

Does Elder Abuse Type Tell Us Anything About 5-Year All-Cause Mortality?

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Conflicts of Interest

- I have no conflicts of interest to report.

Five-year all-cause mortality rates across five categories of substantiated elder abuse occurring in the community

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ABSTRACT

Elder abuse increases the likelihood of early mortality, but little is known regarding which types of abuse may be resulting in the greatest mortality risk. This study included $N = 1,670$ cases of substantiated elder abuse and estimated the 5-year all-cause mortality for five types of elder abuse (caregiver neglect, physical abuse, emotional abuse, financial exploitation, and polyvictimization). Statistically significant differences in 5-year mortality risks were found between abuse types and across gender. Caregiver neglect and financial exploitation had the lowest survival rates, underscoring the value of considering the long-term consequences associated with different forms of abuse. Likewise, mortality differences between genders and abuse types indicate the need to consider this interaction in elder abuse case investigations and responses. Further mortality studies are needed in this population to better understand these patterns and implications for public health and clinical management of community-dwelling elder abuse victims.

KEYWORDS

Caregiver neglect; elder abuse; financial exploitation; mortality; polyvictimization

Study Background

- No slowing of the aging population- ~8K boomers turning 65 each day
- No reduction in APS reports – increased awareness and screening
- Elder mistreatment remains a public health burden with associated dire consequences

Elder Mistreatment Mortality Studies

- Lachs et al., 1998- 3-fold increase in 13-year all-cause mortality
- Dong et al., 2009- 2-fold increase in 8-year all-cause mortality
 - 90% died from something other than injury (maybe not physical abuse)

Differential Mortality

- Do different types of elder mistreatment confer higher rates of mortality compared to other forms?
- Why this question is important: if specific types carry greater risks it could support prioritization strategies for frontline workers, greater public, criminal and civil responses to different types of abuse

Differential Mortality Continued

- Baker et. al, 2009- Physical abuse in women had a higher mortality rate compared to verbal abuse and a combination of verbal and physical abuse
- Schofield et al., 2013- abuse related mortality associated with coercion and dejection rather than dependence and vulnerability

Plausibility for Differential Mortality Findings

- Elder mistreatment and mortality share similar risk factors
- These mortality risk factors may be differentially associated with elder mistreatment types
 - Examples:
 - Caregiver Neglect: Poor health, Impaired physical function and Dementia (Acierno et al., 2010, Fulmer et al., 2005)
 - Exploitation: Declined Cognition and Living Alone (Jackson and Hafemesiter, 2011)
 - Psychological Abuse: Poorer mental health (Mouton et al., 2004)
 - Physical Abuse: Physically independent, Free of cognitive impairments, Younger, but Lower social support (Acierno et al, 2010, Jackson and Hafemeister, 2011, Mouton et al., 2004)

Study Question and Hypothesis

- Are there differential mortality rates among types of Adult Protective Services substantiated elder mistreatment
- Hypothesis: Caregiver neglect will have the highest mortality, followed by financial exploitation, psychological abuse and then physical abuse.

Study Methods

- This was an aggregated cohort study
- 1,672 cases of substantiated elder mistreatment (65+) from Texas APS
- Included Caregiver Neglect, Financial Exploitation, Psychological/Verbal Abuse, Physical Abuse and Poly-victimization
- Used the first date of substantiation in the records

Definitions of Elder Mistreatment Types

- Texas Human Resource Code 48.002 [a]:
 - Emotional/verbal abuse – humiliation, intimidation, vilify, degrade or threaten to harm
 - Physical Abuse – abuse resulting in physical or emotional harm or pain caused by a caretaker, family member or other with an ongoing relationship with the victim
 - Financial Exploitation- illegal or improper use or attempt to use an older adults resources for personal gain by a caretaker, family or other with an ongoing relationship
 - Caregiver Neglect-failure of a caretaker to provide the goods and services needed by the older adult resulting in harm, pain or anguish.

