Prevalence of Prolonged Grief Disorder Adult Bereavement in East Asia:
A Systematic Review and Meta-Analysis

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Abstract

Death is an inevitable and natural part of life, however, the emotional state of grief and pain after the passing of a family is devastating. While many recover over time, a minority experiences clinical dysfunction following a loss. Prolonged grief disorder (PGD) is a newly added diagnostic criterion in the DSM-5-TR to classify those who display pathological symptoms of grief for a prolonged period. The suggested pooled transcontinental prevalence rate of PGD is 9.8%. Eastern countries are suggested to have a lower prevalence rate compared to Western countries. This review aims to estimate the prevalence rate of PGD in the adult bereaved population of East Asia. A systematic literature search was conducted in PubMed, PsycINFO, and Web of Knowledge. Five eligible studies from China and Japan with 4004 bereaved individuals were identified. Meta-analysis revealed a pooled PGD prevalence of 8.90% (95% CI 0.2 - 17.6). The first systematic review and meta-analysis of the prevalence of PGD within the East Asian population suggests that nine out of one hundred bereaved adults in East Asia are at risk for PGD. Cultural differences in the East Asian bereaved cultural values and practices surrounding deaths might be responsible for the different prevalence. The few eligible studies only from two countries call for further investigation on PGD within the general bereaved population in other East Asian countries. However, the result should be interpreted cautiously due to the high degree of methodological heterogeneity as well as the lack of generalizability to other East Asian countries.

Keywords: Prolonged Grief Disorder, Bereaved Individuals, Prevalence, Meta-Analysis, East Asia, China, Japan

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Introduction

It is common knowledge that death is a natural process of life, however, the emotional consequences of grief and pain following the death of a family member can be devastating. The experience of losing a loved one is often perceived negatively since we are permanently deprived of a positive aspect of life. A natural grieving process among most bereaved individuals is characterized by both the expression of negative emotions and the restoration of daily life functions, gradually adjusting to their new life circumstances (Jorand and Litz, 2014). Although a majority recover over time, a portion continues to display pathological symptoms of grief, such as severe and abnormally persistent grief that causes impairment in important domains of functioning, they can then be diagnosed with prolonged grief disorder (PGD) (American Psychiatric Association, 2022; Prigerson et al., 2009). PGD was recently added as a new diagnosis for the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR) (2022) and is also included in the 11th edition of the International Classification of Diseases (ICD-11) (World Health Organization, 2022). The core symptoms are intense longing for the deceased and preoccupation with the deceased or the cause of death, often accompanied by denial, avoidance of the death as well as negative affect and loss of interest in daily activities within at least one year post-loss. (American Psychiatric Association, 2022).

In Asia, few empirical studies have investigated the prevalence of PGD among bereaved individuals, but these studies reported a wide range of estimates (i.e., 0 - 95.7% for PGD) (Djelantik et al., 2021; Xu et al., 2014). A potential cause for inconsistent findings among prevalence studies conducted in East Asia is the variety of death-related variables, such as relations to the deceased, causes of death, and PGD diagnostic tools. For instance, existing findings were mostly collected from specific populations such as victims of traffic accidents, natural disasters, or violent deaths (Li et al., 2015; Stammel et al., 2013; Yun et al., 2018). Grief-related distress following intentional causes or natural disasters is often exacerbated by the comorbidity of posttraumatic stress disorder (PTSD) (Nakajima et al., 2012; Sveen et al., 2018).

Similarly, grief following the loss of a child often outlasts the loss of other family members and its trajectory is often unpredictable (Dyregrov et al., 2003; Stroebe et al., 2007; Miyajima et al., 2014). For example, Yuan and colleagues (2022) estimated that 20.9% of Chinese parents who lost their only child, or Shidu parents meet the criteria for PGD. Sociocultural elements in China such as the 'one child per couple policy', filial duty, and the aging population are risk factors that can complicate Shidu parents grieving distress (Zhou et al., 2020). Hence, the diagnosis of PGD among bereaved parents remains unreliable and should not be generalized to the general bereaved population in East Asia.

