

Das Erleben von Sturzangst nach einer Hüftfraktur

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Zielsetzung: Sturzangst kann weitreichenden Einfluss auf das Leben der Betroffenen haben. Sie ist aber auch ein Faktor, der potenziell veränderbar ist. Diese Dissertation beleuchtet das multifaktorielle Phänomen aus der Perspektive von Betroffenen. Erkenntnisse zur Entstehung von Sturzangst und zum Einfluss dieser Angst auf das tägliche Leben sollen gewonnen werden. Perspektivisch können Angehörige von Gesundheitsberufen die Handlungsmotivation der Betroffenen somit besser verstehen und die Erkenntnisse können bei der Entwicklung zielgerichteter Interventionen berücksichtigt werden.

Methoden: Das Phänomen der Sturzangst wurde mit zwei Methoden untersucht. Eine systematische Übersichtsarbeit und Meta-Summary qualitativer Forschungsliteratur zum Erleben von Sturzangst durch Betroffenen wurde erstellt (Publikation 1). In einer Interviewstudie wurden zudem teilstrukturierte Interviews mit älteren Menschen nach einer proximalen Femurfraktur durchgeführt. Ihr Erleben der Sturzangst und der Einfluss auf das tägliche Leben nach der Fraktur standen im Fokus. Hauptthemen zum Erleben der Betroffenen wurden mittels induktiver Inhaltsanalyse herausgearbeitet und analysiert (Publikation 2).

Ergebnisse: Eine Hüftfraktur wird von den Betroffenen zum Großteil als Auslöser oder Verstärker für Sturzangst genannt. Diese Angst hat weitreichende Folgen auf das tägliche Leben. Die Betroffenen entwickeln selbständig Strategien im Umgang mit ihrer Angst. Dabei bewegen sie sich in einem Spannungsfeld zwischen der Annahme von Hilfe und dem Streben nach Selbständigkeit. Von den Angehörigen der Gesundheitsberufe fühlen sich die Betroffenen in ihrem Umgang mit der Angst nicht oder unzureichend unterstützt bzw. nicht ausreichend ernstgenommen.

Folgerungen: Angehörige der Gesundheitsberufe sollten zur Identifikation von Menschen mit Sturzangst nach einer Hüftfraktur und in der Bereitstellung von zielgerichteten Interventionen befähigt werden. Pflegefachpersonen können in diesem professions- und settingübergreifenden Prozess eine zentrale Rolle einnehmen. Die Lebensqualität der Betroffenen kann verbessert, Stürze vermieden und die Belastung des Gesundheitssystems reduziert werden, wenn die Ängste der Betroffenen besser verstanden werden und ihnen entgegengewirkt wird.

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1 Einleitung und Zielsetzung

1.1 Sturzangst

Ältere Menschen über 60 Jahre sind häufig von Stürzen betroffen. Diese können mit schweren gesundheitlichen Folgen einhergehen. Nach Angaben der WHO ereignen sich jährlich weltweit etwa 37,3 Millionen Stürze, die nachfolgend eine medizinische Versorgung erforderlich machen (WHO, 2021). Die Belastung, die durch die Sturzfolgen entsteht, ist über alle Altersgruppen weltweit erheblich (James et al., 2020).

So ist auch die Sturzangst ein verbreitetes Phänomen bei älteren Menschen über 65 Jahren, das mit Stürzen und deren Folgen in Verbindung gebracht wird. Sturzangst kann dabei weitreichende Konsequenzen für die Betroffenen und deren Alltag haben. Dies betrifft physische und psychische Aspekte sowie soziale Aktivitäten. Sturzangst kann Folge von Stürzen sein, Stürze aber ebenso vorhersagen (Lavedán et al., 2018; MacKay et al., 2021). Sie tritt bei älteren Menschen nach Sturzereignissen auf, jedoch ebenso bei Menschen, die bisher kein Sturzereignis erlebt haben (MacKay et al., 2021; Schoene et al., 2019).

Die Forschung zu Sturzangst begann Anfang der 80er Jahre und basierte auf der Annahme eines *post-fall syndrome* (Murphy & Isaacs, 1982). Es entwickelten sich unterschiedliche Konzepte zu Sturzangst, die im Laufe des Forschungsdiskurses nicht trennscharf voneinander genutzt und deren Begrifflichkeiten ausgetauscht wurden, ohne die dahinterliegenden Inhalte entsprechend zu berücksichtigen. Folglich wurden auch unterschiedliche Methoden zur Messung des Phänomens entwickelt und genutzt (Adamczewska & Nyman, 2018). Beginnend mit Tinetti et al. (1990) wurde Sturzangst (Fear of Falling) als "geringe wahrgenommene Selbstwirksamkeit bei der Vermeidung von Stürzen bei wesentlichen, nicht gefährlichen Aktivitäten des täglichen Lebens" definiert. Entsprechend wurde die Sturzangst nach diesem Verständnis mit der, ebenfalls von Tinetti et al. entwickelten, *Falls Efficacy Scale (FES)* gemessen. Dieses Konzept von Sturzangst basiert auf der Theorie zur Selbstwirksamkeit von Bandura (1977, 1997) und der damit verbundenen Einschränkung der Aktivitäten bei einem geringen Maß an Selbstwirksamkeit. Sehr ähnlich und auf gleichen Annahmen beruhend ist das Konzept der *balance confidence*, das mit der entwickelten *activities-specific balance confidence (ABC) scale* gemessen wird (Myers et al., 1998). Neuere Überlegungen gehen jedoch davon aus, dass Sturzangst und sturzbezogene Selbstwirksamkeit (*fall-related self-efficacy*) unterschiedliche Konzepte sind, die daher bei der Betrachtung voneinander unterschieden (Hadjistavropoulos et al., 2011) und

entsprechend auch mit unterschiedlichen Instrumenten gemessen werden müssen (Moore & Ellis, 2008). Beide Konzepte stehen in Verbindung miteinander und sturzbezogene Selbstwirksamkeit kann Sturzangst bedingen. Sie treten jedoch nicht zwangsläufig immer in Kombination auf. Vielmehr kann sturzbezogene Selbstwirksamkeit als Mediator zwischen Sturz und Sturzangst wirken (Hadjistavropoulos et al., 2011). Die im Rahmen dieser Arbeit herangezogene Literatur bezieht Sturzangst und die verwandten Konzepte *falls efficacy* und *balance confidence* mit ein. Der Fokus der eigenen Forschung liegt jedoch auf der Sturzangst und nicht auf der auf Selbstwirksamkeit basierenden Perspektive.

Studien zeigen eine Prävalenz von Sturzangst bei älteren Menschen, die zwischen 21 und 85 Prozent liegt (Scheffer et al., 2008). Nach einem aktuellen Review geben zudem 22 bis 100 Prozent der Befragten kurz nach einer Hüftfraktur an, von Sturzangst betroffen zu sein (Gadhvi et al., 2023). Ein Rückgang der Sturzangst ist im Verlauf der Zeit nach der Hüftfraktur erkennbar. Als Risikofaktoren für die Entwicklung von Sturzangst werden vor allem fortgeschrittenes Alter, das weibliche Geschlecht, stattgefundenen Stürze, beeinträchtigte körperliche Leistungsfähigkeit und Anzeichen für Depressionen angegeben (MacKay et al., 2021). Die Folgen von Sturzangst sind dabei facettenreich und teilweise weitreichend. Sie umfassen körperliche, psychologische und soziale Folgen für die Betroffenen (Scheffer et al., 2008).

Vermeidung von Aktivitäten

Eine häufig erkannte Folge von Sturzangst ist die selbstgewählte Einschränkung von Aktivitäten des täglichen Lebens durch die Betroffenen (Deshpande et al., 2008; Mendes Da Costa et al., 2012). Bei etwa einem Drittel der von Sturzangst Betroffenen kann die Einschränkung unterschiedlicher Aktivitäten des täglichen Lebens beobachtet werden (Merchant et al., 2020). Auf die Vermeidung von Aktivitäten hat Sturzangst einen gleichermaßen relevanten Einfluss, wie es mehrere Sturzereignisse in der Vorgeschichte haben können (Liu et al., 2021).

Körperliche Folgen

Die Vermeidung von Aktivitäten, und darin eingeschlossen auch die Einschränkung von Mobilität, kann auf Dauer einen negativen Einfluss auf physische Fähigkeiten wie körperliche Leistungsfähigkeit, Muskelkraft und Kontrolle der Körperhaltung haben (Delbaere, 2004). Darin begründet tragen Sturzangst und die Vermeidung von Aktivitäten zu einem schnelleren Voranschreiten von körperlicher Gebrechlichkeit bei älteren Menschen bei (Delbaere, 2004; Merchant et al., 2020) und können wiederum auch zu einer erhöhten Sturzneigung führen.

Psychische Folgen

Ein erhöhtes Maß an Sturzangst steht mit einer reduzierten Lebensqualität der Betroffenen in Verbindung, wobei Sturzangst ein unabhängiger Prädiktor für reduzierte Lebensqualität ist (Schoene et al., 2019). Weniger relevant sind in diesem Zusammenhang tatsächlich stattgefundene Stürze. Auch hier hat die Einschränkung von Aktivitäten aufgrund von Sturzangst einen negativen Einfluss auf die Lebensqualität der Betroffenen sowie auf depressive Symptome (Xu et al., 2024). Die Verbindung von Sturzangst und Depressionen ist nach aktuellem Stand der Forschung nicht eindeutig. Beide scheinen gegenseitig zur Entstehung bzw. Verstärkung beizutragen (Gambaro et al., 2022).

Soziale Folgen

Ebenso kann sich Sturzangst und die damit einhergehende Vermeidung von Aktivitäten auf die Autonomie der Betroffenen und die sozialen Netzwerke auswirken, wenn soziale Aktivitäten vermieden werden (Merchant et al., 2020). Aus Angst vor Stürzen wird beispielsweise die eigene Häuslichkeit nicht mehr verlassen und auch größere Ansammlungen von Menschen oder der öffentliche Nahverkehr vermieden. Soziale Interaktionen, die zuvor bei dem Zusammentreffen mit anderen Personen oder auch im Rahmen von regelmäßigen Freizeitbeschäftigungen erfolgten, finden so nicht mehr statt. Reduzierte oder mangelnde soziale Teilhabe kann nachweislich wiederum einen negativen Einfluss auf die Lebensqualität der Betroffenen haben (Lestari et al., 2021).

Die Folgen von Sturzangst können demnach weitreichend sein und viele Bereiche des Lebens betreffen. Da es sich bei dem Phänomen Sturzangst um einen beeinflussbaren Faktor handelt, sind die Prävention und entsprechende Interventionen Teil der Forschung zu Sturzangst (Kendrick et al., 2014; Kruisbrink et al., 2021; Liu et al., 2018; Whipple et al., 2018). Die Interventionen bestehen dabei zumeist aus psychotherapeutischen Elementen oder körperlichen Übungen. Einige Interventionen kombinieren diese beiden Elemente auch.

1.2 Proximale Femurfrakturen

Proximale Femurfrakturen (PFF) sind bei Menschen über 65 Jahren eine der häufigsten Frakturen (Court-Brown et al., 2014; Icks et al., 2013). Eine Zunahme der absoluten Zahlen aufgrund der demographischen Entwicklung ist zu beobachten. Aber es gibt einen Hinweis auf eine sinkende oder zumindest gleichbleibende altersadjustierte Inzidenz (Sing et al., 2023). Die Vereinten Nationen gehen von einer Verdopplung der Anzahl von Menschen im Alter von über 65 Jahren zwischen 2019 und 2050 aus. Ihr Anteil an der Gesamtbevölkerung würde damit von 9 auf 16 Prozent steigen. Die Anzahl

der über 80-Jährigen wird sich prognostisch im gleichen Zeitraum sogar verdreifachen (UNITED NATIONS, 2021). Da vornehmlich ältere Menschen von Hüftfrakturen betroffen sind, geht eine aktuelle Arbeit auch beinahe von einer Verdopplung der Anzahl der Hüftfrakturen zwischen 2018 und 2050 aus (Sing et al., 2023). Von 983.056 Hüftfrakturen im Jahr 2018 könnte die Zahl auf 1.873.078 im Jahr 2050 steigen. Dies bedeutet perspektivisch für die Versorgungssysteme eine deutliche zusätzliche Belastung. Durch die Hüftfrakturen entstehen Kosten im Rahmen der direkten Versorgung der Betroffenen im Krankenhaus. Und auch im drauf folgenden Jahr nach der Fraktur können für Folgebehandlungen und Interventionen weitere hohe Kosten entstehen (Leal et al., 2016; Williamson et al., 2017).

Neben den ökonomischen Folgen von Hüftfrakturen können vor allem auch die Folgen für die Betroffenen selbst gravierend sein. Zwar lässt sich allgemein ein Rückgang der Sterblichkeitsrate im ersten Jahr nach der Fraktur verzeichnen, doch liegt sie in Europa weiterhin bei 23,3 Prozent und global bei 22 Prozent (Downey et al., 2019). Ursächlich für den Rückgang der Sterblichkeitsrate scheint die Weiterentwicklung der medizinischen und pflegerischen Versorgung in der Akutphase der Fraktur, aber auch bei der darauf folgenden Versorgung zu sein (Downey et al., 2019; Sing et al., 2023). Zuvor wurde von einer Sterblichkeitsrate von etwa 30 Prozent ausgegangen.

Hüftfrakturen haben weitreichende Folgen für die Betroffenen. So bleibt ein Drittel der Betroffenen auch ein Jahr nach einer Hüftfraktur im Bereich der Aktivitäten des täglichen Lebens hinter dem Niveau von vor der Fraktur zurück. 47 Prozent der Betroffenen berichten über anhaltende Schmerzen und 23 Prozent der Betroffenen benötigen mehr Unterstützung in der Wohnumgebung, beispielsweise durch einen Umzug in eine Langzeitpflegeeinrichtung (Bertram et al., 2011). Nach einem Review von Dyer et al. (2016) werden 10 bis 20 Prozent der Betroffenen in den sechs bis zwölf Monaten nach einer Hüftfraktur in eine pflegerische Langzeiteinrichtung aufgenommen. Zudem haben Hüftfrakturen auch Monate nach dem Ereignis einen deutlich negativen Einfluss auf die Lebensqualität der Betroffenen im Vergleich zu vor der Fraktur (Alexiou et al., 2018). Die Betroffenen selbst bewerten die Hüftfraktur kurz nach dem Ereignis als bedeutenden Einschnitt (Bruun-Olsen et al., 2018; Segevall et al., 2019) und sehen sie auch Monate nach der Fraktur als bedeutendes Ereignis, das ihr Alltagserleben verändert hat (Gesar et al., 2017; Zidén et al., 2010). Dabei wird beschrieben, dass sich physische und psychische Veränderungen nach der Hüftfraktur gegenseitig beeinflussen und bedingen.

1.3 Sturzburg nach Hüftfraktur

Hüftfrakturen bei älteren Menschen sind in der Regel Folge eines Sturzes und werden durch Osteopenie und Osteoporose im Alter begünstigt (Kanis et al., 2000). Bei der Betrachtung von Sturzburg nach einer Hüftfraktur wird deutlich, dass eine enge Verbindung zu bestehen scheint. Eine systematische Übersichtsarbeit ergab, dass nach einer Hüftfraktur die Prävalenz von Sturzburg über den beobachteten Zeitraum abnimmt. So lag sie in den Wochen eins bis vier nach Hüftfraktur bei 50 bis 100 Prozent, in den Wochen zwölf bis 23 bei etwa 47 bis 59 Prozent und nahm dann im Verlauf bis Woche 58 auf etwa 50 Prozent ab (Gadhvi et al., 2023).

Auch wenn es vermutet wurde, sind dazu, ob Sturzburg einen Einfluss auf das Outcome nach einer Hüftfraktur hat, die Ergebnisse nicht eindeutig bzw. widersprüchlich (Bower et al., 2016; Jaatinen et al., 2022). So wurde beispielsweise festgestellt, dass Sturzburg bei der Vorhersage der Wiedererlangung funktionaler Fähigkeiten nach einer Hüftfraktur bedeutender ist als Depression oder auch Schmerz (Oude Voshaar et al., 2006) und Sturzburg auch zwölf Monate nach einer Hüftfraktur für die Betroffenen weiterhin ein bestehendes Problem bleibt (Abrahamsen et al., 2022). Andere Untersuchungen konnten jedoch wiederum keinen Zusammenhang zwischen Sturzburg und dem Ergebnis einer Nachsorgeuntersuchung ein Jahr nach der Fraktur feststellen (Jaatinen et al., 2022).

Es konnte jedoch nachgewiesen werden, dass ein Zusammengang zwischen höherer Sturzburg und verminderter körperlicher Funktion, wie Gleichgewicht, Kraft, Leistungsfähigkeit sowie Ganggeschwindigkeit und körperlicher Aktivität, nach einer Hüftfraktur besteht (Gadhvi et al., 2023). Dabei ist nicht klar, wie sie einander bedingen. Eine Studie ergab, dass von Sturzburg nach einer Hüftfraktur häufiger Frauen, allein lebende Personen und Personen betroffen sind, die regelmäßig mehrere Medikamente einnehmen, Schwierigkeiten bei den Aktivitäten des täglichen Lebens haben oder in ihrer körperlichen Leistungsfähigkeit eingeschränkt sind (Jaatinen et al., 2022).

Rehabilitation nach einer Hüftfraktur ist ein entscheidender Aspekt der Nachsorge. Auf Grundlage der aktuell vorliegenden Studien ist jedoch unklar, welche Interventionen nach einer Hüftfraktur in Hinblick auf bestehende Sturzburg effektiv sein könnten (Gadhvi et al., 2023).

1.4 Rahmen der Dissertation

Diese Dissertation ist in die populationsbezogene prospektive Beobachtungsstudie ProFem (Healthcare provision, functional ability and quality of life after proximal femoral fracture) eingebettet (Deutsches Register Klinischer Studien - DRKS00012554) (Andrich

et al., 2019). Ziel des Gesamtvorhabens war es, Subgruppen nach einer proximalen Femurfraktur (PFF) zu identifizieren, die schlechtere klinische sowie patientenberichtete Outcomes nach einer PFF aufweisen und somit Zielgruppe intensiverer Gesundheitsversorgung sein könnten. Ein Algorithmus zur Identifikation dieser Gruppen und Maßnahmen für deren zielgruppengerechte Versorgung sollten entwickelt werden.

