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#### Gender Differences in Civilian Injury in Baghdad from 2003 to 2014: Results of a Randomized Household Cluster Survey

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# Gender Differences in Civilian Injury in Baghdad from 2003 to 2014: Results of a Randomized Household Cluster Survey

# Tom Fowler

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# Intro/Background

Accurate estimates of the injury burden among civilians during conflict are lacking, particularly among vulnerable sub-populations. We aimed to examine gender differences in the death, disability and household consequences of injury in post-invasion Baghdad to inform prevention initiatives, health policy, and relief planning.

## Methods

A two-stage, cluster randomized, community-based household survey was performed in May of 2014 to determine the civilian burden of injury from 2003 to 2014 in Baghdad. In addition to questions about household member death, households were interviewed regarding injury specifics, healthcare required, disability, relatedness to conflict and resultant financial hardship. This subanalysis focused on injuries among females and gender differences. Al Mustansiriya University and Baghdad Provincial Council approved the study design and details. Secondary analysis of the anonymous database was approved through Johns Hopkins Bloomberg School of Public Health and the University of Washington institutional review boards.

#### Results Gathered

900 households, totaling 5,148 individuals, were interviewed [Table 1]. A total of 553 injuries were reported, 162 of which were female (29% of injuries). The mean age of injury was higher among females (34.07 years) compared to males (27.34 years)(p<.001) [Figure 1]. More females (n=104;64%) were injured in the home than were males (n=82;21%)(p<.001). Fewer female injuries reportedly resulted in death (6.8%(11) of women's injuries vs 19.7%(77) of men's; p<.001). Of the injured individuals, women (n=101;62.7%) were more likely to survive injuries but with a larger occurrence of reduced function, compared to men(n=192;49.1%)(p=.004). Of the intentional injuries, women were most often injured by shell fragments (n=14;41.2%) as opposed to men who most frequently were injured by gunshots (n=76;40.6%).

### Conclusions

Injuries were very common among women in Baghdad between 2003-2014. Further, the communities and families of injury victims suffered considerably due to lost-wages, often resulting in household food insecurity. Ongoing conflict may alter usual injury patterns and undermine efforts to reduce morbidity and mortality caused by injuries.







