International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

Prevalence of anxiety, trauma-related, and obsessive-compulsive-related disorders and symptoms in limb amputees: A systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - N/A.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 27 August 2025 and was last updated on 27 August 2025.

INTRODUCTION

Review question / Objective To assess the prevalence of anxiety, trauma-related, and obsessive-compulsive-related disorders, sub-disorders and their clinically significant symptoms in people with limb amputation.

Rationale Limb amputation is associated with both physical and psychological challenges. Current literature indicates that psychiatric disorders and symptoms occur at higher rates among people with limb amputation; leading to calls for increased screening, inter-disciplinary care, and awareness around mental health in limb amputees. A recent meta-analysis published in 2024 by Sing and colleagues found a pooled prevalence for depression of 33.85% in people with limb amputation. There are well-established trends of comorbidity among psychiatric disorders and symptoms. Given this, alongside the inherently traumatic nature of having a limb or part of a limb removed, we expect people with limb amputation to experience higher rates of other psychiatric illnesses too.

Yet, aside from some narrative and systematic reviews (e.g., Mckechnie & John, 2014), no meta-analytically pooled prevalence estimates exist for the prevalence of any other psychiatric disorders in people with limb amputation. This is reportedly due to heterogeneity between studies and a paucity of comparable studies to overcome this heterogeneity. The publication of Sing and colleagues' meta-analysis on depression, however, suggests a critical mass of research might now exist to conduct meaningful meta-analyses on other psychiatric conditions – particularly those reported alongside depression, such as anxiety.
Additionally, some studies focus primarily on trauma-related disorders and symptoms, such as PTSD, acute stress disorder, and adjustment disorder, and these studies often include measures of other psychiatric disorders and symptoms that aren't mentioned in their titles. Moreover, obsessive-compulsive disorder prevalence, once included alongside post-traumatic stress disorder in the same DSM-4/ICD-10 chapter/sub-chapter, is occasionally reported alongside anxiety and trauma-related prevalences in studies as well. While anxiety, trauma-related, and obsessive-

compulsive-related disorders are separated into different chapters in the latest version of the DSM (the DSM-5-TR) and ICD (ICD-11), the nature of limb amputation is likely to give rise to clinically significant psychiatric symptoms that fall across all three classes of disorders.

Anxiety, trauma-related, and obsessive-compulsive-related disorders may therefore be better understood if they are compared alongside each other in a single systematic review and meta-analysis that includes the same studies. It is also likely to optimise research resources given that studies tend to co-report prevalences of these disorders and their symptoms alongside each other, which a pilot search indicates.

Individual empirical studies indicate that anxiety and trauma-related disorders have higher prevalence in people with limb amputation than the general population. Results between studies, however, vary due to heterogeneity, making accurate prevalence estimates hard to ascertain and trust without copious reading. Obsessive-compulsive and related disorders and symptoms, on the other hand, are sparse in the literature and don't appear to occur at higher rates in people with limb amputation – although this review may find otherwise.

A systematic review and meta-analysis on the prevalence of anxiety, trauma-related, and obsessive-compulsive disorders and associated symptoms in limb amputees will help to clarify prevalence estimates for these three classes of disorders and symptoms. Secondary analyses involving anxiety, trauma- and stressor-related, and obsessive-compulsive-related sub-disorders and their corresponding clinical symptoms will attempt to provide a more detailed picture of pooled prevalence estimates for specific sub-disorders and symptoms in each of these three classes. Additionally, subgroup, meta-regression, and possible multivariate analyses (where enough comparative studies are identified) will help to identify and quantify sources of heterogeneity and provide additional context to pooled prevalence estimates.

Results from this review will help to inform health practitioners, policy makers, and future researchers to prioritise and allocate their resources optimally and to inform best practice for meeting the needs of a population with multiple challenges that all call for attention, resources and action.

Condition being studied Anxiety, trauma-related, and obsessive-compulsive-related disorders and clinically significant symptoms in people with limb amputation. Additionally, the sub-disorders of these three overall classes of disorders and their related clinical symptoms, as organised in the DSM and ICD, in people with limb amputation.

METHODS

Search strategy The following search terms were developed for PubMed and will be adjusted for the databases mentioned below. See 'Other Relevant Information' for rationale behind the comprehensiveness of this search strategy.