Zur Darstellung der Versorgungssituation nach einer PFF wurden Daten der gesetzlichen Krankenversicherung AOK Rheinland/Hamburg im Zeitraum eines Jahres genutzt (01/2018 – 01/2019). Von 5.560 Versicherten aus Nordrhein-Westfalen im Alter von 60 Jahren oder älter mit PFF wurden Krankenkassendaten zwölf Monate vor und zwölf Monate nach der Fraktur zu Versorgung/Leistungsgeschehen und zu klinischen Outcomes herangezogen (Ritschel et al., 2022). Zudem wurde einer Stichprobe von 2.819 Betroffenen der genannten Population eine Teilnahme an einer Befragung angeboten, die drei, sechs und zwölf Monate nach Entlassung aus dem Krankenhaus nach PFF erfolgen sollte. Die Befragung wurde nach drei und zwölf Monaten als Interview durchgeführt und nach sechs Monaten als postalische Befragung. Sie umfasste Informationen zu patientenberichteten Outcomes, wie z.B. gesundheitsbezogene Lebensqualität, soziale Teilhabe, Funktionsfähigkeit und Sturzangst, sowie zu Lebensstilmerkmalen und zum sozioökonomischen Status. Die erhobenen Daten der Befragungen wurden individuell mit den Krankenkassendaten verknüpft. Zum ersten Befragungszeitpunkt nahmen 515 Personen teil. Dabei handelte es sich um die Betroffenen selbst sowie Zusatz- oder Ersatzproxies, wenn die Betroffenen sich nicht in der Lage fühlten, die Befragung teilweise oder ganz durchzuführen.

Bei der Population zeigten sich, abgeleitet von den Krankenkassendaten, ähnliche Ergebnisse wie in anderen Studien zu Hüftfrakturen (siehe Kapitel 1.2). So lag die Sterblichkeitsrate innerhalb eines Jahres bei 25 Prozent und damit etwas höher als in anderen Studien in Europa. Dabei waren Männer häufiger betroffen als Frauen und das Risiko stieg mit zunehmendem Alter. Zudem zeigte sich, dass knapp 22 Prozent der Betroffenen nach dem Ereignis in einem Pflegeheim aufgenommen wurden und dass mit 43,6 Prozent fast die Hälfte der Personen nach der PFF in einen höheren Pflegegrad eingruppiert wurde.

Nach Datenauswertung und Algorithmusentwicklung zeigte sich, dass der Pflegegrad und die soziale Unterstützung als Prädiktoren für schlechtere Outcomes nach einer PFF identifiziert werden konnten. Jedoch erfüllte die Ableitung des Algorithmus nicht die Erwartungen und eine weitere Spezifizierung schien angeraten.

In Bezug auf Sturzangst zeigte sich, dass von den befragten Betroffenen mit PFF drei Monate nach Entlassung aus dem Krankenhaus 77,5 Prozent von Sturzangst betroffen waren („manchmal“/ „oft“/ „sehr oft“). Gemessen wurde die Sturzangst mit der Frage: „Haben Sie Angst zu stürzen?“. Von der Gruppe mit Sturzangst gaben 84,2 Prozent an, dass sie aufgrund der Sturzangst Aktivitäten vermieden. Letzteres ist deutlich mehr als in anderen Studien nachgewiesen wurde (vgl. Kapitel 1.1).

Bei dem hohen Anteil an Sturzangst von 77,5 Prozent bei den Menschen mit PFF in der ProFem-Studie wurde die quantitative Auswertung der Daten als wenig zielführend beurteilt. Folglich wurde die Auswertung der qualitativen Daten in den Fokus gestellt. Damit wurde ein Mehrwert gegenüber den bisher vorliegenden Studien erwartet, die das Thema Sturzangst bei Hüftfraktur vornehmlich quantitativ untersucht hatten.

1.5 Aufbau und Fokus der Dissertation

Die vorgelegte Dissertationsschrift besteht aus zwei Publikationen in wissenschaftlichen Fachzeitschriften mit formalem Peer-Review-Verfahren. Beide Publikationen sind in englischer Sprache verfasst und in PubMed gelistet. Bei der Publikation 1 handelt es sich um eine systematische Übersichtsarbeit, bei Publikation 2 um eine qualitative Studie. Der Fokus der Publikationen liegt auf dem Erleben von Sturzangst aus der Sicht der Betroffenen.

In Publikation 1 wurde eine Synthese der verfügbaren Evidenz aus internationaler, qualitativer Forschung zum Erleben von Sturzangst und deren Einfluss auf das tägliche Leben erstellt. Um ein umfassendes Verständnis von Sturzangst als facettenreichem Phänomen zu erlangen, wurde die Methoden einer systematischen Übersichtsarbeit und Meta-Summary genutzt.

In Publikation 2 wurde der Fokus in einer qualitativen Erhebung auf das Erleben der Entstehung von Sturzangst und das Alltagserleben nach einer proximalen Femurfraktur gelegt. Aus einer Kohorte von älteren Menschen nach einer proximalen Femurfraktur wurden von Sturzangst Betroffene mit Hilfe von qualitativen Interviews zu ihrem Erleben nach der Fraktur und zu der entstandenen Sturzangst befragt. Mittels induktiver Inhaltsanalyse wurden Hauptthemen zum Erleben der Betroffenen herausgearbeitet und analysiert.

1.6 Zielsetzung der Dissertation

Sturzangst ist ein potenziell variabler Faktor, der weitreichenden Einfluss auf das Leben der Betroffenen haben kann. Um hierzu ein besseres Verständnis zu schaffen, beleuchtet diese Dissertation das multifaktorielle Phänomen der Sturzangst aus der Perspektive von Betroffenen. Es sollen Erkenntnisse zur Entstehung von Sturzangst und zum Einfluss dieser Angst auf das tägliche Leben der Betroffenen gewonnen werden. Dies kann bei der Identifikation von Betroffenen sowie bei der Anpassung und Entwicklung von gezielten Präventions- und Interventionsmaßnahmen unterstützen. Bei Angehörigen von Gesundheitsberufen kann ein besseres Verständnis für die Handlungsmotivation von Betroffenen durch die Erkenntnisse aus der Sicht der Betroffenen geschaffen werden.

2 Diskussion

Die Dissertationsschrift präsentiert zwei Publikationen. Die erste Publikation betrachtet das Erleben von Sturzangst allgemein. Die zweite Publikation fokussiert auf Sturzangst nach einer Hüftfraktur. Im Folgenden werden die Ergebnisse zusammengeführt, die Kernthemen herausgearbeitet und Schlussfolgerungen unter Einbezug der aktuellen Forschung gezogen.

2.1 Kernthemen

Aus den Publikationen ergeben sich die nachstehenden Kernthemen:

2.1.1 Gründe für und Auslöser von Sturzangst

Stürze und deren Folgen können Auslöser von Sturzangst sein. Wie sich zeigte, gilt dies besonders bei Betroffenen nach einer Hüftfraktur. Die Fraktur wird als einschneidendes Ereignis wahrgenommen und mit Kontrollverlust, Hilflosigkeit und Schmerz assoziiert. Die weitreichenden Konsequenzen, die teilweise noch Monate nach der Fraktur präsent sind, beeinflussen das Wohlbefinden negativ und führen zu Schmerzen und Bewegungseinschränkungen. Die Betroffenen haben einen erhöhten Unterstützungsbedarf. All dies wird auf den Sturz zurückgeführt, der von den Betroffenen gefürchtet wird und den es aus ihrer Sicht zukünftig zu vermeiden gilt. Bewegungseinschränkungen, Hospitalisierung, Bettlägerigkeit und auch Tod werden als mögliche Folgen eines weiteren Sturzes benannt und befürchtet. Die Angst vor einem Sturz wird als natürliche Konsequenz eines Sturzes mit Verletzung und den weitreichenden Folgen angesehen (Baltes et al., 2024). Andere Studien zeigen, dass Sturzangst auch ohne ein solches Ereignis entstehen kann (MacKay et al., 2021; Schoene et al., 2019). Neben Stürzen als Grund für die Sturzangst werden chronische Erkrankungen, schlechtes Gleichgewicht, Unsicherheit, eingeschränkte Seh- oder Hörfähigkeit oder andere körperliche Einschränkungen genannt (Baltes et al., 2024). Befürchtet werden als Folgen eines Sturzes Verletzungen, Bewegungseinschränkungen, Verlust der Selbständigkeit und die Belastung für andere. Aber auch Konsequenzen im direkten Zusammenhang mit dem Sturzereignis sind für die Betroffenen von Bedeutung. Die Befürchtung, nach einem Sturz nicht vom Boden aufstehen zu können oder auch negative Gefühle, wie Scham und Peinlichkeit, werden genannt.

Stürze können weitreichende Konsequenzen für die Betroffenen haben (James 2020; Gill 2013; Tsai 2021). Sie können mit Verletzungen einhergehen, die dauerhafte

körperliche Einschränkungen und auch den Tod zu Folge haben. Personen mit Sturzangst nach einer Hüftfraktur haben die Erfahrung einer Verletzung durch einen Sturz bereits gemacht und dies scheint vermehrt zu Befürchtungen zu führen.

Eine verringerte Sturzangst empfinden die Betroffenen in ihrer heimischen und gewohnten Umgebung (Baltes et al., 2023). Dies gilt auch für die Betroffenen nach einer Hüftfraktur (Baltes et al., 2024). Sicherheit gibt ihnen ebenfalls die eigene Häuslichkeit, die Nutzung von gewohnten Hilfsmitteln, wie beispielsweise Gehhilfen oder Haltegriffe, und auch die Begleitung von Tätigkeiten durch andere Personen. Akute Auslöser für die Sturzangst, wie beispielsweise Treppensteigen oder das Gehen an einem Ort mit vielen Menschen, sind den Betroffenen gut bekannt. Auch wenn akute Auslöser für die Sturzangst bekannt sind, ist es den Betroffenen nicht möglich, die Sturzangst zu kontrollieren. Sie können lediglich die auslösenden Faktoren vermeiden.

Zudem zeigt sich, dass Betroffene in einer stationären Rehabilitationsmaßnahme teilweise Sicherheit empfinden (Baltes et al., 2024). So berichteten einige Befragte, dass die Sturzangst erst nach dem Aufenthalt in der Rehabilitationseinrichtung und damit in der eigentlich gewohnten Umgebung auftrat. Keine Hindernisse, Beschäftigung durch Rehabilitationsmaßnahmen, Sichtbarkeit von Besserung des Zustandes und der Fähigkeiten sowie der Vergleich mit anderen Personen nach Hüftfraktur in der Rehabilitationseinrichtung wurden als Gründe für das Ausbleiben der Angst in der Rehabilitationseinrichtung genannt. Auch andere Studien zeigen, dass die Entlassung in die eigene Häuslichkeit mit Bedenken und Ängsten verbunden sein kann (Abrahamsen & Nørgaard, 2021; Tobiesen Pedersen et al., 2024). Das Gefühl unvorbereitet zu sein, ein Mangel an Informationen über den weiteren Behandlungsweg und an Einbezug in den Entlassungsprozess kann diese Unsicherheit steigern (Abrahamsen & Nørgaard, 2021).

2.1.2 Konsequenzen der Sturzangst

Die vorliegende Dissertation bestätigt einen Teil der bereits in der Literatur beschriebenen Konsequenzen von Sturzangst aus Sicht der Betroffenen. Die Betroffenen beschreiben selbst auch physische, psychisch und sozial Konsequenzen der Angst vor einem Sturz (Baltes et al., 2023). Negative Emotionen, die Reduktion sozialer Aktivitäten und das Gefühl, für andere eine Bürde zu sein, sowie das Gefühl von Abhängigkeit und Kontrollverlust, gehen mit der Empfindung einher, dass Sturzangst eine konstante Bürde im eigenen Leben ist. Diese negativen Emotionen können zudem durch das Gefühl von Resignation und Machtlosigkeit begleitet werden.

Für die Betroffenen nach einer Hüftfraktur steht neben den physischen Konsequenzen der Fraktur, das Empfinden, Dinge aufgrund der Sturzanxiety im Alltag nicht tun oder Ziele nicht erreichen zu können, im Mittelpunkt (Baltes et al., 2023). Daher rühren auch die Motivation und die Hoffnung, die Sturzanxiety überwinden zu wollen bzw. zu können. Dabei besteht für die Betroffenen jedoch die Schwierigkeit, dass sie die Sturzanxiety weder beschreiben noch kontrollieren können. Die Betroffenen setzen auf eine Besserung im Zeitverlauf oder aber auch durch körperliche Übung (Baltes et al., 2024). Maßnahmen und Mechanismen, mit denen sie der Sturzanxiety entgegenwirken können, sind ihnen nicht bekannt. So gibt es auch Betroffene, die davon ausgehen, dass die Sturzanxiety ein dauerhaftes und beständiges Phänomen ist, das sie nicht mehr ablegen können (Baltes et al., 2024).

Bei den Betroffenen mit und ohne Hüftfraktur wird deutlich, dass sie in der Sturzanxiety ein Phänomen identifizieren, das weitreichenden Einfluss auf viele, wenn nicht alle Bereiche ihres Lebens hat. Die Konsequenzen dieses Einflusses werden als negativ empfunden und der Wunsch nach Reduktion oder Überwindung der Sturzanxiety besteht bei den Betroffenen (Baltes et al., 2023, 2024).

2.1.3 Strategien im Umgang mit Sturzanxiety

Um das Alltagsleben mit bzw. trotz Sturzanxiety zu gestalten, entwickeln die Betroffenen ohne und mit Hüftfraktur Strategien (Baltes et al., 2023, 2024). Die Strategien nutzen sie, um einen Sturz zu vermeiden, Anxiety zu reduzieren und/oder die Kontrolle über das eigene Leben aufrechtzuerhalten. Dabei wird in dieser Dissertation deutlich, dass die Betroffenen die jeweils angewendeten Strategien selbständig über die Zeit des Erlebens von Sturzanxiety entwickelt haben. Sie berichten über angepasstes Verhalten, aber nicht über Strategien, die ihnen von Angehörigen der Gesundheitsberufe vermittelt wurden. Lediglich der Hinweis „vorsichtig zu sein“ wird teilweise explizit auf die eigenen Zugehörigen oder Angehörige der Gesundheitsberufe zurückgeführt. Zudem werden teilweise Maßnahmen der Sturzprophylaxe durch diese Personengruppe initiiert. Dies schließt die Nutzung von Hilfsmitteln und die Anpassung der häuslichen Umgebung ein. Die Betroffenen wenden die Hilfsmittel an und nutzen die Anpassungen der Umgebung, um die Gefahr eines Sturzes und ebenso die Anxiety vor diesem zu reduzieren. Eine sichere Umgebung wird geschaffen, um die Sturzanxiety zu managen und die Kontrolle über das eigene Leben aufrechterhalten zu können. Die Änderungen im Umfeld können dabei einen positiven Effekt haben auf die Ausführung der Aktivitäten des täglichen Lebens, die Lebensqualität, die soziale Partizipation sowie das Sturzrisiko und die Sturzrate (Lim et al., 2020; Stark et al., 2017).

Das „Vorsichtig sein“ wiederum beeinflusst das Verhalten der Betroffenen in vielen Lebenssituationen. Es kann zur Änderung, Einschränkung und Vermeidung von Verhalten führen. Um vorsichtig zu sein, reduzieren sich die Betroffenen auf Aktivitäten, die vermeintlich ein geringeres Sturzrisiko bergen und weniger Sturzangst hervorrufen. Eine Einschränkung des Handlungsspielraumes wird dadurch bedingt. Diese Einschränkung wird durch die Betroffenen in den meisten Fällen als negativ, aber nicht oder nur schwer überwindbar angesehen. Aktuelle Studien legen jedoch auch nahe, dass der protektive Aspekt von Vermeidungsverhalten nicht unterschätzt und eher positiv bewertet werden kann (Ellmers et al., 2022; Yang et al., 2023). Interventionen gegen das „Vorsichtig sein“ und damit gegen Vermeidungsverhalten sollten daher nur nach vorheriger Abklärung erfolgen, ob die Sturzangst und das damit einhergehende Verhalten das Sturzrisiko auch wirklich erhöht (Ellmers et al., 2023).

Eine weitere als wichtig zu erachtende Strategie im Umgang mit Sturzangst ist die Annahme von Unterstützung und Hilfe durch andere. Auf der einen Seite wird diese genutzt, um weiter ein gewisses Maß an Unabhängigkeit aufrecht erhalten zu können (Baltes et al., 2023, 2024). Die Hilfe wird bei Tätigkeiten angenommen, die selbst aufgrund der Sturzangst nicht ausgeführt werden können oder mit weniger Sturzangst in der Begleitung anderer bewältigt werden können. Auf der anderen Seite wird diese Hilfe aber auch als Einschränkung der eigenen Unabhängigkeit angesehen. Für viele der Betroffenen ist die Annahme von professioneller Hilfe der Übergang von einer Versorgungsform in eine andere. Wie andere Studien zeigen, kann dieser Schritt für ältere Menschen und ihre Bezugspersonen herausfordernd und auch mit Ablehnung verbunden sein (Kraun et al., 2022). Es kann unterschiedliche Gründe geben, warum es älteren Menschen in der eigenen Häuslichkeit widerstrebt, professionelle Hilfe oder auch Hilfe von Zugehörigen anzunehmen (Bredewold et al., 2020; Roe et al., 2001). Die Sorgen über die eigene Unfähigkeit, Aufgaben zu erledigen, das Gefühl, anderen zur Last zu fallen, mangelndes Vertrauen in andere und auch die fehlende Kontrolle werden als Gründe genannt (Lindquist et al., 2018). Besonders relevant ist dabei das Streben nach Selbstbestimmung (Bölenius et al., 2023). Die gezielte und frühzeitige Kommunikation mit den älteren Menschen zu der bestehenden Situation, den Optionen und dem Prozess kann die Akzeptanz von Hilfe durch andere erleichtern (Bölenius et al., 2023; Tobiesen Pedersen et al., 2024). Doch wird der Einbezug in die Entscheidungsfindung besonders in der Übergangsphase in eine andere Versorgungsform nicht durch alle Personen mit Pflegebedarf positiv gesehen (Kraun et al., 2022). Angehörigen der Gesundheitsberufe müssen sich dieser Herausforderungen bewusst sein, wenn sie ältere Menschen mit Sturzangst bei der Annahme von Hilfe in der eigenen Häuslichkeit begleiten (Hvalvik & Åse Reiersen, 2011).

Auch kognitive Anpassungen, wie Selbstermutigung, Schuldzuweisungen oder Verharmlosung der Folgen eines Sturzes, werden als Strategie im Umgang mit Sturzangst gezielt oder auch unbewusst durch die Betroffenen genutzt. Genannt werden Selbstermutigung oder der gezielte Vergleich mit anderen. Der positive Effekt des Vergleiches mit anderen (auch mit denen, die einen weniger guten Progress aufweisen) wird auch von Betroffenen in der Rehabilitation nach einer Hüftfraktur genannt (Baltes et al., 2024). Erst wenn dieser Vergleich mit anderen, wie auch andere Faktoren der Rehabilitationsmaßnahme, wegfielen, trat Sturzangst auf oder verstärkte sich. Andere Studien zeigen, dass der Vergleich mit anderen Betroffenen positiven, wie auch negativen Einfluss auf das Wohlbefinden haben kann (Arigo et al., 2014). Sich mit anderen zu vergleichen, sollte in Rehabilitationsmaßnahmen aktiv gesteuert und genutzt werden, um die Genesung zu unterstützen (Hajek & Hans-Helmut-König, 2017). Die positiven Effekte von Rehabilitationsmaßnahmen in Gruppen zeigen sich auch in anderen Studien bei Hüftfrakturen (Tobiesen Pedersen et al., 2024).