Poly-victimization

- Defined for this study as two or more concurrently substantiated elder mistreatment types
- Other possible definitions: repeated same type over time, two or more perpetrators, different types over time
 - Study starting in January to operationalize polyvictimization

Data Sources

- APS Administrative records from: January 1, 2004- December 31, 2008
 - Harris County
 - Investigation findings including substantiation type(s), Client Assessment and Risk Evaluation Tool (CARET) includes some basic health, living situation, financial questions, social variables and mental health questions
- Texas Department of State Health Services-Division of Vital Statistics
 - Mortality (end-point of the study)

Data Linkage

- Link-King
 - Probabilistic and Deterministic Algorithms
 - Matched datasets using first and last name, date of birth, race, gender and zip code (flex variable)
 - Manual Review for Consensus on low probability matches (had 8)

Matched Study Sample

- 1672 substantiated cases
- 2 Sexual abuse cases were dropped due to insufficient categories
- 1,158 first time single forms of elder mistreatment
 - Caregiver Neglect-n=568 (34%)
 - Emotional/Verbal- n=317 (19%)
 - Financial Exploitation-n=150 (9%)
 - Physical Abuse-n=117 (7%)
- 518 (31%) Poly-victimization

Analytic Strategy

- Elder abuse type (Predictor)
- 5-year all-cause mortality (Outcome)
- Estimated hazards ratio of dying at 5-years for each type of abuse
- Tested the difference between these ratios
- Used Caregiver Neglect as the Reference group (i.e. what would happen to the ratio if you compare a Caregiver Neglect case to a Physical Abuse Case)

Covariates

- Removed the effect of 12 covariates on mortality to reduce bias
 - Age
 - Race
 - Gender
 - Income
 - Ability to complete Activities of Daily Living
 - Untreated Health Problems
 - Ability to Self-Administer Medications
 - Available medical supplies
 - Alcohol Use by Victim
 - Alcohol Use by Others
 - Victim Mental Illness/Dementia
 - Social Isolation

Interactions

- Significant variables in the adjusted models were tested for interaction
- When interactions were presented we conducted a stratified analysis

RESULTS

Study Limitations

- No Hazards ratio for mortality in the non-exposed sample in Harris County during the same time frame
- Not nationally representative
 - Definitions and substantiation process (preponderance of evidence)
 - Harris County only (arguably the most diverse city in the country and definitely in the state)
 - Trusted other
- No standardized assessments of health, mental health etc.
- Misclassification bias
- No specific causes of death

Sample Characteristics

Table 1. Demographic, social, medical, and environmental characteristics of N = 1670 elder abuse cases substantiated by Texas Adult Protective Services between January 1, 2004 and December 31, 2008.

	<u>Overall</u>	<u>Caregiver</u>	<u>Emotional</u>	<u>Financial</u>	<u>Multiple</u>	<u>Physical</u>	<i>p</i> -value
	<u>N (%)</u>	<u>(%)</u>	<u>(%)</u>	<u>(%)</u>	<u>(%)</u>	<u>(%)</u>	
Gender							0.646
Female	1195 (71.6)	70.9	75.0	69.9	71.3	69.1	
Male	475 (28.4)	29.1	25.0	30.1	28.7	30.9	
Race/Ethnicity							< 0.001
White	697 (41.7)	42.5	42.2	50.3	37.9	42.3	
Black	497 (29.8)	33.3	20.5	22.2	35.0	24.4	
Hispanic	231 (13.8)	8.9	22.4	11.1	15.2	13.0	
Other	245 (14.7)	15.3	14.9	16.3	11.9	20.3	
Income							< 0.001
No problem	1539 (92.2)	91.1	97.1	92.2	88.5	100.0	
Problem	111 (6.6)	8.0	2.6	5.2	9.6	0	
Severe problem	20 (1.2)	0.9	0.3	2.6	2.0	0	
Activities							< 0.001
No problem	953 (57.1)	36.4	77.9	68.6	57.4	85.4	
Managed problem	289 (17.3)	20.9	14.6	21.6	15.8	8.1	
Problem	378 (22.6)	37.1	7.5	9.8	23.4	5.7	
Severe problem	50 (3.0)	5.6	0	0	3.3	0.8	
Health status							< 0.001
Managed problem	768 (46.0)	38.3	55.5	58.2	40.8	64.2	
No problem	473 (28.3)	27.5	27.3	27.5	32.2	19.5	
Problem	385 (23.1)	29.4	15.6	14.4	24.8	15.4	
Severe problem	44 (2.6)	4.7	1.6	0	2.1	0.8	

Sample by Vital Status at the end of Follow-up

Table 2. Demographic, social, medical, and environmental characteristics by 5-year vital status of N = 1670 elder abuse cases substantiated by Texas Adult Protective Services between the dates of January 1, 2004, and December 31, 2008.