So far, a large body of epidemiological research on PGD has been conducted in Western contexts with the majority of the samples being elderly white females (Maciejewski et al., 2016; Prigerson et al., 2021). Only Lundroff and colleagues (2017) reported a cross-continent rate of 9.8% with a lower rate observed in Eastern countries (9.2%). This result was a part of their systematic review's sub-group analyses with studies published between 1994 and 2016. To our knowledge, only one previous meta-analysis reported the pooled prevalence rate of PGD with East Asian samples (Yuan et al., 2020). There has not been a systematic review combining the existing individual studies of PGD prevalence conducted in the general adult bereaved population of East Asia. A clear-cut estimate of the number of individuals experiencing severe distress following bereavement is much needed to raise awareness for

PGD among mental health service providers in East Asia when working with post-bereaved individuals. Thus, we aim to identify studies reporting the prevalence of PGD among those who lost a loved one due to natural causes in the East Asia region from 2010 to 2023.

Methods

The methods and results were reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (PRISMA) (Page et al., 2020). The single author independently performed the literature search, eligibility assessment, and data extraction. The author and a data analyst independently assessed the risk of bias (RoB) in the included studies. disagreements were resolved by the corresponding author.
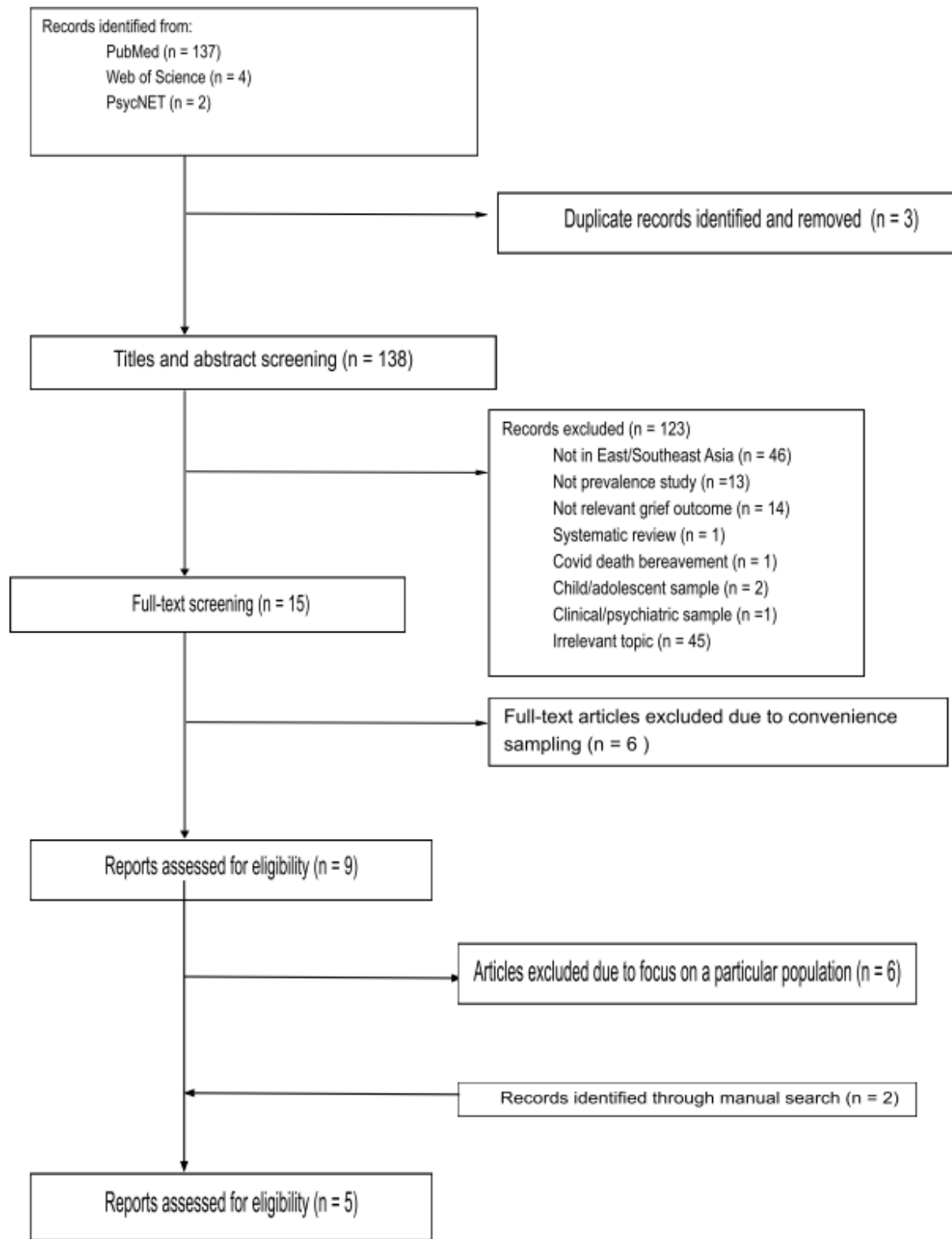
Literature Search