Ein Aspekt, der in der Befragung von Betroffenen nach Hüftfraktur herausgearbeitet wurde, ist die Kommunikation über Sturzangst (Baltes et al., 2024). Der Umgang damit variiert bei den Betroffenen deutlich. So wird die Position vertreten, dass die Sturzangst eine Privatsache ist, über die mit niemandem gesprochen wird. Andere sprechen mit ihren An- und Zugehörigen über ihre Angst und erfahren so Entlastung und Unterstützung. Wieder andere wünschen sich einen gezielten Austausch mit den Angehörigen der Gesundheitsberufe, um Unterstützung im Umgang mit ihrer Angst zu erhalten. Barrieren für den Austausch mit anderen und vor allem mit Angehörigen der Gesundheitsberufe werden auch bei Stürzen und deren Folgen beobachtet (Dollard et al., 2014).

Die aufgeführten Strategien werden in unterschiedlichen Kombinationen durch die Betroffenen angewendet und können je nach Situation und auch im Zeitverlauf angepasst werden. So gibt es auch Betroffene von Sturzangst, die berichten, dass sie alle Tätigkeiten wie vor dem Auftreten von Sturzangst weiterführen, um ihre Unabhängigkeit nicht einzuschränken (Baltes et al., 2023).

Wie bei der Betrachtung der durch Betroffene entwickelten und angewendeten Strategien im Umgang mit Sturzangst deutlich geworden ist, haben einige davon das Ziel, das Risiko eines Sturzes zu kontrollieren. So wird die Umgebung angepasst, es werden Hilfsmittel eingesetzt und als gefährlich eingeschätzte Aktivitäten nach Möglichkeit vermieden (Baltes et al., 2023).

2.1.4 Hilflosigkeit vermeiden und Unabhängigkeit ausbauen bzw. behalten

Beweggründe für die Anwendung der unter 2.1.3 aufgeführten Strategien sind für die Betroffenen häufig die Vermeidung von Hilflosigkeit und der Erhalt bzw. Ausbau ihrer Unabhängigkeit. Unabhängigkeit wird dabei von vielen der Betroffenen mit einem Leben in der eigenen Häuslichkeit gleichgesetzt. Es sollen vor allem Hospitalisierungen durch einen Sturz und die Aufnahme in Langzeitpflegeeinrichtungen vermieden werden (Baltes et al., 2023). Es wird jedoch ebenso deutlich, dass möglichst wenig Hilfe von anderen zur Erreichung dieser Ziele angenommen werden soll. Dies ist auch bei älteren Menschen mit Sturzrisiko zu beobachten (Robson et al., 2018). Es zeigt sich ein täglicher Balanceakt zwischen der Annahme von Unterstützung zur Wahrung der Unabhängigkeit auf der einen Seite und dem Eingehen von Risiken, ebenfalls zur Wahrung der Unabhängigkeit, auf der anderen Seite.

Bei den von Sturzangst Betroffenen nach einer Hüftfraktur kommt die konkrete Erfahrung der Hilflosigkeit nach einem Sturz mit gravierender Verletzung hinzu (Baltes et al., 2024). Es wird beschrieben, dass die Unfähigkeit nach dem Sturz mit Hüftfraktur aufzustehen, das zum Teil lange Warten auf Hilfe sowie die negativen Gefühle, wie Scham, und auch die Schmerzen in jedem Fall vermieden werden sollen. Ebenso wie der Umzug in eine Langzeitpflegeeinrichtung ist es für die Betroffenen nach Hüftfraktur auch wichtig, eine erneute Hospitalisierung zu vermeiden. Auch hier wurde die Erfahrung des Verlustes der Unabhängigkeit und der Selbstbestimmung gemacht. Allgemein ist es Ziel der älteren Menschen nach Hüftfraktur, die Unsicherheit zu vermeiden, die mit einem erneuten Sturz einhergehen würde.

Viele ältere Menschen möchten weiterhin in der eigenen Häuslichkeit leben (Stones & Gullifer, 2016). Sie setzen die eigene Häuslichkeit mit Autonomie und Privatsphäre gleich sowie mit dem Erhalt der eigenen Identität. Das eigene Zuhause ist ein Ort der Erinnerung und das selbständige Wohnen kann als sinngebendes Element empfunden werden (Stones & Gullifer, 2016). Die eigene Häuslichkeit bedeutet Unabhängigkeit, Freiheit und Komfort (Hatcher et al., 2019). Wie in Kapitel 2.1.3 dargelegt, kann Sturzangst aber auch Unsicherheit hervorrufen, wenn die Betroffenen beispielsweise nach einer stationären Rehabilitation wieder auf sich allein gestellt sind. In der hier vorgelegten Dissertation wird deutlich, dass ältere Menschen, die von Sturzangst betroffen sind, Strategien entwickeln und Energie für deren Umsetzung aufbringen, um diese Form des unabhängigen Lebens für sich zu bewahren. Sie lassen ein notwendiges Maß an Unterstützung im alltäglichen Leben zu. Dies gilt für Unterstützung durch Angehörige der Gesundheitsberufe, aber auch durch Bezugspersonen aus dem privaten Umfeld.

2.1.5 Unterstützungsbedarf im Umgang mit Sturzangst

Bei der Bewältigung von Sturzangst und deren Auswirkungen wünschen sich Betroffene Unterstützung durch die Angehörigen der Gesundheitsberufe (Baltes et al., 2024). Genannt werden in diesem Zusammenhang Ärzt:innen, vor allem aber auch Pflegefachpersonen und Physiotherapeut:innen. Wie oben beschrieben, entwickeln ältere Menschen mit Sturzangst nach Hüftfraktur Strategien im Umgang mit der Angst vorwiegend selbständig und ohne professionelle Unterstützung. Kommunikation über Sturzangst wird von Seiten der medizinisch, pflegerischen und therapeutischen Kontaktpersonen in Krankenhaus, Rehabilitation und Nachsorge der interviewten Betroffenen in Publikation 2 nicht initiiert. Dabei ist unklar, ob dies aus mangelnder Kenntnisse zu Sturzangst und möglichen Interventionen nicht geschieht (Albasha et al., 2023). Über die Disziplinen hinweg gibt es umfangreiche Forschung zu Sturzangst. Daher sollte analysiert werden, warum diese Erkenntnisse nicht Einzug in die Praxis halten. Und dies besonders im Fall von älteren Menschen nach Hüftfraktur, bei denen eine weite Verbreitung von Sturzangst angenommen werden kann. Eine Identifikation der Betroffenen wäre in Hinblick auf Interventionen zur Reduktion von Sturzangst und damit auf die Lebensqualität der Betroffenen und auch deren Sicherheit bedeutsam.

Jedoch sprechen auch die Betroffenen das Thema Sturzangst nach eigener Aussage bei den Angehörigen der Gesundheitsberufe nicht an. Oder die Betroffenen fühlen sich mit ihrer Sturzangst nicht ernst genommen, wenn sie sich damit an Angehörigen der Gesundheitsberufe wenden. Auch in anderen Studien wurde gezeigt, dass es wenig bis keinen Austausch zum Thema Sturz, Sturzfolgen und Sturzangst zwischen den Betroffenen und den Angehörigen der Gesundheitsberufe gibt (Dolan & Pool, 2023). In dieser Studie wurde durch die Betroffenen mangelnde Sensibilität und mangelndes Wissen zum Thema wahrgenommen. Der Aufbau von offenen und vertrauensvollen Beziehungen der Angehörigen der Gesundheitsberufe sollte Grundlage für vertrauensvollen Austausch und damit auch der Verbesserung der Sicherheit der Betroffenen sein (Dolan & Pool, 2023). Pflegefachpersonen können und sollten mit ihrem engen und oft kontinuierlichen Bezug zu den Betroffenen eine zentrale Rolle übernehmen. Dies gilt sowohl in der akutstationären Versorgung nach einer Hüftfraktur, als auch in der Rehabilitation und im anschließenden langzeitstationären oder häuslichen Setting.

2.1.6 Bedarf an zielgerichteten und effektiven Interventionen

In den beiden Publikationen, die in dieser Dissertation präsentiert werden, konnte die Bedeutung von Sturzangst für den Alltag der Betroffenen deutlich herausgearbeitet

werden. Die Betroffenen ohne und mit Hüftfraktur beschreiben, dass fast alle Bereiche ihres Lebens von den Auswirkungen von Sturzangst betroffen sind. Von der Körperpflege bis hin zu den sozialen Kontakten. Dies verdeutlicht noch einmal, von welcher hohen Relevanz sowohl die Identifikation der Betroffenen durch die Angehörigen der Gesundheitsberufe ist, als auch die Bedeutung der Bereitstellung und Anwendung zielgerichteter und effektiver Interventionen. Wie bereits beschrieben (Kapitel 2.1.5), besteht von Seiten der Betroffenen ein Bedarf an Austausch zu Sturzangst und auch der Wunsch nach Aufzeigung von Handlungsoptionen und Wegen der Reduktion von Sturzangst. Die Erkenntnisse aus qualitativer Forschung zur Sturzangst sollten dabei in die Entwicklung von Interventionen einbezogen werden.

In der vorliegenden Arbeit konnten Bedürfnisschwerpunkte herausgearbeitet werden, die für die Betroffenen im Umgang mit Sturzangst von besonderer Bedeutung sind (vgl. Tabelle 1). Hier gibt es weitreichende Übereinstimmungen zwischen den Betroffenen mit und ohne Hüftfraktur. Unterschiede können auch auf den Forschungsfragen und Ausrichtungen der eingeschlossenen Studien des Reviews sowie des Meta-Summary beruhen. Zu entwickelnde Interventionen sollten diese Bedürfnisse der Betroffenen einbeziehen.

Tabelle 1. Bedürfnisschwerpunkte der Betroffenen im Umgang mit Sturzangst

Publikation 1	Publikation 2
Strategien im Umgang mit Sturzangst – Kontrolle des Risikos - Hilfe und Unterstützung durch andere - Änderung, Einschränkung oder Vermeidung von Aktivitäten - Nutzung von Hilfsmitteln - Umgebungsanpassung - Vorsichtig sein - Kognitive Anpassungen	Strategien im Umgang mit Sturzangst: - Kommunikation über Sturzangst - Unterstützung mit Alltagsaufgaben - Vermeidung oder Änderung der Bewältigung von Alltagsaufgaben - Nutzung von Hilfsmitteln - Umgebungsanpassung - Vorsichtig sein
Sichere Umgebung schaffen	Zu Hause als Ort der Sicherheit Rehabilitation als Ort der Sicherheit
Unabhängig bleiben - Selbständigkeit	Unabhängig bleiben - Selbständigkeit
	Vermeidung von Hilflosigkeit
	Bedarf an Unterstützung von Angehörigen der Gesundheitsberufe

Bevor Interventionen eingesetzt werden können, ist die Identifikation der Betroffenen Voraussetzung. Auch vorangegangene Forschung zeigt bereits die Bedeutung der Identifikation von Sturzangst bei älteren Menschen mit und ohne Sturzgeschichte auf (Lenouvel et al., 2022). Lenouvel et al. (2022) schlagen daher das Screening mit der

Falls Efficacy Scale International (FES-I) (Tinetti & Powell, 1993) mit 16 Items vor. Eine gut handhabbare und einfach anzuwendende Möglichkeit der Identifikation von Betroffenen wäre für die Angehörigen der Gesundheitsberufe zielführend und im Genesungsprozess nach einer Hüftfraktur sowie anderen Situationen mit älteren Menschen und Settings gut einsetzbar. Eckert et al. (2020) identifizieren zu diesem Zweck eine one-item question als ausreichend. Diese könnte bei pflegerischer, ärztlicher oder therapeutischer Anamnese initial im Behandlungs- und/oder Pflegeprozess sowie im Verlauf eingesetzt werden.

Wie bereits in Publikation 2 festgestellt, wäre es wichtig, festzulegen, welche Berufsgruppe wann im Prozess nach einer Hüftfraktur die Identifikation von Sturzangst bei den Betroffenen übernimmt, um eine Verbindlichkeit zu schaffen. Pflegefachpersonen wären hierfür aufgrund ihres umfangreichen Kontaktes mit den Betroffenen prädestiniert. Auch wenn die Identifikation von Sturzangst von einer Berufsgruppe, wie den Pflegefachpersonen, übernommen wird, legen die Ergebnisse der beiden Publikationen nahe, dass der Umgang mit Sturzangst auch von den Betroffenen als ein Thema gesehen wird, welches von Angehörigen aller involvierten Gesundheitsberufe bearbeitet werden sollte. Pflegefachpersonen sowie Ärzt:innen als auch Therapeut:innen werden als potenzielle Ansprechpersonen identifiziert.

Wurde Sturzangst bei einer Person identifiziert, müssen passende Interventionen initiiert werden. Eine Vielzahl unterschiedlicher Ansätze liegen vor (Kendrick et al., 2014; T.-W. Liu et al., 2018; Whipple et al., 2018; Zijlstra et al., 2007), die entweder körperliches Training oder verhaltenstherapeutische Maßnahmen in den Fokus stellen. Trotz sich widersprechender Ergebnisse scheint eine Kombination aus beiden Elementen am geeignetsten zu sein, um Sturzangst zu reduzieren (Whipple et al., 2018).

Richtet man den Blick auf Sturzangst nach einer Hüftfraktur, dann sollten Aspekte wie Kommunikation über Sturzangst, Unterstützung mit Alltagsaufgaben, Vermeidung und/oder Änderung der Bewältigung von Alltagsaufgaben, Nutzung von Hilfsmitteln und Umgebungsanpassung in die Entwicklung von Interventionen einbezogen werden (siehe Tabelle 1). Diese Strategien werden von den Betroffenen selbst zur Bewältigung ihrer Angst entwickelt und sollten sich, wenn sie zielführend sind, um Sturzangst zu reduzieren bzw. den Umgang damit zu erleichtern, in den entwickelten Interventionen widerspiegeln. Ein aktuelles Review zu Rehabilitationsdesigns nach einer Hüftfraktur beschreibt ebenfalls den positiven Effekt von effektiver professioneller Kommunikation auf die Sturzangst der Betroffenen und auf die Vermeidung von Aktivitäten (Guerra et al., 2024). Zudem werden als Ansatzpunkte für eine Rehabilitation nach einer Hüftfraktur die Stärkung von physischen Faktoren sowie die Adressierung von psychischen Folgen

der Hüftfraktur genannt. Wie in der vorliegenden Arbeit herausgestellt werden konnte, wird auch in dem Review die Bedeutung der Nutzung von Hilfsmitteln und die Gestaltung der Umgebung als Einflussfaktor und damit Ansatzpunkt für eine Intervention identifiziert. Aktuelle Forschung legt nahe, dass Interventionen mit Fokus auf Sturzangst im Zeitraum vier Wochen bis drei Monaten nach der Fraktur von besonderer Relevanz sind (Guerra et al., 2024). Interventionen, die im Rahmen der Rehabilitation nach Hüftfraktur beginnen und darüber hinaus fortgesetzt werden, scheinen die besten Effekte zu erzielen (Pfeiffer et al., 2020). Beide Aspekte sollten bei der Gestaltung eines Rehabilitationsprozesses nach einer Hüftfraktur bedacht werden. Zu reflektieren wäre dabei zudem, dass von Betroffenen Rehabilitationseinrichtungen teilweise als Ort der Sicherheit identifiziert werden und dass Sturzangst erst in deren eigenen Häuslichkeit auftritt (siehe auch Kapitel 2.1.3). Nach einer Hüftfraktur kann die Heimkehr aus der Rehabilitation nicht nur in Bezug auf Stürze Ängste auslösen. Generell kann der ggf. vorliegende Mobilitätsverlust nach der Fraktur und der Umgang mit den Alltagssituationen bei den Betroffenen Besorgnis auslösen (Tobiesen Pedersen et al., 2024). Stationäre Rehabilitationsmaßnahmen müssten hierauf abgestimmt und der Übergangsprozess entsprechend begleitet werden. Eine frühzeitige und offene Kommunikation durch qualifizierte Angehörige der Gesundheitsberufe scheint auch an dieser Stelle essentiell für eine Reduktion der Bedenken und Ängste zu sein (Karlsson et al., 2022; Tobiesen Pedersen et al., 2024). Als Resultat dieser Arbeit sollte zudem der Aspekt des Strebens nach bzw. des Erhalts von Unabhängigkeit durch die Betroffenen in die Entwicklung von Interventionen einbezogen werden. Dies kann auch einen positiven Einfluss auf die Teilnahmebereitschaft an Rehabilitations- und Interventionsmaßnahmen haben. Der ggf. protektive Aspekt von Sturzangst sollte bei diesen Überlegungen nicht außer Acht gelassen werden (Ellmers et al., 2022; Hadjistavropoulos et al., 2011). Werden Tätigkeiten aufgrund der Angst vermieden, könnte dies, besonders bei Menschen mit funktionalen Einschränkung nach Hüftfraktur, zunächst tatsächlich zur Vermeidung von Stürzen beitragen. Ein Abwägen mit der Beeinträchtigung der Lebensqualität durch die Sturzangst und damit einhergehenden Einschränkungen, wäre aber in jedem Fall vorzunehmen. Es liegt nahe, dass die individuelle Abstimmung der Rehabilitations- und Interventionsmaßnahmen auf die betroffene Person wichtig ist (Karlsson et al., 2022). Die Entwicklung eines Fragebogens, der die Angehörigen der Gesundheitsberufe dabei unterstützt, die individuellen Bedürfnisse der Betroffenen in Hinblick auf Interventionen zu identifizieren und auf das Streben nach Selbständigkeit abzustimmen, könnte zielführend sein (Baltes et al., 2023).

2.2 Stärken und Limitationen

Die Stärken und Limitationen dieser Dissertation resultieren aus den beiden zugrundeliegenden Publikationen. Durch die in das Review eingeschlossenen Studien (vier Studien durchgeführt in Kanada, drei in den USA, zwei in Australien und jeweils eine in Brasilien, Dänemark, Slowakei, Schweden, Schweiz und Taiwan) und die in der qualitativen Studie in Deutschland durchgeführten Interviews, liegt die Annahme nahe, dass eine vorwiegend westliche Perspektive auf Sturzangst abgebildet ist. Zudem wurden im Review Studien ausgeschlossen, in denen Sturzangst vor dem Hintergrund einer chronischen Erkrankung betrachtet wurde. In der zweiten Publikation waren chronischen Erkrankungen neben der Hüftfraktur kein Ausschlusskriterium, sodass auch Betroffene mit chronischen Erkrankungen eingeschlossen wurden. Diese Erkrankungen wurden jedoch nicht dokumentiert und ausgewertet. Aussagen zu Sturzangst vor dem Hintergrund einer spezifischen chronischen Erkrankung können daher nicht getroffen werden. Vielmehr ist es eine Stärke dieser Arbeit, dass der Einfluss einer Hüftfraktur auf die Sturzangst abgebildet werden kann. Eine Limitation beider Publikationen ist die Fokussierung auf Betroffene in der eigenen Häuslichkeit. Lediglich zwei Studien des Reviews betrachten Sturzangst in Langzeitpflegeeinrichtungen. In der Erhebung zur zweiten Publikation konnten, trotz Offenheit der Einschlusskriterien, keine Betroffenen in Langzeitpflegeeinrichtungen eingeschlossen werden. In Publikation 1 konnte jedoch dargelegt werden, dass das berichtete Erleben von Sturzangst in der eigenen Häuslichkeit und in Langzeitpflegeeinrichtung nur wenig abweicht. Es ist jedoch erforderlich, dass die weitere Forschung auch Sturzangst bei Menschen in Langzeitpflegeeinrichtungen näher in den Blick nimmt. Zudem sollte der Einfluss von Sturzangst bei Menschen mit kognitiven Beeinträchtigungen näher betrachtet werden. Auch hierzu kann die vorliegende Arbeit keine Aussagen treffen.

