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2021-01
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http://hdl.handle.net/10138/322649
Karlsson, L C, Antfolk, J, Putkonen, H, Amon, S, da Silva Guerreiro, J, de Vogel, V, Flynn, S & Weizmann-Henelius, G 2021, 'Familicide : A Systematic Literature Review', Trauma violence & abuse, vol. 22, no. 1, pp. 83-98. https://doi.org/10.1177/1524838018821955

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Familicide: A Systematic Literature Review

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Funding information
The study was funded by a grant from the Eino Jutikkala Fund to the first author and a grant (no. 298513) from Academy of Finland to the second author.

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Familicide: A Systematic Literature Review

Abstract

Familicides have received relatively little attention in previous research and mostly appear as a byproduct in studies with broader objectives. Here, we reviewed 67 studies from 18 countries, published between 1980 and 2017, that report on familicides in which an offender killed or attempted to kill their current or former spouse/intimate partner and one or more of their biological or stepchildren. Studies were identified by a systematical literature search in PubMed, PsycINFO, and Google Scholar. Only eight studies had the specific aim of investigating familicide, while the remaining studies investigated broader phenomena (e.g., homicide-suicide) but reported on a subsample of familicide cases. We retrieved data concerning the offenders' gender, age, and background, as well as information regarding victims and their relationship to the offender. We also retrieved contextual factors and characteristics of the offence, such as modus operandi, offence location, possible premeditation, and whether or not the offender had died by suicide in connection to the offence. Furthermore, we coded methodological aspects of the studies, such as data collection coverage and sources of information. Familicides were almost exclusively committed by men and about half of the familicide cases led to the subsequent suicide of the offender. Mental health problems, relationship problems, and financial difficulties were prevalent. Because few studies reported population base rates of the investigated characteristics, it is difficult to draw conclusions about risk factors for familicide. Future research should further investigate typologies of familicide and examine risk factors associated with different types of familicides.

Keywords: Familicide, family violence, homicide, systematic literature review, intimate partner homicide, filicide

Familicide: A Systematic Literature Review

The term familicide has been used to describe a variety of different types of intra-familial homicides. The most common definition is, however, the one provided by Wilson, Daly, and Daniele (1995), that is, the killing of a spouse and one or more children. In the present literature review, we gathered the research on familicide fitting this definition. More specifically, we included both current and former spouse/intimate partner in the definition, and the child victims included one or several of the offender's biological and/or stepchildren.

Familicides have received relatively little attention in the scientific literature. This is probably due to the low incidence and the fact that access to pertinent information is often restricted due to the confidentiality of legal and health documents. At the moment, the scientific literature on familicide consists of both case studies and studies investigating familicide on a group-level. Case studies often present qualitatively rich information regarding each of the included cases, but the possibility to generalize the results to broader populations is severely limited. Group-level studies more often have larger samples and greater generalizability, but the reported information is often not as rich and detailed. Beyond the use of different methodologies, the current state of research on familicides suffers from some limitations. First, the definition of familicide varies considerably between studies, and in some studies, the use of the term familicide is not clearly defined. The inconsistencies in definitions concern, for example, the perpetrator-victim relationships included and the number of victims required in each incident. Consequently, this can result in different phenomena being investigated under the familicide label. Second, familicide is rarely the main focus of published articles. Instead, the information on familicides often appears as a byproduct in studies with broader research objectives, such as investigating homicide-suicide or psychiatric populations of offenders. Consequently, only a subgroup of familicides might be included, and data on familicides and other forms of homicides are often aggregated,

making it impossible to discern familicide-specific information. This limits interpretability and generalizability of results that could contribute to a better understanding of the offence.

To the best of our knowledge, two previous literature reviews on familicide have been published. The first, a review by Mailloux (2014), focused on the question as to why children become victims in familicide incidents and explored underlying factors of familicides that are of relevance in the attempt to develop preventive strategies and to improve assessment and treatment options for surviving and at-risk victims and perpetrators. In the review, the typical perpetrator is described as a man who has been in a long-time relationship with his spouse and has a patriarchal and possessive perspective on his family. The offenders also often have employment problems and substance abuse, and have previously committed domestic violence. Further, the review concludes that most familicide incidents are preceded by divorce or separation and that the most commonly used method of homicide is a firearm. It is assumed that the primary victim of familicides is the adult female partner, while the children are killed because the perpetrator does not perceive them as being separate from the partner.

The second literature review was conducted by Aho, Remahl, and Paavilainen (2017) and focused on background factors of familicide incidents committed in Western countries. The authors concluded that most perpetrators are highly educated men with psychological instability manifested by depression, personality disorder, self-destructiveness, and substance abuse. They often have antecedents of violent behavior and instability in social relationships, and many of the offenders had sought help for psychological problems.

The questions that the previous reviews tried to answer are of importance for the development of preventive strategies, but both reviews suffer from some limitations. The literature included in the review conducted by Mailloux (2014) was not systematically gathered and included only four peer-reviewed articles and one book on the topic of familicide. The familicide samples included in these sources originated mainly from the US,

Canada, UK, and the Netherlands. The remaining sources were either news outlets, articles on cases of parricide (the killing of parents) or filicide (the killing of children by parents), or books on more general topics than familicide. The second review, by Aho and colleagues (2017), was based on a systematic collection of literature, and overlaps with the review by Mailloux (2014) by one article (Liem & Koenraadt, 2008). The second review also included filicide (i.e., the killing of a child only) in the definition of familicide, but the results are still presented separately for filicides and familicides (by the definition applied here). The results regarding familicide are based on only six studies, of which one concerns filicides and two were conducted on the same familicide sample. The familicide samples included in these studies were collected in the US, Canada, and the Netherlands. The authors further excluded case studies from the review.

Therefore, there is a need for a more comprehensive systematic literature review on familicide in order to be able to draw more informed conclusions. Knowledge concerning these incidents should be based on studies investigating familicides specifically, and not on studies of other types of homicide. This is because it is unknown to what extent familicide is a phenomenon distinct from other intra-familial homicides. The earlier literature reviews are also limited in their geographical coverage, as they include data from only four countries.

Information regarding the circumstances in which familicides take place is important for services aiming at preventing these incidents and protecting families. Intra-familial multiple homicides, such as familicides, have devastating consequences not only for those directly involved and for individuals close to the perpetrator and the victims, but also for surrounding communities as familicides often give rise to national media attention and public concern (Liem & Koenraadt, 2007; Sisask, Mark, & Värnik, 2012).

