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An Analysis of Motivating Factors in 1,725 Worldwide Cases of Mass Murder Between 1900–2019

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Abstract

Mass murder, particularly mass shootings, constitutes a major, growing public health concern. Specific motivations for these acts are not well understood, often overattributed to severe mental illness. Identifying diverse factors motivating mass murders may facilitate prevention.

We examined 1,725 global mass murders from 1900–2019, publicly described in English in print or online. We empirically categorized each into one of ten categories reflecting reported primary motivating factors, which were analyzed across mass murderers generally, as well as between U.S- and non-U.S.-based mass-shooters.

Psychosis or disorganization related to mental illness were infrequently motivational factors (166; 9.6%), and were significantly more associated with mass murder committed using methods other than firearms. The vast majority (998, 57.86%) of incidents were impulsive and emotionally-driven, following adverse life circumstances. Most mass murderers prompted by emotional upset were found to be driven by despair or extreme sadness over life events (161, 16.13% within the category); romantic rejection or loss, or severe jealousy (204, 20.44% within the category); some specific non-romantic grudge (212, 21.24% within the category); or explosive, overwhelming rage following a dispute (266, 26.65% within the category).

Results suggest that policies seeking to prevent mass murder should focus on criminal history, as well as subacute emotional disturbances not associated with severe mental illness in individuals with poor coping skills who have recently experienced negative life events.

Keywords

violence; motivation; mass murder; mass shooting; psychosis

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1. Introduction

Mass murders, which we have previously defined as three or more individuals killed in one event in a single setting, without a cooling-off period (Brucato *et al.*, 2021), have garnered great public and academic attention. This has particularly been true for those involving firearms and especially in the United States, where mass shootings have proved increasingly prevalent and deadly in the current millennium (Follman *et al.*, 2020; Peterson & Densley, 2020). With an eye to how such tragic events might be prevented, there has been much focus on the question of what motivates these attacks, often examining the role of mental illness (McGinty *et al.*, 2014; Parks *et al.*, 2019). Sorely-needed research has been limited, however, in two notable respects: first, the proportion of mass-shooting events associated with mental illness varies widely across studies, depending, in part, on how *mental illness* is defined. Remarkably, Parks and colleagues (2019) noted mental illness rates ranging from 4.7% to 78% across studies of mass-shooters. In a previous report from our group (Brucato *et al.*, 2021), examining mass murderers who employed any means, we provided separate rates of psychotic symptoms (11%), depressive symptoms (10%), personality disorders (5%), neurological conditions (1%), post-traumatic stress symptoms (<1%), bipolar disorder or mania symptoms (<1%), low I.Q. (<1%), autism spectrum disorder symptoms (<1%), anxiety disorder (excluding post-traumatic stress disorder) symptoms (<1%), and other psychiatric symptoms (<1%) among perpetrators. Psychotic symptoms (i.e., delusions, hallucinations and/or disorganized thought), though uncommon, overall, were found to be even less prevalent to a significant extent among mass shooters than among mass murderers who did not employ firearms.

A second limitation involves the challenge of how to optimally categorize the motivating factors precipitating mass murders, moving beyond frank psychiatric illness. Such efforts aim to gain insight into the complex ways in which mental state, personality structure, personal morality, culture, sociocultural factors, and life circumstances intersect among such individuals at the times of their attacks.

While several attempts have been made to delineate between motivations for mass murder, few have been presented in the peer-reviewed literature. A typology developed by Dietz (1986) distinguished between *family annihilators*, who kill family members, generally in home settings; *set-and-run killers*, who employ means that allow distance or escape from the murder scene, such as explosives or poisons; and *pseudocommandos*, who target indiscriminate victims after long planning, driven by feelings of persecution, and who are fascinated with firearms and military techniques.