#1: Limb Amputation Terms:
amputation[MeSH]
OR "amputation stumps"[MeSH]
OR "amputation, traumatic"[MeSH]
OR amput*[tiab]
OR "post-amput*"[tiab]
OR disarticulat*[tiab]
OR hemipelvectom*[tiab]
OR "limb loss"[tiab:~5]
OR "extremity loss"[tiab:~5]
OR "missing limb"[tiab:~5]
OR "limb deficiency"[tiab]
OR (prosthe*[tiab] AND (limb*[tiab] OR arm[tiab] OR leg[tiab] OR hand*[tiab] OR foot[tiab] OR finger*[tiab] OR toe[tiab] OR thumb*[tiab] OR toe OR toes OR amput*))
OR ("artificial limb*"[tiab] OR "artificial arm*"[tiab] OR "artificial leg*"[tiab] OR "artificial hand*"[tiab] OR "artificial foot*"[tiab] OR "artificial feet"[tiab] OR "artificial finger*"[tiab] OR "artificial thumb*"[tiab])
OR ("bionic limb*"[tiab] OR "bionic arm*"[tiab] OR "bionic leg*"[tiab] OR "bionic hand*"[tiab] OR "bionic foot*"[tiab] OR "bionic feet"[tiab] OR "bionic finger*"[tiab])
OR ("robotic limb*"[tiab] OR "robotic arm*"[tiab] OR "robotic leg*"[tiab] OR "robotic hand*"[tiab] OR "robotic foot*"[tiab] OR "robotic feet"[tiab] OR "robotic finger*"[tiab] OR "robotic thumb*"[tiab])
OR ("myoelectric limb*"[tiab] OR "myoelectric arm*"[tiab] OR "myoelectric hand*"[tiab])
OR (osseointegrat*[tiab] AND (prosthe* OR amput*))
OR "phantom limb*"[tiab]
OR "phantom pain"[tiab]
OR "phantom sensation*"[tiab]
OR "residual limb*"[tiab]
OR "residuum"[tiab]
OR symes[tiab]
OR pirogoff[tiab]
OR lisfranc[tiab]
OR chopart[tiab]

#2: Anxiety Terms:
anxiety[MeSH]
OR "anxiety disorders"[MeSH]
OR anxiety[tiab]
OR anxious*[tiab]
OR anxieties[tiab]
OR "panic disorder*"[tiab]