The Current Systematic Review

In light of the aforementioned limitations of previous reviews, the aim of the present review was to provide a more comprehensive synthetization of the available knowledge on familicide by 1) applying stricter criteria concerning the definition of familicide in the study inclusion process, 2) including more studies on the topic, 3) retrieving more information from the studies, and 4) evaluating the contemporary state of the knowledge on familicide by also retrieving information on the methodological aspects of the original studies.

More specifically, we systematically gather the research on familicide as defined by the killing of a current or former spouse/intimate partner, and one or more children (step or biological). This definition was strictly followed throughout the review and studies applying other definitions were excluded in the literature search process. The application of strict criteria concerning the definition results in more homogeneous data, which, in turn, leads to conclusions more specific to the phenomenon under investigation.

To receive a larger database of articles to review, we did not only include studies with the specific aim of investigating familicides, but also such that had broader main scopes (e.g., homicide-suicide in general) in case they presented information specifically regarding a subsample that matched our definition of familicide. In this way, it is also more likely to receive data from a wider range of countries. We also included both case studies and studies presenting group-level information.

We retrieved information on the incidence of familicide, characteristics and background of the offenders and victims, as well as contextual factors, and characteristics of the offences. Also, in order to evaluate the quality and representativeness of the contemporary knowledge base, we also collected data on the methodological characteristics of the original studies. Only studies published in peer-reviewed articles were included.

Method

Criteria for Inclusion

The present review focused on original studies that include cases of familicide defined by the killing of one's current or former spouse/intimate partner and at least one child. In the literature search, an article was deemed eligible for inclusion if it filled the following criteria:

1) Included a case/cases of familicide, in which a person killed (or attempted to kill) his or her current or former spouse/intimate partner and at least one of their children (biological children or stepchildren of the offender). The articles had to state unambiguously that their cases of familicide included partners and children as victims or clearly refer to studies with this definition of familicide when they described their terms.

2) Reported case-level or group-level data regarding the included familicide cases.

3) Was published in a peer-reviewed journal.

4) Were written in English.

Sources and Search Procedure

We searched the databases PubMed, PsycINFO, and Google Scholar for studies meeting the above mentioned inclusion criteria. The first search took place in 2016 (PubMed 11.4.2016; PsycINFO 11.4.2016; Google Scholar 5.7.2016) and the following search string was used: familicide* OR ((homicide* OR kill* OR murder*) AND (spouse* OR partner*) AND (child*)). The search yielded 315 hits in PubMed, 423 hits in PsycINFO, and 786 hits in Google Scholar. All hits in PubMed and PsycINFO were screened, while Google Scholar was screened until 100 irrelevant subsequent hits had passed.

We searched the databases in the aforementioned order and extracted only unique studies (i.e., studies that did not appear in a previous search) from a database. Abstracts were first screened, and when the abstract indicated that the study possibly included familicide

cases, the full-text articles were retrieved when accessible to verify that they met the inclusion criteria. This resulted in the inclusion of 14 accessible and verified articles from PubMed, 11 from PsycINFO, and 23 from Google Scholar. In addition to this, the abstract screening resulted in 23 possibly interesting articles for which we did not have access to the full text (17 from PubMed, two from PsycINFO, and four from Google Scholar). Hence, we contacted the authors when contact information was available (17 articles). The authors provided us with information concerning seven of the articles, and of these, three met our inclusion criteria. Therefore, 16 articles from PubMed, 11 from PsycINFO, and 24 from Google Scholar were included. Consequently, the first literature search resulted in 51 articles that met our inclusion criteria.

The literature search was updated once (21.6.2017) following the same procedure as in the initial search, but by restricting the article publication period to a time period spanning from 2016 up until the date for the second search. This search resulted in the inclusion of two articles found in Google Scholar. Finally, we screened the reference lists of all included articles in order to find additional studies eligible for inclusion. The reference screening resulted in the inclusion of 10 articles. Therefore, the total number of articles included in the present literature review was 63. The search process is illustrated in Figure 1.

Data Coding

The information retrieved from the articles was coded as belonging to either of two categories; study information and familicide information.

Study information. From each article, we retrieved information regarding the geographical and temporal coverage of the data collection, as well as the type of population targeted in the study and the sources of information utilized.

Type of study. We categorized the studies with regard to their *type*, that is, as either being a case-level study or a group-level study. An article was considered a case-level study

if it contained a description of one case of familicide, or if several cases were described separately without reporting group-level data. An article was considered a group-level study if it reported group-level data of a sample of familicide cases. If a group-level study presented case descriptions of some selected cases, these cases were not coded separately as that would result in the cases being represented twice.

Geographical information. We coded the *country* where the study was conducted as well as the *geographical coverage* of the data collection. Concerning the coverage, a study was coded as national if the basis for the data collection included a whole country, and as regional if the data collection covered an area within a country, such as a province, a city, or a psychiatric hospital not serving the whole country.

Temporal information. The *time span* of the data collection was retrieved.

Study Population. We coded the *population* that the original study aimed at investigating (e.g., homicide-suicide perpetrators or female psychiatric offenders).

Source of information. We also coded the *source of information* utilized in the studies. Because procedures concerning documentation of criminal offences vary greatly between countries, the studies had collected data from a variety of types of registers with varying content. The sources were coded as either official records (e.g., police records, health care records, homicide surveillance archives), interviews (conducted by the research teams), professional contact (if the author[s] of an article had received information on the familicide case[s] in a professional role, such as as psychiatrist or coroner), or news media (e.g., newspaper articles, TV).

Familicide information. Information retrieved from the studies regarding the familicide offences concerned number of offences, offender characteristics, characteristics of victims, contextual information, characteristics of the offence, and risk factors. For case-level

studies, we coded the information separately for each case, whereas for group level-studies, we coded the mean or percentage of a specific characteristic in a sample.

Number of familicide cases. We retrieved the *number of familicides* in a study. Furthermore, when reported, the *national incidence* of familicide cases in a given country was extracted from the articles.

Offender characteristics. We coded the *gender* and *age* of the offenders. Other available *background information* regarding the offender, such as mental health, substance abuse, and employment status was also retrieved from the articles. When available, we extracted the *criminal history* of the offenders.