Petee, Padgett, and York (1997) collected data on 106 mass murders occurring from 1965–1995, involving three or more fatalities, from newspapers in 11 major American cities. Motivations for murder and target selection were analyzed, yielding eight subtypes: In the *anger/revenge – specific person(s) target* category, a killer seeks revenge against specific, familiar individuals, for some perceived wrong, typically avoiding uninvolved parties unless they interfere. Those of the *anger/revenge – specific place target* type select a specific location because it is symbolic of or associated with a grievance. In the *anger/revenge – diffuse target* category, mass murderers either express rage toward specific groups or

categories of people, or target whomever is available in a given area. The *domestic/romantic* category involves either family members in conflict or under duress, generally in the home, but sometimes in public settings, or a mass murderer who retaliates following a romantic rejection in a non-cohabitation situation. Motives for *direct interpersonal conflict* mass murders do not stem from long-standing anger or conflict, but are more immediate in nature, involving a volatile person who erupts over a minor dispute. A *felony-related* mass murder is secondary to some other felonious act, typically theft, and victims are sometimes witnesses to the felony. *Gang-motivated* mass murder involves an offender in a dispute who has a gang affiliation and often kills alongside confederates. *Political* cases are generally associated with ideological or political terrorism. Finally, *non-specific motive* cases cannot be readily categorized, which, the authors suggest, may be due to a history of mental illness.

We sought to categorize our sample of 1,725 mass murders with the aim of better understanding the roles of severe mental illness, involving psychotic symptoms; criminal objectives; and other motivational factors (e.g., acute, severe emotional upset following adverse life events).

2. Methods

We examined 1,725 worldwide cases of mass murder, which occurred between 1900–2019, included in the Columbia Mass Murder Database (CMMD), based on extensive review of English-language databases of murderers and mass murderers publicly available in print and online. We used the Congressional definition of mass murder (i.e., three or more fatalities) (Douglas et al., 2012; Krouse & Richardson, 2015). We exclusively included *personal-cause* cases, excluding those associated with war, state- or group-sponsored terrorism, gang activity, or organized crime. We collected perpetrator names and incidents from academic, governmental/public (e.g. Everytown for Gun Safety), and lay/popular (e.g., Amok Fandom list) sources, though all information in our database was obtained from primary sources and reports. The methods involved in the creation of the database, including search terms, the databases and sources used, and how all data were coded, have previously been described in detail (Brucato *et al.*, 2021). Note that the sample included 409 perpetrators who might be better categorized as *spree killers*, due to having killed two (three for CMMD analyses) or more people in more than one location or at more than one point in time, with no cooling-off period (which was defined as killing across one week or less) between murders. The database excluded 1,571 additional perpetrators who were considered for possible inclusion, but who committed two episodes of murder with any victim count more than seven days apart, irrespective of any connections between murders. Persons best termed *serial killers*, due to a cooling-off period between killings, which we defined as a week or more, would fall into this exclusionary category.

To identify motivating factors, the apparent motivations in the first 300 cases of mass murder prepared for the database were examined, based on two or more English-language media primary sources. The first step in this process utilized the motivating factors identified by two of the authors of the present article (G.B., M.H.S.) and their colleagues, in an unrelated study (Petreca, Burgess, Stone, & Brucato, 2020). Their categories included *practical/secondary gain, excess emotionality, revenge, sadism, group-cause, sexual, and*

mental health-related/psychotic. These motivational categories served as a basic framework for the current study. We modified and developed the categories empirically as cases were reviewed, and clear, overarching patterns emerged. The resulting categories we employed, which have been fully described and distinguished, with examples, in the Supplement, were: (1) *Self-Survival Objectives*; (2) *Criminal Objectives*; (3) *Personal Religious or Political Beliefs*; (4) *Psychosis or Other Severe Psychiatric Disturbance*; (5) *Severe Emotional Upset*, divided into the nine subcategories of: despair or extreme sadness over life event(s); disgruntled employee; disgruntled student; family/marital/custody dispute; overwhelming and impulsive anger; revenge for bullying; romantic rejection or loss/severe jealousy; social/peer rejection; or a specific non-romantic grudge; (6) *Psychopathic or Sadistic Traits*; (7) *Narcissistic Traits*; (8) *Schizoid-Autistic Detachment*; (9) *Disorganization-Motivated*, subdivided into cases involving psychosis, intellectual or cognitive impairment, or severe psychiatric disturbance, and those associated with drug or alcohol intoxication; and (10) *Unknown/No Determinable Motive*.