	Vital status		HR	p-value	95% CI
	Alive N (%)	Dead N (%)			
Gender					
Female	913 (73.3)	282 (66.4)	<i>Reference</i>		
Male	332 (26.7)	143 (33.6)	1.3	0.008	(1.07–1.60)
Race/ethnicity					
White	492 (39.5)	205 (48.2)	<i>Reference</i>		
Black	373 (30.0)	124 (29.2)	0.82	0.082	(0.66–1.03)
Hispanic	186 (14.9)	45 (10.6)	0.63	0.005	(0.46–0.87)
Other	194 (15.6)	51 (12.0)	0.61	0.001	(0.45–0.82)
Age, in years Mean (SD)	76.8 (7.3)	79.7 (7.5)	1.04	< 0.0001	(1.03–1.06)
Income					
No problem	1148 (92.2)	391 (92.0)	<i>Reference</i>		
Problem	83 (6.7)	28 (6.6)	1.04	0.846	(0.71–1.52)
Severe problem	14 (1.1)	6 (1.4)	1.23	0.610	(0.55–2.76)
Activities					
No problem	765 (61.4)	188 (44.2)	<i>Reference</i>		
Managed problem	213 (17.1)	76 (17.9)	2.01	< 0.0001	(1.53–2.64)
Problem	242 (19.4)	136 (32.0)	2.11	< 0.0001	(1.69–2.63)
Severe problem	25 (2.0)	25 (5.9)	3.62	< 0.0001	(2.39–5.50)
Health status					
No problem	597 (48.0)	171 (40.2)	<i>Reference</i>		
Managed problem	359 (28.8)	114 (26.8)	1.61	< 0.0001	(1.26–2.05)
Problem	268 (21.5)	117 (27.5)	1.48	0.001	(1.17–1.87)
Severe problem	21 (1.7)	23 (5.4)	3.42	< 0.0001	(2.22–5.30)

Differential Mortality Survival Graph

Kaplan-Meier survival estimates

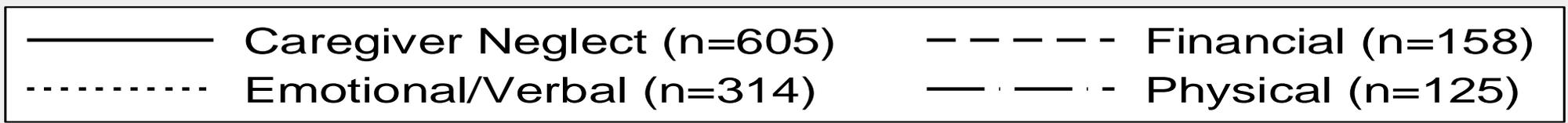
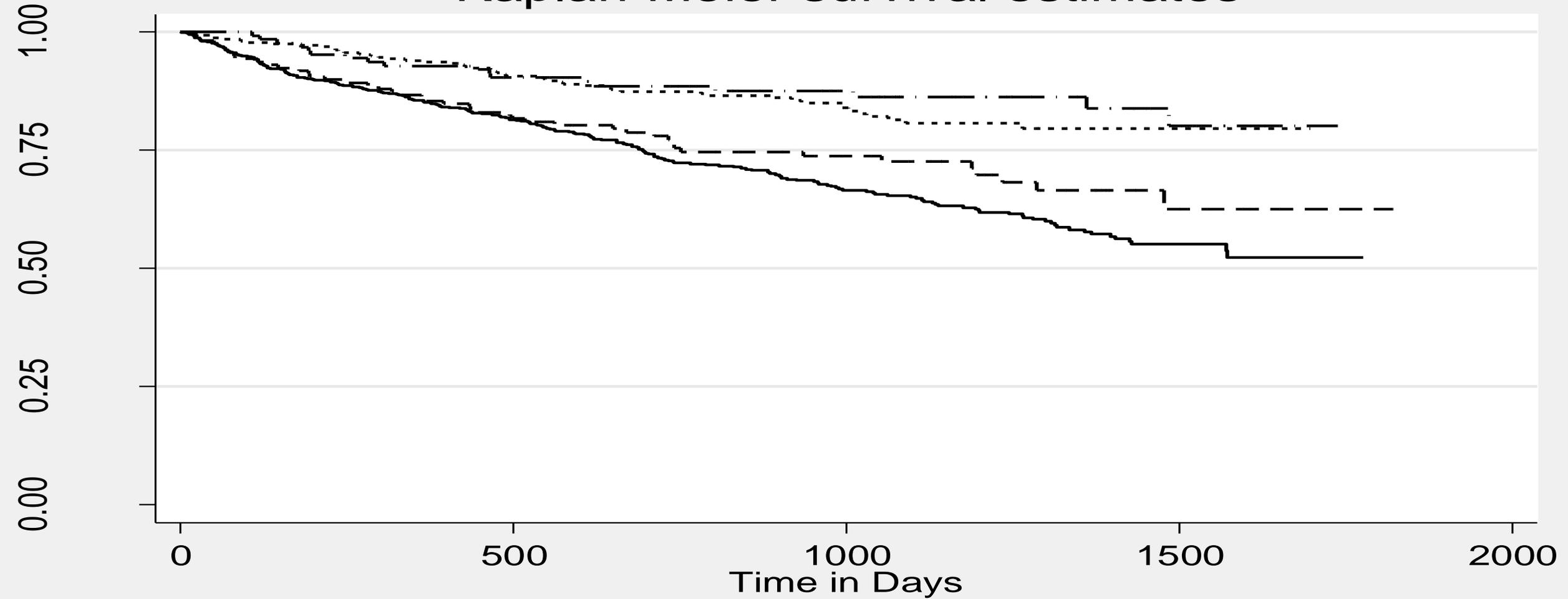