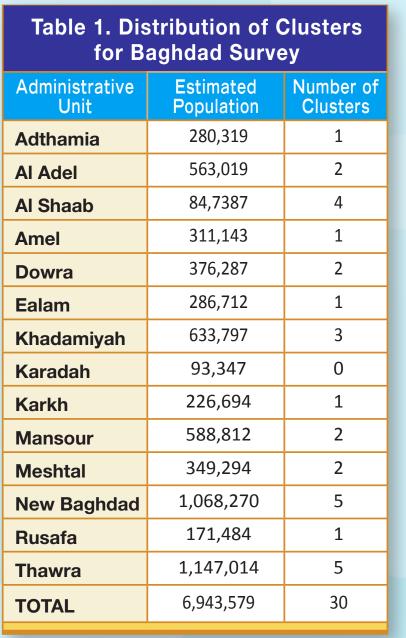


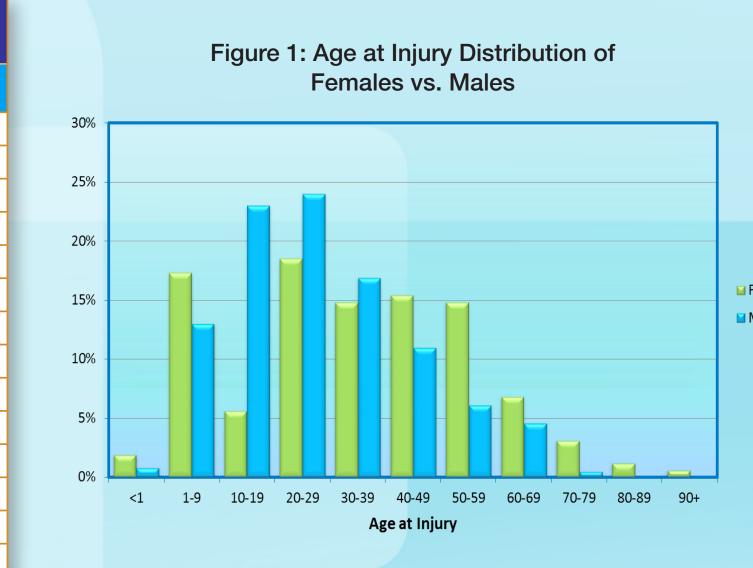






### Results





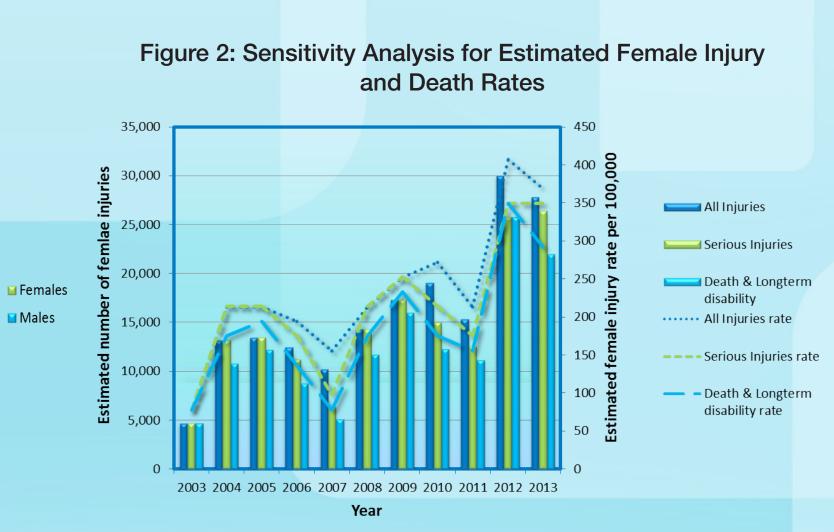


Table 2	. Collec	cted Su	rvey Da <sup>·</sup>	ta		
	Fem	ales	Ma	les	Д	All .
	%	n	%	n	%	n
Injuries (n)		162		391		553
Mean Age		34.07		27.34		29.31
Age Groups						
<1	1.9%	3	0.8%	3.0%	1.1%	6
1-9	17.3%	28	13.0%	51.0%	14.3%	79
10-19	5.6%	9	23.0%	90.0%	17.9%	99
20-29	18.5% 14.8%	30 24	24.0% 16.9%	94.0%	22.4% 16.3%	124 90
30-39 40-49	15.4%	25	11.0%	43.0%	12.3%	68
50-59	14.8%	24	6.1%	24.0%	8.7%	48
60-69	6.8%	11	4.6%	18.0%	5.2%	29
70-79	3.1%	5	0.5%	2.0%	1.3%	7
80-89	1.2%	2	0.0%	0.0%	0.4%	2
90+	0.6%	1	0.0%	0	0.2%	1
Marital Status						
Never Married	36.4%	59	45.8%	179	43.0%	238
Currently Married	51.9%	84	53.2%	208	52.8%	292
Separated	0.0%	0	0.3%	1	0.2%	1
Divorced	1.2%	2	0.5%	2	0.7%	4
Widowed	10.5%	17	0.3%	1	3.3%	18
Education	20.5		40.00	==	40	
None	29.0%	47	14.1%	55	18.4%	102
Some primary school	23.5%	38	21.0%	82	21.7%	120
Completed primary	19.8%	32	27.9%	109	25.5%	141
Completed secondary	11.7%	19	20.7% 16.4%	81	18.1%	100 90
Attended University	16.0%	26	16.4%	64	16.3%	90
Last Job  Business	3.1%	5	13.8%	54	10.7%	59
Government Employed	11.7%	19	20.2%	79	17.7%	98
Self-employed, own business or						
farming	3.1%	5	23.5%	92	17.5%	97
Student	17.3%	28	19.9%	78	19.2%	106
Keeping house/homemaker	50.6%	82	2.0%	8	16.3%	90