Based on this typology, as the full list of incidents included in the CMMD was amassed, the first (G.B.) and senior (R.G.) authors, a clinical psychologist and psychiatrist, respectively, divided the cases and reviewed available English-language sources for information regarding motivating factors. Each rater then reviewed the other's designations. Wherever there was disparity between the categories selected by the raters, cases were reviewed and discussed, until there was agreement regarding the most appropriate designations. Furthermore, for the following variables, a code of "Yes" was only applied in cases wherein at least one primary source confirmed the presence of the variable (i.e., all others would be coded "no"): completed suicide at the scene; perpetrator injured or killed at the scene; history of psychotic symptoms; history of non-psychotic psychiatric/neurologic symptoms; recreational drug use/alcohol misuse; and criminal history. See the Supplement for further details.

2.1 Analyses

We tallied descriptive statistics for all 1,725 offenders, including age, gender, and race. The frequencies of each motivational subtype were tabulated, as well as the various subcategories of emotionally-driven killings. We separately examined perpetrators who used firearms (i.e., mass-shooters) and those who did not (i.e., mass murderers of other types), and U.S.-based mass-shooters versus non-U.S.-based mass-shooters. Differences in demographics and clinical features between groups were examined using Pearson χ^2 tests for categorical variables (e.g., history of psychotic symptoms, gender), and two-sample *t*-tests for continuous variables. Statistical significance was evaluated at an alpha level of 0.05; as this is an exploratory analysis, alpha level was not adjusted for multiple comparisons. As such, p-values should be interpreted with caution. Data analyses were conducted using SAS 9.4 (Cary, NC, 2013).

3. Results

The raters' designations were in full accord for 1,699 (98.49%) of cases. The remaining 26 cases were assigned designations following review and consensus between the raters. Demographic features are as previously reported (Brucato *et al.*, 2021, Table 1).

Raters were able to classify all but 29 (1.68%) mass murder incidents into one of the categories of motivating factors (see Table 1 and the Supplement for a full description of each category). Criminal objectives were identified in 324 (18.78%) events. Slightly more than half (998, 57.86%) of incidents were motivated by impulses related to severe affective upset, associated with sudden or pent-up emotionality related to adverse life events (i.e., “severe emotional upset”). Most mass murderers assigned to this category were found to be driven by despair or extreme sadness over life events (161, 9.33% of overall events, 16.13% within the category); romantic rejection or loss, or severe jealousy (204, 11.83% of overall events, 20.44% within the category); some specific non-romantic grudge (212, 12.29% of overall events, 21.24% within the category); or explosive, overwhelming rage following some dispute (266, 15.42% of overall events, 26.65 % within the category). Several motivational factors emerged as highly uncommon, including self-survival (16, 0.93%), religious or political beliefs (101, 5.86%), psychosis/other severe psychiatric disturbance (98, 5.68%), disorganization associated with severe psychiatric disturbance (68, 3.94%) or drug or alcohol intoxication (25, 1.45%), psychopathic or sadistic traits (46, 2.67%), narcissistic traits (10, 0.58%), and schizoid/autistic detachment (10, 0.58%).

When comparing categories of mass murders that involved firearms versus those that did not (Table 2), perpetrators were significantly more likely to use firearms when motivated by criminal objectives or extreme emotional upset ($p=0.007$, $p=0.010$, respectively). Mass murderers motivated by psychosis or other severe psychiatric disturbance ($p=0.001$), psychopathic or sadistic traits ($p=0.014$), and disorganization related to severe psychiatric disturbance ($p<0.001$) were significantly more likely to employ methods other than firearms. Additionally, mass murderers were less likely to use firearms when driven by severe emotional upset, associated with despair or extreme sadness over life events ($p=0.003$).