Die Stärke dieser Arbeit ist, dass sie das Erleben von Sturzangst aus der Perspektive der Betroffenen in den Mittelpunkt der Betrachtung setzt. Viele quantitative Studien zu Entstehung von Sturzangst und deren Konsequenzen sind bereits erschienen. Doch ist der Blick der Betroffenen, besonders im Hinblick auf gezielte und effektive Interventionen, von Bedeutung. Eine eingehende Betrachtung dieses Aspektes vor dem Hintergrund einer Hüftfraktur lag bisher nicht vor. Die Perspektive der Betroffenen konnte eine Lücke im Umgang mit der Sturzangst im Versorgungsprozess aufzeigen. Die Zusammenführung der bestehenden qualitativen Evidenz mit der aktuellen qualitativen Erhebung in der Publikation 2 machen eine der Stärken dieser Arbeit aus.

2.3 Schlussfolgerung

Aufgrund der demografischen Entwicklung werden zukünftig mehr Menschen von einer Hüftfraktur betroffen sein. Ihre Lebensqualität und das Outcome kann durch Sturzangst beeinträchtigt werden. Die vorliegende Dissertation liefert Erkenntnisse über das Erleben von Sturzangst aus der Sicht älterer Menschen und Handlungsempfehlungen für die Entwicklung von Rehabilitation und Interventionsmaßnahmen für diese Personengruppe werden abgeleitet.

Die selbstgewählte Einschränkung von Aktivitäten des täglichen Lebens sowie das gleichzeitige Streben nach Unabhängigkeit scheinen für die Betroffenen von großer Relevanz zu sein. Das teilweise geäußerte Bedürfnis nach Unterstützung durch Angehörigen der Gesundheitsberufe im Umgang mit ihrer Angst, muss deutlich mehr Aufmerksamkeit erhalten. Eine aktive Identifikation der Betroffenen von Sturzangst nach einer Hüftfraktur sollte bereits im initialen Krankenhausaufenthalt beginnen und sich über die Rehabilitation bis zur Rückkehr in die eigene Häuslichkeit bzw. in die stationäre Langzeitpflege fortsetzen. Der Prozess der Identifikation und der Intervention muss hierfür inklusive der Zuständigkeiten sektorenübergreifend geklärt sein. Sturzangst muss als relevanter Faktor im Bewusstsein der Angehörigen der Gesundheitsberufe verankert sein und ihnen müssen mögliche Maßnahmen im Umgang mit dieser Angst bekannt sein. Eine vertrauensvolle und offene Kommunikation bildet die Grundlage. Pflegefachpersonen, die meist den Prozess von dem Krankenhausaufenthalt bis zur Situation nach der Entlassung aus der Rehabilitation begleiten, könnten Prozessverantwortung auch im Umgang mit Sturzangst übernehmen. Die Ängste der Betroffenen zu verstehen, diesen entgegenzuwirken und sie bei der Identifikation von individuell passenden Alltagsstrategien zu unterstützen, kann dazu beitragen, die Lebensqualität der Betroffenen zu verbessern, Stürze zu vermeiden und damit auch die Belastung für das Gesundheitssystem zu reduzieren.

Die in der vorliegenden Dissertationsschrift aufgezeigten Defizite in der Identifikation von Menschen mit Sturzangst nach einer Hüftfraktur, eine fehlende Thematisierung von Sturzangst im Pflegeprozess und von geeigneten Interventionen im Behandlungs- und Pflegeprozess bedürfen einer weiteren wissenschaftlichen Auseinandersetzung. Trotz der umfangreichen Forschung zum Thema ist es noch nicht in der Routine der Versorgungsprozesse verankert. Menschen mit Sturzangst müssen die Angst weitgehend selbst bewältigen und eigene Strategien im Umgang damit finden. Es stellt sich die Frage, warum Pflegenden nicht proaktiver agieren und welches Wissen ihnen eventuell noch fehlt.

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4 Thesen der Dissertation

1. Eine Hüftfraktur verstärkt oder löst bei einem Großteil der Betroffenen Sturzangst aus. Befürchtet werden als Folgen eines Sturzes Verletzungen, wie eine erneute Fraktur, Bewegungseinschränkungen, der Verlust der Selbständigkeit und die Belastung für andere, aber auch negative Gefühle, wie Scham und Peinlichkeit, oder das Unvermögen wieder aufstehen zu können nach einem Sturz.
2. Ältere Menschen mit Sturzangst nach Hüftfraktur nehmen selbstgewählt Einschränkung der Aktivitäten des täglichen Lebens in Kauf. Gleichzeitig streben sie nach Selbständigkeit in der Lebensführung.
3. Derzeit übernehmen Angehörige der Gesundheitsberufe aus Sicht der Betroffenen keine Verantwortung für die Identifikation einer vorliegenden Sturzangst bei älteren Menschen nach einer Hüftfraktur. Ebenso findet eine qualifizierte Unterstützung durch Angehörige von Gesundheitsberufen aktuell aus Sicht der Betroffenen noch nicht ausreichend statt. Dies wäre jedoch für den gezielten und frühzeitigen Einsatz von Interventionen relevant.
4. Durch passende Interventionen kann die Lebensqualität der Betroffenen verbessert, Stürze vermieden und die Belastung des Gesundheitssystems reduziert werden. Dies kann gelingen, wenn die Ängste der Betroffenen besser verstanden werden.
5. Die Unterstützung der von Sturzangst Betroffenen sollte ein berufsgruppen- und settingübergreifender Prozess über den gesamten Verlauf der Genesung hinweg und auch danach sein.

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Fear of falling from the perspective of affected persons—A systematic review and qualitative meta-summary using Sandelowski and Barroso's method

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Abstract

Background: Fear of falling (FoF) affects a large number of older people, whether they have a history of falls or not. This has an impact on their lives. FoF is a potentially modifiable factor, which has been identified as one of the most important threats to older people's autonomy.

Objectives: To gain a comprehensive understanding of the phenomenon, we conducted a systematic review and meta-summary. The available evidence from qualitative research exploring how people experience FoF and how FoF affects daily living was aggregated.

Methods: We followed the approach by Sandelowski and Barroso (2007) as a method to aggregate knowledge based on an exhaustive literature search. We searched the databases CINAHL, MEDLINE, PsycINFO and SSCI systematically for relevant articles as well as grey literature until September 2020. Out of the included studies, findings were extracted, edited, grouped and abstracted into meta-findings. Finally, the manifest frequency effect size of each abstracted meta-finding was calculated.

Results: Out of 2978 identified studies, 15 met our inclusion criteria, which were published between 1993 and 2017 and included a total of 276 participants. We extracted 578 findings, and the abstraction process resulted in 183 meta-findings. We identified three main topics: 'Triggers and reasons for FoF identified by affected people', 'Consequences attributed to FoF' and 'Strategies to manage FoF in daily life'.

Conclusion: Our findings demonstrate that FoF has a far-reaching impact on the lives of those affected. With the aggregation of the existing qualitative data with the application of the frequency effect size, we were able to identify three areas of particular importance to those affected: (1) controlling the risk, (2) creating a safe environment and (3) staying independent. Implications for practice these three areas of particular importance to those affected should be taken into account when revisiting or creating new interventions to prevent or reduce FoF.

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KEYWORDS

accidental falls, activities of daily living, ageing, fear of falling, meta-summary, research aggregation, systematic review

1 | INTRODUCTION

Fear of falling (FoF) is defined as 'a lasting concern about falling that leads to an individual avoiding activities that he/she remains capable of performing' (Tinetti & Powell, 1993). The reported prevalence of FoF in older people varies from around 20 up to more than 70% (MacKay et al., 2021). FoF is more widespread in older people, women and in people with poor perceived general health (Hoang et al., 2017; Lavedán et al., 2018), and it can be related to former experienced falls (Chen et al., 2021) and is also associated with depressive symptoms (MacKay et al., 2021). Nevertheless, not just people with a history of falls show FoF. Also, older adults who have not experienced a fall are afraid to fall (Lavedán et al., 2018; Mendes da Costa et al., 2012). On the contrary, studies indicate that some people stay confident after a fall and report no FoF (Andresen et al., 2006; Jaatinen et al., 2022; Soleimani et al., 2020).

The comparison of people with and without FoF results in the conclusion that FoF leads to changes in physical, functional, psychological and social aspects in older adults (Scheffer et al., 2008). People affected by FoF tend to reduce certain activities or even avoid these activities completely (Mendes da Costa et al., 2012; Schoene et al., 2019). Thirteen to 50% of those affected by FoF report reducing their activities (Schepens et al., 2012). However, this can lead to a reduction of strength and balance which in turn can lead to a higher risk of falling (Deshpande et al., 2008; Scheffer et al., 2008). FoF goes along with disturbed balance and an impaired dual-task performance (Sapmaz & Mujdeci, 2021). Studies also indicate that FoF can negatively affect health-related quality of life (Bjerk et al., 2018; Lach & Parsons, 2013; Schoene et al., 2019) and that there is a correlation between FoF, activity restriction and late life depression (Yao et al., 2021). FoF leads to a more distinct social isolation in older adults (van der Meulen et al., 2014) and can hamper effective geriatric rehabilitation (Denkinger et al., 2010). FoF as a potentially modifiable factor has been identified as one of the most important threats to older people's autonomy (Denkinger et al., 2015). There is a need for a deeper understanding of the way FoF affects people's lives and leads to negative impacts on health, social participation and quality of life.

To date, qualitative reviews have focused on the impact of a fall experience across the life course (Bailey et al., 2014), older people's experiences of falls and the perceived risk of falling (Gardiner et al., 2017), or the perceived risk of falling in combination with the barriers and facilitators to participating in fall prevention programmes (McMahon et al., 2011). However, FoF and its perceived consequences have not been addressed yet in a systematic review of qualitative research.

The aim of our systematic review and meta-summary is to aggregate the available evidence from qualitative research exploring how people experience FoF and how FoF affects daily living. This

Summary statement of implications for practice

What does this research add to existing knowledge in gerontology?

- This systematic review and meta-summary adds to the body of knowledge by bringing together the available qualitative evidence on the experience and management of FoF in older people.
- People affected by FoF fear physical damage from a future fall. Identified, as an important worry was the fear of being restricted in movement or losing one's independence.
- People affected by FoF focus their management of FoF on the following areas: 'controlling the risk', 'creating a safe environment' and 'staying independent'.

What are the implications of this new knowledge for nursing care with older people?

- The results make nurses and other healthcare professionals aware of the relevance of FoF, especially its impact on multiple, if not all, areas of life for those affected.
- The results can help nurses and other healthcare professionals to enhance the understanding of the behaviour of those affected by FoF and the motivation behind their behaviour.
- The knowledge gained can help nurses and other healthcare professionals to better support people affected by FoF in their life situation.

How could the findings be used to influence policy or practice or research or education?

- The far-reaching significance of FoF for those affected must be part of training for nurses and other healthcare professionals.
- The strategies for managing FoF 'controlling the risk', 'creating a safe environment' and 'staying independent' should also be considered when revisiting existing interventions or developing new ones.

aggregation of qualitative evidence will help to gain a deeper and comprehensive understanding of the phenomenon. The results have the potential to contribute to the development of new or complementary prevention strategies for FoF and/or interventions. The results will also identify knowledge gaps regarding the experience

TABLE 1 Inclusion and exclusion criteria for studies

Inclusion criteria	Exclusion criteria
- Qualitative studies published until September 2020 & grey literature - Studies investigating Fear of Falling - Qualitative studies - Methods: interviews, focus groups, case studies and other methods of qualitative research - Discrete qualitative part of mixed-method studies - Primary studies - Studies from all over the world - Settings: familiar environment (e.g. community dwelling and long-term care) - Publication in English and German language	- Studies with a population restricted to specific chronic medical conditions (e.g. stroke), except medical conditions that primarily result from a fall (e.g. hip fracture) - Studies including a sample in acute care, rehabilitation and any other unfamiliar environment (e.g. recent transition to institutional long-term care) and a focus on FoF that goes along with this situation - Studies with a paediatric population

of people with FoF, and indicate where further research on the phenomenon and its effects need to be done. The research question was How do people with FoF experience their fear and which impact has FoF on their daily life?

2 | METHODOLOGY

We followed the approach by Sandelowski and Barroso (2007) as a method to aggregate knowledge based on an exhaustive literature search. The qualitative research synthesis consists of two approaches: (1) a qualitative meta-summary and (2) a qualitative meta-synthesis. A qualitative meta-summary is described as 'a quantitative oriented aggregation of qualitative findings' (Sandelowski & Barroso, 2007). The meta-summary contains five steps: (1) extracting and separating findings, (2) editing of findings, (3) grouping of findings under topics, (4) abstracting of findings, and (5) calculating effect sizes. Calculating the frequency effect size helps reviewers organise the available data and identify patterns (Ludvigsen et al., 2016). A narrative statement follows calculating the effect sizes, presenting the answers found to the research questions in the available qualitative research. The end-point of this study is a qualitative meta-summary.

A research protocol was developed and registered with PROSPERO—International prospective register of systematic reviews on 4 April 2019 under the ID CRD42019123705. In line with the systematic review of qualitative research, the ENTREQ statement (Tong et al., 2012) was applied as reporting guideline for this publication.

2.1 | Search strategy

The search strategy was developed by two researchers (MB and AS). Four electronic databases were searched: Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE via PubMed, PsycINFO and Social Sciences Citation Index (SSCI). Search terms concerning FoF were based on the latest Cochrane Review about the reduction of FoF through exercise in older adults living in the community (Kendrick et al., 2014). In addition, we used

database-specific filters to identify qualitative studies. We searched for relevant grey literature using the databases BASE (www.base-search.net) and DART Europe (www.dart-europe.eu). No time limit was applied. For search terms, see Appendix 1.

Reviewers transferred identified studies to the reference management tool EndNote X9 (The EndNote Team, 2013), where duplicates were removed. Two reviewers (MB and AS) conducted the following methodological steps: (1) screening titles and abstracts of the studies independently against the predetermined inclusion criteria (see Table 1 for inclusion and exclusion criteria). The Rayyan software was used for this (Ouzzani et al., 2016). (2) Studies that were obviously ineligible due to the title and abstract were discarded. (3) We included eligible studies and screened those full-texts independently. A third reviewer (ORH) was consulted in cases of disagreement. (4) Studies were included into the review. Additional backward and forward citation tracking of the included studies was conducted.

2.2 | Quality appraisal

Two reviewers (MB and AS) independently appraised the 15 included studies using the 10-item Critical Appraisal Skills Programme (CASP) for qualitative research (2018). It is the most commonly used appraising tool for qualitative evidence synthesis in general (Majid & Vanstone, 2018) and used by Cochrane and the World Health Organisation in guideline processes (Noyes et al., 2018). Following Sandelowski and Barroso, the results of the quality appraisal should be reported, but studies should not be excluded because of their methodological quality (Carroll et al., 2012; Sandelowski & Barroso, 2007). For the results of the quality appraisal, please see Appendix 2.

2.3 | Extraction and editing of findings

The data extraction process was conducted by two reviewers (MB and AS) using an established data extraction form. We extracted findings that answered the research question exclusively from the Results sections of the included studies. We took the individual

statements from the studies and transferred them to the data extraction form. The two reviewers edited every separated finding that it could be understood as an independent statement. When editing the findings, the original statement must be kept as accurate as possible and only minor changes were made, for example to the sentence structure. Consultation of a third reviewer (ORH) was planned in cases of unclear data extraction. The data extraction process revealed 578 edited findings.

2.4 | Classification of findings

Following the typology of qualitative findings by Sandelowski and Barroso (2003, 2007), we classified the findings for every study included. This means placing the findings from the studies on the continuum of the classification system. The continuum shows the degree of transformation of data, that is findings that remain close to data to findings that are many transformative moves away from data. More precisely, authors presenting uninterpreted (raw) data as if they were findings are classified as *no findings*. In *no finding* reports, interview data are reproduced in a reduced form with minimal or no interpretation and are therefore not considered research. These form one end of the continuum. The spectrum continues with *topical survey/thematic survey*. Here, findings are placed that remain close to the data, but contain some interpretation. Finally, there are findings on the continuum that are far removed from the original data due to many transformative moves (*conceptual description/interpretive explanation*). These form the other end of the continuum. Except for *no finding* reports, all other findings are included in the further analysis. As stated, the qualitative appraisal should not lead to the exclusion of a study. Likewise, the classification of the results decides not on the quality of the reports, but on the extent of the transformation of the initial qualitative data. Only reports classified as *no-finding* reports should be excluded, as they do not constitute research, because the data have not been processed (Sandelowski & Barroso, 2007). Hence, the typology does not focus on what methods of analysis and interpretation authors state for their studies. What is relevant in this context is what researchers actually did in their studies as compared to what claims they make of those studies (Sandelowski & Barroso, 2007, p. 133).

2.5 | Grouping findings under topics

In the inductive process of grouping findings under topics, we merged findings under a topic when they dealt with the same subject. Topics can either confirm, complement or contradict each other. If the findings are grouped according to their thematic similarities, it is possible to identify how these findings relate to each other within their group. In this way, the complexity of the study findings can be captured more effectively. We used MAXQDA 2018 (VERBI Software, 2018), a software package to manage qualitative

data, for data analysis. The grouping of findings was conducted by two reviewers (MB and AS). Thus, a system of topics was developed, adapted and completed.

2.6 | Abstracting findings and calculating effect sizes

We combined the findings of each topic in a continuous and repeated abstraction process until 183 meta-findings remained as the essence of the 578 findings. This set of meta-findings summarises the essence of all findings regarding our research question of the included studies. The frequency effect size was then calculated by dividing the number of studies that included a meta-finding by the total number of included studies. The meta-findings were presented under headings and sub-headings. The results were checked for consistency and plausibility by a third reviewer (ORH), and adjustments were made in a negotiation process jointly agreed upon.

3 | RESULTS

As the result of the search strategy, 2747 identified studies were transferred to the reference management tool, where 1015 duplicates were removed. Reviewers screened 1732 studies of titles and abstracts independently against the predetermined inclusion criteria, and obviously ineligible studies were discarded. We included 45 studies and screened those full-texts independently. Fifteen studies were included into the review. The backward and forward citation tracking of the included studies led to 1246 hits for screening. None of the additionally identified studies met the inclusion criteria. The key characteristics of the included studies are displayed in Table 2. The PRISMA flow diagram presents the entire inclusion and selection process (Figure 1).

