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Review Paper

Psychological distress in frequent users of primary health care and emergency departments: a scoping review



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ABSTRACT

Introduction: Frequent users of healthcare services are a small proportion of patients with disproportionately high healthcare usage. A wide array of factors, including psychological distress, leads to frequent use of healthcare services. There is no existing synthesis of research on frequent use and psychological distress in the general population. This scoping review aimed to compare psychological distress between frequent and non-frequent users and to examine the association between psychological distress and frequent use of healthcare services in primary care and emergency department (ED) services.

Methods: A scoping review was performed following the five steps defined by Arksey and O'Malley. A search strategy was developed with an information specialist in five databases (Medline, PsycINFO, CINAHL, SCOPUS, and PubMed) for articles in English published between 1963 and October 2018. To be included, studies had to be quantitative, have taken place in a primary care or ED setting, have documented frequent use, and have measured psychological distress in patients. Two team members independently gathered the data for each of the included studies. Results were collated, summarized, and reported using narrative synthesis. **Results:** Seven studies met the inclusion criteria. Psychological distress in primary care is generally higher in frequent users, and increased psychological distress scores are associated with frequent use. Both studies set in EDs reported noteworthy findings, stating that frequent users reported higher levels of psychological distress and that psychological distress was associated with frequent use.

Conclusion: Psychological distress is prevalent in frequent users and has a significant association with frequent use. As such, psychological distress should be evaluated by physicians to prevent or reduce frequent use and to identify candidates for interventions.

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Introduction

Frequent users of healthcare services are a small group of patients with disproportionately high medical utilization:¹ in Canada and the United States, more than 70% of healthcare costs are accounted for by only 10% of the population.^{2–4} Definitions of frequent users vary between studies and healthcare settings; cutoffs of eight or more visits to primary care^{5,6} or four or more visits to emergency departments (EDs)^{7–10} in one year's time are typical thresholds. Frequent users are a vulnerable population, more likely to have chronic conditions, psychiatric comorbidity, social problems, and emotional distress.¹¹ They also experience higher mortality rates¹ and generate higher healthcare costs.¹²

Previous studies have reported that common predictors for frequent use are chronic disorders and poor mental health,^{13–16} both of which increase patients' perceived needs for accessing health care.^{17,18} Psychological distress (PD) is broadly defined as a state in response to stressors marked by perceived discomfort and inability to cope.¹⁹ The aforementioned studies demonstrated that psychological distress is a prominent risk factor for frequent use of healthcare services as an independent condition when compared with the existing health conditions, a result of mental illness (i.e., depression and anxiety), a co-occurring symptom with pain, malaise due to chronic diseases, or a subsequent condition due to long-standing conditions.^{13,20} Studies have found that patients who are psychologically distressed are more likely to access EDs.^{20,21} In primary care as well, studies have concluded that higher level of psychological distress is associated with higher consultations.^{13,22} The prevalence of psychiatric illness in healthcare services, the high costs of healthcare utilization, and crowding in EDs highlight the need to explore the link between psychological distress and frequent use in these settings.²⁰ Despite studies demonstrating that psychological distress increased risk of frequent use of healthcare services, there is no review that synthesizes existing evidence on the phenomenon.

This review aims to compare psychological distress between frequent and non-frequent users and to examine the association between psychological distress and frequent use of healthcare services in primary care and ED services.

Methods

This study is a scoping review and followed Arksey and O'Malley's methodology²³ completed by Levac et al.²⁴ Scoping reviews are an iterative process aimed at identifying research on a given topic to fill gaps in literature and then identify important implications and implementations for practice and future research. Arksey and O'Malley²³ have defined the steps of a scoping review as 1) identifying the research question, 2) identifying relevant articles, 3) selecting relevant studies, 4) charting the data, and 5) summarizing the studies' findings. There is no published protocol for this scoping review.

1) Identifying the research question

After the literature search, the following question was specified: What is current knowledge about the comparison of

psychological distress between frequent and non-frequent users of primary care or ED services, and the association between psychological distress and frequent use in the adult population?

2) Identifying relevant studies

A search strategy was developed with an information specialist in five databases (Medline, PsycINFO, CINAHL, SCOPUS, and PubMed) for articles in English published between 1963 and October 2018. The following key terms were used: psychological distress, mental distress, emotional distress, frequent user*, frequent flyer*, frequent attender*, frequent presenter*, heavy user*, repeat use*, misuse, hyper-use, high use, inappropriate use, utilization, health services abuse, hospital, emergenc*, health service*, health care* service*, health care* facilit*, health care* system*, health system*, healthcare* service*, health-care* service*, health-care* facilit*, health-care* facilit*, healthcare* system*, health-care* system*. A total of 2810 articles were identified. After removal of duplicate articles, 1182 potential articles remained. The full electronic search strategy for PubMed can be found in the [Supplemental file 1](#).