We separately examined mass-shooters which were carried out within and without the U.S. (see Table 3). Criminal objectives were common among U.S.-based mass shooters (213, 25.51%) but not among those from other geographic areas (30, 8.57%, $p<0.001$). Conversely, religious or political beliefs were more commonly associated with non-U.S.-based mass shootings ($p<0.001$). Again, extreme emotionality in the face of adverse life events emerged as the most common motivation for mass shootings irrespective of geographic location (482, 57.72% U.S.-based; 228, 65.14% non-U.S.-based). In terms of specific emotional grievances, despair over life events ($p=0.023$) and family disputes ($p<0.001$) were more common in the U.S. than elsewhere, while revenge for bullying was more common outside of the U.S. ($p<0.001$), as was a specific non-romantic grudge ($p=0.017$). We again found the primary drivers to be despair or extreme sadness over life events (77, 15.98% U.S.-based; 22, 9.65% non-U.S.-based); romantic rejection or loss, or severe jealousy (102, 21.16%; 40, 17.54% non-U.S.-based); some specific non-romantic grudge (93, 19.29% U.S.-based; 62, 27.19% non-U.S.-based); or explosive, overwhelming rage following a dispute (122, 25.31% U.S.-based; 69, 30.26% non-U.S.-based).

Differences between motives involved in non-spree versus spree-type mass-shooters can be found in Supplementary Table 1.

4. Discussion

In the present study, we sought to examine motivating factors of mass murder with the goal of expanding on previously proposed systems in a number of critical ways. To increase the generalizability of findings, we examined a large dataset of 1,725 mass murder incidents and included worldwide cases spanning 1900–2019. We examined cases not only involving firearms, but also those carried out by any methods, permitting exploration of possibly distinct motivating factors between groups.

Motivational categories employed in the study were developed based upon previous work (Petreca, Burgess, Stone, & Brucato, 2020) in conjunction with an examination of a subsample of 300 mass murderers, allowing data to define subtypes, rather than envisioning motivating factors in advance and attempting to fit all mass murders into them. Emphasis was placed upon whether offenders were seeking to obtain some specific secondary gain, including criminal objectives, with forethought; acting out of impulsive, overwhelming emotion in the wake of challenging life events and circumstances; acting as a part of longstanding personality drivers that were independent of circumstances; or whether there was simply no logic to a killer's actions, reflecting sheer disorganization. Finally, we distinguished between cases of serious mental illness, involving psychosis, in which the offender had a specific external aim which was idiosyncratically logical, but based upon a delusional premise, such as responding to what one believes is the voice of God, and cases in which there was only disorganized thought or behavior, sometimes associated with illicit substance use or alcohol misuse. The utility of the motivating factors we examined is supported by the excellent agreement between independent raters, who selected the same designations in 98.49% of cases and were able to arrive at consensus on the remaining 26 cases with discussion. Discordant designations almost uniformly arose in the context of cases in which more than one motivating factor seemed possible, and the system required selecting the one which predominated. Raters were able to identify motivations in all but 29 (1.68%) of mass murder incidents. Our hope is that the motivational categories we have presented will also allow for easy adaptation for future research, including further examinations of mass murder, but also studies of possible differences in motives between mass murderers and murderers who kill once or in a serial manner over time.

A lack of insight into the diverse situational and psychological factors which might precipitate mass shootings and other mass murder incidents have hampered efforts to develop policies and improved screening methods aimed at prevention. To date, efforts to understand specific drivers for these tragic events have involved establishing categories that might not encompass the full spectrum of motivating factors for perpetrating mass murder (Dietz, 1986; Arluke et al., 2018; Petee, Padgett and York, 1997; Rocque and Duwe, 2018).