Victim characteristics. We retrieved the *number of victims*, as well as the *gender* and *age* of both adult and child victims. We also retrieved the *relationship status* between the adult victim and the offender as well as information on whether the child victims were *biologically related* to the offender or not. The relatedness was retrieved only when available in group-level studies, as that information was rarely explicitly mentioned in case-level studies. For group-level studies, we also extracted the *number of additional victims*, not belonging to the categories included in the definition of familicide.

Contextual information. We retrieved information regarding *contextual factors* of the families. This information was, for example, relationship problems and separation, financial difficulties, or offender intoxication. In some of the articles, this information was specifically described as the *motives* of the offence. Information concerning whether the offender shared household with the victims or not was also extracted.

Characteristics of the offence. We retrieved information regarding signs of *premeditation* only when reported in group-level studies, as premeditation was rarely explicitly mentioned in case-level studies. We also retrieved information about the *method of*

homicide, the location of the offence, and whether the offender died by or attempted *suicide* in connection to the offence.

Risk factors. If the articles reported a characteristic to be statistically overrepresented in the familicide sample by comparing the prevalence of the characteristic in the sample to the prevalence in the general population, that characteristic was coded as a *risk factor*.

Results

Study Information

Sixty-three articles, published between 1980 and 2017 and reporting on familicides from 18 countries, met the inclusion criteria. Of these articles, one (Wilson et al., 1995) reported two samples of familicides from different countries, while another (Liem, Barber, Markwalder, Killias, & Nieuwbeerta, 2011) reported three different samples from three countries. Furthermore, one article (Lehti, Kääriäinen, & Kivivuori, 2012) reported two samples from two different time periods. These different samples were regarded as separate studies and, hence, the current review included 67 studies. An overview of the geographical and temporal coverage, types of samples investigated, the sources of information used, and the number of familicide cases in the original studies is shown in Table S1.

Of the 67 studies, 23 (34%) reported case-level data, while 44 (66%) reported group-level data. Thirty studies (45% of the total sample) were conducted in North America, 25 (37%) in European countries, six (9%) in Asian countries, five (7%) in Australia, and one (1%) in Fiji. In 33 (49%) studies, data were collected nationwide, whereas data were collected regionally in the other 34 (51%) studies. The years between 1985 and 2010 were the most covered ones in the data collections of the studies, with the peak in the beginning of the 21st century. One study had collected familicide cases as far back as 1935, while the most recent data collections took place in 2014. Studies conducted within the same geographical

area usually had data collections with overlapping time spans and, therefore, the same cases are likely to appear in more than one study.

In only eight studies (12%), the specific aim was to investigate familicide, as per the definition applied here. In 34 (51%) studies, the main aim was to investigate homicides, while 33 studies (49%) collected data on homicide-suicide, and, thus, restricted their samples to cases where the offenders were deceased. In seven (10%) of the 67 studies, the cases were derived from a psychiatric sample, which results in samples consisting of only surviving offenders. Most studies had specific criteria regarding which cases to include. Among these criteria were offender and/or victim gender, number of victims, and specific circumstances to the offence. Some studies included attempted offences in addition to completed ones. Furthermore, the studies differed in their definitions of concepts that constituted their inclusion criteria (e.g., time elapsed between homicide and suicide, age limits of children).

Thirty-four studies (51%) had utilized only official records as the source of information in their data collection, whereas six (9%) had used only news media sources. Sixteen studies (24%) based their data collection on both official records and news media sources, while two (3%) had used official records together with interviews with surviving victims, relatives or friends of the families, or professionals involved with the case. Three studies (4%) had utilized both official records and news media sources, as well as interviews. In four studies (6%), the researchers had come into contact with the cases through their profession. Two studies (3%) did not mention which sources they used for collecting data.

Familicide Information

The results obtained from the case- and group-level studies will be presented separately below. For two reasons, the main focus of this review will be on the group-level studies. First, as many of the case-level studies had data collection periods overlapping with the group-level studies, it is likely that cases in the aforementioned studies are included in the

group-level studies as well. Second, the collection of information was generally more systematically conducted in group-level studies (in case descriptions, it was rarely stated explicitly that a characteristic is *not* present).

Case-level studies. Descriptions of the 75 cases reported in case-level studies are presented in Table S2. As some data collections were overlapping with regards to time period and geographical area, it is possible that some cases appears in Table S2 more than once. Therefore, no summarizing statistics, such as means or percentages, will be presented concerning the characteristics of these cases.

Almost all of the perpetrators described in the case-level studies were male and the majority were in their 30s or 40s (age range 24-72). All cases included one adult victim and between one and five child victims. Most adult victims were female and married to the perpetrator. Financial or employment-related problems were reported in over half of the familicides, while issues in interpersonal relationships within the family were mentioned in less than half of the cases. A firearm was used as the method of homicide in just over half of the cases. Other methods were stabbing or using sharp force, strangulation or suffocation, setting fire, poisoning, and using blunt force. In studies that included both surviving and deceased offenders, the offender was reported as having either died by or attempted suicide in connection to the offence in about 3/4 of the cases. For eight cases, there was no information on whether the offender had died by suicide or not.

Group-level studies. Information from group-level studies on offender, victim, context, and offence characteristics is presented in Tables 1, 2, and 3, respectively.

Incidence. Few studies reported on the national incidence rate of familicide. However, Wilson and colleagues (1995) found that the annual incidence of familicide per million persons in Canada was 0.15, whereas the annual incidence per million persons in England and Wales was 0.07. In Chicago, the corresponding incidence was 0.19 (Wilson &

Daly, 1997). In Finland, Lehti and colleagues (2012) found that between 1969 and 1974, the annual incidence of familicide was 1.0 per million 1–14 year-olds, whereas between 2003 and 2009, the incidence was 0.5. Familicide-suicide occurred on average once a year in the Netherlands between 1992 and 2005 (Liem & Koenraadt, 2007). In the US, the annual occurrence between 2000 and 2009 was 23 incidents, ranging from four to 35 cases a year (Liem, Levin, Holland, & Fox, 2013). In Canada, one out of every 69 homicide victims was a victim of familicide, and in England and Wales, one out of every 72 (Wilson et al., 1995).