A systematic literature search was conducted in PubMed, PsycNET, and Web of Knowledge using the following search terms: ("grief" OR "prolonged grief" OR "complicated grief") AND (prevalence) AND (Asia). The single author independently performed the search throughout May 2023. Two studies were identified through a manual search of reference lists of the included articles.

Selection Criteria

Epidemiological studies of bereaved adults (aged 18 years or older) who suffered the loss of a family member for at least 6 months were included. The outcome was either grief, prolonged grief, or complicated grief assessed with a standardized and validated diagnostic instrument. Studies that did not directly provide a prevalence estimate of PGD were not included. Geographical limitations were applied as studies conducted in countries within the East and Southeast Asia regions were included. Studies that reported irrelevant grief outcomes were excluded, together with studies reporting on other psychiatric conditions without PGD. Studies exclusively examine bereavement following violent deaths, deaths by natural disasters, and COVID-19 were excluded. Reports on the grief of children were excluded. Studies conducted on clinical or psychiatric samples were also excluded. Only original studies conducted in English between the period of 2010 and 2023 were included. Finally, studies that recruited participants through convenience sampling were not included as they tend to lack generalizability. To maximize the generalizability of the findings to the general population, studies investigating the prevalence rate of PGD among a particular population were also excluded (e.g., Shidu parents, bereaved family members of traffic accidents, and bereaved family members of an earthquake). Figure 1 illustrates the study selection process, resulting in the five studies included in the final analysis.

Figure 1. Flowchart of study inclusion

Records identified from:
    PubMed (n = 137)
    Web of Science (n = 4)
    PsycNET (n = 2)

Duplicate records identified and removed (n = 3)

Titles and abstract screening (n = 138)

Records excluded (n = 123)
    Not in East/Southeast Asia (n = 46)
    Not prevalence study (n = 13)
    Not relevant grief outcome (n = 14)
    Systematic review (n = 1)
    Covid death bereavement (n = 1)
    Child/adolescent sample (n = 2)
    Clinical/psychiatric sample (n = 1)
    Irrelevant topic (n = 45)

Full-text screening (n = 15)

Full-text articles excluded due to convenience sampling (n = 6)

Reports assessed for eligibility (n = 9)

Articles excluded due to focus on a particular population (n = 6)

Records identified through manual search (n = 2)

Reports assessed for eligibility (n = 5)

Data Extraction

The following pieces of information were extracted from included studies: first author, publication year, survey country, study design, diagnostic criteria, diagnostic psychometric instrument, sample recruitment method, sample size, mean age of the study sample,

percentage of females, average time post-loss, relationship with the deceased, and number of subjects qualified for a PGD diagnosis.

