=1 is a natural reference point for "equal selection" while rx<1 means observables are more important than unobservables (1/2 = 0.5 would mean observables are twice as important as unobserved variables). However DPM (2022 p. 30) notes that "the interpretation of this reference point depends on the choice of covariates that we calibrate against. Put differently, when we say that we compare "selection on unobservables to selection on observables," which observables do we mean?" Importantly, DMP (2022, p. 31) indicate that "the value of using relative sensitivity parameters like $\bar{r}X$ is not that they allow us to obtain a universal threshold for what is or is not a robust result."

Using STATA's **regsensitivity** with control covariates for gender, age, education, unemployment, ethnicity, and religion, the DMP sensitivity parameter rxbar is estimated as follows in the table and figure below. The breakdown point is 54.9% meaning that the relationship between Mosul and CTO/COIN support is greater than zero ($\beta > 0$) as long as selection on unobservables is no more than 66.2% as large as selection on observables. For our study, this is generally a positive sign for the robustness of our results. Results are robust to the use of the Oster (2019) method at 67.6%.

References

Altonji, Joseph G., Todd E. Elder, and Christopher R. Taber. "Selection on observed and unobserved variables: Assessing the effectiveness of Catholic schools." *Journal of Political Economy* 113, no. 1 (2005): 151-184.

Diegert, Paul, Matthew A. Masten, and Alexandre Poirier. "Assessing omitted variable bias when the controls are endogenous." *arXiv preprint arXiv:2206.02303* (2022).

Diegert, Paul, Matthew Masten, and Alexandre Poirier. "REGSENSITIVITY: Stata module for regression sensitivity analysis." (2022).

Oster, Emily. "Unobservable selection and coefficient stability: Theory and evidence." *Journal of Business & Economic Statistics* 37, no. 2 (2019): 187-204.

Power Calculations – Mosul vs Basra CTO/COIN Support

Given our sample size of 494, we consider whether our study has sufficient sample size or is underpowered to detect Mosul/Basra distinctions in Mansucript Table 3. We compute the following sample sizes for alpha of 0.05 and power of 0.95. In our case, the dependent variable is altruism toward outgroups. We find that our sample size is sufficient to detect the effects of Mosul vs. Basra comparisons in CTO/COIN support based on power analysis of independent samples using t-tests. We do this assuming a power of 0.90-0.95 (if the effect exists, there is a 90-95% chance of detecting a true positive) and alpha of 0.05 (if the effect does not exist, there is a 5% chance of detecting a false positive).

Power Calculations for CTO/COIN Support

In this case, our predictor variable is binary with 278 observations from Mosul and 208 from Basra. We compare mean CTO/COIN support in Mosul vs. Basra. Using STATA and G*Power, our sample is sufficiently large to detect our observed difference (Table 3 Model 1) in CTO/CTOIN support for alpha=0.05. We provide STATA output below:

```
Estimated power for a two-sample means test
Satterthwaite's t test assuming unequal variances
H0: m2 = m1  versus  Ha: m2 != m1

Study parameters:

        alpha =    0.0500
            N =       426
           N1 =       218
           N2 =       208
        N2/N1 =    0.9541
        delta =   -0.9200
           m1 =    3.7900
           m2 =    2.8700
          sd1 =    0.3300
          sd2 =    0.3700

Estimated power:

        power =    1.0000
```

Power Calculations for Casualty Tolerance

Next, we consider differences in casualty tolerance between Mosul and Basra in the Sacrificing Civilians vs. Saving Soldiers treatments. In this case, our predictor variable is binary in which case 196 respondents are from Mosul and 120 from Basra. We compare mean CTO/COIN support in Mosul vs. Basra. Using G*Power and STATA, our sample is sufficiently large to detect our observed difference in CTO/CTOIN support for alpha=0.05. Below is the STATA output.

```
Estimated power for a two-sample means test
Satterthwaite's t test assuming unequal variances
H0: m2 = m1  versus  Ha: m2 != m1

Study parameters:

        alpha =    0.0500
            N =       316
           N1 =       196
           N2 =       120
        N2/N1 =    0.6122
        delta =   -4.8600
           m1 =    8.8800
           m2 =    4.0200
          sd1 =    1.8900
          sd2 =    1.5600

Estimated power:

        power =    1.0000
```

Power Calculations – Experimental Average Treatment Effects

To estimate statistical power for our three experimental treatments, we use oneway ANOVA to obtain the error variance and between group mean variance. The error variance (within-group variance) is 0.32 while the mean variance of the group means (between-group variance) is 3.41 (dividing the Sum of Squares Within/Between by degrees of freedom). We have achieved sufficient statistical power to detect treatment effects reported in Table 3 Modul 2. We report STATA output below:

military experiment txt groups	Summary of mean(unstandardized items) Mean	Std. dev.	Freq.
civilian	3.3950617	.55708898	162
civilian	3.5502137	.53562006	156
control,	3.2599206	.60208729	168
Total	3.3981481	.57757343	486

Analysis of variance

Source	SS	df	MS
Between groups	6.81882548	2	3.40941274
Within groups	154.972842	483	.320854745
Total	161.791667	485	.333591066

Bartlett's equal-variances test: chi2(2) = 2.3132

```
Estimated power for one-way ANOVA
F test for group effect
H0: delta = 0  versus  Ha: delta != 0

Study parameters:

        alpha =    0.0500
            N =       486
    Average N =  162.0000
           N1 =       162
           N2 =       156
           N3 =       168
        delta =    0.2091
          N_g =         3
           m1 =    3.4000
           m2 =    3.5500
           m3 =    3.2600
        Var_m =    0.0140
        Var_e =    0.3200

Estimated power:

        power =    0.9892
```

We also estimate sufficient power for a twoway factorial design that includes an interaction between our treatment and Mosul taking into account imbalances across distributions of respondents by row/columns (applying cell weights to approximate the real imbalances).

```
      Number of obs =       486   R-squared     = 0.6406
      Root MSE      =   .348043   Adj R-squared = 0.6369
```

Source	Partial SS	df	MS	F	Prob>F
Model	103.64736	5	20.729472	171.13	0.0000
militarytxt	.97271937	2	.48635968	4.02	0.0187
mosul	96.297406	1	96.297406	794.97	0.0000
militarytxt#mosul	.50577456	2	.25288728	2.09	0.1251
Residual	58.144305	480	.12113397		
Total	161.79167	485	.33359107		

```
Estimated power for two-way ANOVA
F test for row effect
H0: delta = 0  versus  Ha: delta != 0

Study parameters:

        alpha =    0.0500
            N =       486
  N per cell =        81
        delta =    1.3327
          N_r =         2
          N_c =         3
        means =   <matrix>
        Var_r =    0.2131
        Var_e =    0.1200

Estimated power:

        power =    1.0000
```

Finally, the subgroup of Save Soldiers vs. Sacrificing Civilians

```
Estimated power for a two-sample means test
Satterthwaite's t test assuming unequal variances
H0: m2 = m1  versus  Ha: m2 != m1

Study parameters:

        alpha =    0.0500
            N =       316
           N1 =       162
           N2 =       154
        N2/N1 =    0.9506
        delta =    1.6900
           m1 =    6.2100
           m2 =    7.9000
          sd1 =    2.6900
          sd2 =    2.9600

Estimated power:

        power =    0.9996
```