Retired	0.6%	1	4.6%	18	3.4%	19
Unemployed (health reasons)	0.6%	1	3.1%	12	2.4%	13
Unemployed (other reasons)	1.2%	2	3.8%	15	3.1%	17 54
Other	11.7%	19	9.0%	35	9.8%	54
Injury Year	4	4	25	25	29	29
2003 2004	11	11	16	16	27	27
2005	11	11	29	29	40	40
2006	10	10	39	39	49	49
2007	8	8	49	49	57	57
2008	11	11	23	23	34	34
2009	13	13	23	23	36	36
2010	14	14	33	33	47	47
2011	11	11	23	23	34	34
2012	21	21	41	41	62	62
2013	19	19	52	52	71	71
2014	29	29	38	38	67	67
Injury Location						
House	64.2%	104	21.0%	82	33.6%	186
Farm	0.6%	1	0.3%	1	0.4%	2
Open public space, street/square	29.6%	48	56.8%	222	48.8%	270
Office or school	2.5%	4	6.9%	27	5.6%	31
Industrial site, factory or shop	1.9%	3	6.6%	26	5.2%	29
In a vehicle on a public road	0.6%	1	5.4%	21	4.0%	22
Traveling by airplane or train	0.0%	0	0.5%	2	0.4%	2
Other location	0.6%	1	2.6%	10	2.0%	11
Alive and functioning normally	27.3%	44	28.4%	111	28.1%	155
Alive, and functioning normally						
Alive with reduced function	62.7%	101	49.1%	192	53.1%	293
Dead	9.9%	16	22.5%	88	18.8%	104
Death from Injury?						
Death occurred from injury	6.8%	11	19.7%	77	15.9%	88
	0.6%	1	1.0%	4	0.9%	5
Death may have occurred from injury (not sure)	0.070					
Death may have occurred from injury (not sure)  Death occurred was unrelated to		1	0.00/	0	0.30/	1
injury (not sure)	0.6%	1 149	0.0% 79.3%	0	0.2%	1 459