3) Selecting studies (Fig. 1)

To be included in the scoping review, studies had to be quantitative, have taken place in a primary care or ED setting, have documented frequent use, and have measured psychological distress in patients. Given that psychological distress is broadly defined, studies using accepted psychological distress scales (for example, Kessler or Symptom Check List (SCL)-25) or using stress scales were both included.²⁵ Studies were excluded if there was no mention of primary care or ED frequent use; patients' psychological distress was not documented; the population was geriatric, exclusively pediatric, with specific diseases (e.g.: cancer, fibromyalgia), substance abusers, or overly specific (e.g.: homeless men, immigrant women living in Chicago); and finally, if they were literature reviews or study protocols. Studies that examined the association between psychological distress and general medical utilization (rather than frequent use) were not included.

The initial screening of articles' titles and abstracts to exclude articles that were clearly ineligible was conducted by first author (E.M.D.) and was predominantly guided by the exclusion criteria (for example, if the study population was stated to be a specific disease population in the title, the study was excluded). In cases of uncertainty, the full articles were retrieved and read by the second team member (C.H.). A hand-search for potentially relevant references was also carried out, identifying two articles for evaluation. Thirty-two articles remained and were retrieved for full-text screening by the two authors. A further 25 articles were excluded for the following reasons: frequent use was not a main component of the study (10 articles), psychological distress was not a primary variable (9), the population was geriatric (2) or overly specific (3), and finally, one of the articles used the same study set as another, more relevant article (which was included). Seven articles that met the inclusion criteria remained for data extraction.

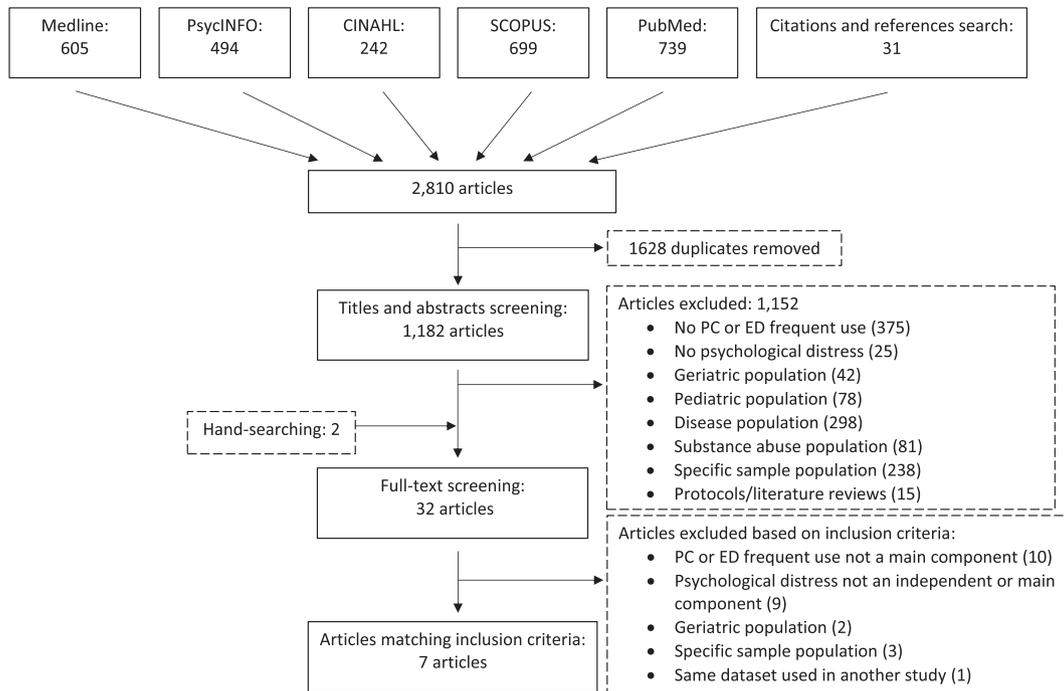


Fig. 1 – Flowchart summarizing the literature search and study selection. PC, primary care; ED, emergency department.