Offender characteristics. Results regarding offender characteristics are shown in Table 1. In the vast majority of cases, the offenders were male. The mean age of the offenders ranged from 35 to 43 and between 31% and 41% were unemployed. Four studies reported on the mental health of the offenders. The reported prevalence of depression varied between 13% and 69%, whereas between 17% and 27% of offenders were psychotic or paranoid. Between 13% to 45% of offenders had a history of mental health treatment. One study reported on the prevalence of substance abuse, with 22% of offenders being diagnosed with substance abuse disorder. Seven studies reported on the offenders' history of criminal behavior. The prevalence of domestic violence ranged between 18 and 92%.

Victim characteristics. The results from the group-level studies that reported on victim characteristics are presented in Table 2. Adult victims were female in 87% to 100% of the cases, and the mean age of the adult victims in the samples was between 35 and 39. The offender and the adult victim were often married (33-100%), and between 7% and 77% were divorced or separated. Child victims were male in 27% to 59% of the cases, and the mean age of the child victims ranged from seven to 12 years. Stepchildren constituted between 0% and 33% of victims in the male or mixed-gender samples, whereas all of the 12 children killed in the female sample were biological children of the offender.

Context and offence characteristics. The results from the group-level studies that reported on context and offence characteristics can be seen in Table 3. Recent or current separation (85-100%) and relationship problems or conflict between the partners (71-83%) were prevalent characteristics in the familicide samples. Financial problems occurred in 17% to 86% of the samples. In 67% to 72% of the cases, the perpetrator and all victims shared a household. Between 12% and 33% of the offenders were intoxicated at the time of the offence. In studies that investigated homicide-suicide, between 30% and 38% of the familicide offenders left a suicide note. In the samples investigated in North America, 53% to 73% of the offenders used a firearm to kill their victims. In the rest of the world, firearms were used in 12% to 28% of the cases. In between 12% to 44% of the cases, the offender had used a sharp or pointed weapon as the method of killing. Most victims were killed in their homes (91-96%). The proportion of familicide offenders that died by suicide after the offence varied between 14% and 100%, not including studies with exclusively homicide-suicide samples. Many studies reported a suicide proportion of 50% or just above.

Risk factors. Only a few studies reported on risk factors for familicide by comparing the prevalence of characteristics in the familicide samples to the prevalence in the general population. Investigating familicide samples from Canada, the UK, and the US (Chicago), Wilson and colleagues (1995) and Wilson and Daly (1997) concluded that the proportion of children killed by a stepfather was larger (10%, 17%, and 29%, respectively) than the number of children that had stepfathers in the general population (about 6%, 3-12%, and under 10%, respectively). In addition, in the Canadian and the UK samples, the results indicated that the risk for familicide is greater when the perpetrator and the adult victim are not married (but might live together), as the proportion of partners not in a registered marriage compared with married couples, were larger than in the population at large (Wilson et al., 1995).

Discussion

The aim of the present systematic literature review was to create a comprehensive overview of the research on familicide, as defined by the killing of one's current or former spouse/intimate partner and one or more children (biological or step). Only peer-reviewed articles employing this specific definition of familicide were included. The information collected from the original articles concerned the incidence of familicide, characteristics of the offender, the victims, the context, and the offences, as well as methodological characteristics of the studies.

Incidence of Familicide

Familicide appears to be a rare phenomenon worldwide, with annual incidence rates indicating about 1-2 familicides per 10 million persons. In Finland, Lehti and colleagues (2012) found a decrease in familicides in Finland over the last 50 years. Between 1960 and 1974, an average of two children were killed in familicides each year, while between 2003 and 2009, the number was less than one per year. None of the familicides in the study by Lehti and co-authors (2012) involved alcohol, and the authors point out that a decreasing trend could be seen among male committed non-alcohol-related spousal homicides generally, whereas the rate of alcohol-related spouse killings increased. However, data from Belgium indicate that familicide-suicides were more frequent during the past decades than before (De Koning & Piette, 2014), and, thus, observed fluctuations in prevalence might be local.

Offender and Victim Characteristics

Familicide is almost exclusively a crime perpetrated by men, and the mean age of the offenders vary between 35 and 43. The male offender is often somewhat older than his spouse victim (Liem et al., 2013; Wilson et al., 1995), reflecting the general age differences between partners (Antfolk, 2017). In the offender samples included in the current review, mental health problems, such as depression, psychosis or paranoia, personality disorder,

obsessive behavior, and substance abuse disorder, were prevalent (Friedman et al., 2005; Hamilton et al., 2013; Liem & Koenraadt, 2008; Logan et al., 2013). Perpetrators of familicide thus seem to present with high rates of mental illness, but as no study compared the rates of the mental health problems to the ones in the general population, conclusions concerning the relevance of these problems as risk factors cannot be drawn. The offenders also commonly had a history of domestic violence, but the range of the prevalences varied greatly between studies (18–65%; Friedman et al., 2005; Hamilton et al., 2013; Liem & Koenraadt, 2008; Liem et al., 2013).

Concomitant of the fact that most familicide offenders are male, the adult victim is most often female. Among the cases included in the studies in the review database, only one was reported as having occurred in a same-sex relationship. The mean ages of the adult victims in the original samples varied between 35 and 39, and the victims were most often married to the perpetrator. However, couples who live together but who are not married still have a higher risk of becoming victims of familicide than married couples when the rates are compared with the general population (Wilson et al., 1995).

Concerning the child victims, the included group-level studies indicated no greater risk for male or female children to become victims of familicide (LeFevre Sillito & Salari, 2011; Liem et al., 2013; Wilson et al., 1995; Wilson & Daly, 1997). The mean ages of the child victims varied between 7 and 12 (Liem et al., 2013; Wilson et al., 1995; Wilson & Daly, 1997). The proportion of stepchildren as victims was relatively high in several of the studies reviewed. In the group-level studies, up to a third of the child victims were stepchildren. Studies comparing the rate of stepchildren in familicides to the general population show that step relationships are overrepresented in the familicide samples (Wilson et al., 1995; Wilson & Daly, 1997). This finding is in line with research indicating that parents do not invest in stepchildren to the same degree as in biological children (Antfolk,

Karlsson, Söderlund, & Szala, 2017; Henretta, Van Voorhis, & Soldo, 2014; Kalil, Ryan, & Chor, 2014), and that children have a higher risk of becoming physically and sexually abused by a stepparent than by a biological parent (Archer, 2013; Daly & Wilson, 1985, 1996; Hilton, Harris, & Rice, 2015; Sariola & Uutela, 1996). This "Cinderella effect" can be partially explained by parents being emotionally more close to biological children, and by evolutionary assumptions, stipulating that natural selection has promoted parental investment in biological children, as these, in contrast to stepchildren, share the parent's genetic material (Antfolk et al., 2017; Karlsson, Malén, Kaakinen, & Antfolk, 2018; Trivers, 1972).