RoB Assessment

The possible RoB of the included studies were systematically assessed with the Joanna Briggs Institute Critical Appraisal Checklist for Studies Reporting Prevalence Data (JBI checklist) (Munn et al., 2015). This tool consists of nine items: four items address sample representativeness (sample frame, sampling method, sample size, description of participants and setting), three items address statistical methods (sample coverage of the data analysis, statistical analysis, response rate), and two items address accuracy of the outcome assessment (validity of the instrument for assessing the outcome, standardization, and reliability of the instrument). Each item can be answered with either 'yes, no, unclear, or not applicable'. Only 'yes' warrants a 1 whereas failure to meet methodological requirements of the guideline or failure to provide sufficient information for assessment results in a 0, which then yields a total score from "0-9". A higher score indicates a lower RoB and higher methodological validity.

Statistical Analysis

The prevalence rate data from the included studies was synthesized by using the "Proportions" function within the "MAJOR" module of Jamovi, version 2.3 (The Jamovi project, 2022). The statistical software calculated the prevalence rate of PGD for each study using the inverse variance-weighted event rate (ER). That is the number of PGD diagnoses divided by the total sample size, yielding a weighted ER ranging from 0 to 1. The pooled prevalence rate was then calculated as an average of the weighted ERs. A random effect model was adopted over a fixed effect model to consider the differences in underlying characteristics of the studies' populations (e.g., mean age, average time post-loss, different causes of deaths, etc.). The I^2 statistic was calculated to describe prevalence estimate variation due to actual heterogeneity rather than sampling error (Higgins and Green, 2011). Publication bias was demonstrated with funnel plots and Egger's method (Egger et al., 1997). Additionally, subgroup analyses of countries and diagnostic instruments were performed using REVMAN, version 5.3. (The Cochrane Collaboration, 2020) to examine potential sources of heterogeneity.

Results

Study Characteristics

Participant characteristics and study designs of the five unique studies included are summarized in Table 1. Five studies published between 2010 and 2016 were included in the final analysis (Fujisawa et al., 2010; He et al., 2014; Li & Prigerson, 2016; Miyajima et al., 2014; Mizuno et al., 2012) with a total of 4004 bereaved participants ($M = 800.8$, $SD = 233.1$). Three studies were conducted in Japan (Fujisawa et al., 2010; Miyajima et al., 2014; Mizuno et al., 2012) and two were conducted in China (He et al., 2014; Li & Prigerson, 2016). All of the included studies used cross-sectional surveys (self-report) to assess the participants' level of pathological grief. Li and Prigerson (2016) used voluntary response sampling and He et al. (2014) used cluster sampling, while the rest used random sampling methods (Fujisawa et al., 2010; Miyajima et al., 2014; Mizuno et al., 2012). PGD symptoms were asses with three different diagnostic instruments: Fujisawa et al. (2010), Miyajima et al.

(2014), and Mizuno et al. (2012) used the Brief Grief Questionnaire (BGQ); Li and Prigerson (2016) used the Inventory of Complicated Grief (ICG); and He et al. (2014) used Prolonged Grief-13 (PG-13).