Among the general public and in media reports following mass murder events, the killings are sometimes misrepresented as uniformly involving severe psychopathology, characterized by psychotic symptoms and/or disorganized in nature, or as being perpetrated by individuals taking prescribed psychotropic medications (Hall *et al.*, 2019; Knoll IV & Dietz, 2023). Empirical evidence suggests that, in reality, while severe mental illness is somewhat overrepresented among those who perpetrate mass shootings—the most common type of

mass murder—it plays a significant role in only a small fraction of cases. As noted in our introduction, the impact of mental illness reported in a given study of mass shooters is very much dependent upon how that term is defined (Parks *et al.*, 2019). In a previous report from the CMMMD (Brucato *et al.*, 2021), we observed lifetime psychotic symptoms among 11% of mass murderers, consistent with previous reports, including 18% who did not use firearms and 8% who did. Findings suggested that mental illness may, in many cases, be incidental to the motivations for the murders. In addition to an overemphasis on severe psychopathology among those who carry out such acts, the specific triggers that precipitate mass murder have been stereotyped in the public eye. It is commonly believed, for instance, that mass murders are often triggered by bullying; work- or school-related grievances; a desire for attention; or in the context of poor social connections.

Our findings regarding motivating factors were highly consistent in terms of frequencies, irrespective of whether we examined mass murderers of all types, mass-shooters versus those who employed other methods, or mass-shooters based within versus outside of the U.S., and were generally consistent with the literature (Petee, Padgett & York, 1997; Dietz, 1986). In particular, criminal objectives, such as theft, killing individuals who might have served as witnesses to a crime or eliminating persons who impede some desired end, such as obtaining an inheritance, are common, especially in the U.S., as also reported by Petee, Padgett and York (1997). Most mass murder incidents, however, are impulsive in nature—a point that has implications for those seeking to prevent future mass murder by screening for persons potentially planning such attacks (Petee, Padgett & York, 1997). These attacks are largely associated with either sudden emotionality or some “last straw” event that precipitates expression of long pent-up affect, occurring in the wake of difficult life events or circumstances.

We found the most common triggers for such emotional reactions to be despair or extreme sadness over life events; romantic rejection or loss, or severe jealousy; some specific grudge; or explosive, overwhelming rage following a dispute. Inconsistent with popular stereotypes of mass murder triggers, we found mass murder driven by disorganized psychotic illness, attention-seeking, and upset specifically associated with workplace or school grievances to be uncommon. Our distinction between psychotic symptoms related to the commands of voices or firmly-held delusional beliefs versus disorganized psychosis helps to clarify that, when psychotic illness is a driver for mass murder, we would not expect such an individual to be openly bizarre or obviously impaired. Such an individual might be expected to be organized enough to conceal such delusional beliefs, for instance, during a psychiatric evaluation or when attempting to acquire a firearm, and to recognize the impact and meaning of murderous actions.

We fully recognize that one of the chief limitations of this study, and such work in general, is the uncertain validity of motivating factors drawn from media reports and court/police records – an unavoidable limitation of this type of work. We further acknowledge an underrepresentation of mass murders in non-English-speaking countries, which may have resulted in systematic overrepresentation of primarily English-speaking countries (see, e.g., the Early Warning Project’s analysis of statistical risk for mass killings ranked by country).

The fact that the CMMD dataset spans more than a century introduces further potential limitations, such as possible changes in the prevalence of certain motivating factors or the attention given to some motivating factors over others in media reports. Additionally, we conducted multiple statistical tests to compare motivations between perpetrators who used firearms and those who did not, as well as those perpetrated within the U.S. and outside the U.S. Because of the exploratory nature of these analyses, we elected to report all results without correcting for multiple comparisons. We therefore recommend further investigation of observed associations.

Despite these potential limitations, the motivating factors described herein were empirically developed and categorized based on a dataset of 1,725 mass murders. There is presently no universally-accepted system for classifying motivating factors of mass murder. The key implication arising from our findings is that, rather than focusing on the role of mental illness in mass shootings, emphasis should be placed on criminal history and objectives, as well as a lack of emotional coping skills for dealing with life's challenges, associated with psychological challenges, but not severe mental illness. This information can be considered by law enforcement and policymakers as they seek to develop and improve measures aimed at preventing mass murders, such as those involving availability of firearms.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Description of Sample