Contextual Factors and Motives

In most cases, the perpetrator shares household with all of the victims, and relationship problems, recent or pending separation, and financial difficulties are prevalent in the families (Alder & Polk, 1996; Chan, Beh, & Broadhurst, 2003; Hamilton et al., 2013; Liem et al., 2013; Liem & Reichelmann, 2014; Logan et al., 2013; Nordlund & Temrin, 2007). It has been suggested that there are two distinct types of familicides with different sets of contextual factors leading up to the crime. The first type is characterized by a despaired offender who, as an extended suicide, kills the family out of pseudo-altruistic reasons (despondent type), whereas the second type is characterized by an offender motivated by jealousy and revenge (hostile type). In the latter case, the primary victim of the offender is the spouse (Liem & Reichelmann, 2014; Wilson et al., 1995). Liem and Reichelmann (2014) found empirical support for these types using cluster analysis in a sample of multiple intra-familial homicides. One of the resulting clusters included multiple homicides where the victims were spouses and children and the offence was mostly premeditated and followed by the offender's suicide. The offenders were usually the biological father of the child victims and struggled to financially support their families. On the other hand, the second cluster of multiple homicides was characterized by a high rate of stepfathers. Intimate partner problems

were prevalent in the latter cluster, and the crime did typically not end in the offender taking his or her own life. Also Wilson and colleagues (1995) found suicide rates to be higher in familicide cases where the offender kills biological children than in cases where only stepchildren are killed. The authors discuss that both the despondent and the hostile offenders seem to possess a proprietary view of the family, but that they have different motives for the offence. The despondent offender might feel that the family will not be able to cope without him, while the hostile offender may act out of jealousy and feel that he can decide on the family's faith. The lower rate of stepchildren among the victims of the despondent offender fits well with the evolutionary predictions of more altruistic behavior towards genetic offspring mentioned above.

Characteristics of the Offence

Firearms were often used as the method of killing in North America (Liem et al., 2013; Logan et al., 2013; Wilson et al., 1995; Wilson & Daly, 1997), whereas elsewhere, the proportion of familicides committed with firearms were much lower (Liem & Koenraadt, 2008; Liem, Postulart, & Nieuwbeerta, 2009; Wilson et al., 1995). The same trend can be seen in homicides generally, as firearms are used in about two thirds of all homicides committed in the US: a much higher proportion than in other high-income countries, where firearms are used in less than 20% of cases (Grinshteyn & Hemenway, 2016). In many group-level studies that included both familicide and familicide-suicide, about half of the offences ended in the suicide of the offender (Hamilton et al., 2013; Lévéillée, Marleau, & Dubé, 2007; Nordlund & Temrin, 2007; Sabri, Campbell, & Dabby, 2016; Wilson et al., 1995).

Familicides Compared with Uxoricides and Filicides

The question as to whether familicide is a distinct phenomenon from other intra-familial homicides or whether it shares characteristics with uxoricides (the killing of one's wife) or filicides (the killing of children by parents) has been investigated in some studies

with, to some extent, conflicting results. However, the findings suggest that men are even more overrepresented as perpetrators of familicide compared with their overrepresentation in other intra-familial homicides (Liem & Koenraadt, 2008; Logan et al., 2013; Wilson et al., 1995), and that firearms are more frequently used in familicides (Wilson et al., 1995).

Liem and Koenraadt (2008) compared 23 surviving familicide offenders with a sample of uxoricide offenders and found that the familicide offenders did more often have a personality disorder, especially with narcissistic or dependent features, and that they had less often committed a previous violent offence. The samples did not differ with regard to other psychopathology, history of mental health care, substance abuse, childhood abuse, or employment status. Compared to uxoricide offenders, familicide offenders have also been found significantly younger, more often married to the adult victim, and more likely to die by suicide (Liem & Koenraadt, 2008; Wilson et al., 1995). The age distribution among the adult female victims of familicide is also less variable compared with victims of uxoricides (Liem & Koenraadt, 2008; Wilson et al., 1995). This might be a product of the fact that familicides per definition involve children, and the incidents therefore happen in circumstances where couples are more likely to have dependent children.

Compared with filicide offenders, familicide offenders have been found to be older, more often male, and have higher educational levels (Liem & Koenraadt, 2008; Logan et al., 2013; Wilson et al., 1995), but equally likely to have a history of mental health care, substance abuse, childhood abuse, violent offending, psychopathology, and relationship problems (Liem & Koenraadt, 2008; Logan et al., 2013). Wilson and co-authors (1995) showed that familicide offenders more often died by suicide than filicide offenders, and that the overrepresentation of stepchildren was less pronounced in the familicides sample. However, in their study of surviving offenders, Liem and Koenraadt (2008) found suicide attempts to be equally common among the familicide and filicide offenders, and the authors

did not find a significant difference in the rate of stepchildren between the two offences. Further, Wilson and colleagues (1995) did not find any differences in the gender distribution of the child victims between the familicide and filicide samples, but the child victims of familicide in the sample from England and Wales were significantly older compared with the filicide sample. This difference did, however, not emerge between the Canadian samples.

The above-mentioned findings indicate that there are some differences between familicide cases and cases of uxoricide and filicide. The motive of familicide offenders have been found to correspond more to the motives of uxoricide offenders (such as fear of abandonment and narcissistic rage) than filicide offenders, although psychotic motives were somewhat overrepresented in the familicide cases (Liem & Koenraadt, 2008). Based on the even gender ratio of the child victims and the less pronounced overrepresentation of step relationships, Wilson and co-authors (1995) conclude that the children are not the primary victims of familicide, and that familicides have more in common with uxoricides. In the same vein, Lehti and co-authors (2012) state that the children are usually not the primary victims of the offences, and that the motives involved are related to suicide or marital problems.