Table 2. Collected Survey Data (Cont'd)						
	Females Males All					All .
	%	n	%	n	%	n
Injuries (n)		162		391		553
Mean Age		34.07		27.34		29.31
Nature of Injury  Amputation, unilateral limb	0.0%	0	1.0%	4	0.7%	4
Amputation, thumb	0.0%	0	0.5%	2	0.4%	2
Amputation, finger or toe	0.6%	1	0.8%	3	0.7%	4
Dislocation joint	4.9%	8	2.8%	11	3.4%	19
Traumatic brain injury, mild	2.5%	4	1.8%	7	2.0%	11
Traumatic brain injury, severe	5.6%	9	6.1%	24	6.0%	33
Spinal cord lesion	16.7% 4.9%	27 8	6.4% 3.8%	25 15	9.4% 4.2%	52 23
Burn, <20% skin Burn, >20% skin	4.3%	7	2.8%	11	3.3%	18
Fracture	27.8%	45	27.4%	107	27.5%	152
Foreign body	0.6%	1	3.8%	15	2.9%	16
Multiple injuries	21.6%	35	32.5%	127	29.3%	162
Other/Don't know	8.6%	14	7.9%	31	8.1%	45
Missing	1.9%	3	2.3%	9	2.2%	12
Type of Injury	4.00/		2.00/	- 4 4	2.50/	
Electrical Injury	1.9%	3	2.8% 17.6%	11	2.5%	14
Fall	39.5% 9.9%	64 16	9.7%	69 38	24.1% 9.8%	133 54
Crush Injury Nerve Injury	0.0%	0	0.5%	2	0.4%	2
Muscle, joint or tendon	0.6%	1	0.3%	1	0.4%	2
Eye Injury	0.0%	0	0.3%	1	0.2%	1
Poisoning	1.2%	2	0.5%	2	0.7%	4
Mechanical	13.6%	22	9.7%	38	10.8%	60
Explosion (unintended violence)	0.6%	1	0.3%	1	0.4%	2
Intentional such as domestic violence	1.2%	2	0.3%	1	0.5%	3
Others	8.0%	13	3.6%	14	4.9%	27
Transportation related	2.5% 21.0%	4 34	6.1% 48.3%	24 189	5.1% 40.3%	28
Missing Work Related?	∠1.U70	34	+0.3%	103	+0.5%	223
Yes	17.3%	28	8.4%	33	11.0%	61
No	52.5%	85	39.1%	153	43.0%	238
Missing	30.2%	49	52.4%	205	45.9%	254
Intentional Type?						
Gunshot	17.6%	6	40.6%	76	37.1%	82
Penetrating wounds	2.9%	1	2.1%	4	2.3%	5
Shell injuries, fragment	41.2%	14	25.7%	48	28.1%	62
Blast/explosives injury	17.6% 0.0%	6 0	17.6% 1.6%	33 3	17.6% 1.4%	39
Burns Torture	0.0%	0	0.5%	1	0.5%	1
Other trauma	20.6%	7	11.8%	22	13.1%	29
Responsible for Intentional Inju	ıry?					
Criminals	8.6%	3	10.6%	20	10.3%	23
Iraq police or army	0.0%	0	3.7%	7	3.1%	7
Coalition forces	17.1%	6	6.9%	13	8.5%	19
Militias or sectarian groups	65.7%	23	63.8%	120	64.1%	143
Family members or friends	0.0%	0 3	2.7% 1.1%	5 2	2.2% 0.9%	5 2
Other Unknown	8.6%	3	11.2%	21	10.8%	24
Where Did You Receive Care?		-				
Hospital	45.1%	73	46.0%	180	45.8%	253
PHC clinic	1.9%	3	1.8%	7	1.8%	10
Clinic at work	42.0%	68	31.2%	122	34.4%	190
Other	2.5%	4	2.3%	9	2.4%	13
Didn't receive care	2.5%	4	2.8%	11	2.7%	15
Missing	6.2%	10	15.9%	62	13.0%	72
Surgery Required?						
During procedure pt received general anesthetic	18.5%	30	22.8%	89	21.5%	119
During procedure pt was awake	32.1%	52	28.9%	113	29.8%	165
(local anesthetic)						
No procedure or surgery was done	27.8%	45	21.2%	83	23.1%	128
Missing	21.6%	35	27.1%	106	25.5%	141
Hospitalization?						
No hospitalization	43.8%	71	32.7%	128	36.0%	199
1 Hospitalization	27.8%	45	30.2%	118	29.5%	163
2 Hospitalizations	4.3%	7	8.4%	33	7.2%	40
3 Hospitalizations	0.6%	1	1.0%	4	0.9%	5
Missing	23.5%	38	27.6%	108	26.4%	146
Physiotherapy						
Yes	39.5%	64	31.2%	122	33.6%	186
No	51.2%	83	50.1%	196	50.5%	279
ousehold Money Spent Treating <500,000	25.3%	41	19.7%	77	21.3%	118
<500,000 500,000-999,999	10.5%	17	6.6%	26	7.8%	43
1,000,000-1,999,999	18.5%	30	11.8%	46	13.7%	76
2,000,000-2,999,999	6.2%	10	8.2%	32	7.6%	42
3,000,000-3,999,999	6.8%	11	4.1%	16	4.9%	27
4,000,000-4,999,999	1.9%	3	1.8%	7	1.8%	10
>=5,000,000	10.5%	17	12.0%	47	11.6%	64
Missing	20.4%	33	35.8%	140	31.3%	173