Table 3. Adjusted and stratified 5-year mortality estimates for N = 1670 elder abuse cases substantiated by Texas Adult Protective Services between January 1, 2004, and December 31, 2008.

Abuse type	Full model	Male	Female
	N = 1670	Male (N = 475)	Female (N = 1,195)
Caregiver	1 [1, 1]	1 [1, 1]	1 [1, 1]
Financial	0.946 [0.673, 1.331]	1.247 [0.733, 2.121]	0.764 [0.484, 1.205]
Emotional	0.587** [0.424, 0.813]	0.461* [0.248, 0.860]	0.628* [0.428, 0.922]
Physical	0.530* [0.323, 0.870]	0.939 [0.477, 1.849]	0.300*** [0.139, 0.650]
Multiple	0.697** [0.549, 0.886]	0.539** [0.348, 0.836]	0.775 [0.582, 1.032]
Race/ethnicity			
White	1 [1, 1]	1 [1, 1]	1 [1, 1]
Black	0.801 [0.638, 1.006]	0.679 [0.453, 1.017]	0.875 [0.664, 1.152]
Hispanic	0.763 [0.550, 1.059]	0.906 [0.544, 1.511]	0.649 [0.418, 1.007]
Others	0.619** [0.454, 0.843]	0.496* [0.290, 0.849]	0.683 [0.466, 1.001]
Gender			
Female	1 [1, 1]		
Male	1.403** [1.145, 1.719]		
Age	1.039*** [1.026, 1.053]	1.027* [1.003, 1.051]	1.045*** [1.029, 1.061]

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Abuse type	Full model	Male	Female
	N = 1670	Male (N = 475)	Female (N = 1,195)
Activities			
No problem	1 [1, 1]	1 [1, 1]	1 [1, 1]
Managed problem	1.370 [0.973, 1.931]	1.122 [0.610, 2.066]	1.462 [0.960, 2.228]
Problem	1.555*** [1.215, 1.990]	1.568 [1.000, 2.460]	1.514** [1.124, 2.038]
Severe problem	1.853* [1.112, 3.090]	3.177** [1.348, 7.486]	1.363 [0.718, 2.588]
Health			
No problem	1 [1, 1]	1 [1, 1]	1 [1, 1]
Managed problem	1.313 [0.971, 1.774]	1.495 [0.869, 2.572]	1.265 [0.874, 1.833]
Problem	1.211 [0.946, 1.550]	0.935 [0.587, 1.491]	1.377* [1.026, 1.846]
Severe problem	2.184** [1.295, 3.683]	1.888 [0.793, 4.494]	2.421** [1.238, 4.735]

Exponentiated coefficients; 95% confidence intervals in brackets; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Graph Translated

- Graph shows separation between the survival curves for 4 categories of abuse as you move from left (date of substantiation) to right (days after substantiation not to exceed 5 years).
- For each death you will see a drop in the line and this is called a step function. The more deaths you have the soother the line.
- This separation indicates differential mortality rates

Table 3 Full Model Findings

- The separation you see in the mortality lines were tested and found to be statistically significantly different
- Caregiver Neglect had 35% die by 5 years and was significantly lower than:
 - Polyvictimization (21%)
 - Emotional/Verbal (17%)
 - Physical Abuse (15%)
- No significant difference between Caregiver Neglect and Financial Exploitation (28%)

Table 3 and Gender

- The difference in mortality between the types of abuse differ based on whether the victim is a male or female
- For males and females the difference between Caregiver Neglect and Financial Exploitation remained non-significant (statistically)

Table 3: Gender and Emotional/Verbal Abuse

- Mortality rates between Caregiver Neglect and Emotional/Verbal Abuse remained statistically different between Males and Females
 - Compared to Caregiver Neglect, females were more likely to die from Emotional/Verbal than males as indicated by a higher Hazard ratio of 0.628.