OR "panic attack*"[tiab]
OR “phobic disorder*”[tiab]
OR "agoraphobi*"[tiab]
OR "specific phobia"[tiab]
OR "social phobia"[tiab]
OR "selective mutism"[tiab]
OR "elective mutism"[tiab]
OR (GAD[tiab] AND anxi*[tiab])
OR (SAD[tiab] AND social[tiab])
#3: Anxiety Measures:
OR “patient-reported outcomes measurement information system”
OR (PROMIS AND anxi*)
OR "hospital anxiety and depression scale"
OR (HADS* AND (anxi* OR depress*))
OR "state* trait anxiety inventory"
OR (STAI AND anxi*)
OR "generali*ed anxiety disorder*"
OR (GAD AND anxi* AND generali*) OR ("GAD-*" OR GAD7 OR GAD4 OR GAD3 OR GAD2)
OR "general health questionnaire"
OR GHQ
OR "beck anxiety inventory"
OR (BAI AND anxi*)
OR "hamilton anxiety rating scale"
OR HAM-A
OR “depression anxiety stress scale”
OR (DASS AND (anxi* OR depress* OR stress*))
OR "brief symptom inventory"
OR (BSI AND (anxi* OR panic OR phobi*))
OR "symptoms checklist-90"
OR “SCL-90”
OR “penn state worry questionnaire"
OR (PSWQ AND (anxi* OR GAD OR worry))
OR “social phobia inventory”
OR (SPIN AND phobi*)
OR “panic disorder severity scale”
OR (PDSS AND (panic OR anxi*))
OR "multidimensional anxiety scale for children"
OR (MASC AND anxi*)
OR “screen for child anxiety related emotional disorders”
OR (SCARED AND anxi* AND child*)
OR “revised child anxiety and depression scale”
OR RCADS
OR “spence children’s anxiety scale”
OR (SCAS AND anxi*)
OR "fear questionnaire"
OR “zung* self-rating anxiety scale”
OR (SAS AND zung*)
#4: Trauma-Related Terms:
"trauma and stressor related disorders"[MeSH]
OR "trauma* and stressor* related*"[tiab]
OR "trauma* related disorder*"[tiab]
OR "stressor* related disorder*"[tiab]
OR "trauma disorder*"[tiab]
OR “posttraumatic stress”[tiab]
OR “post* traumatic stress”[tiab]
OR “post* traumatic response”[tiab]
OR PTSD[tiab]
OR CPTSD[tiab]
OR "psychological* trauma*"[tiab]
OR “emotional* trauma*”[tiab]
OR "acute stress disorder*"[tiab]
OR (ASD[tiab] AND acute[tiab] AND stress[tiab])
OR "acute psychological stress"[tiab]
OR “acute stress”[tiab]
OR "adjustment disorder*"[tiab]
OR "reactive attachment disorder"[MeSH]
OR "reactive attachment disorder*"[tiab]
OR "attachment disorder"[tiab]
OR "disinhibited social engagement disorder"[tiab]
OR “grief”[tiab]
OR "shell shock"[tiab]
#5: Trauma-Related Measures:
OR “clinician* administered PTSD scale”
OR CAPS-5 OR CAPS-4 OR CAPS-IV OR CAPS-2 OR CAPS-1 OR CAPS-DX* OR (CAPS-CA* NOT “Ca2+”) OR CAPS-SX*
OR “PTSD checklist*”
OR (PCL AND trauma* NOT “cruciate” NOT “ligament” NOT “posterior” NOT “tendon”) OR (PCL-5 AND (trauma* OR stress*)) OR (PCL-C AND (trauma* OR stress*)) OR (PCL-M AND (trauma* OR stress*))
OR “impact of event scale”
OR (IES-R AND (trauma* OR stress*))
OR “international trauma questionnaire”
OR (ITQ (trauma* OR stress*))
OR “international trauma interview”
OR (ITI AND (trauma* OR stress*))
OR “Davidson trauma scale”
OR (DTS AND (trauma* OR stress*))
OR “Harvard trauma questionnaire”
OR (HTQ AND (trauma* OR stress*))
OR “post-traumatic diagnostic scale”
OR (PDS AND (trauma* OR stress*))
OR “trauma screening questionnaire”
OR (TSQ AND (trauma* OR stress*))
OR (CPSS AND child* AND trauma*)
OR “adjustment* disorder new module”
OR (ADNM* AND adjustment)
OR (ASDS AND acute AND (trauma* OR stress*))
OR “international prolonged grief disorder scale”
OR (IPGDS AND grief)
OR “primary care PTSD screen”
OR (PC-PTSD* AND (trauma* OR stress*))
OR “PG-13-R”
#6: Obsessive-Compulsive-Related Terms:
“obsessive-compulsive disorder”[MeSH]
OR “obsessive-compulsive”[tiab]
OR (“obsessi*”[tiab] AND compulsi*[tiab])
OR OCRD[tiab]
OR OCD[tiab]
OR “body dysmorphi*”[tiab]
OR “hoarding disorder”[tiab]