Of the 15 studies included, eleven were journal articles, one an unpublished report of a research project, two doctoral theses and one master thesis. Studies were published between 1993 and 2017. The sample size ranged from four to 58 participants with a total of 276 participants across all studies (165 women and 74 men—two studies did not report participants' sex). The mean age of participants ranged from 69 to 84 years, but five studies did not explicitly report the mean age. Three studies reported an age range from 58 to 94 (Trujillo et al., 2014), 81 to 94 (Mahler & Savimäki, 2012) and 67 to 98 (Johnson et al., 2016); two other studies did not present the age of the participants at all (Hatton, 2016; Recanello et al., 2015). Participants of 13 studies lived in the community and of two others in long-term care facilities. Seven studies were conducted in North America (four in Canada and three in the United States of America). Two studies were conducted in Australia and one each in Brazil, Denmark, Slovakia, Sweden, Switzerland and Taiwan. All studies employed qualitative interviews as data collection method. The findings from three of 15 studies were classified as topical and seven thematic surveys, the remaining five as conceptual/thematic description (see Table 2).

TABLE 2 Included studies and their main characteristics

ID	Author (year), country, publication type	Main aim of the study	Sample size, sex (f/m)	Mean age	Setting	Stated method	Type of findings
1	Convey (1993), Canada, master thesis	To describe the meaning of FoF and its impact on the activities of daily living from the perspective of an elderly individual living in the community who has previously fallen	9 (6/3)	84	Community	In-depth interviews/content analysis	Thematic survey
2	Cuttelod and Plot-Ziegler (2010), Switzerland, research project—not published	To create a model grounded in the elderly people's experience allowing the development of an original instrument to evaluate FOF	58 (48/10)	82.1	Community	In-depth interviews with semi-directive interview schedule/QUAPA (Qualitative Pattern Analysis)	Conceptual/thematic description
3	Dingová and Králová (2017), Slovakia, journal article	To describe experience with falls, FoF, perceptions of the consequences of falls and how the FoF affects daily life in community-dwelling older adults	6 (5/1)	73.8	Community	Semi-structured interviews/Colaizzi's method of data analysis	Thematic survey
4	Hatton (2016), Australia, doctoral thesis	To assess the relationships between FoF, depression and anxiety symptoms within an extended care older adult population	12 (11/1)	n.a.	Extended care facilities	Semi-structured interviews/mixed-method approach, thematic analysis	Thematic survey
5	Honaker and Kretschmer (2014), USA, journal article	To evaluate the impact of FoF for the patient and family, and to better understand the support needed to regain balance confidence and reduce FoF for patients and family members after participating in a VBRT programme	14 (9/5)	69.1	Community	Semi-structured interviews/mixed-method approach content analysis	Conceptual/thematic description
6	Huang (2005), Taiwan, journal article	to explore the process of managing FOF from the perspective of community-dwelling elders in Taiwan	25 (18/16)	71.08	Community	In-depth interviews—open-ended interviews/grounded theory, constant comparative method to analyse content	Conceptual/thematic description

(Continues)

TABLE 2 (Continued)

ID	Author (year), country, publication type	Main aim of the study	Sample size; sex (f/m)	Mean age	Setting	Stated method	Type of findings
7	Jellesmark et al. (2012), Denmark, journal article	To explore the experience of FoF and functional ability after a hip fracture among community-dwelling elderly people (qualitative part of the study)	4 (3/1)	84.75	Community	In-depth interview technique with a semi-structured interview guide/sequential explanatory mixed-method study; systematic text condensation (STC)	Thematic survey
8	Johnson et al. (2016), Canada, journal article	(a) To address gaps in our understanding of the health service needs of seniors living in rural communities, and (b) to identify the supports that enable rural seniors to stay independent and remain in their homes and communities longer. This article focuses specifically on those aspects of the study that addressed seniors' experiences with falls and falls-related injuries	42 (24/18)	n.a. (range 67–98)	Community	Semi-structured interviews/data analysis was conducted [...] with codes and categories developed according to the questions in the interview guide	Topical survey
9	Lee et al. (2008), Australia, journal article	To explore the perceptions of older people with a self-reported FoF about their fall experiences	9 (8/1)	77.9	Community	In-depth semi-structured interviews, comprising mostly open-ended question/content analysis was carried out using an inductive approach	Conceptual/thematic description
10	Mahler and Savimäki (2012), Sweden, journal article	To illuminate the experiences and meaning of FoF in a daily-life context for older adults	5 (5/0)	n.a. (range 81–94)	Community	Narrative interviews/qualitative narrative study	Topical survey
11	Parsons (2013), USA, doctoral thesis	To gain insight into the factors associated with FoF and falls self-efficacy in nursing home residents and to gain an in-depth understanding of possible discrepancies between residents' self-reports of FoF and how their caregivers perceive that fear	30 (15/15)	82	Long-term care facilities	In-depth semi-structured interviews/convergent parallel mixed-method design with thematic analysis	Thematic survey

TABLE 2 (Continued)

ID	Author (year), country, publication type	Main aim of the study	Sample size; sex (f/m)	Mean age	Setting	Stated method	Type of findings
12	Recanello et al. (2015), Brazil, journal article	To investigate the repercussions of falls in the lives of elders and their families	15 (not stated)	n.a.	Community	Semi-structured interview/content analysis (thematic analysis technique)	Topical survey
13	Tischler and Hobson (2005), Canada, journal article	To uncover why the participants experienced FoF and to discover which perceived consequences the participants feared the most	7 (6/1)	75.4	Community	Semi-structured interviews/constant comparative method	Thematic survey
14	Trujillo et al. (2014), USA, journal article	To expand the understanding of the lived experiences of community-dwelling older adults, to ascertain what falls and FOF meant to them, and how each entity influenced their self-efficacy, functional performance and degree of engagement in occupations	31 (less than a quarter male)	n.a. (range 58–94)	Community	In-depth interviews followed a semi-structured interview guide with open-ended questions/qualitative phenomenological design	Thematic survey
15	Ward-Griffin et al. (2004), Canada, journal article	To explore the everyday experiences of community-dwelling elders, with particular attention to the elders' perceptions of safety, FoF, independence and quality of life	9 (7/2)	81.7	Community	In-depth interviews/interpretive phenomenological design; immersion and crystallisation data analysis strategy as described by Lincoln and Guba (1985)	Conceptual/thematic description

Abbreviations: f/m, female/male; n.a., not available.

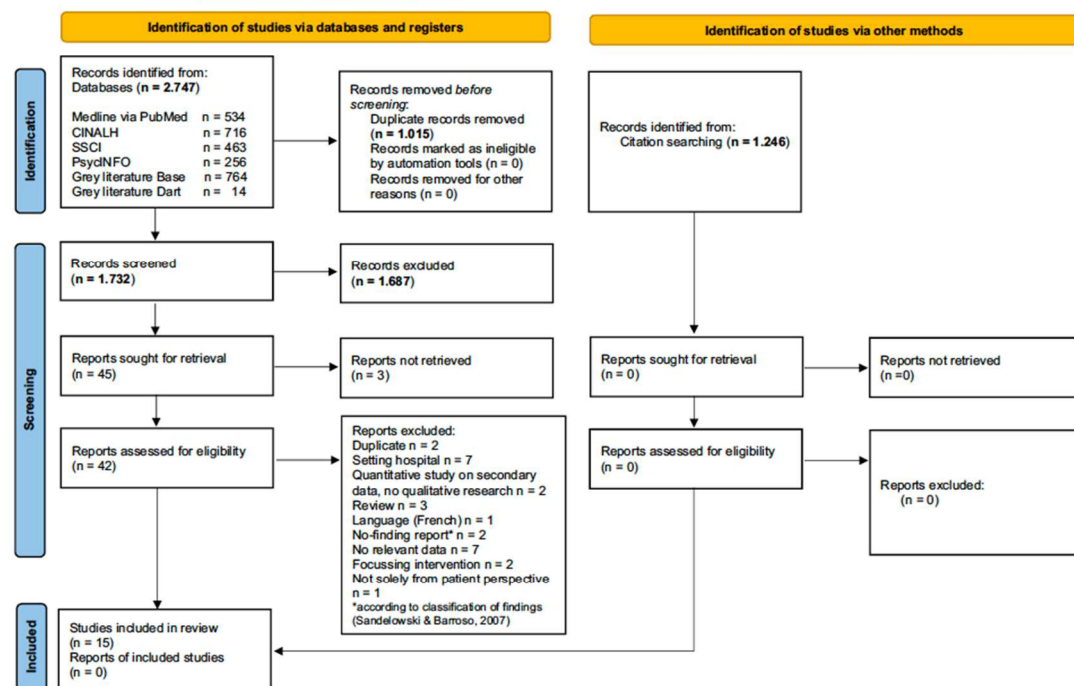


FIGURE 1 PRISMA 2020 flow diagram (Page et al., 2021) for the selection of included studies.

After abstracting the findings, a total of 578 findings resulted in 183 meta-findings, which could be collapsed into three main headings: 3.1. Triggers and reasons for FoF identified by affected people, 3.2. Consequences attributed to FoF and 3.3. Strategies to manage FoF in daily life. Under these headings, six main topics were identified: 1. Reasons cited as the cause for FoF and influences that reduce the extent of FoF, 2. Feared consequences of a fall, 3. Overall impact of FoF, 4. Psychological and social consequences, 5. Physical consequences and 6. Strategies/Management of FoF. Under the last topic the following subtopics were sorted: 6.1 Use of aids, 6.2 Environment/home changes, 6.3 Being attentive/'taking care', 6.4 Cognitive adaptation, 6.5 Activities changed/avoided and 6.6 Help/support by others. For the evaluation of the results, we decided to work with meta-findings that have a frequency effect size of $\geq 25\%$. Table 3 shows these 50 meta-findings.

The results are described below under the three main headings: 3.1. Triggers and reasons for FoF identified by affected people, 3.2. Consequences attributed to FoF and 3.3. Strategies to manage FoF in daily life.

3.1 | Triggers and reasons for FoF identified by affected people

The topics belonging to the heading *Triggers and reasons for FoF identified by affected people* includes 11 meta-findings (T1-T11—T stands for

'trigger'). Eight of these are assigned to the topic *Feared consequences of a fall* (T4-T11). People effected by FoF fear physical injuries, like fractures, as a consequence of a fall (T4). They also fear possible restrictions on movement or even bedriddenness resulting from a fall (T10). This can be closely linked to fears that relate to the restriction or loss of one's own independence (T6-T8). The concerns relate to institutionalisation and loss of the home (T6), loss of independency in general (T7) and feeling invalid, being a burden and relying on others (T8). The other feared consequences deal with general negative consequences on life (T5), not being able to get up after a fall (T9) and negative feelings like shame (T11). The remaining meta-findings under this heading deal with the reasons cited as the cause for FoF and (T1, T2) and influences that reduce the extent of FoF (T3). Studies cite a fall (T1) and chronic illness (T2) as a cause of FoF. A familiar environment, on the contrary, can have a minimising effect on FoF (T3).

3.2 | Consequences attributed to FoF

Seven meta-findings deal with the consequences attributed to FoF (C1-C7—C stands for 'consequence'). FoF has a varying impact on the lives of those affected and evokes different types of adaptation processes (C1). The consequences of FoF can be physical and psychological (C2). However, by far the majority of those affected report psychological and social consequences of FoF (C3-C6). FoF is associated with negative emotions (C3) and reduced social activities (C4). In

TABLE 3 Meta-findings with a frequency effect size over 25% sorted under the main topics

ID	Topics	Meta-findings Report ID	Frequency effect size
I. Triggers and reasons for FoF identified by affected people			
T1	01 Reasons cited as the cause for FoF and influences that reduce the extent of FoF	People affected by FoF discovered their FoF after a fall, some after a fall that required medical or physiotherapy intervention or after multiple falls. ^{1,3,4,8,9,12,13}	46.7
T2		Participants identified physical reasons like chronic illnesses, poor balance, being unsteady, deteriorating sight, hearing loss or other disabilities as reasons for their FoF. ^{1,6,13,14}	26.7
T3		People affected by FoF felt safer in their own home and thus in familiar surroundings. ^{1,4,6,10}	26.7
T4	02 Feared consequences of a fall	People affected by FoF feared physical injury, such as a fracture, as a consequence of a future fall. ^{1,3,4,5,7,9,11,12,13,15}	66.7
T5		People affected by FoF feared general negative consequences of a potential fall, like affecting their quality of life and life satisfaction. ^{1,3,10,11,13}	33.3
T6		People affected by FoF feared institutionalisation and the loss of their home as a consequence of a future fall. ^{1,3,4,9,13}	33.3
T7		People affected by FoF feared the loss of independency as a consequence of a future fall. ^{1,4,9,11,13}	33.3
T8		As a consequence of a future fall people affected by FoF feared to feel invalid, being a burden and to rely on others. ^{1,3,11,12,13}	33.3
T9		Those affected by FoF feared not being able to get up from the ground again as a consequence of a future fall. ^{3,4,7,13}	26.7
T10		As a consequence of a future fall people affected by FoF feared movement restrictions like not being able to walk anymore or being restricted to bed. ^{3,4,12,13}	26.7
T11		Those affected by FoF feared negative feelings, such as helplessness, shame and embarrassment, as a consequence of a future fall. ^{3,4,9,13}	26.7
II. Consequences attributed to FoF			
C1	03 Overall impact of FoF	The overall impact of FoF on the lives of those affected varied and evoked different types of adaptation processes. ^{1,3,6,11,13}	33.3
C2		FoF has both negative physical and psychological consequences for those affected. ^{1,2,4,6,10}	33.3
C3	04 Psychological and social consequences	Fear of falling is associated with a number of negative psychological consequences and emotions for those affected. ^{1,2,4,5,6,7,9,10,15}	60
C4		FoF affects the social life of those affected, as they change or reduce interaction with others, for example, by making fewer visits or participating less in social events. ^{1,2,5,6,7,9}	40
C5		FoF is accompanied by the feeling of being a burden on others, of dependency and losing the ability to control activities and life in general. This can get along with the resignation, powerlessness and the fear of institutionalisation. ^{1,2,5,7}	26.7
C6		People affected by FoF describe FoF as a constant companion or threat in their everyday life, which can thus also influence all areas of daily life. ^{1,2,9,11}	26.7

(Continues)

TABLE 3 (Continued)

ID	Topics	Meta-findings	Report ID	Frequency effect size
C7	05 Physical consequences	Physical consequences due to FoF or in part to injuries from a fall were modified posture and gait, limited mobility, physical signs of stress (as shaking, sweating, goose bumps, and palpitations) or on a functional level described "as feel the years creeping up on them". As well as sleeping disorders, headaches and appetite disturbance because of heightened awareness of the surroundings and vigilance about behavioural safety.	^{2, 6, 7, 10}	26,7
III. Strategies to manage FoF in daily life				
S1	06 Strategies/ Management of FoF	Behavioural change or adaptation is usually mentioned as a general strategy for dealing with FoF.	^{1, 3, 4, 9, 15}	33,3
S2		Despite FoF, some people affected by FoF try to maintain an active and independent lifestyle.	^{3, 7, 9, 11, 15}	33,3
S3		People affected by FoF usually use several different strategies, which complement each other, to deal with this fear.	^{1, 9, 11, 15}	26,7
S4		The chosen strategies may change depending on the situation and/or over time.	^{1, 9, 11, 15}	26,7
		The reasons for developing strategies for dealing with an existing FoF are located differently. The reasons given can be to avoid falls and injuries, to reduce the fear or the risk of falling, to reduce the influence of FoF on one's life, to keep control over one's own life or to preserve one's own identity.	^{1, 4, 11, 15}	
S5	6.1 use of aids	Those affected by FoF use assistive devices, such as walkers or special footwear to deal with their fear.	^{1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 15}	73,3
S6		People affected by FoF use assistive devices to reduce their fear and to make them feel more confident.	^{1, 7, 8, 11}	26,7
S7	6.2 Environment/ home changes	People affected by FoF make changes to their homes/ environment as a strategy to deal with their anxiety.	^{2, 3, 6, 8, 9, 10, 15}	46,7
S8		People affected by FoF add devices to their environment that might eliminate factors for a fall, like handrails, illumination devices, a shower bench or a raised toilet seat.	^{2, 3, 6, 7, 9, 15}	40
S9		People affected by FoF see the necessity to make changes in the bathroom or kitchen, modify the location where chores are done or rearrange furniture.	^{3, 6, 8, 9, 15}	33,3
S10		Those affected by FoF make changes to their environment to reduce the risk of falling.	^{3, 6, 9, 15}	26,7
S11		People affected by FoF change floor features that might cause a fall, like slippery floor, remove small items from the floor or stairs, remove mats or carpets or use non-skid floor tiles.	^{3, 6, 9, 15}	26,7
S12	6.3 Being attentive / "taking care"	The need to be more careful and cautious arose after a fall.	^{1, 2, 4, 7, 11, 14, 15}	46,7
S13		People affected by FoF integrate caution and mindfulness into their daily lives, and this influenced them in performing activities.	^{2, 8, 6, 9, 11, 15}	40
S14		"Taking care" is a method used by people with FoF to avoid falls.	^{3, 4, 6, 9, 11, 15}	40
S15		"Being careful" goes hand in hand with adapting activities to ensure safety.	^{2, 3, 6, 9, 14, 15}	40
S16		People affected by FoF are more attentive when moving about.	^{1, 2, 6, 11}	26,7
S17		People affected by FoF pay more attention to their environment, especially the ground.	^{2, 4, 6, 9}	26,7
S18		Relatives or health professionals can amplify the construct of "being careful" by telling the people with FoF to take care.	^{4, 5, 7, 9}	26,7
S19	6.4 Cognitive adaptation	People affected by FoF use strategies of cognitive adaptation to cope with FoF, such as self-encouragement, comparing themselves to others, assigning blame or minimizing the impact of a fall.	^{1, 4, 10, 15}	26,7

TABLE 3 (Continued)

ID	Topics	Meta-findings Report ID	Frequency effect size
S20	6.5 Activities changed/avoided	Due to FoF affected people restrict or modify activities. They do this with different activities and to varying degrees. Some give up certain activities temporarily or completely. ^{1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 14, 15}	86,7
S21		People affected by FoF avoid leaving their homes altogether or restrict this to varying degrees. ^{1, 3, 6, 7, 9, 10, 11}	46,7
S22		People affected by FoF focused on activities that were considered low risk and excluded those that could lead to a fall. ^{1, 3, 6, 9, 11, 15}	40
S23		People affected change their mobility habits due to FoF. They restrict them to varying degrees and in different ways. ^{1, 2, 3, 7, 11}	33,3
S24		Some people affected by FoF say that they do not let FoF interfere with their activities. However, they sometimes make adjustments to their activities. ^{4, 8, 11, 13}	26,7
S25		Some people affected by FoF had an exercise routine. Some changed it or even stopped it because of FoF. ^{4, 6, 9, 12}	26,7
S26		Some people affected by FoF developed consistent routines in their daily lives and planned their days carefully to reduce the risk of falling and thus FoF. ^{1, 3, 10, 11}	26,7
S27		One consequence of FoF for those affected is a reduction in social contacts and activities. ^{1, 2, 5, 6}	26,7
S28	6.6 Help/support by others	Some people affected by FoF report a level of dependency to perform some of the tasks of daily living. ^{1, 2, 3, 5, 6, 7, 10, 11, 15}	60
S29		Family and friends are an often mentioned source of support for people affected by FoF. ^{1, 2, 3, 5, 4, 6, 8, 9, 15}	60
S30		For those affected, FoF meant a loss of independence and thus dependence on other people (social environment/ professional support systems). ^{1, 2, 4, 5, 7, 10, 11}	46,7
S31		Help from others is accepted in order to maintain one's own independence to a certain degree despite FoF. ^{1, 2, 3, 8, 15}	33,3
S32		The ability to accept help varies among those affected by FoF. ^{1, 3, 9, 11}	26,7

addition, feelings towards others can be affected. For example, FoF can make people feel like a burden to others and create a sense of dependency (C5). For some people affected by FoF, the fear can be perceived as a constant burden, affecting all areas of life (C6). In addition to all the psychological and social consequences mentioned above, those affected also mentioned physical consequences of FoF (C7).