Table 3: Gender and Physical Abuse

- In males, the likelihood of dying was statistically the same between caregiver neglect and physical abuse
- Females had significantly lower mortality from Physical Abuse compared to Caregiver Neglect

Table 3: Gender and Poly-victimization

- Poly-victimization
 - Males had statistically significantly lower mortality compared to Caregiver Neglect
 - Females had statistically similar mortality compared to Caregiver Neglect

Table 3: ADLs and Health Status

- Remained significant and dose response related to mortality after controlling for all other covariates indicating that they are consistent contributors to mortality even in the absence of type of abuse
- This fits with mortality risk factors

Caregiver Neglect Discussion

- Caregiver Neglect- likely shares the most risk factors or at least the strongest risk factors with mortality (highest problems in both ADLs and Health status in this study)
- They may be failing in health already and might have a more natural trajectory towards mortality (need well matched comparison group to establish this association)

Financial Exploitation Discussion

- Intriguing to say the least
- Commonly think of Financial Exploitation as less heinous
- Less likely to be followed up on and harder to substantiate
- Less likely to be prosecuted and thus, resolved
- The substantiated cases are likely to be the worst and thus may have severely impacted the victims life (depression, loss of home, inability to afford medications, other health care, social visits)

Polyvictimization Discussion

- Common to think of more types being additive to risk for harm
- Does not appear to be a linear association (i.e. not that simple)
- Jackson and Hafemeister (2011)- Multiple forms appears to occur over a longer period of time suggesting that the extent of the abuse may either be to a lesser extent in order to conceal it and continue personal gains or the victims are more robust (needs to be assessed)
- Specific combinations may be leading to a higher survival (maybe less caregiver neglect and more Physical Abuse, Emotional and/or Financial Exploitation)
- In these cases, if Physical Abuse is part of the combination, it may be easier to detect and make a case for intervention

Emotional/Verbal Abuse Discussion

- Domestic violence literature says it “hurts” more than physical
- Longer lasting effects, changes the brain chemistry, stress responses
- Higher burden of mental health including depression
- May overlap with other types of abuse such as physical, but may be the only type validated when physical markers dissipate
- Although validated, may be harder to prove in criminal or civil court and thus, less likely to remove perpetrator leading to longer term and more consistent abuse

Physical Abuse Discussion

- Provokes the strongest public health, criminal and civil response
- Easier to see and more likely to be prosecuted or at least intervened upon (more robust responses leading to less risk)
- May share the least number of risk factors with mortality
 - Jackson and Hafemeister (2011) and Mouton et al., 2004 reported more independence and less vulnerability among physical abuse victims

Gender Differences Discussion

- Perhaps males are less prone to the effects of psychological abuse
- Males are usually the aggressor in domestic violence and thus, when they are the victims of physical abuse they may be more frail and vulnerable leading to an increase in risk for mortality comparable to being neglected
- Surviving physical abuse may just be that it occurs in more physically and robust women, they may be tougher or:
- Public awareness and domestic violence campaigns have reduced the tolerance for such events and made responses more swift and stiff

Practice Implications

- We are learning that different types of abuse have different risk factors and these may be shared with mortality indicating the need for potentially more swift responses or different interventions to target these shared risk factors first
- Perhaps we should change how we view the impact of seemingly less heinous abuse such as Financial Exploitation (it may cost someone much more than an inconvenience and more than their home)

Practice Implications

- Future research may lead to changes in policy regarding how cases are triaged within specific agencies
- Given the dose response with ADLs and Health status, perhaps this will enhance screening protocols in healthcare facilities and include Financial Exploitation screens which is commonly thought out of scope for clinically settings
- Use of Multidisciplinary teams may grow out of these sorts of findings

Future Research

- Replication on a larger scale: statewide and nationally
- Need better understanding of what might be driving mortality after the substantiation
- Need to understand the before substantiation trajectory of healthcare utilization in order to determine if it changes after substantiation
- Extend the time frame to allow some greater degrees of separation if present

Special Thanks

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THANK YOU!

Questions

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