OR "body focused repetitive behavio*r*"[tiab]
OR trichotillomania*[tiab]
OR excoriati*[tiab]
OR “olfactory reference disorder*”[tiab]
OR hypochondria*[tiab]
#7: Obsessive-Compulsive-Related Measures:
OR "yale* brown obsessive compulsive scale"
OR Y-BOCS*
OR CY-BOCS*
OR "obsessive compulsive inventory"
OR (OCI AND (obsessi* OR compulsi*))
OR OCI-R
OR "padua inventory"
OR “vancouver obsessional* compulsive inventory”
OR (VOCI AND (obsessi* OR compulsi*))
OR "florida obsessive* compulsive inventory"
OR "dimensional obsessive-compulsive scale"
OR (DOCS AND obsessi*)
OR “obsessive-compulsive beliefs questionnaire”
OR (OBQ AND (obsessi* OR compulsi*))
OR “body dysmorphic disorder questionnaire”
OR BDDQ*
OR “BDD-YBOCS*”
OR “dysmorphic concern questionnaire”
OR (DCQ AND dysmorphi*)
OR “hoarding rating scale*”
OR HRS-I
OR “savings inventory* revised”
OR (SI-R AND hoard*)
OR (SI AND hoard*)
OR MGH-HPS
OR “skin picking scale”
OR “health anxiety inventory”
OR (HAI AND (“health anxiety” OR hypochondri*))
OR “whiteley index”
OR “illness attitude scale*”
OR “amputee body image scale”
OR (ABIS AND amput*)
OR “trinity amputation and prosthe* experience scale*”
OR (TAPES AND amput*)
OR (BSI AND (obsessi* OR compulsi*))
#8: Shared Diagnostic Interview Terms:
(DSM OR ICD OR “diagnos*” OR “clinical interview” OR SCID* OR "composite international diagnostic interview" OR CIDI* OR "mini* international neuropsychiatric interview" OR MINI-5 OR MINI-6 OR MINI-7 OR “MINI-Plus” OR “MINI-Kid” OR “anxiety disorders interview schedule” OR ADIS*)
AND (anxi* OR panic OR phobi* OR agoraphobi* OR mutism OR PTSD OR "posttraumatic stress" OR "post* traumatic stress" OR "acute stress disorder" OR "adjustment disorder*" OR "attachment disorder*" OR "social engagement disorder" OR grief OR obsessi* OR compulsi* OR OCD OR OCRD OR trichotillomania* OR excoriation OR “olfactory reference disorder*” OR hypochondria* OR "body focused repetitive behavio*r*" OR “hoarding disorder*” OR “body dysmorphi*”)
#9 Combined Search:
#9 = #1 AND (#2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8).

Participant or population All individuals of any age or gender: including adults, children and adolescents.

Intervention Exposure: The acquisition of a limb amputation or the imminent acquisition of a limb amputation. This includes major or minor amputation of the lower limb, upper limb, bilateral, mixed, multiple sites, digits, or any other type of amputation to a limb. It also includes limb amputations from any cause, including both traumatic and non-traumatic causes.

Comparator None required. Studies with comparison groups such as another surgical population, other patient populations, the general population, intervention or control arms, or different time points will be included if they otherwise meet the eligibility criteria. The presence of a comparator, however, is not necessary for inclusion.

Study designs to be included Population studies, epidemiological studies, longitudinal studies, randomised controlled trials (baseline or control arm), mixed-methods studies, retrospective and prospective observational studies (cohort, cross-sectional & case-control) estimating prevalence of anxiety, trauma-related, or obsessive-compulsive-related disorders, sub-disorders or clinically significant symptoms either before or after limb amputation and that have sample size and percentage or number of patients prevalence data available.

Eligibility criteria

Inclusion Criteria

1. Studies including prevalence data for any anxiety, trauma-related or obsessive-compulsive-related disorder, sub-disorder (as organised in the DSM or ICD) or respective clinically significant symptoms in individuals with one or more amputation to a limb or limbs. As per the exposure from the PECO, this includes major or minor amputation of the lower limb, upper limb, bilateral, mixed, multiple sites, digits, or any other type of amputation to a limb. It also includes limb amputations from any cause, including both traumatic and non-traumatic causes.

2. Studies that report prevalence of any of these disorders or symptoms before the amputation surgery will also be included but only in cases where amputation is imminent, not speculative.
3. Additionally, studies with mixed populations but where participants with limb amputations can be isolated will also be included.
4. Any duplicate studies with the same (or overlapping) cohort of participants but that report additional data of interest from each other, or that have the same sample size.
5. English language.
Exclusion Criteria
1. Case studies, case series (<10 sample size), opinions, commentary, conference proceedings, abstracts, non-peer reviewed publications, narrative reviews, qualitative studies, grey literature or studies with insufficient data to deduce the prevalence of anxiety, trauma-related, or obsessive-compulsive-related disorders or symptoms.
2. Studies that mix congenital limb loss populations with limb amputation populations in ways that can't be separated.
3. Any duplicate studies with the same (or overlapping) cohort of participants that do not have additional information of interest will be excluded. Only the study with the largest sample size will be included.
4. Studies where any of our outcomes of interest (anxiety, trauma-related, and obsessive-compulsive-related disorders, their sub-disorders or clinically significant symptoms) are inclusion criteria for participation in the study. This would artificially inflate our estimates if these studies were included.