Table 2. Collected Survey Data (Cont'd)  Females Males All							
	%	n	%	n	%	n	
Injuries (n)		162		391		553	
Mean Age		34.07		27.34		29.3	
Were You Able to Meet Financi	i	i e	1		'		
Own savings	48.1%	78 26	40.9%	160	43.0%	238	
Help from family	22.2% 32.7%	36 53	19.7% 26.6%	77 104	20.4%	113 157	
Borrowed money Sold assets	11.7%	19	12.0%	47	11.9%	66	
All care was free	9.3%	15	13.3%	52	12.1%	67	
Other							
Disability Affecting Normal Act	tivities?						
Yes	75.3%	122	65.0%	254	68.0%	376	
No	17.3%	28	14.4%	57	15.4%	85	
Missing	7.7%	12	20.5%	80	16.6%	92	
How Long Did This Last?	0.6%	1	0.5%	2	0.5%	3	
Days Weeks	3.1%	5	4.1%	16	3.8%	21	
Months	8.6%	14	10.0%	39	9.6%	53	
Years	1.9%	3	2.6%	10	2.4%	13	
Continuing	61.1%	99	47.8%	187	51.7%	286	
Missing	24.7%	40	35.0%	137	32.0%	177	
Self-care					I I		
Yes	22.8%	37	21.2%	83	21.7%	120	
Partly	22.2% 30.2%	36 49	18.4% 25.3%	72 99	19.5% 26.8%	108	
No Missing	30.2% 24.7%	49 40	25.3% 35.0%	137	26.8% 32.0%	148 177	
Walking	/0	70	55.070	137	52.070	1//	
Difficult to walk around house	22.2%	36	16.1%	63	17.9%	99	
Able to walk around house, but	15.4%	25	9.5%	37	11.2%	62	
nothing more  Able to walk outside, up to 1/2 km		35	16.1%	63	17.7%	98	
Can walk more than 1/2 km	16.0%	26	23.3%	91	21.2%	117	
Missing	24.7%	40	35.0%	137	32.0%	177	
Stair Climbing							
Able to climb stairs without difficulty	20.4%	33	27.1%	106	24.1%	133	
Can climb stairs unassisted but	22.2%	36	17.4%	68	18.8%	104	
with difficulty	32.7%	53	20.5%	80	25.1%	139	
Unable to climb stairs unassisted  Missing	24.7%	40	35.0%	137	32.0%	177	
Other Types of Disability	24.770	40	33.070	137	32.070	1//	
Blindness	0.0%	0	0.0%	0	0.0%	0	
Deafness	0.0%	0	0.8%	3	0.5%	3	
Continuing mild pain	10.5%	17	15.1%	59	13.7%	76	
Continuing severe pain	2.5%	4	2.8%	11	2.7%	15	
Fears, anxiety or emotional instability	24.1%	39	14.3%	56	17.2%	95	
Emotional changes that	17.9%	29	22.3%	87	21.0%	116	
prevented usual activites or employment	- 1				∠1.U70	110	
Other conditions	19.8%	32	9.7%	38	12.7%	70	
Missing	25.3%	41	35.0%	137	32.2%	178	
Did Household Income Decline	<b>?</b> 45.7%	74	49.4%	193	48.3%	267	
Yes No	45.7% 48.1%	74 78	49.4% 36.3%	193	48.3% 39.8%	267	
Missing	6.2%	10	14.3%	56	11.9%	66	
Did Food Consumption Decline							
Yes	45.1%	73	48.8%	191	47.7%	264	
No	48.8%	79	36.8%	144	40.3%	223	
Missing	6.2%	10	14.3%	56	11.9%	66	
Did Injured Person or Famil Hav	ve to Bor	row Mor	ney to Su	ppleme	nt Loss o	f	
Income? Yes	34.6%	56	27.1%	106	29.3%	162	
No	58.0%	94	54.5%	213	55.5%	307	
Missing	7.4%	12	18.4%	72	15.2%	84	
How Much Was Borrowed?							
<500,000	11.1%	18	3.1%	12	5.4%	30	
500,000-999,999	6.2%	10	5.1%	20	5.4%	30	
1,000,000-1,999,999	4.9%	8	5.4%	21	5.2%	29	
2,000,000-2,999,999	3.7%	6	3.6%	14	3.6%	20	
3,000,000-3,999,999	3.1%	5	2.6%	10	2.7%	15	
4,000,000-4,999,999	1.2%	2	1.5%	6	1.4%	8	
>=5,000,000	5.6%	9	5.1%	20	5.2%	29	
	64.2%	104	73.7%	288	70.9%	392	
Missing			, 3.1/0	200	10.5/0	334	
Family Members have to Change I	44.4%	72	39.4%	154	40.9%	226	
Family Members have to Change U		78	42.2%	165	43.9%	243	
	48.1%	, 0		72	15.2%	84	
Yes	48.1% 7.4%	12	18.4%	, _			
Yes No	7.4%	12		, _			
Yes No Missing	7.4% sistance o	12 of Others? 26	11.8%	46	13.0%		
Yes No Missing Did Injured Person Require the Ass Yes No	7.4% sistance o 16.0% 76.5%	12 of Others? 26 124	11.8% 69.8%	46 273	71.8%	397	
Yes No Missing Did Injured Person Require the Ass Yes No Missing	7.4% sistance of 16.0% 76.5% 7.4%	12 of Others? 26 124 12	11.8% 69.8% 18.4%	46		397	
Yes No Missing Did Injured Person Require the Ass Yes No Missing Did Injured Person Suffer Negative	7.4% sistance of 16.0% 76.5% 7.4%	12 of Others? 26 124 12	11.8% 69.8% 18.4%	46 273	71.8%	397 84	
Yes No Missing Did Injured Person Require the Ass Yes No Missing	7.4% sistance of 16.0% 76.5% 7.4% Social C	12 of Others? 26 124 12 onsequer	11.8% 69.8% 18.4%	46 273 72	71.8% 15.2%	72 397 84 299	

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