Warning Signs and Preventive Measures

In the study by Hamilton and colleagues (2013), about half of the offenders had made suicide threats before the offence, and 62% had threatened to kill the adult victim. In almost all of the familicide cases in a report written by the National Institute for Health and Welfare in Finland (2012; not included in the article database of the review due to the criteria of peer-review), there was some evidence of premeditation (e.g., suicide notes, purchase ammunition, or Internet search history on familicide), while few of the cases in De Koning and Piette's (2014) study showed signs of planning.

In the cases examined by the National Institute for Health and Welfare (2012), contact between the families and social support services had been scarce. However, in about half of

the cases, the offender had sought contact with mental health services within the year preceding the offence. The reasons for consulting mental health services involved symptoms of depression, psychosis, and exhaustion. Other studies have shown that 13-45% of the offenders had used mental health services before the offence (Friedman et al., 2005; Liem & Koenraadt, 2008; Logan et al., 2013). The study by Hamilton and colleagues (2013) found that agency involvement prior to the offence was greater in intimate partner homicide cases where children had become victims when compared with cases where there were no children in the household. Half out of 13 cases of familicide had had contact with child protection services, and in some of these, a risk assessment had been conducted. Protection orders had been granted against the offender in about half of the cases, and about half of the offenders had some kind of restricted access to the child at the time of the offence. In other studies, 20-25% of perpetrators had a protection order granted against them (Liem et al., 2013; Liem & Reichelmann, 2014).

In conclusion, in some of the cases included in the reviewed studies, there was some form of authority involvement prior to the offences, and, in some of these, preventive measures had been taken. Although it is impossible to know in how many cases preventive measures have been successful, the fact that familicides continue to occur suggest that these measures could still be developed.

Limitations

A general challenge embedded in the present field of research is generalizability of results. This is because most studies relied on very small or single-case samples, and the familicide cases were most often collected in North America (45% of the studies) or Europe (37% of the studies). Furthermore, the main aims of the original articles included in the review were most often to investigate broader phenomena of which the familicides composed a subcategory. As a result, few studies reported information or drew conclusions specifically

concerning the phenomenon of familicide. In some cases, this also resulted in only a subgroup of familicides being investigated as, for example, a study that investigates homicide-suicide has only collected familicide cases where the offenders died by suicide, while data gathered at a psychiatric unit only include offenders that survived the offence. Although results regarding these samples are informative, generalizations across subtypes of familicides is not necessarily possible.

The fact that the prevalence of characteristics varied greatly between studies limits the conclusions that can be drawn from the present review. These wide variations in results can be caused by small sample sizes, cultural differences between study populations, or the fact that studies have focused on different subgroups of familicides that display distinct characteristics. Another aspect to take into account when drawing conclusion based on the results of this review is that the studies sometimes had overlapping data collections, and therefore, it is possible that some samples consist of partly the same cases.

Directions for Future Research

As some studies suggests that there are different subtypes of familicide, more research is needed to validate these subtypes and possibly identify risk factors specific to each type in order to enable development of bespoke preventive strategies. Hitherto, familicides have been compared with uxoricides and filicides in a few studies, but, to the best of our knowledge, possible similarities or differences between suicide and familicide-suicides have not been investigated. Studies comparing homicide-suicides with homicides and suicides respectively have found significant differences in both comparisons (Liem & Nieuwbeerta, 2010; Lund & Smorodinsky, 2001; Saleva, Putkonen, Kiviruusu, & Lönnqvist, 2007).

What complicates the development of effective measures is that many of the presently known background factors of familicide are prevalent in the general population as well, and screening for individual risk factors would therefore likely result in a large number of false

positive conclusions. Information regarding the population base rate of the investigated characteristics along with the rate of the characteristics in the familicide samples would help guide the research field and preventive work towards focusing on factors with higher predictive value. At the moment, there are both actuarial and structured professional risk assessment methods available for the assessment of risk for intimate partner violence and homicide (e.g., Campbell et al., 2003; Kropp & Hart, 2015; Storey, Kropp, Hart, Belfrage, & Strand, 2013). However, these tools lack sufficient evidence for their predictive validity for assessing risk of familicide. Pursuing the study of familicide as a separate phenomenon from other intra-familial homicide, as we did in the current systematic literature review, might allow for a better and more precise theoretical framework for these offences. This, in turn, might provide a rationale for this specific offence and the degree to which it differs from other forms of intra-familial homicide with respect to risk factors and effective preventive efforts. Previous attempts to develop theoretical frameworks for intra-familial homicides have been made, but to our knowledge, none has been developed specifically for familicides (Barone, Bramante, Lionetti, & Pastore, 2014; Mugavin, 2008).

Conclusions

The results from the present review show that familicide is almost exclusively committed by men, and that relationship problems, mental health problems, and financial difficulties often precede the offence. About half of the cases ended in the suicide of the offender. The research indicates that familicide is a distinct phenomenon from other intra-familial homicides, and suggests that there are at least two subtypes of familicide offenders: a despondent and a hostile type.

The main problem in the research field of familicide is the limited generalizability of results as most studies included small or single-case samples, were conducted in North America or Europe, and did not consider possible subtypes of familicide when reporting

results. Furthermore, few studies reported population prevalence rates of the investigated background factors. Although the review includes 67 studies, only eight had the specific aim to investigate the phenomenon of familicide (as per the definition applied here). The remaining studies had mostly broader scopes, and thus, reported few results regarding the familicides in their sample. Therefore, more research in the form of large international investigations as well as qualitative in-depth studies is needed in order to investigate risk factors specific to familicide, and whether there are distinct risk factors for different types of familicide.