Table 1. Characteristics of studies included in the Meta-Analysis

Authors (year)	Country	Design	Diagnostic Tool	Sample recruitment	Population	Meantime post-loss	Relationship with the deceased
Fujisawa et al., (2010)	Japan	Cross-sectional self-report	Complicated grief, BGQ	Random sampling through census tract.	N = 969, 58.2% female; 56.32 years	72 months	6.3% spouse; 48.3% parents, 25.5% in-law; 9.9% siblings; 10% other
He et al., (2014)	China	Cross-sectional self-report	Prolonged grief, PG-13	Adults recruited through universities, hospitals, and the community. Cluster sampling.	N = 445; 78.4% female, 27.6 years	55 months	23.9% parent; 1.8% child; 2.5% spouse; 2.9% sibling; 58.5% grandparents; 10.4% other
Li and Prigerson (2016)	China	Cross-sectional self-report	Prolonged grief, ICG	Adults who lost first-degree relatives were recruited through memorial websites. Voluntary response sampling.	N = 1099; 51% female; 41.85 years	26 months	40.1% father, 32.0% mother, 6% child, 11.3% spouse, 10.6% sibling
Miyajima et al. (2014)	Japan	Cross-sectional self-report	Complicated grief, BGQ	Random sampling of adults who lost a loved one between 6 months and 10 years through census tract.	N = 641; 54.9% female; 58.93 years	53.6 months	5.5% spouse, 51.0% parent, 26.5% parent-in-law, 7.8% sibling, 9.2% other
Mizuno et al. (2012)	Japan	Cross-sectional self-report	Complicated grief, BGQ	Individuals over 18 who had experienced the loss of family members. Stratified two-stage random sampling method.	850; 53.3% F; 51.00 years	142.8 months	NR

Abbreviations: BGQ, Brief Grief Questionnaire (Shear et al., 2006); ICG, Inventory of Complicated Grief (Prigerson et al., 1995b); ICG-R; NR, information was not reported in the original study and could not be calculated; PG-13, Prolonged Grief-13 (Prigerson et al., 2009).

Regarding gender, female-identifying participants comprised the majority of the study participants with an average of 59.2%. Participant's mean age ranged from 27.6 (He et al., 2014) to 58.93 years (Miyajima et al., 2014), and the overall mean age was 47.14 years (SD = 11.4). The five studies included subjects who differed in the type of loss experienced. This included the loss of partners, parents, children, siblings, grandparents, parents-in-law, and others. Mizuno et al. (2012) did not report the bereaved relation to the deceased.

RoB Scores

The JBI checklist scores of the five included studies ranged from six to nine (see Table 2). The most common methodological problem of the included studies was sample representativeness, specifically the sample frame was not appropriate to address the target population of the study (K = 3).
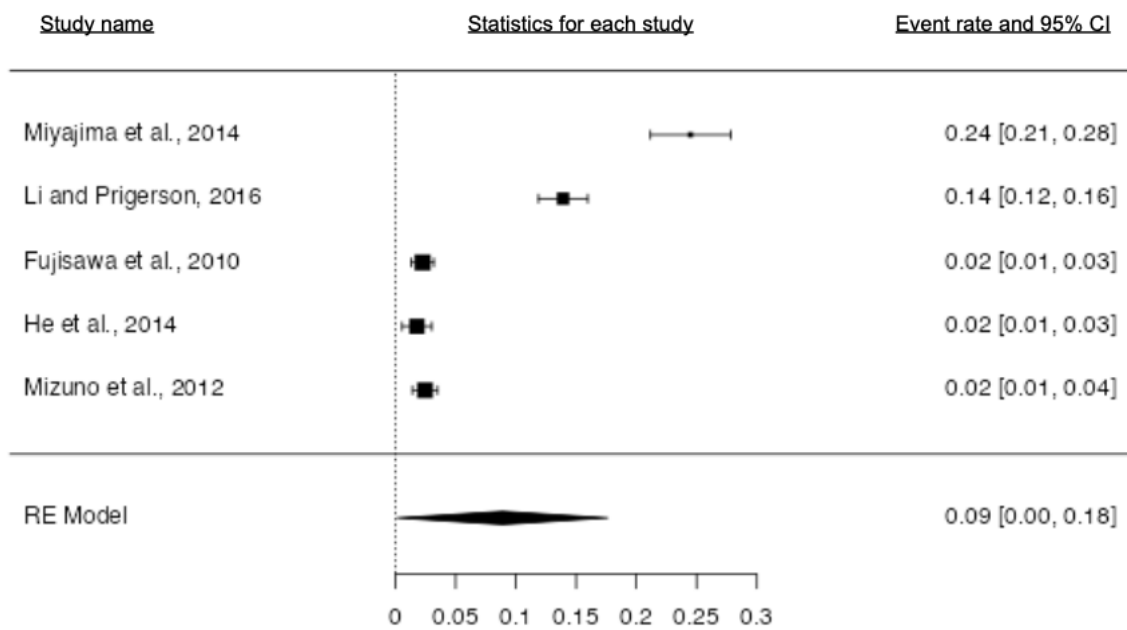
Table 2. Risk of bias assessment of included studies