Variable	N	Frequency	%
Gender	1725		
Male		1611	93.39
Female		106	6.14
Transgender		3	0.17
Unknown		5	0.29
Race	1725		
Caucasian		1038	60.17
African American		310	17.97
Asian/Pacific Islander		290	16.81
Native American/First Nations		11	0.64
Mixed/More Than One Race		24	1.39
Other		4	0.23
Unknown		48	2.78
Ethnicity	1725		
Hispanic		152	8.81
Non-Hispanic		1496	86.72
Unknown		77	4.46
Age Category	1609		
9–19		158	9.82
20–29		564	35.05
30–39		466	28.96
40–49		276	17.15
50–59		108	6.71
60–75		37	2.30
Location	1725		
U.S.		1061	61.51
Canada		39	2.26
Mexico/Central America		12	0.70
Africa		47	2.72
Asia		259	15.01
Australia or New Zealand		45	2.61
Europe		214	12.41
South America		29	1.68
Mid-Travel between Regions		19	1.10
Fatalities	1725		
3 or 4		800	46.38
5 or 6		458	26.55

Variable	N	Frequency	%
7–10		283	16.41
11–25		121	7.01
25–100		49	2.84
Over 100		14	0.81
Completed Suicide at Scene	1725		
No		1256	72.81
Yes		469	27.19
Perpetrator Injured or Killed at scene	1725		
No		1555	90.14
Non-Fatally Injured (by Others)		49	2.84
Accidentally Non-Fatally Injured (by Self)		17	0.99
Killed (by Others)		104	6.03
History of Psychotic Symptoms	1725		
No		1496	86.72
Yes		229	13.28
Non-Psychotic Psychiatric/Neurologic Symptoms	1725		
No		1417	82.14
Yes		308	17.86
Recreational Drug Use/Alcohol Misuse	1725		
No		1405	81.45
Yes		320	18.55
Criminal History	1725		
No		1372	79.54
Yes		353	20.46
Weapon	1725		
Non-Firearm		540	31.30
Firearm		1185	68.70
Categories of Motivating Factors	1725		
Self-Survival		16	0.93
Criminal Objectives		324	18.78
Religious or Political Beliefs		101	5.86
Psychosis/Other Severe Psychiatric Disturbance		98	5.68
Emotional Upset		998	57.86
Related to Psychopathic or Sadistic Traits		46	2.67
Related to Narcissistic Traits		10	0.58
Related to Schizoid/Autistic Detachment		10	0.58
Disorganization Related to Severe Psychiatric Disturbance		68	3.94
Disorganization Related to Drug or Alcohol Intoxication		25	1.45
No Motivation/Category Determined		29	1.68

Variable	N	Frequency	%
Sub Types of “Emotional Upset”	1725		
Type 1: Despair or extreme sadness over life event(s)		161	9.33
Type 2: Disgruntled employee		51	2.96
Type 3: Disgruntled student		8	0.46
Type 4: Family/marital/custody dispute (non-impulsive in nature)		57	3.30
Type 5: Overwhelming, impulsive anger		266	15.42
Type 6: Revenge for bullying		22	1.28
Type 7: Romantic rejection or loss/severe jealousy		204	11.83
Type 8: Social/peer rejection (e.g., feeling isolated or unwanted, not necessarily involving bullying)		17	0.99
Type 9: Specific non-romantic grudge		212	12.29
Not applicable		727	42.14
Types - N/A excluded	998		
Type 1: Despair or extreme sadness over life event(s)		161	16.13
Type 2: Disgruntled employee		51	5.11
Type 3: Disgruntled student		8	0.80
Type 4: Family/marital/custody dispute (non-impulsive in nature)		57	5.71
Type 5: Overwhelming, impulsive anger		266	26.65
Type 6: Revenge for bullying		22	2.20
Type 7: Romantic rejection or loss/severe jealousy		204	20.44
Type 8: Social/peer rejection (e.g., feeling isolated or unwanted, not necessarily involving bullying)		17	1.70
Type 9: Specific grudge		212	21.24

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Table 2.