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Table 1
Offender Characteristics in Group-Level Studies

	Cases *n*	Male offender *n* (%)	Age *M* (*SD*)	Background information	Criminal history
Milroy (1993)	6	6 (100)			
Wilson et al. (1995)					
Canada	61	57 (93)	37.4[a]		
England & Wales	48	46 (96)	42.6[a]		
Alder & Polk (1996)					
Secondary to spousal harm	3[b]	3 (100)[c]			100% extreme physical violence
Other	1	1 (100)[c]			
Wilson & Daly (1997)	15	14 (93)	35[a]		
Smit et al. (2001)	2	2 (100)			
Messing & Heeren (2004)	6	0 (0)[c]			
Friedman et al. (2005)	11[b]	11 (100)		45% depressed 27% paranoid 45% utilized mental health services	18% domestic violence 18% criminal history
Harris et al. (2007)	22	22 (100)			
Léveillée et al. (2007)	13[b]	11 (85)			
Liem & Koenraadt (2007)	11	11 (100)			
Nordlund & Temrin (2007)	24	23 (96)			
Liem & Koenraadt (2008)	23[b]	22 (96)	37.0 (11.2)	41% unemployed 14% low or no education 44% history of mental health care contact 10% physical/sexual abuse in youth DSM Axis I 17% psychotic disorder 17% mood disorder 22% substance abuse disorder 17% other axis I DSM Axis II 65% personality disorder 0% mental retardation	39% previous domestic violence 4% criminal violent antecedents
Liem et al. (2009)	9	9 (100)	40		
Messing & Heeren (2009)	22[b]	22 (100)			
Kauppi et al. (2010)	14	14 (100)			
Liem & Nieuwbeerta (2010)	9		40		
LeFevre Sillito & Salari (2011)					26% history of violence[d]
Lehti et al. (2012)					

1960-1974	17	17 (100)			
2003-2009	3	2 (67)			
Hamilton et al. (2013)	13[b]	13 (100)[c]		31% unemployed 69% obsessive behavior 69% depression (based on opinion of friends and family) 39% diagnosed depression	69% criminal history 92% domestic violence 69% escalation of violence 62% threats to kill adult victim 39% violence outside the family
Liem et al. (2013)	207	198 (96)	40 (11.0) range 18-90		59% criminal record 16% drug related offences 17% violent offences 3% previous homicide 51% domestic violence
Logan et al. (2013)	30	27 (90)	38.6 (8.8)	13% current depressed mood 13% current mental health problem 13% current mental health treatment 13% had zero current health/stress problems 47% had one current health/stress problem 40% had two or more current health/stress problems 17% history of mental health problems	
Brown et al. (2014)	3	1 (33)			
de Koning & Piette (2014)	8	8 (100)			
Kristoffersen et al. (2014)	6	6 (100)			
Liem & Reichelmann (2014)					
Despondent husbands	109	100 (92)	41.8		
Spousal revenge	41	40 (98)	40.0		
Sabri et al. (2015)	2	2 (100)			
Sabri et al. (2016)	6	5 (83)			
Weeke & Oberwittler (2017)	33[b]	33 (100)			

[a]Information concerns only the male offenders in the sample. [b]Includes attempts. [c]Study inclusion criteria. [d]Percentage of child victims, not cases.

Table 2
Information on Victim Characteristics in Group-Level Studies

		Victims within family								
		Adult victim				Child victim				Additional
Study	Victims total[a] *n*	*n*	% female	Age *M*	Relationship to offender	*n*	% male	Age *M*	Relationship to offender[b]	victims *n*
Wilson et al. (1995)										
Canada	161	61		34.5[c]	14% de facto marriage[c] 86% registered marriage[c]	94	51[c]	7.2[c]	10.2% step[c]	6
England & Wales	118	48		39.3[c]	11% de facto marriage[c] 89% registered marriage[c]	68	50[c]	11.8[c]	16.9% step[c]	2
Alder & Polk (1996)										
Secondary to spousal harm	6	3	100			3			33.3% step	
Other	3	1	100		100% married	2				
Wilson & Daly (1997)	40	15			64% registered marriages[c] 29% de facto marriages[c] 7% divorced[c]	17[c]	59[c]	9[c]	29% step[c]	7
Messing & Heeren (2004)	18	6	0[d]		50% married 17% separated 33% in cohabiting relationship	12			100% biological	
Harris et al. (2007)			100						73% biological[e] 27% step[e]	
Léveillée et al. (2007)									100% biological	
Nordlund & Temrin (2007)		24	96							
Liem & Koenraadt (2008)					61% married 21% cohabiting 0% not married or cohabiting 13% divorced 4% extramarital relationship				78% biological 13% step 9% other	
Liem et al. (2009)	26									
Messing & Heeren (2009)					77 % separation					
LeFevre Sillito & Salari (2011)					54% married[f] 30% divorced or separated[f] 9% never married intact[f] 7% never married estranged[f]	102	56	0-5 46% 6-10 23% 11-15 26% 16-21 5%	89% biological	
Lehti et al. (2012)										
1960-1974						28				
2003-2009						6				
Hamilton et al. (2013)					85% legal spouse					

Liem et al. (2013)	583		87[g]	37.5	8% common-law 8% boyfriend/girlfriend 71% married 19% divorced/separated 7% never married		48	7.6	80% biological[e] 20% step[e]	
Logan et al. (2013)					33% married 20% never married, single or not specified 40% widowed, divorced, or separated					
Brown et al. (2014)	3					3			100% biological	
de Koning & Piette (2014)	20	8				11	27			1
Kristoffersen et al. (2014)	15	6				9				
Sabri et al. (2015)						4				

[a]As reported in the original articles (some did not report additional victims). [b]Percentage of victims if not mentioned otherwise. [c]Information concerns only the male perpetrated familicides. [d]Inclusion criteria: female offender. [e]Percentage of cases. [f]Of child victims parents. [g]Of reported 172 adult victims.

Table 3

Context Information and Characteristics of the Offences in Group-Level Studies

				Offence characteristics			
Study	*n*	Contextual factors	Motive	Premeditation	Method of homicide	Location	% suicide
Wilson et al. (1995)							
Canada	61				Firearm 49%[a]		51[a]
Enland and Wales	48				Firearm 28%[a]		50[a]
Alder & Polk (1996)							
Secondary to spousal harm	3[b]	100% separation					100
Other	1	100% financial problems					100
Wilson & Daly (1997)	15				Firearm 53%[a]		14[a]
Chan et al. (2003)	7	86% financial problems					
Messing & Heeren (2004)	6						83
Friedman et al. (2005)	11[b]	18% intoxicated					100[c]
Léveillée et al. (2007)	13[b]						54
Liem & Koenraadt (2007)	11				44% pointed weapon		100[bc]
Nordlund & Temrin (2007)	24		0% aggression towards child 0 % newborn child 0% child ill or disabled 71 % conflict between parents 29% own life situation				56
Liem & Koenraadt (2008)	23[b]		22% fear of abandonment 26% narcissistic rage 22% psychosis 30% other		83% weapon 26% firearm (inkl i weapon)		0[c] 39 A
Liem et al. (2009)	9				Of the 26 victims: 3 (12%) firearm 6 (23%) pointed weapon 12 (46%) strangulation 4 (15%) other 3 (12%) unknown		100[c]
Liem & Roberts (2009)	17						24 A
Lehti et al. (2012)							
1960-1974	17	12% intoxicated at offence					
2003-2009	3	33% intoxicated at offence					
LeFevre Sillito & Salari (2011)			60% suicidal intent[d] 40% homicidal intent[d]		91% gun[d]	96% home[d]	100[c]
Hamilton et al. (2013)	13[b]	85% actual separation					54
Liem et al. (2013)	207	39% financial problems[e] 74% intimate partner			73% firearm 12% sharp instrument	91% home[f]	64 3 A