4) Charting the data

For each of the included studies, two team members independently gathered the following characteristics: first author, country of origin, design, healthcare setting, sample size, and inclusion criteria concerning age. The only socio-demographic characteristics documented in all seven studies were age and sex. The psychological distress measure used and the definition of frequent use were also noted.

5) Collating, summarizing, and reporting the results

To collate, summarize, and report the results according to narrative synthesis,²⁶ a table containing relevant information was created to facilitate comparison across studies.

Results

Description of studies

The characteristics of the seven selected studies are listed in [Table 1](#). Two were case-control studies, three were descriptive cross-sectional, one was a cross-sectional secondary analysis, and the last was a longitudinal cohort study. Five of the studies were set in primary care (two from Finland,^{27,28} one from Denmark,²⁹ one from Germany,³⁰ and one from Spain³¹), and two took place in the ED (both from the United States^{32,33}). The number of participants ranged from 168 to 2333. Four of the seven studies only included adult patients, and of those four, two also fixed a maximum age inclusion criterion: 65 and 80 years. Of the three including minors, two used a minimum age inclusion criterion (14 and 15 years), and one mentioned

that non-pregnant minors were excluded. Descriptive statistics of age were not uniform across studies; some presented age with mean and standard deviation, while others used percentage of different age classes. Mean or median ages varied from 35 to 54 years, and age ranges were as broad as all ages or as restricted to 18–64 years. The proportion of male participants, without differentiating between frequent users and controls, varied between 28% and 42%.

Definitions of frequent users differed between studies and between settings. Six of the seven definitions were in terms of usage over a one-year period; only one considered a 15-month study period.³¹ One primary care study used a cutoff of eight visits to primary care,²⁷ one defined frequent use as 11 or more visits to any physician,²⁸ and three used a threshold at the 90th percentile for primary care visits.^{29–31} For the studies considering 90th percentile as a cutoff for frequent users, this percentile represented six visits to general practitioner or more per 15 months in the sample,³¹ eight visits or more during 12 months in the sample,³⁰ and between five and nine visits or more depending on sex and age of the patient for the reference population.²⁹ One ED study defined frequent use as three or more visits,³² whereas the other³³ defined it as more than four visits.

Questionnaires used to measure psychological distress differed across studies; three used an abbreviated and validated version of the Symptom Checklist 90.^{27–29} The remaining four studies used the Social Readjustment Scale,³¹ 4-item Patient Health Questionnaire,³⁰ Medical Outcomes Study (Short Form),³³ and a 5-level stress scale³² to measure psychological distress.

Concerning statistical models, two of the four descriptive studies used logistic models to examine the association between psychological distress, while the other two compared

Table 1 – Summary of the studies' characteristics and outcomes.

Study First author	Sample						Participants			Summary
	Year	Country	Design	Setting	Size	Inclusion criteria for age	Sex (% men)	Psychological distress measure	Frequent use definition	
<i>Descriptive studies</i>										
Karlsson	1995	Finland	Descriptive cross-sectional	Primary care	FUs: 96 Controls: 466	Unspecified, observed range, 18–64	33	SCL-25 (distress = 1.55 or higher)	11 + visits to any physician/12 months	43.7% of frequent users vs 26.2% of controls had psychological distress, $P = 0.001$.
Sun	2003	United States	Cross-sectional secondary analysis	Emergency department	Total: 2333	All ages, excluding non-pregnant minors	42	Medical Outcomes Study Short Form (continuous)	4 + emergency visits/12 months	Higher scores of psychological distress was observed for frequent emergency department users (AOR = 1.081; 95% CI, 1.028–1.137)
Sandoval	2010	United States	Descriptive cross-sectional	Emergency department	FUs: 69 Controls: 99	18 years and older	41	Stress Management Scale (5-point Likert scale)	3 + emergency visits/12 months	Frequent users reported higher levels of stress than infrequent users (3.04 [SD: 1.68] vs 2.35 [SD: 1.55]).
Dinkel	2016	Germany	Descriptive cross-sectional	Primary care	Total: 2266	14 years and older	45	4-item Patient Health Questionnaire (continuous)	$\geq 90^{\text{th}}$ percentile primary care visits of sample/12 months	Frequent users of primary care presented higher scores in the psychological distress scale (AOR, 1.14; 95% CI, 1.07–1.22).
<i>Correlational studies</i>										
Báez	1998	Spain	Case-control study	Primary care	FUs: 102 Controls: 100	18–80	42	Social Readjustment Scale (medium-high stress = 200 or higher)	$\geq 90^{\text{th}}$ percentile primary care visits of sample/15 months *Controls visited once	Medium-high life stress was independently associated with frequent use, AOR = 4.5 95% CI, 1.7–12.8; $P = 0.0024$.
Jyväsjarvi	1999	Finland	Case-control study	Primary care	FUs: 113 Controls: 107	15 years and older	28	SCL-36 (continuous)	8 + primary care visits/12 months	Male frequent users had higher psychological distress scores (56.3 [13.6]) than male controls (44.5 [13.8]), $P < 0.001$. Not significant in multivariable model
Vedsted	2001	Denmark	Longitudinal cohort study	Primary care	Total: 185 sampled (180 analyzed)	18–65	29	SCL-8 (continuous and distress = 2 or higher)	$\geq 90^{\text{th}}$ percentile primary care visits of population considering age and sex/12 months	Being in the frequent user group can be predicted by continuous SCL-8 (OR = 1.17 95% CI, 1.04–1.33).