Authors (year)	1. Sample frame	2. Sampling method	3. Sample size	4. Description of participants	5. Sample coverage of data analysis	6. Validity of instruments	7. Standardization and reliability of the instrument	8. Statistical analysis	9. Response rate	Total RoB
Fujisawa et al., (2010)	0	1	1	1	1	1	1	1	1	8
He et al., (2014)	0	0	0	1	1	1	1	1	1	6
Li and Prigerson (2016)	1	1	1	1	1	1	1	1	1	9
Miyajima et al. (2014)	0	1	1	1	1	1	1	1	1	7
Mizuno et al. (2012)	1	1	1	1	1	1	1	1	1	9

Meta-Analysis

The pooled prevalence rate of PGD of 4004 bereaved participants across five studies in China and Japan was 8.90% (95% CI 0.2 - 17.6) (see Figure 2). The funnel plot for the main analysis appeared asymmetrical and Egger's tests (z = 9.334, $p < .001$) indicated statistically significant publication bias. Furthermore, analyses revealed the ERs to be highly and statistically significantly heterogeneous (I^2 = 99.5%, Q = 268.1, $p < .001$).

Figure 2. Forest plot of random effects model meta-analysis of prevalence estimates (event rate) with 95% confidence intervals

Study name	Statistics for each study	Event rate and 95% CI
Miyajima et al., 2014		0.24 [0.21, 0.28]
Li and Prigerson, 2016		0.14 [0.12, 0.16]
Fujisawa et al., 2010		0.02 [0.01, 0.03]
He et al., 2014		0.02 [0.01, 0.03]
Mizuno et al., 2012		0.02 [0.01, 0.04]
RE Model		0.09 [0.00, 0.18]

Sub-group Analyses

Possible sources of heterogeneity were explored through two sub-group analyses of countries and diagnostic instruments. When comparing studies conducted in China and Japan, the pooled prevalence rate of PGD was higher in studies conducted in Japan (10%) than in studies conducted in China (8%). There was statistically significant heterogeneity between China and Japan ($p < .0001$). Analysis of the instruments used to assess PGD revealed statistically significant between-group differences ($p < 0.0001$). The pooled prevalence rates of PGD for the studies that had used the PG-13, ICG, and BGQ were 2%, 14%, and 10% respectively.

Discussions

This first systematic review and meta-analysis of the prevalence of PGD in East Asian countries suggests that nine out of one hundred non-violent bereaved adults in East Asia are at risk for PGD. Notably, our reported rate for East Asian countries of 8.9% is lower than the previously found rate for East Asian countries of 9.2% (Lundroff et al., 2017), however, the contrast is only due to event rate rounding differences. That is, Lundroff and colleagues rounded to four significant figures while we rounded to two. Nonetheless, the pooled prevalence rate of 8.9% is consistent with their findings that pathological distress following bereavement is less prevalent in Eastern countries compared to Western countries (10.1%). This difference can be attributed to cultural differences in the bereaved individuals' attitudes surrounding death as well as differences in grief expression and coping. Throughout the mourning period, rigorous rituals are performed by the bereaved family to pay respect to the deceased. Such religious rituals might protect the bereaved against the development of PGD as they bring a sense of meaning and connectedness in times of grief (Jegathesan, 2020; Schaal et al., 2010). Mourning rituals do not just provide support at the time of death but also help family members adjust over the mourning period. Bereaved individuals in Eastern countries are obligated to repetitively perform related ritualistic activities over the mourning

period, which forces them to confront the death of their loved ones and may help with the avoidance aspect of pathological grief (Djelantik et al., 2021).