3.3 | Strategies to manage FoF in daily life

Thirty-two meta-findings deal with the strategies to manage FoF in daily life (S1-S32—S stands for 'strategy'). People affected by FoF develop strategies to deal with their fear in everyday life. They give different reasons for this, such as avoiding a fall, reducing the fear or maintaining control over their own life (S4). Affected persons change their previous behaviour (S1) and use complementary interventions to deal with fear (S3). Some of those affected by FoF try to continue to lead active and independent lives despite their fear (S2).

As a strategy to deal with FoF, affected people use assistive devices close to their body, such as walking aids or special shoes (S5, S6), or they make specific changes to their environment (S7-S11). They add devices such as sources of light or handrails (S8), change the floor conditions (S11) or the arrangement of certain rooms in their house/apartment (S9). One reason given for these measures is to reduce the risk of falling (S10).

Besides that, they try to achieve a cognitive adaptation, for example through self-encouragement or comparing themselves to others (S19). Furthermore, the strategy of 'taking care' or being attentive plays a role in dealing with FoF (S12-S18). The need to be careful arose after a fall (S12) and is used as a method to avoid further falls (S14). Relatives or health professionals can influence the strategy of 'taking care' when they ask older people to be careful (S18). The need to be careful accompanies the affected person permanently and influences their everyday behaviour (S13, S15). They are careful when moving about (S16) and pay more attention to their environment (S17).

Due to FoF, affected people change, limit or avoid activities temporarily or permanently (S20-S27). They focus on activities that seem to have a low risk and avoid other activities (S22). For example, they avoid leaving the house (S21), change their mobility habits (S23) or exercise routine (S25) and reduce their social contacts and activities (S27). Some affected persons also try to counteract FoF with consistent routines in everyday life (S26). Even if affected people do not want FoF to influence their activities, they do adjust them (S24).

Help and support from others is another frequently mentioned strategy to deal with FoF (S28-32). On the one hand, help is accepted in order to be able to continue carrying out everyday tasks (S28) and thus to be able to maintain one's own independence despite FoF (S31). On the other hand, the loss of independence is mentioned and thus a dependence on others (social environment/professional support system) (S30). Family and friends are the most frequently named source of support (S29), although the ability to accept help varies (S32).

4 | DISCUSSION

This systematic review and qualitative meta-summary aimed at aggregating the available qualitative findings about peoples' experience with FoF and the effects on everyday life of those affected. Based on 578 findings, we were able to develop 50 meta-findings with a frequency effect size $\geq 25\%$, which reflect the main findings of the included studies. The 50 meta-findings could be collapsed into three main headings I. Triggers and reasons for FoF identified by affected people, II. Consequences attributed to FoF and III. Strategies to manage FoF in daily life. The last group, with 32 meta-findings, is the most comprehensive. In the results presented above, three aspects emerged that seem to be of particular relevance to those affected by FoF: 'controlling the risk', 'creating a safe environment' and 'staying independent' (see Figure 2). As can be seen, these aspects are mentioned repeatedly and in different contexts in the included studies. These are discussed in the following and should be taken

Headings	I. Triggers and reasons for FoF identified by affected people	II. Consequences attributed to FoF	III. Strategies to manage FoF in daily life
Sub-headings	01 Reasons cited as the cause for FoF and influences that reduce the extent of FoF 02 Feared consequences of a fall	03 Overall impact of FoF 04 Psychological and social consequences 05 Physical consequences	06 Strategies/ Management of FoF
Key aspects derived	controlling the risk creating a safe environment staying independent		

FIGURE 2 Results overview: System of headings, sub-headings and the key aspects derived.

into account in the development or adaptation of interventions to overcome FoF. The implications for interventions are also considered below.

'Controlling the risk' is important for the actions of those affected by FoF. Our findings support previous research that older people affected by FoF make adjustments in their lives (Deshpande et al., 2008; Mendes da Costa et al., 2012; Merchant et al., 2020; Schepens et al., 2012). The change or avoidance of certain activities should be emphasised. It became clear in our work that those affected continue to carry out activities, which, from their perspective, carry a lower risk of falling and reduce or exclude other activities (S22). For fear of possibly falling, people have decided not to leave their homes (S21). Avoiding activities has negative physical and psychological consequences for those affected. It can cause a reduction in physical abilities and lead to depression. A reduction in health-related quality of life goes hand in hand with this (Schoene et al., 2019). 'Taking care' is generally a behaviour that those affected consciously mention and that seems to play a significant role for them and their everyday life (S12-S18). Also older people who are at risk of falling use 'being careful' as a fall prevention strategy and they change their behaviour and therefore sometimes live more isolated (Berlin Hallrup et al., 2009), and here, too, it can happen that the strategy applied turns into FoF and thus limit the independence of those affected (Gardiner et al., 2017).

The aim of 'creating a safe environment' is also important for the actions of those affected by FoF. They try to manage FoF and maintain control over their lives by creating a safe close environment (S5-S11). This can be achieved by the use of aids (S5, S6) or changes to their homes, like adding devices including handrails or removing objects with risk potential for falls like loose or unsecure carpets (S7-S11). Research shows that changes in the close environment can have a positive impact on FoF (Tölking et al., 2020), primarily in combination with other interventions (Bastami & Azadi, 2020; Chase et al., 2012; van Haastregt et al., 2013). However, not all studies show positive effects of home modification on older peoples' FoF (Carlsson et al., 2017; Pighills et al., 2011). On the contrary, there is evidence that home modifications have positive effects on activities of daily living (ADL), quality of life and social participation (Lim et al., 2020) and also on the risk and rate of falls (Stark et al., 2017). In addition to home modifications, people affected by FoF also accept help of others to be able to continue carrying out certain activities (S28-S32). This can contribute to a safe environment. Friends and family are often mentioned as a source of help to cope with everyday life (S29).

'Staying independent' is another driving force for the behaviour of people affected by FoF. People affected by FoF give the following reasons why they try to manage their FoF: to avoid falls and injuries, to reduce the fear or the risk of falling, to reduce the influence of FoF on one's life, to keep control over one's own life or to preserve one's own identity (S4). Those affected state that they fear physical damage as a consequence of a possible future fall (T4). On the contrary, consequences that affect the independence seem to be very present for those affected (T6-T8). Hospitalisation and institutionalisation

are to be avoided with the help of various support structures that are adopted in one's own home. Remaining independent, in the sense of living in one's own home, seems to be the driving force for many affected persons for behaviours to avoid falls. Similar results are also found in a review on the experience of falls and perceived risk of falls in the community (Gardiner et al., 2017). People at risk of falling, like people affected by FoF, are also influenced in their actions by the desire to maintain their independence. This occurs in combination with the will to use the support of other people as little as possible (Gardiner et al., 2017; Robson et al., 2018). Maintaining or increasing independence can also be a motivator for older people to continue fall prevention exercises (Finnegan et al., 2019).

4.1 | Interventions preventing or reducing FoF

Based on the presented results, our work can contribute to sharpening the focus of interventions against FoF specifically to the needs of those affected. Due to the proven multiple negative effects of FoF, there are many different approaches to reduce FoF. The systematic reviews by Zijlstra et al. (2007), Kendrick et al. (2014), Whipple et al. (2018) and Liu et al. (2018) show a variety of interventions and their respective effectiveness. The focus of the listed systematic reviews was on community-dwelling older adults. No interventions for older people in long-term care facilities were included. Cognitive behavioural therapy (CBT) interventions have a small effect on the reduction of FoF immediately after the intervention and after 12 months (Liu et al., 2018). The authors of just one of the studies included in the CBT review examined the avoidance of activities because of FoF. Exercise interventions like Tai Chi or balance training probably also show a small effect on the reduction of FoF directly after the intervention. Whether there are also positive effects after the end of the intervention is unclear and the effect on activity restriction or reduction is not considered in any of the included studies (Kendrick et al., 2014). The results of the systematic reviews (Kendrick et al., 2014; Liu et al., 2018) cannot present a clear strategy for reducing FoF based on the available evidence. Although there are conflicting results, it appears that a combination of psychotherapeutic elements and physical exercises probably shows the best impact (Whipple et al., 2018). We identify the need for security and the preservation of one's own independence as important aspects of managing FoF. These aspects should play an important role both in the motivation to participate in an intervention and when developing the components of the intervention itself. How exactly these goals can be implemented, should be the subject of further research. For example, based on the issues identified, an interview guide could be developed to help identify the individual support needs of older people with FoF. This could be used as a basis for individualised interventions that mitigate the effects of FoF and meet the needs for security and independence of those affected. In addition, it would be important to look at the impact of the interventions on activity restriction caused by FoF. As has been shown in previous research and confirmed in our

work (S20-S27), this is an important aspect when it comes to the impact of FoF. Our results suggest that there is no difference in the experience and management of FoF among older people living in long-term care facilities and of community-dwelling older adults (Hatton, 2016; Parsons, 2013). Again, we find two of the three important outcomes: 'controlling the risk' and 'staying independent'. What is not mentioned in the two studies (Hatton, 2016; Parsons, 2013) is the adaptation of one's own environment ('creating a safe environment') to reduce FoF (S7-S11). This could be based on the equipment in the respective facilities. A focus of interventions on older people in long-term care facilities would have to take this into account. However, further research would also be beneficial here. Nursing staff play an important role in this setting due to their constant presence and their proximity to the patients or residents in long-term care. Their possible influence on the management and reduction of FoF must therefore be more clearly addressed. The fact that people in long-term care facilities are less active in everyday life must also be taken into account (den Ouden et al., 2015).

4.2 | Quantification of qualitative data

Calculating the frequency effect sizes of the meta-findings is a special feature of the approach of Sandelowski and Barroso (2007) when aggregating qualitative data. Using the approach for this qualitative meta-summary helped us to aggregate knowledge based on an exhaustive literature search in a structured and comprehensible manner and to identify patterns (Ludvigsen et al., 2016). The calculation of the frequency effect size also contributed to this and helped to weight the meta-findings in the given context. Calculating effect sizes brought together the characteristics of qualitative and quantitative research, and this makes it possible to gain more meaning from the findings (Sandelowski & Barroso, 2007). According to Sandelowski and Barroso (2007), we used a threshold for the frequency effect size. In a process of discussion between three reviewers (MB, ORH and AS), we decided to work with all meta-findings with a frequency effect size $\geq 25\%$. Therefore, a finding can be identified in at least four of the 15 included studies. The 50 meta-findings thus selected represent a set of feasible findings. These provide a comprehensive essence of the significant results of the 15 included studies. However, it is important not to value or devalue a meta-finding because of the given effect size (Herber et al., 2017). Keeping this in mind is essential, when using the quantification of qualitative data. The use of the quantitative transformation of qualitative data in qualitative research, including the frequency effect size, is controversial. The advantages and disadvantages of using frequency effect sizes for quantitative data are discussed (Maxwell, 2010), not least because different approaches are used that do not yet reveal a general consensus (van Grootel et al., 2020). For our study, the use of the effect size could effectively support the analysis of the given qualitative data by 'extracting more meaning from those data and verifying the presence of a pattern or theme.' (Sandelowski & Barroso, 2007, 160).

4.3 | Limitations

We limited the included studies to English or German language. With the exception of four studies, the included studies were located in North America ($n = 7$) and Europe ($n = 4$). Only one study from Brazil and one from Taiwan deviated from this and two studies from Australia. There were no studies from other countries that met our inclusion criteria. Only four of the included studies gave an indication of the ethnicity of the participants. It can therefore be assumed that a predominantly western perspective is represented. We excluded studies with a population restricted to specific chronic medical conditions (e.g. stroke), except medical conditions that primarily result from a fall (e.g. hip fracture). We cannot make any statements about how FoF is experienced specifically in the context of certain chronic diseases. Rather, we wanted to show the experience of FoF in older people who are not in special situations (e.g. new environment) or impaired by a specific disease such as stroke. In addition, it is clear from the included studies that only two of the 15 studies focused on people living in long-term care facilities. Consequently, a clear preponderance of community-dwelling participants can be identified, though, as described above, the experiences with FoF are very similar.

5 | CONCLUSION

Findings of this systematic review and qualitative meta-summary highlight that people with FoF feel a far-reaching impact in many, if not all, areas of their lives. Calculating the frequency effect size of the aggregated meta-findings supported the process of analysing the given data. It helped us to identify themes and patterns in the set of meta-findings. FoF is associated with incarcerations that have physical and social as well as psychological consequences. This work contributes to the body of qualitative evidence, as it is the first that brings together the qualitative findings concerning the experience, fears and management strategies of older people in dealing with FoF. It identified themes and relationships that are important when trying to understand people affected by FoF and creating or revisiting interventions against FoF. Nurses and other healthcare professionals need to consider when dealing with older people that they may be affected by FoF. In this work, it has been shown that (1) controlling the risk, (2) creating a safe environment and (3) staying independent are strategies used by people affected by FoF to cope with it in everyday life. Understanding the motivation for the behaviour of older adults with FoF is the prerequisite for providing them with the appropriate and necessary support. For this, it is essential that healthcare professionals are sensitised to the topic of FoF and that its relevance is already reflected in the training of nurses and other healthcare professionals. Interventions that combine psychological components, physical exercise (Whipple et al., 2018) and home modification seem to be the most effective based on current evidence. For future research, it seems to be important to also focus more on people living in long-term care facilities as well as on the effects of the interventions on activity

restriction. This applies to the qualitative studies we examined, but also to the systematic reviews carried out on the interventions.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data available on request from the authors.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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CASP CHECKLIST - Fear of Falling from the perspective of affected persons – A systematic review with qualitative meta-summary using Sandelowski and Barroso's method															
Author and year	Convey 2013	Cuttelod 2010	Dingova 2017	Hatton 2016	Honaker 2014	Huang 2005	Jellesmark 2012	Johnson 2016	Lee 2008	Mahler 2011	Parsons 2013	Recanello 2015	Tischler 2005	Trujillo 2014	Ward-Griffin 2004
Section A: Are the results valid?															
1. Was there a clear statement of the aims of the research?	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
2. Is a qualitative methodology appropriate?	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
3. Was the research design appropriate to adress the aims of the research?	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
4. Was the recruitment strategy appropriate to the aims of the research?	y	y	y	y	y	?	y	y	y	y	y	?	?	y	y
5. Was the data collected in a way that adresssed the research issue?	y	y	y	y	y	y	y	y	y	y	y	?	?	y	y
6. Has the relationship between researcher and participant been adequately considered?	y	?	?	?	?	?	?	?	?	y	?	?	?	?	?
Section B: What are the results?															
7. Have ethical issues been taken into consideration?	y	?	y	y	y	y	y	y	y	y	y	y	y	y	?
8. Was the data analysis sufficiently rigorous?	y	y	y	y	y	y	y	?	y	y	y	?	y	?	y
9. Is there a clear statement of findings?	y	y	y	y	y	y	y	y	y	y	y	n	y	y	y
Section C: Will the results help locally?															
10. How valuable is the research?	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
y = yes; ? = can't tell; n = no															

APPENDIX 1

Search strategy

CINAHL

- S1. (MH "Accidental Falls/PC")
- S2. MH Fear
- S3. TX (fright\$ or fear\$ or afraid)
- S4. S2 or S3
- S5. S1 and S4
- S6. TX "fear of falling"
- S7. TX ("Falls Efficacy Scale" or "Mobility Efficacy Scale" or "Survey of Activities and Fear of Falling in the Elderly")
- S8. TX ("University of Illinois at Chicago Fear of Falling Measure" or "SAFFE" or "UICFFM")
- S9. TX ("Activities Specific Balance Confidence Scale" or "Confidence in Maintaining Balance Scale" or "CON-Fbal")
- S10. S5 or S6 or S7 or S8 or S9
- [S11: Wilczynski (2007) Best balance of sensitivity and specificity]
- S11. interview.tw. OR audiorecording.sh. OR qualitative stud\$.mp.
- S12. S10 AND S11

MEDLINE/PubMed

- 1 *Accidental Falls/
- 2 *Fear/
- 3 (fright* or fear* or afraid).tw.
- 4 2 or 3
- 5 1 and 4
- 6 ((fear* or fright* or afraid) adj5 fall*).tw.
- 7 "fear of falling".tw.
- 8 ("Falls Efficacy Scale" or "Mobility Efficacy Scale" or "Survey of Activities and Fear of Falling in the Elderly" or "University of Illinois at Chicago Fear of Falling Measure" or

“SAFFE” or “UICFFM” or “Activities Specific Balance Confidence Scale” or “Confidence in Maintaining Balance Scale” or “CON-Fbal”).tw.

9 or/5-8

10 interview*[Title/Abstract] OR

11 interviews[MeSH:noexp] OR

12 experience*[Text Word] OR

13 qualitative[Title/Abstract]

PsycINFO

1. “fear of falling”.mp.

[mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]

2. (“Falls Efficacy Scale” or “Mobility Efficacy Scale” or “Survey of Activities and Fear of Falling in the Elderly” or “University of Illinois at Chicago Fear of Falling Measure” or “SAFFE” or “UICFFM” or “Activities Specific Balance Confidence Scale” or “Confidence in Maintaining Balance Scale” or “CON-Fbal”).mp.

[mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]

3. 1 or 2

[4: McKibbin 2006 “Best balance of sensitivity and specificity”]

4. experiences.tw. OR interview* tw. OR qualitative.tw.