Information sources MEDLINE/PubMed, PsycINFO/EBSCOhost, Embase/Elsevier, Scopus/Elsevier, Web of Science/Clarivate, and PTSDpubs/ProQuest databases will be searched as well as reference lists of related studies or studies uncovered in the screening and full text review processes. The search strategy above was developed for PubMed's search functions and will be adapted for each of the other databases. No other search limits are planned. Only studies in English will be searched.

Main outcome(s) Prevalences of a) any anxiety, b) any trauma-related, and c) any obsessive-compulsive-related disorders and clinically significant symptoms among limb amputees. This includes the prevalence of any disorder or clinically significant symptoms (as laid out in the DSM or ICD) for each of these three classes of disorders. These three classes of disorders will not be analysed together. They will be analysed separately as three separate main outcomes of this study.

Additional outcome(s) Additionally, prevalence of each specific anxiety disorder currently included in the DSM or ICD and their corresponding clinical symptoms; each disorder included in the trauma-related chapter of the DSM or sub-chapter ICD and its corresponding symptoms will be analysed as additional outcomes, and each disorder included in the obsessive-compulsive-related chapter of the DSM or ICD sub-chapter and its corresponding symptoms will be analysed as additional outcomes. Where possible, incidence rate of new onset of any of these disorders will also be included as an outcome. Prevalences of diagnoses before limb amputation will also be collected where possible.

Data management
Study Selection
Covidence will be used to manage screening of papers identified in the systematic search from each database. Results from all six databases will be merged for further screening of studies after removing duplicates. From here, two independent reviewers will screen titles and abstracts for inclusion or exclusion based on the above inclusion and exclusion criteria. Next, full reports will be sought for screening. If any cannot be retrieved these will be recorded and reported. Two independent reviewers will read full texts to determine a final decision on whether each study is included or not. Reasons for studies being excluded will be reported at each step as per standard PRISMA 2020 guidelines and will be illustrated in a PRISMA Flowchart. Once completed, the final list of included studies to be will pass into the data extraction phase.

Data Extraction
An excel spreadsheet will be used to enter extracted data from each of the included studies following the screening and full text review stage. The spreadsheet will include fields such as the first author's name, year of publication, study ID, cohort ID, study design, setting, country and continent of study, time since amputation (see 'Other Relevant Information' section for more detail), mean age at time of study, sample size, gender, adult or youth participants, site of amputation, cause of amputation, method of assessment, type of prevalence (e.g., point, period, lifetime), whether mental health exclusion criteria was applied, the prevalence of symptoms for each class of disorders and their respective subtypes, any recorded pre-surgery prevalence, incidence rate, prothesis (use, satisfaction, and type), study risk of

bias, a notes column, related conditions (such as chronic pain, phantom limb pain, sexual dysfunction, body image, sleep, addiction, etc.), as well as any other related findings.

Two reviewers will independently extract data into the same Excel spreadsheet template using a shared set of extraction rules (see 'Other Relevant Section'). These rules will help to clarify potential ambiguities that are anticipated to occur during the data extraction process. Any additional conflicts encountered during data extraction will be reported in the final manuscript.

Where any disagreement occurs in any steps in the Study Selection or Data Extraction phases, a decision will be arrived at via discussion and consensus. If consensus cannot be met, then a third reviewer may be consulted.

Quality assessment / Risk of bias analysis Risk of bias assessment will be conducted with the most relevant Joanna Briggs Institute (JBI) Tool for each study design by two reviewers and qualitatively categorized into low, moderate, or high risk of bias. Responses by each reviewer will be compared and if there are any discrepancies these will be resolved by mutual consensus. If consensus cannot be made a third reviewer will be consulted. These ratings will also be included in the extraction spreadsheets for subgroup/ sensitivity analysis.