Additionally, the high degree of methodological heterogeneity within the included studies also contributes to the varying prevalent rates of diagnosis. The included studies used several different sets of diagnostic algorithms for PGD, the PG-13, ICG, and BGQ (Prigerson et al., 1995; Prigerson et al., 2009; Shear et al., 2006), each with its own criteria and cutoff score. While these U.S.-based questionnaires have been translated and validated for cross-cultural research on grief, the inconsistencies across these diagnostic tools pose a threat to the validity of prevalence rates findings for PGD outside the U.S. (Stelzer et al., 2020). Moreover, the expression of grief differs cross-culturally despite grief being a universal experience. Thus, culturally bound symptoms of grief might have gone unnoticed when diagnosed with these validated scales (Killikelly et al., 2018). In many East Asian countries such as Japan and Taiwan China, public display of grief is considered taboo, mourning could then only be expressed privately as a family when performing culturally specific mourning rituals (Kim, 2015; Gudmunsdottir et al., 1996; Tseng et al., 2018). As a result, intense negative affect surrounding the death might not be fully captured within clinical or research settings, risking underestimation of the disorder. Moreover, although PGD is included in both the ICD-11 and the DSM-5-TR American Psychiatric Association, 2022; World Health Organization, 2022), the two manuals do not fully agree on the diagnostic criteria of the disorder (Hilberdink et al., 2023). Duration of grief might be the most unreliable criterion since the two manuals disagree on the required duration, even more so when the length of the mourning period varies across cultures. For instance, Confucian beliefs in East Asian countries dictate that the mourning period should last three years. Surprisingly, diagnostic algorithms do not consider the sociocultural norms of mourning. Cross-cultural variability of grief questions the global applicability of the diagnosis of PGD.

As there are still many cross-cultural caveats regarding the presentation of pathological grief, there is a need for more than just a translated version of a Western-developed diagnostic algorithm to ensure the validity of the PGD diagnosis in non-Western populations. A culturally appropriate assessment of PGD should include cultural elements surrounding death such as social norms, religious beliefs and practices, and local expressions. To our knowledge, only the International Prolonged Grief Disorder Scale developed for the ICD-11 (World Health Organization, 2022) includes culturally bound symptoms (Killikelly et al., 2020). Future research aiming to estimate the prevalence of PGD for a specific population should also consider incorporating clinical interviews conducted by native clinicians on top of an adapted scale to ensure validity and generalizability.

The present review has a high level of internal validity since all included used a cross-sectional design and directly surveyed bereaved participants. There is also evidence for strong external validity since all participants were randomly recruited. However, the findings cannot be generalized to the larger East Asia region as the number of eligible studies for this meta-analysis is small and limited to only Japan and China. Our review included the exact same studies conducted in East Asia as Lundroff and colleagues (2017) despite being conducted six years later. None of the included studies were free from risks of bias. Three studies had methodological bias in sample framing, one had sampling method bias, and one had sample size bias. Another issue that hampers the review's generalizability is having English-only as an inclusion criterion despite focusing on East Asian countries. Additionally, there was a high degree of methodological heterogeneity characterized by considerable variability in diagnostic tools, cutoff scores, and death-related variables such as time since

loss and relationships with the deceased. This limits the comparability between included studies.

Conclusions

The paper offers a first attempt at estimating the prevalence of PGD in East Asian populations, adding to the growing field of grief and bereavement. Our results further confirm earlier findings of a lower rate in the prevalence of PGD among bereaved adults in Eastern countries, highlighting the need to consider underlying cultural factors. However, our findings should be interpreted with caution due to the considerable heterogeneity between studies as well as the lack of generalizability to other Eastern Asian countries. Nonetheless, this research presents an opportunity to improve the global applicability of the PGD diagnosis by starting to look within cultures.

Acknowledgment

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