5. 3 and 4

Social sciences citation index (SSCI)

1. ALL="accidental falls" AND

2. ALL=(fright* or fear* or afraid)

3. 1 and 2

4. ALL="fear of falling"

5. TS=(fear* or fright* or afraid) NEAR/5 fall*)

6. ALL=(“Falls Efficacy Scale” or “Mobility Efficacy Scale” or “Survey of Activities and Fear of Falling in the Elderly” or “University of Illinois at Chicago Fear of Falling Measure” or “SAFFE” or “UICFFM” or “Activities Specific Balance Confidence Scale” or “Confidence in Maintaining Balance Scale” or “CON-Fbal”)

7. or/3-6

[8: following: Flemming (2007)]

8. ALL=(qualitative OR findings OR interview*)

9. 7 and 8

DART Europe

Search interface: <http://www.dart-europe.eu/> Date of search, **25.09.2020**

“fear of falling” AND (qualitative OR findings OR interview*)

Base

Search interface: <http://www.base-search.net/> Date of search, **25.09.2020**
"fear of falling" AND (qualitative OR findings OR interview*)



Development of Fear of Falling after proximal femoral fracture

A qualitative study

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Abstract: *Background:* Proximal femoral fracture is common in older people. Beyond a long recovery process and significant permanent functional limitations, older people often experience subsequent Fear of Falling. The phenomenon of Fear of Falling is not fully understood; qualitative research is underrepresented but can provide insights into the experience of those affected. *Objectives:* We aimed to explore the experiences of Fear of Falling development and to what extent it affects peoples' life after proximal femoral fracture. *Methods:* We conducted semi-structured, in-depth interviews with nine older people, aged between 61 and 88, who participated in a prospective observational study. Interview data were analysed through inductive content analysis. *Results:* Six major themes emerged: The development of Fear of Falling; the effect of FoF and hope for recovery; alternating between moments of fear and security; fear of helplessness and of losing independence; strategies for dealing with Fear of Falling and maintaining independence; need of support by health care professionals. *Conclusion:* To identify and support older people in coping with Fear of Falling (after proximal femoral fracture), strategies for dealing with Fear of Falling across occupational groups and all healthcare settings should be implemented. Nurses have a key role in this process.

Keywords: fear of falling, femoral fractures, older people, nursing, qualitative research

Entstehung von Sturzangst nach proximaler Femurfraktur: Eine qualitative Studie

Zusammenfassung: *Hintergrund:* Eine proximale Femurfraktur ist bei älteren Menschen verbreitet. Neben dem längeren Genesungsprozess und erheblichen, dauerhaften funktionalen Einschränkungen erleben die Betroffenen oft Angst vor Stürzen (Fear of Falling). Das Phänomen Sturzangst ist nicht gänzlich verstanden; qualitative Forschung ist unterrepräsentiert, vermag jedoch Einblicke in die Erfahrung und das Erleben Betroffener zu geben. *Ziel:* Die Exploration der Erfahrung der Entstehung von Sturzangst und des Einflusses von Sturzangst auf den Alltag der Betroffenen nach einer proximalen Femurfraktur ist das Ziel dieser Arbeit. *Methoden:* Mit neun älteren Menschen (61 bis 88 Jahre) aus der prospektiven Beobachtungsstudie ProFem wurden halbstrukturierte Tiefeninterviews geführt. Die Interviews wurden mittels induktiver Inhaltsanalyse bearbeitet. *Ergebnisse:* Das Erleben der Betroffenen kann mit sechs Hauptthemen beschrieben werden: Die Entwicklung von Sturzangst; die Wirkung von FoF und die Hoffnung auf Besserung; der Wechsel zwischen Momenten der Angst und der Sicherheit; Angst vor Hilflosigkeit und dem Verlust von Unabhängigkeit; Strategien im Umgang mit Sturzangst und zum Erhalt der Unabhängigkeit; Bedarf an Unterstützung durch Angehörige der Gesundheitsberufe. *Schlussfolgerung:* Ältere Menschen mit Sturzangst nach einer proximalen Femurfraktur sollten gezielt identifiziert und bei der Bewältigung von Sturzangst unterstützt werden. Zum Umgang mit Sturzangst werden verbindliche professions- und sektorenübergreifende Strategien benötigt. Pflegefachpersonen kommt dabei eine Schlüsselrolle zu.

Schlüsselwörter: Sturzangst, Femurfraktur, ältere Menschen, Pflege, qualitative Forschung

Introduction

Proximal femoral fractures (PFF) are one of the most common fractures in people aged 65 years and older (Court-Brown et al., 2014). The recovery process after PFF is often difficult. A hip fracture is described by those affected as an incisive incident that influences their daily life even months later (Gesar et al., 2017). According to Bertram et al. one third of people with a hip fracture do not regain the performance level of activities of daily living as before

the hip fracture (Bertram et al., 2011). Over the course of twelve months after a hip fracture, FoF remains an existing concern for most older people (Abrahamsen et al., 2022).

Fear of Falling (FoF) is a multidimensional phenomenon including psychological, behavioural and cognitive components (Hadjistavropoulos et al., 2011). In the past the concept of FoF was used interchangeable with concepts like *fall-related self-efficacy* and *balance confidence* (Denkinger et al., 2015). Different definitions and ways to measure the concepts have been used (Adamczewska & Nyman,

What is already known on this topic

Older people often experience fear of falling after being discharged from hospital following hip fracture.

What this study adds

An intervention strategy across healthcare sectors is needed to identify people after hip fracture with fear of falling and support them in dealing with it.

2018). It has been suggested that FoF must be distinguished from the concept of fall-related self-efficacy including balance confidence (Hadjistavropoulos et al., 2011).

A recent review shows that 23% to 100% of older people show FoF after hip fracture with a visible decrease over time from one week to 52 weeks (Gadhvi et al., 2023). Besides the possible protective and adaptive effects (Adamczewska & Nyman, 2018; Ellmers et al., 2022; Hadjistavropoulos et al., 2011) FoF can have a negative impact on quality of life and the activities the affected people have to accomplish, like going outdoors (Jellesmark et al., 2012). FoF is one of the most significant threats to the autonomy of older people (Denkinger et al., 2015) and seems to be related to fall-related post-traumatic stress symptoms in community-dwelling older people recovering from a hip or pelvis fracture (Eckert et al., 2020). Due to the far-reaching negative effects of FoF on the lives of those affected, prevention and intervention should be an important part of treatment and rehabilitation, especially for people after a serious fall that results in an injury such as a PFF. In the recovery process after a PFF, the role of healthcare professionals in identifying FoF and the corresponding interventions are of importance. Nurses might play a major role, since they accompany the trajectory from acute hospitalisation through rehabilitation and back to the home environment.

Interventions addressing FoF differ in their focus. Some aim to improve physical performance, while others focus on cognitive-behavioural elements, and some combine these aspects in one intervention (Kendrick et al., 2014; Liu et al., 2018; Whipple et al., 2018). It has been suggested that interventions with holistic exercise like Tai Chi, Yoga, Ving Tsun or Pilates, supervision by a Tai Chi instructor, or providing the intervention in a community setting were significantly more effective than other interventions (Kruisbrink et al., 2021). A combination of psychotherapeutic elements and physical exercise is likely to effectively reduce FoF (Whipple et al., 2018). The effectiveness studies, however, have revealed conflicting results (Gadhvi et al., 2023; Kruisbrink et al., 2021). Exercise-based interventions show no positive effect on FOF after a hip fracture, whether combined with psychological components or not (Gadhvi et al., 2023).

Aim and research question

Looking at the different conceptualisations, definitions and types of interventions, it becomes clear that there is still a

need for a deeper insight into the multifactorial phenomenon of FoF from the perspective of people concerned. Therefore, it appears to be important to include the insights of older people in the development and adaptation of interventions after a PFF. To date, only few qualitative studies have focussed on the perspective of people suffering from FoF (Baltes et al., 2023; Dolan & Pool, 2023; Ellmers et al., 2022; Lee & Tak, 2023). We aimed to get a deeper insight into the phenomenon of FoF after PFF and into the way FoF affects everyday life of those affected and leads to negative outcomes, such as reduced autonomy. Therefore, our research question was: How do those affected describe the experience of developing a FoF after a PFF and what influence does FoF have on their everyday life?

Methods**Design**

We conducted a qualitative study embedded in a population-based prospective observational study based on statutory health insurance data and questionnaire data of people with PFF who were insured with the AOK Rheinland/Hamburg (Andrich et al., 2019) (Healthcare provision, functional ability and quality of life after proximal femoral fracture – ProFem; German Clinical Trials Register DRKS00012554). To learn more about FoF in the context of our research question we used the approach of descriptive phenomenology to focus on the experience of those affected. Reporting followed the COREQ statement criteria (Tong et al., 2007).

Participants

The inclusion criteria of the ProFem study and consequently for our embedded interview study were: aged 60 years or older, PFF in 01/2018 to 09/2019, continuously insured over the last 12 months before the PFF with the statutory health insurance AOK Rheinland/Hamburg, resident in North Rhine-Westphalia. Details about the ProFem study are published elsewhere (Andrich et al., 2019). ProFem participants assessed as having FoF three months after hospital discharge (“sometimes”, “often”, “very often”) were considered eligible for the interview study, if they could follow the interview process and verbalise their experiences in the German language.

Procedure

FoF was assessed three months after hospital discharge as part of patient-reported outcomes (PROs) (Andrich et al., 2019). FoF covered two items asking for the intensity of FoF and the avoidance of activities and their frequency (see Electronic Supplementary Material ESM1). FoF was

strongly present among the participants of the ProFem survey three months after discharge from hospital following the PFF; 77.5% of respondents stated that they were “sometimes”, “often” or even “very often” afraid of falling; 84.2% of those who reported FoF avoided activities because of FoF.

The sampling was consecutive: During the recruitment period between 15/04 and 24/09/2019, 84 participants without proxies were interviewed in the ProFem study who reported having FoF. Participants for the embedded interview study were selected by study nurses according to predefined inclusion criteria. Those participants, who had been highly interested and motivated during the ProFem-Survey, were asked whether they would be willing to submit to an additional interview. The broadest possible diversity in terms of age and gender was considered in the selection process. An interim analysis after nine interviews showed that the argumentation was saturated, and the recruitment was stopped.

Interviews were conducted by the first author, who holds a master's degree in communication science and has experience in conducting semi-structured, in-depth interviews. Since the first author is a nurse, she brought professional experience in working with people at risk of falling and people with FoF to the interviews. This helped to create an atmosphere of trust and gave the participants the necessary space to talk. The research team discussed and reflected on possible preconceptions arising before the interviews were conducted and analysed. The interviewer did not know the participants before the interviews. Only the appointment was made in advance by telephone. The interviews were conducted at the participants' homes and were tape-recorded. The interviewer took notes during and after the interviews regarding important incidents, thoughts and the interview procedure to reflect on these in the follow-up.

An interview guide for semi-structured, in-depth interviews (ESM2), based on Kallio et al. (2016) was developed. It contained additional open-ended questions to prompt respondents to get the main reason – from their perspective – for developing FoF. The retrieval and utilisation of previous knowledge was ensured by parallelly preparing a systematic review and qualitative meta-summary using Sandelowski and Barroso's approach (Baltes et al., 2023). The interview guide was discussed and collaboratively developed by the research team. A pre-test was carried out. No significant adjustments were indicated. The interviews lasted between 14 and 63 minutes and were on average 33 minutes long.

Data Analysis

Interviews were transcribed verbatim. To analyse the qualitative data, inductive content analysis as a qualitative descriptive methodology was used, following Elo and Kyngäs (2008) (MB). The content analysis was chosen because it is well suited to explore the multifaceted and patient-experi-

Table 1. Description of the participants of the qualitative study

Characteristics	N = 9
Age, years, range (mean)	61 – 88 (73.1)
Sex (female/male)	6/3
Living situation	
Alone	6
With partner	3
Community-dwelling	9
Mobility	
No restriction in the home	3
Mobile at home with assistive devices	5
Mobile at home with wheelchair	1
Manifestation of Fear of Falling	
Often	5
Very often	4
Avoidance of activities	
Sometimes	1
Often	2
Very often	6
Activities most often avoided ¹	
Walking (inside and/or outside)	7
Climbing stairs	2
Riding a bike	2
Washing/bathing	2
Household	2
Going up on something	2
Walking on uneven surfaces	1
Standing (up)	1
Sport exercises	1
Dressing	1
Leisure activities	1
History of falls before the fall leading to hip fracture	
No	4
Yes	5
If yes: frequency	
Once	2
Twice	1
More than twice	2
History of falls after hip fracture	
No	6
Yes	3
If yes: frequency	
Once	2
Twice	1
More than twice	0
Barthel-Index score ² (mean)	30 – 100 (77.2)

Notes: ¹ Multiple answers are possible. ² Score Range: 0 – 100.

enced phenomenon of FoF. The data were organized by open coding, creating categories and abstraction. Units of meaning were used as coding units, which, depending on the content, represented individual sentences, but mostly sections of statements. Headings were added and categories were freely generated. The categories were then grouped in order to reduce their number by combining similar or overlapping categories in a logical order. Main- and sub-categories were formed. The abstraction process was continued until a further merging of categories was no longer reasonable. A second researcher (AS) tested the developed codes, categories and subcategories for plausibility, and the results of the data analysis were discussed. In cases of disagreement or alternative interpretations, categories were adjusted following a joint discussion. The analysis was supported by the use of MAXQDA (VERBI Software, 2018).

Results

Population

Nine people (6 females/3 males) participated in the interview study. The mean age was 73.1 years. Only one potential participant of those contacted declined to participate due to health reasons. The descriptive characteristics of the participants are displayed in Table 1.

Qualitative Analysis

Six main themes emerged from the analysis (see Table 2 and Figure 1). These are described in the following paragraphs.

Table 2. Identified main themes and sub-themes

I	The development of Fear of Falling (FoF) <i>Proximal femoral fracture (PFF) as an incision</i> <i>FoF emerged with the PFF</i>
II	The effect of FoF and hope for recovery
III	Alternating between moments of fear and security <i>Rehabilitation as a safe space</i>
IV	Fear of helplessness and of losing independence
V	Strategies for dealing with FoF and maintaining independence <i>Communication about FoF: Communication with people close to them could offer people with FoF support in dealing with their fear. However, the communication could not completely take away their feeling of fear. And some participants do not talk about their FoF at all.</i> <i>Help from others: Support from others helps the participants to avoid situations where they would be afraid to fall and reduces FoF when those affected have to subject themselves to a frightening situation, which can be done when they are in company.</i> <i>Use of assistive devices: Walking aids and other objects are used to reduce FoF especially when leaving the house. These aids are seen as a necessity that cannot completely take away the fear.</i> <i>Environmental adaptation: Adaptations of the home environment are used as measures that help to feel safer. For example, rugs are removed, or handrails are installed.</i> <i>Taking care: "Taking care" is something participants do out of self-interest to feel safer. They also are often advised to "take care" by healthcare professionals or relatives.</i> <i>Change or avoidance of activities: After the PFF and the development of FoF the everyday life of the participants changed. The avoidance of certain activities because of FoF was mentioned by all participants. For example, making detours in order to take paths that seem safer.</i>
VI	Need of support by health care professionals

The development of FoF

PFF as an incision

For most of the participants, the fall that led to PFF came unexpectedly. "I don't know what happened. ... Any rate, I went flying" (ID02). The fall and the associated injury are experienced as a loss of control. The situation after the fall was characterised by severe pain and helplessness. "And then I was lying here for hours. Until someone found me and got help" (ID02). Even three months after discharge from hospital and rehabilitation, the participants reported that the consequences of PFF were still present in the form of pain, restrictions in well-being and mobility. "And I'm still not fit and still have pain, don't I. And an awful fear of falling on my face, falling down again" (ID01). This results in an increased need for assistance in daily life.

Fear emerged with the PFF

Almost all respondents admit that the PFF was the cause for FoF. The fear to fall again is seen as a natural consequence of the events. "But after I'd broken my thigh, well, the fear was there, of course" (ID08). Other participants report that they had already been affected by FoF before, but FoF increased significantly after the event. The drastic impact of the PFF is recognisable in all participants and the fear of a similar event occurring becomes clear.

The effects of FoF and hope for recovery

All the participants mentioned their motivation to manage or even overcome FoF. The measures to attain freedom from FoF were, however, less clear. FoF is characterised as something that is "in your head" (ID09) and cannot be described or controlled. Some participants hope for

improvement over time or by physical training. Some assume that FoF will remain a permanent condition. “This is certainly going to follow me for my whole life. Till the end” (ID02). It hinders carrying out activities of everyday living that they need to do. “It doesn’t work in my head. It won’t work in my head. It can’t work in my head” (ID01). FoF negatively affects everyday life. “It is not very nice, I’d say. If you have to keep on thinking: ‘Now watch where you’re going’” (ID06). FoF hinders participants from achieving set goals or wishes. “In my head, in my head I

can walk and in my head I can do everything. But I can’t put it into action” (ID04).

Alternating between moments of fear and security

FoF does not seem to be permanently present. When it starts suddenly, participants express feelings of having lost control and of being helpless. “There’s just a switch that says: ‘In a minute you’ll go flying again’” (ID01). The situations when FoF arises are clearly described by the participants: situations outside their own home, i.e. like walking on uneven pavements, crossing roads, or meeting a lot of people at one place. However, some participants report having moments of fear at home, particularly when the PFF has happened there. “Well, I always felt safe down here ..., but not anymore” (ID02). The participants, for example, described situations such as taking a bath, or when climbing stairs.

The participants named things that offer them the feeling of security. It became clear that it is often the familiar that implies the feeling of safety. Thus, the familiar and home environment is often the place where the participants felt secure. “At home I don’t really have that. ... There I know the steps I [have to] make” (ID09). Aids, which people had practised using, were able to give them a sense of security. In addition, the presence and company of familiar people was an important factor.

Rehabilitation as a safe space

For some of the participants the onset of FoF only occurred after inpatient rehabilitation; for some the FoF got worse afterwards. Some of the participants reported that there were no obstacles or danger points inside the rehabilitation facilities. The rehabilitation measures were perceived as providing occupation and, in many cases, making progress visible. Likewise, comparison with other affected people gave self-confidence. “No, I haven’t noticed that [FoF] at all. Well, I walked about, um, normally ... as if nothing had happened” (ID05). For some participants, FoF only occurred when going outside during rehabilitation. But participants reported that they rarely went outside during rehabilitation. “During the rehab I went out once. But I did have a lot of fear” (ID08). It was reported that the insecurity and fear appeared in the confrontation with everyday life and the associated environment after the rehabilitation. “But as I got out of the car [after rehabilitation], I immediately looked at the ground: ‘Where are you putting your feet?’ There it was. Indeed. It was stronger, like in rehab. Because in rehab everything was flat” (ID08).

Fear of helplessness and of losing independence

The two aspects that occupy the participants most after a PFF are *helplessness* and *independence* (see Figure 1).