		problems[e] 5% physical health problems[e] 11% child custody problems[e] 69% perpetrator and victims shared household 10% at least one victim shared household with perpetrator		4% blunt instrument 7% strangulation 4% other	
Logan et al. (2013)	30	17% financial problems 13% job problems 77% intimate partner problems 23% other relationship problems 17% suspected intoxication	13% disclosed intent 30% left suicide note	67% firearm 10% hanging 17% other	100[c]
de Koning & Piette (2014)	8	60% amorous jealousy 40% financial/social stress 13% intoxicated	38% left suicide note	adult victim: 11% blunt force 56% gun 22% sharp injury 11% other child victim: 9% blunt force 64% gun 27% sharp injury	100[c]
Kristoffersen et al. (2014)	6				100
Liem & Reichelmann (2014)					
Despondent husbands	109	83% intimate partner problem 41% child custody problems 72% all shared household 13% partially shared household 14% perpetrator and victims did not share household	92%		100[g]
Spousal revenge	41	76% intimate partner problems 67% all shared household 11% partially shared household 22% perpetrator and victims did not share household	62%		0[g]
Sabri et al. (2016)	6				67
Weeke & Oberwittler (2017)	33[b]		36% left suicide note		100[bc]

Note. A = Includes attempts. [a]Information concerns only the male perpetrated cases. [b]Includes attempts. [c]Inclusion criteria. [d]Percetage of child victims, not cases. [e]Of the 115 (56%) cases in which the newspaper reported on situational factors. [f]Percentage of victims, not cases. [g]Suicide or no suicide was used to cluster the cases.

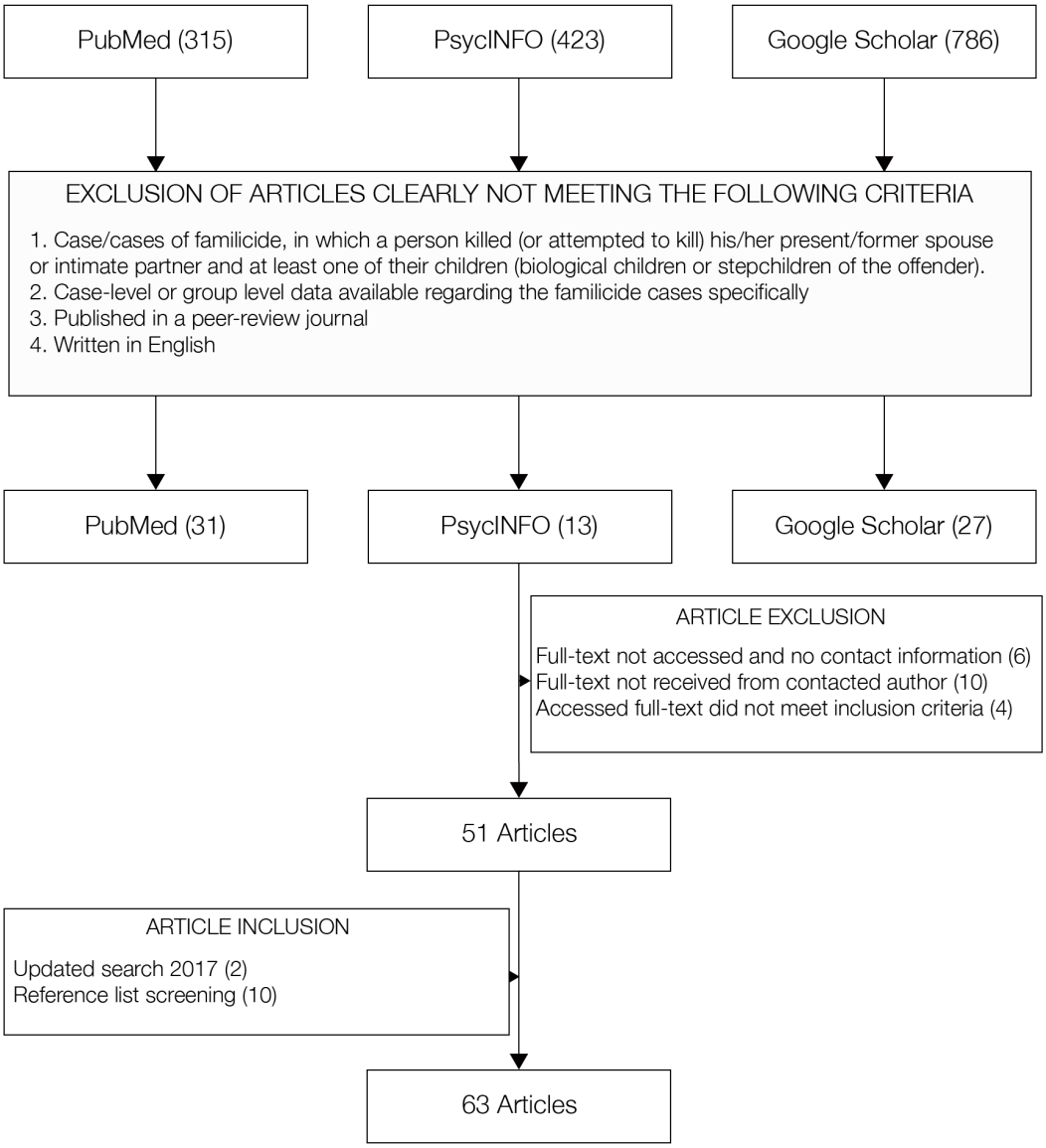


Figure 1. Summary of the article inclusion process. As one article reported on three samples of familicide, and two articles reported on two samples respectively, the inclusion process resulted in 67 studies.