Frequencies of Motivating Factors among Firearm and Non-Firearm Mass Murders

Motivating Factor	Non-Firearm (n=540)		Firearm (n=1185)		p *
	n	%	n	%	
Self-Survival	5	0.93	11	0.93	0.996
Criminal Objectives	81	15.00	243	20.51	0.007
Religious or Political Beliefs	30	5.56	71	5.99	0.721
Psychosis/Other Severe Psychiatric Disturbance	45	8.33	53	4.47	0.001
Emotional Upset	288	53.33	710	59.92	0.010
Sub Types of “Emotional Upset”					
Type 1: Despair or extreme sadness over life event(s)	62	21.53	99	13.94	0.003
Type 2: Disgruntled employee	9	3.13	42	5.92	0.070
Type 3: Disgruntled student	2	0.69	6	0.85	1.000
Type 4: Family/marital/custody dispute (non-impulsive in nature)	15	5.21	42	5.92	0.663
Type 5: Overwhelming, impulsive anger	75	26.04	191	26.90	0.781
Type 6: Revenge for bullying	3	1.04	19	2.68	0.152
Type 7: Romantic rejection or loss/severe jealousy	62	21.53	142	20.00	0.588
Type 8: Social/peer rejection (e.g., feeling isolated or unwanted, not necessarily involving bullying)	3	1.04	14	1.97	0.422
Type 9: Specific non-romantic grudge	57	19.79	155	21.83	0.475
Related to Psychopathic or Sadistic Traits	22	4.07	24	2.03	0.014
Related to Narcissistic Traits	4	0.74	6	0.51	0.515
Related to Schizoid/Autistic Detachment	5	0.93	5	0.42	0.201
Disorganization Related to Severe Psychiatric Disturbance	41	7.59	27	2.28	<.001
Disorganization Related to Drug or Alcohol Intoxication	10	1.85	15	1.27	0.345
Unknown/No Determinable Motive	9	1.67	20	1.69	0.975

* P-values are derived from chi-square tests comparing each row with the rest of the sample. For comparisons with any cell values<5, Fishers Exact Test is used.

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Table 3.

Frequencies of Motivating Factors among U.S.-Based Mass-Shooters versus Non-U.S.-Based Mass-Shooters

Motivating Factor	U.S.-Based (n=835)		Non-U.S.-Based (n=350)		p
	n	%	n	%	
Self-Survival	7	0.84	4	1.14	0.740
Criminal Objectives	213	25.51	30	8.57	<.001
Religious or Political Beliefs	32	3.83	39	11.14	<.001
Psychosis/Other Severe Psychiatric Disturbance	40	4.79	13	3.71	0.414
Emotional Upset	482	57.72	228	65.14	0.017
Sub Types of “Emotional Upset”					
Type 1: Despair or extreme sadness over life event(s)	77	15.98	22	9.65	0.023
Type 2: Disgruntled employee	32	6.64	10	4.39	0.235
Type 3: Disgruntled student	4	0.83	2	0.88	1.000
Type 4: Family/marital/custody dispute (non-impulsive in nature)	38	7.88	4	1.75	<.001
Type 5: Overwhelming, impulsive anger	122	25.31	69	30.26	0.165
Type 6: Revenge for bullying	4	0.83	15	6.58	<.001
Type 7: Romantic rejection or loss/severe jealousy	102	21.16	40	17.54	0.260
Type 8: Social/peer rejection (e.g., feeling isolated or unwanted, not necessarily involving bullying)	10	2.07	4	1.75	1.000
Type 9: Specific non-romantic grudge	93	19.29	62	27.19	0.017
Related to Psychopathic or Sadistic Traits	17	2.04	7	2.00	0.968
Related to Narcissistic Traits	4	0.48	2	0.57	1.000
Related to Schizoid/Autistic Detachment	3	0.36	2	0.57	0.635
Disorganization Related to Severe Psychiatric Disturbance	16	1.92	11	3.14	0.197
Disorganization Related to Drug or Alcohol Intoxication	8	0.96	7	2.00	0.143
Unknown/No Determinable Motive	13	1.56	7	2.00	0.589

* P-values are derived from chi-square tests comparing each row with the rest of the sample. For comparisons with any cell values<5, Fishers Exact Test is used.

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