Strategy of data synthesis Proportional meta-analyses will be conducted to estimate the pooled prevalence of anxiety, trauma-related, and obsessive-compulsive disorders and clinically significant symptoms in people with limb amputation. Additionally, the prevalence of individual sub-disorders of anxiety, trauma- and stressor-related and obsessive-compulsive and related disorders and symptoms with sufficient data will also be pooled by proportional meta-analyses. From here, the subgroup and meta-regression analyses (presented in the next section) will be conducted where enough studies are identified in our systematic search. The 95% confidence intervals and prediction intervals will be calculated and reported for all the above analyses we run. Lastly, exploratory multivariate meta-analyses may also be conducted for meaningful variables where enough studies with complementary data are found in our systematic search.
Heterogeneity will be examined by calculating the I^2 statistics and $\tau 2$ statistics for all conducted analyses. We will consider fixed effects meta-analysis when I^2 50%.

Relevant I^2, $Q/\chi 2$ statistics and significance of meta-regression lines will be used to determine which factors account for systematic heterogeneity in our collected studies via subgroup, meta-regression, and possible multivariate analyses.
While publication bias analyses may not be as relevant for proportional meta-analyses, we will still conduct and report the relevant Egger's tests, Begg's tests, funnel plots, and trim-and-fill analyses for analyses that have enough studies. It is possible that some regions, demographics, or participant characteristics are underrepresented in the databases we plan to search. These statistics will be interpreted cautiously.
To run the above analyses, the 'metafor' and associated packages in R will be used for proportional meta-analyses and associated subgroup, meta-regression, and possible multivariate meta-analyses.
Forrest plots will be generated to visualise and report results for the analyses that are run.

Subgroup analysis Where enough data is extracted, the following subgroup and meta-regression analyses will be carried out for each of the overall classes of disorders and their clinically significant symptoms, as well as for the sub-disorders and their respective clinically significant symptoms. They include: country (low-middle income countries vs. high income countries); continent (Australasia vs. North America vs. Europe vs. Asia, Africa vs. South America); assessment method (self-reported questionnaire vs. clinical interview/diagnosis); cause of amputation (traumatic vs. non-traumatic); type of amputation (upper limb vs. lower limb); age (children and adolescents [18 years old]); mean age of amputee at time of measurement/diagnosis (meta-regression); mean time since or before amputation (time range category subgroup analysis); before and after amputation comparison (prevalence before vs. prevalence after); prosthesis usage (regular vs. irregular vs. not at all); prosthesis satisfaction (satisfied vs. not satisfied); type of prosthesis (advanced vs. standard vs. none); sex/ gender (% of male meta-regression); setting (military/war vs. civilian population subgroup analysis); risk of bias/quality of study rating (low vs. moderate and high); and year of study (meta-regression). Multivariate analyses may also be conducted for theoretically justifiable analyses that have enough exacted data to run.

Sensitivity analysis In addition to the above subgroup analyses, the following sensitivity analyses will be conducted: leave-one-out sensitivity analysis, low-quality studies sensitivity analysis, sensitivity analysis excluding self-report

measures, sensitivity measures excluding studies that excluded participants with prior psychiatric diagnoses as part of their inclusion criteria, and sensitivity analysis excluding outliers.

Language restriction Only articles written in English.

Country(ies) involved Australia.

Other relevant information

Time Range Categories

The reason prevalences are being grouped into time range categories and not run as a meta-regression is because some studies report a gradual decline of prevalence up until the two-year mark, followed by a rise again after two years. Timepoints that were reported in the preliminary search included: before surgery, immediately after surgery, at discharge, at 1, 3, 6, 12, and 18 months, at 2 years, 3 years, 10 years and 20 years post-surgery. Important milestones reported in qualitative studies included: history of diagnoses prior to amputation, time leading up to surgery, immediately after surgery, time in hospital, discharge from hospital, early rehabilitation, learning to use and adjustment to prostheses, returning to everyday functioning, beginning back at work, consolidating function and continuing to engage socially, acceptance and moving on with life, as well as long-term adjustment. Combining these and trying to preserve as much information possible, the following time ranges are the starting points for data extraction: past history, prior to surgery, immediately post-surgery, >0 to 1 month), 2-4 months, 5-9 months, 10-14 months, 15-19 months, 20-36 months, >3 to 10 years, >10 to 20 years and >20 years. Based on the outcome of the systematic search and as data extraction the following time ranges may be narrowed to better capture data in the literature or expanded to increase the statistical certainty for the final subgroup analyses. This may allow identification of any non-linear trends in disorder or symptom worsening or improvement that may be useful for clinicians and policy makers.