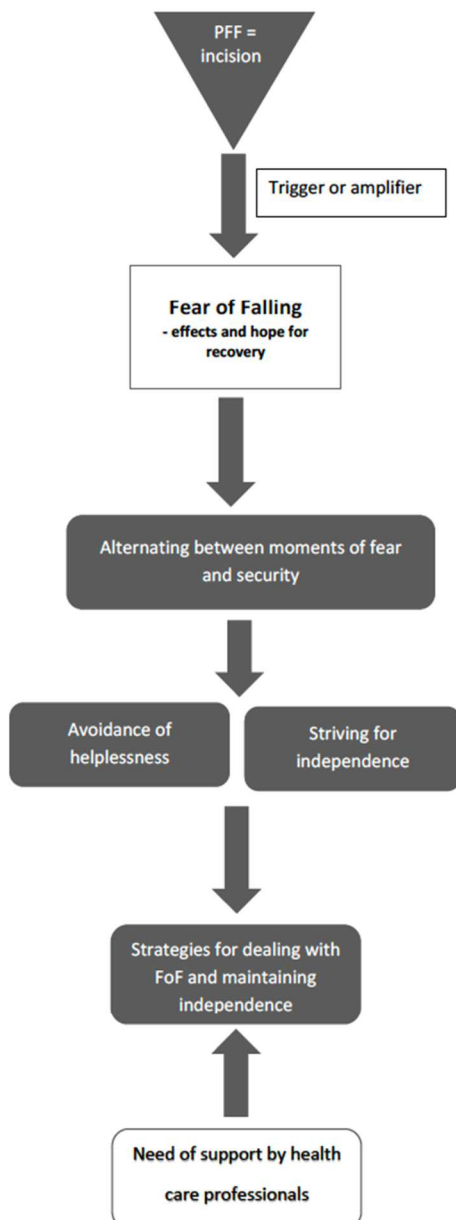


Figure 1. Development and impact of Fear of Falling after proximal femoral fracture (PFF).

After the experience of a fall-related PFF, participants are worried about the helplessness that may accompany a fall event and injury. One fear they mention is not being able to get up on their own and not getting the help they need. Besides the fear of breaking the hip again, participants mentioned being afraid of other serious physical injuries or of death related to a fall. In this context, they express the fear of losing independence in terms of mobility, activities of daily living and living at home. "If I were to fall again, I'd be afraid that I will sit in a wheelchair for the rest of my life. ... Or will be so injured that I'd be bedridden" (ID05). Participants mentioned the wish to avoid rehospitalisation and admission to a nursing home. Often participants were afraid of the uncertainty that a fall would create. "It's, it's like a carousel. It turns round and round. If I fall, I don't know what will happen to me" (ID04).

Strategies for dealing with FoF and maintaining independence

Different strategies were mentioned about how to deal with FoF. In general, the participants were motivated to cope with FoF. "I try to fight against it. ... I always try to go forwards. No matter where or how. Don't I? At some time or other the fear then disappears" (ID09).

The participants used different strategies: communication about FoF, help from others, use of assistive devices, environmental adaptation, taking care, change or avoidance of activities.

Details can be found in ESM3 and Table 2.

Need of support by health care professionals

Participants clearly express their wish to receive support from healthcare professionals as advice and assistance. "Why can't the nurses, carers, doctors ... be shown how things should work here?" (ID01). Participants report that FoF was hardly or not at all discussed by physicians, physiotherapists or the staff of rehabilitation facilities and homecare nurses. They also reported that they do not mention their FoF towards healthcare professionals. Some stated that they feel that communication with healthcare professionals about this topic is not very helpful. "Nobody really takes that seriously. If you say you have fear of falling" (ID09).

Discussion

The recovery process after a PFF was described as difficult and not completed three months after discharge from hospital. We found that, in most cases, PFF had been a trigger for FoF or else was an amplifier for an existing FoF, whereby FoF occurred in some cases only after inpatient rehabi-

litation. The participants lacked clear strategies on how to deal with their FoF. In some cases, they felt that FoF is difficult or impossible to influence and they worried that they would be affected for the rest of their lives. The main concern of the participants was to avoid helplessness and they therefore strived for independence. To prevent having to depend on care, they developed various prevention strategies, which they used individually or in combination.

The results of this study underline the findings of previous qualitative research on FoF (Baltes et al., 2023; Dolan & Pool, 2023; Ellmers et al., 2022; Lee & Tak, 2023) and complement them with the perspective of those affected after PFF. The study also provides a deeper insight into the experience of those affected in addition to quantitative research on the multidimensional phenomenon of FoF after a PFF (Eckert et al., 2020).

Previous research has shown that identification of and intervention against FoF in the healthcare system are of great importance for those affected (Lenouvel et al., 2022). Our research showed that the respondents feel that their FoF is not taken seriously, and they hardly know of any targeted interventions in this context. They would like support from trained nurses and other healthcare professionals in dealing with FoF. Our findings illustrate that it is important to realise that FoF must be seen in an inter-professional context. Nurses, physicians and physiotherapists in the various settings of acute hospitals, rehabilitation facilities and outpatient medical support and care were mentioned as potential persons to help those suffering from FoF. However, it is interesting that, from the perspective of those affected, healthcare professionals do not actively address FoF, although there is a bulk of research about FoF after PFF. It remains unclear to what extent this is due to a lack of knowledge regarding FoF among healthcare professionals (Albasha et al., 2023). Further research should address this issue. A strategy for dealing with FoF in older people (after PFF) across professional groups and settings seems desirable. Nurses play a major role in the recovery process after a PFF. Nursing is the profession that provides patients with support during hospitalisation, rehabilitation and often in outpatient or inpatient long-term care. Therefore, we suggest FoF assessment and planning of FoF interventions should be an integral part of nursing care after PFF to reduce FoF and its impact on everyday life for those affected.

Our research showed that post-PFF rehabilitation programmes were sometimes evaluated positively and in these cases the participants had no or hardly any FoF while they were in rehabilitation. However, it becomes obvious that the conditions found there do not adequately prepare some people with PFF for the everyday environment and its challenges in terms of FoF.

Moreover, the findings of our study are confirmed by earlier research regarding striving for independence in older people with FoF as well as in older people after a PFF (Ward-Griffin et al., 2004). We were also able to confirm that a further loss of independence is feared in the case of future falls (Lee et al., 2008; Tischler & Hobson, 2005).

Our results show that striving for independence is a motivation to develop strategies for dealing with FoF, such as accepting help from others or using various aids that preserve or also restore independence in the participants. As described before, older people with FoF use these strategies to cope with their FoF (Huang, 2005). This seems to be particularly relevant after a fall-related injury such as a PFF. Increased independence leads to a better quality of life and should be encouraged as an important outcome after PFF (Abrahamsen et al., 2022). Therefore, supporting those affected in the development and realisation of such strategies is a matter of importance.

In addition to the negative effects of FoF on those affected, it has been suggested that FoF might have adaptive and protective effects (Ellmers et al., 2022; Hadjistavropoulos et al., 2011). A PFF leads to functional limitations in many patients three months after discharge from hospital and beyond (Bertram et al., 2011). This is also indicated by our study. The functional limitations resulting from PFF might imply that certain activities, such as climbing stairs, cannot be performed without increased risk of falling. If these activities are avoided due to FoF, a protective effect can be attributed to FoF. Patients should therefore be provided with guidance on safe mobility by nurses and other healthcare professionals. For future research, it would be helpful to explore in more detail the relationship between the actual functional performance and the perception of FoF by those affected. A mixed methods approach seems to be indicated.

Interventions in inpatient rehabilitation, which were later carried on and clearly focused on FoF, have been proven to have a positive impact on FoF (Pfeiffer et al., 2020). However, there is a lack of effective interventions for patients with FoF after PFF. Our results as well as those of earlier studies (Ellmers et al., 2022; Ward-Griffin et al., 2004) show that *taking care* is one of the strategies used by older people to manage their FoF. An approach that supports protective behaviour through concern, but prevents panic triggered by FoF, should be taken into consideration (Ellmers et al., 2022). Another intervention approach could be graded exposure therapy (Gadhvi et al., 2023). No study has considered this method so far, but it has demonstrated positive effects in other anxiety disorders. As other research suggests, the identification and intervention of FoF following PFF should be understood in the context of fall-related post-traumatic stress syndrome (Adamczewska & Nyman, 2018; Eckert et al., 2020). Based on the results available to date on FoF following a PFF, effective intervention programmes involving nurses should be further researched and advanced.

It would be interesting to identify those affected with FoF in the post-PFF phase. A one-item question would be suitable for this purpose (Eckert et al., 2020). However, it is essential to determine at which points in the process after a PFF and by which group of healthcare professionals the assessment of FoF should be conducted. Nurses are predestined, since they are in charge of rehabilitation and preservation of the activities of daily life throughout

the trajectory of PFF treatment, i.e. in acute hospitals, in rehabilitation, in outpatient care or in long-term care.

Limitations

Our study has some limitations. Those affected by FoF were only considered for an interview if they appeared able to follow the interview, express themselves in German and did not seem to be burdened by participating in this additional study. The results might therefore not be generalizable to all ProFem participants. We did not return the interview transcripts and analysis to the participants for validation purposes, which might limit the validity of the analysis.

Conclusion

The results of our study highlight that the recovery process after PFF takes a long time and for many affected older people the influence of FoF significantly affects their everyday life. The participants in our study verbalised their need for support in dealing with FoF by competent healthcare professionals. However, this support is not provided in a way that is satisfactory and/or comprehensible for those affected. Nurses who accompany the trajectory after PFF from acute hospitalisation through rehabilitation to the home environment should therefore adopt a core role in supporting those affected by FoF.

The multifactorial phenomenon of FoF is still not fully understood. Future research needs to examine how people with PFF can be addressed and more appropriately supported in their management of FoF. In particular, it is important to learn how inpatient rehabilitation can prepare older people affected by FoF for the challenges of everyday life. Also, more focus needs to be given to older people living in long-term care facilities. Based on our findings, there is a need to implement an intervention strategy across sectors in the healthcare system, to identify older people with FoF and to provide them with specific support in developing strategies to deal with their FoF. Healthcare professionals from all professions need to be sensitised and skilled for this.

Electronic Supplementary Materials

The electronic supplementary material is available with the online version of the article at <https://doi.org/10.1024/1012-5302/a000999>.

ESM1. Two items from the ProFem study relating to FoF and the avoidance of activities and their frequency.

ESM2. Interview guide for the semi-structured, in-depth interviews.

ESM3. Additional description of the strategies developed by those affected to deal with FoF.

References

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Publication ethics and consent to participate

The study was approved by the ethics committee of the Faculty of Medicine, Heinrich-Heine-University Düsseldorf (approval reference 6128R). All methods were performed in accordance with the relevant guidelines and regulations, and adhered to the Declaration of Helsinki. Participants gave written informed consent.

Authorship

Substantial contribution to the concept and the design of the work: MB, AS, SA, GM
Substantial contribution to the data collection, analysis, and interpretation of the data: MB, AS
Drafting the manuscript: MB
Final approval of the manuscript version to be published: MB, AS, SA, GM
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Supplement 1 - Development of Fear of Falling After Proximal Femoral Fracture: A Qualitative Study

FoF covered two items asking for the intensity of FoF and the avoidance of activities and their frequency:

1. "Are you afraid of falling?" and 2. "Do you avoid certain activities because of fear of falling?"

The rating scale covered a range from "never", "almost never", "sometimes", "often" to "very often".

Participants were asked to mention the activities they most often avoid due to FoF, if they had indicated this.

The number of falls before and after the PFF were asked.

Supplement 2 - Development of Fear of Falling After Proximal Femoral Fracture: A Qualitative Study

Interview Guide for semi-structured in-depth interviews

No.	Question	Follow-up questions	Aim of the question
1.	Please describe how it happened that you are afraid of falling.	Think about when your fear of falling started. Can you remember a specific moment when the fear of falling began?	Conversation starter Encourage free narrative Identify: Timing of the development of FoF Causes of FoF If applicable, acute trigger (e.g. fall)
2.	Were you already afraid of falling before your hip fracture?	If yes: Have you noticed any change in your fear of falling after the hip fracture? Can you describe it?	Establish concrete reference to PFF/identify influence If applicable, map existing changes of FoF after PFF
3.	Can you identify and describe a trigger for your fear of falling?	Can you describe what exactly makes you feel insecure?	Stimulate reflection on a very specific trigger (what?) Identify: Mechanism of insecurity (How?)
4.	What exactly do you worry about if you fall?	What do you want to avoid?	Identify:

			What exactly is the person afraid of (e.g. of falling themselves, of not being able to get up again, of the possible short- or long-term physical consequences, such as dependency on care, of a new hip fracture, of the shame that can result from a fall).
5.	Is your fear of falling always equally intense?	Have there been situations in which your fear was very strong? Please describe them. Were there situations when your fear decreased? Please describe them.	Identify: Causes of FoF/ setting by asking for low and high levels of fear.
6.	Have you ever been spoken to by someone about the risk of falling?	Can you describe the situation? Did you have a talk about how to avoid a fall? Did this conversation change anything? Were there further conversations about this with the same or other people?	Identify: Influence of other persons on FoF (trigger/reinforcement?), through indications of the possibility of a fall. Was the avoidance of activities or other interventions recommended and thus the assessment of risk situations changed?
7.	How does your family deal with the fear of falling? Can you describe this?	Do you talk to these people about your fear of falling? If yes: Do you notice a change when you have talked about the fear of falling?	Identify: Influence of others on FoF
8.	If there is a care provider/physiotherapist: How does he or she deal with the fear of falling? Can you describe this?	Do you talk to the nurses/therapists about your fear of falling? If yes: Do you notice a change when you have talked about the fear of falling?	Identify: Influence of others on FoF
9.	Is there anything that helps you to handle the fear of falling?	In which situations do you feel particularly secure from falling? What do you do to feel more secure?	Identify: Factors that contribute to the perception of safeness (external and self-influenced factors)
10.	Did you learn anything in rehabilitation that helps you deal with the fear of falling?	Do you practice something that you learned in rehabilitation?	Identify: Individually effective strategies learned during rehabilitation
11.	Is there anything you would like to add?	Maybe something else that is important to you concerning the topic or something else that you noticed?	Include aspects of the development of FoF that have not been considered. Promote openness in research

Supplement 3 - Development of Fear of Falling After Proximal Femoral Fracture: A Qualitative Study

Strategies for dealing with FoF and maintaining independence

Communication about FoF	In most cases, participants reported that only people close to them, such as family members, were informed about their fear. "Oh God. I don't go around saying: 'I'm scared'." (ID04). Communication with people close to them could offer the participants support in dealing with FoF. However, the communication could not completely take away their feeling of fear. "No, no one can take the fear away. It stays forever." (ID02). Some participants do not talk to anyone about their respective fears. "That's my business. [...] I have of course thought about it, but I wouldn't say that." (ID03). Participants report that FoF was hardly or not discussed by healthcare professionals. This concerns the physicians, physiotherapists as well as the staff of rehabilitation facilities and homecare nurses. Participants also reported that they do not mention their FoF towards healthcare professionals. Some stated that they feel that communication with healthcare professionals about this topic is not very helpful. "Nobody really takes that seriously. If you say, you have fear of falling." (ID09).
Help from others	The participants describe that they accept help from other people to cope with certain situations in everyday life, like help in the household, provision of foot care or personal hygiene. More often, help from other people was used when going outside and thus into the area where the participants felt most afraid of falling. "Because it's panic attacks that come. Mm. And that's why I don't like going up or down stairs on my own any more. Uh, I can't do it. Someone always goes with me because we practice it." (ID02). Helpers are most often close relatives, i.e. the partner, children or siblings. On the one hand, the support from others helps the participants to avoid situations where they would be afraid to fall. On the other hand, help from others reduces FoF when those affected have to subject themselves to a frightening situation, which can be done when they are in company.
Use of assistive devices	Most people interviewed still use walking aids three months after the PFF, especially when they leave the house. The use of wheeled walkers or even crutches partly give them a feeling of security so that they are able to cope with tasks. "I've got a rollator that I place next to the bed and when I have to get up

	in the night, then I get up, hold it tight and walk with the rollator, uh, to the toilet [...] because of angst, don't I?" (ID03). Other objects such as washbasins, handrails or shower chairs are also used to gain a sense of security. "I always have to have something to hold on to." (ID07). However, these aids are seen as a necessity that cannot completely take away the fear. "That you've always got something to hold on to when you stand up. Or something. What? But you are still afraid." (ID02). Some state that it was or is important for them to become independent of walking aids as soon as possible in order to regain self-confidence. "Well, I got rid of it as quickly as possible because it made me more afraid." (ID08).
Environmental adaptation	Adaptations of the home environment are mentioned by some of the participants as measures that help them to feel safer. The participants report for example that rugs are removed, or handrails are installed. The changes partly enable the performance of everyday activities, e.g. walking to the toilet or to the waste bin. Other participants did not change the home environment. Some do not see any potential hazards for a fall in their environment. Others are aware of environmental hazards, but still do not want to change anything or are unable to do so. "And I know about the risk of falling and here in the house there are enough risks. There are carpets around, we've got a dog and a grandchild, I've got the wrong shoes on." (ID08).
Taking care	Participants mention that they are often advised to "take care". The advice can come from healthcare professionals or relatives. "The orthopaedic. Yes, well, he just said I ought to be careful. (ID07). But "taking care" is also something they do out of self-interest to feel safer. "No, one is still awfully careful. One thinks, 'Watch out! It could happen!'" (ID03). Taking care is sometimes perceived as burdensome. "It's not very nice, I say. If you have to keep thinking: 'Now, take care where you step.' Yes? And? I am really careful when I go out. Aren't I? Yes." (ID06).
Change or avoidance of activities	After the PFF and the development of FoF the everyday life of the participants changed. These changes were caused not only by FoF, but also by the physical limitations imposed by the PFF and its consequences. The avoidance of certain activities because of FoF was mentioned by all participants. For example, making detours in order to take paths that seem safer. "Yes, yes, normally I carry on and go a different way. It doesn't matter [...], well, I'm really very careful now." (ID03). Public transport is avoided, going to certain places like the garden or even going outside at all is no longer possible for some participants because of the fear. "I don't go out. Up to the

	stairs. But not one step (more). [...] No. Then I look at the three steps and then I go back." (ID01). Cycling is also mentioned as an activity that is no longer performed due to FoF. One participant concludes: "Everything is no longer a matter of course." (ID09). Another participant states that behavioural changes, which were initially necessary due to the PFF, are maintained out of fear. "You can get used to everything. [...] Even if it is not necessary any more, you carry on anyway. [...] That's what I tell myself, too, but up to now, I have no confidence." (ID03).
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Erklärung über frühere Promotionsversuche und Selbständigkeitserklärung

- (1) Ich erkläre, dass ich mich an keiner anderen Hochschule einem Promotionsverfahren unterzogen bzw. eine Promotion begonnen habe.
- (2) Ich erkläre, die Angaben wahrheitsgemäß gemacht und die wissenschaftliche Arbeit an keiner anderen wissenschaftlichen Einrichtung zur Erlangung eines akademischen Grades eingereicht zu haben.
- (3) Ich erkläre an Eides statt, dass ich die Arbeit selbstständig und ohne fremde Hilfe verfasst habe. Alle Regeln der guten wissenschaftlichen Praxis wurden eingehalten; es wurden keine anderen als die von mir angegebenen Quellen und Hilfsmittel benutzt und die den benutzten Werken wörtlich oder inhaltlich entnommenen Stellen als solche kenntlich gemacht.

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