Background and Rationale for Comprehensive Search Strategy

The current search strategy was modelled off previous meta-analyses on similar topics such as Sing and colleagues (2024); Mckechnie and John (2014); Maciver, Dixon, and Powell (2024); and Limakatso and colleagues (2020). In addition to this, a pilot search of the Sing and colleagues' (2024) reference list also informed terms that should be included by reading individual studies. A takeaway was that several studies did not mention anxiety in their headings (and sometimes abstracts) but still reported comparative anxiety prevalences in their methods sections. As a result, relevant measures for each disorder (and their abbreviations) were included in the search strings and searched for in all search fields to capture studies that report prevalences of interest in their methods sections but not their titles or abstracts. Additionally, due to the relatively sparse literature on psychiatric disorders and symptoms in limb amputation, search terms that necessarily imply limb amputation—such as phantom limb pain and limb prostheses—were also included to avoid missing any relevant studies. It is not uncommon, for example, to include depression and anxiety measures alongside phantom or residual limb pain studies. As a result, the search terms planned for this study are more extensive than typically included in PRISMA 2020 guidelines.

Extraction Rules

Timepoint rules:

1. If studies report more than one prevalence of the same measure at different time points, the post-amputation time point with the largest number of participants will be extracted as data point for primary and secondary analyses.
2. Additional timepoints will be extracted for the time range categories (see above) for subgroup analyses.
3. Mean time since amputation for each timepoint will be used to allocate each reported prevalence to a respective time range category.
4. If more than one timepoint falls within the same time range category, then the timepoint with the highest sample size will be extracted and a note made in the 'notes' column of the other time point(s) and prevalence(s) that are excluded.
5. Note: Some of these time range categories may be expanded to capture more data or combined for greater statistically certainty.

Randomised controlled trials or experimental studies. Baseline prevalence rates will be extracted for any arms that meet the eligibility criteria.

Outcome Rules:

1. If multiple diagnoses or clinically significant symptoms are reported for multiple sub-disorders within the same class of disorders, and these cannot be confidently combined into an overall prevalence for that disorder, then the disorder with highest prevalence will be extracted as the 'any reported' prevalence for that class of disorders.
2. If two measures are included for the same datapoint, then the most common measure will be extracted.
3. Except if prevalences from a self-report and clinical interview/diagnosis are reported for the

same datapoint. Both will be extracted for the 'assessment method' subgroup analysis. Only the most common will be used for primary analyses.

Population Rules.
1. All participants will be combined for primary analyses. Participants will only be grouped separately for subgroup, meta-regression, and multivariate analyses.
2. If more than one cohort of participants meets the eligibility criteria in the same study and if they cannot be combined, or if doing so would lose relevant information, they will be entered into separate rows with the same study ID and different cohort IDs.
3. If any studies have overlapping cohorts that can't be separated and have different information, the data from the study with the largest sample size will be extracted for each datapoint. If smaller studies have additional information, only this will be entered in different rows with different study IDs and same cohort ID.
4. If two or more studies share a cohort of participants, can't be separated, have different data but the same sample size, only the information from the most comprehensive study will be extracted for single data-points. Additional data, from the smaller study will be entered in different rows with different study IDs and the same cohort ID.
5. If after the above 4 points a study has no additional information, it will be excluded.

PRISMA-P Extension
An extension of the PRISMA 2020 guidelines for systematic reviews of prevalence (PRISMA-P) is due to be published at some point in 2025. If this is published while we still have scope to integrate any of their recommendations, and there are certain suggestions that clash with any of our decisions outlined in this submission, we will endeavour to align our procedures with theirs where possible.

Keywords Limb Amputation; Anxiety; Trauma; Stress; PTSD; OCD; Humans; Disorders; Symptoms; Prevalence; Systematic Review; Meta-analysis.

Dissemination plans To publish in a peer-reviewed journal.

Contributions of each author
Author 1 - Timothy Constantinou - Author 1: Did the pilot search, devised the search strings, conducted the systematic search, ran the analyses and drafted the manuscript.
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