FU, frequent user; SCL, symptom check list; SD, standard deviation; AOR, adjusted odds ratio; OR, odds ratio; CI, confidence interval.

psychological distress levels between frequent users and non-frequent users. All correlational studies used logistic models. Of the five studies with logistic models, four considered confounding variables in the model and one used subgroup analysis, one confounding variable into account.

Outcomes in primary care

One of the descriptive cross-sectional studies found that 43.7% of frequent users of primary care versus 26.2% of infrequent users were psychologically distressed ($P = 0.001$)²⁸. Another descriptive cross-sectional primary care study used univariate and multivariable logistic regression and noted that frequent users had more chance of having higher score of psychological distress according to the 4-item Patient Health Questionnaire-4 (adjusted odds ratio [AOR] = 1.14 with 95% CI 1.07–1.22).³⁰

Different results were found in the two case-controlled studies concerning an association between psychological distress and frequent use of primary care.^{27,31} One of the two reported an association between the two variables in men, but not women; men who were frequent users had a higher mean SCL-36 score than men who were non-frequent users ($P < 0.001$)²⁷. However, in the multivariable logistic regression model, the association was no longer significant when psychosocial attitudes were also in the model. In the second case-control study,³¹ where 9.5% of patients considered frequent users accounted for 27.5% of patient-initiated visits, 19.6% of frequent users reported medium to high life stress compared with 8.0% in the control group. This association was statistically significant after adjusting for three confounding factors in multivariable logistic regression: chronic physical illness, mental disorder, and age.

The longitudinal cohort study found that 1-point increases in psychological distress scores (SCL-8) predicted frequent use of primary care (odds ratio [OR] = 1.17; 95% CI, 1.04–1.33).²⁹ No multivariable regression was used. Instead, the association was estimated in subgroup analysis by gender: men presented an OR = 1.09; 95% CI, 0.89–1.34 and women an OR = 1.22; 95% CI, 1.04–1.41. The association was not significant for men, but considering that 70.8% of the sample was women, this may be caused by a lack of power. Finally, in the longitudinal cohort study, the SCL-8 psychological distress scale was dichotomized (≥ 2 or < 2) to predict frequent use, but this association was not significant.

In short, psychological distress in primary care is generally significantly higher in frequent users, a significant correlate of frequent use, and over time, increased psychological distress scores raise patients' risk of becoming frequent users.

Outcomes in the ED

Both studies set in EDs were descriptive studies, and both reported significant findings. The first did not report descriptive statistics of their psychological distress scale by frequent users and non-frequent users; they presented a multivariable logistic regression model showing that higher psychological distress scores on the Medical Outcomes Study Short Form were more likely to be observed in the frequent user group (AOR = 1.081; 95% CI, 1.028–1.137).³³ Their model considered 17 other confounding factors. In the second study set in the

ED, a difference between frequent visitors and infrequent visitors was found on the 5-level Stress Management Scale, where a higher level indicates higher stress (3.04 [SD: 1.68] vs. 2.35 [SD: 1.55], $P = 0.007$)³².

Discussion

This scoping review identified seven relevant studies, six of which reported either higher psychological distress in frequent users,^{28,30,32,33} a significant association between psychological distress and frequent use,³¹ or that psychological distress is a predictor of frequent use.²⁹ As such, psychological distress is among many risk factors and correlates to frequent healthcare use, including chronic diseases^{9,34,35} and low socio-economic status.^{34,36,37}

The longitudinal cohort study found a significant discrepancy in psychological distress between frequent and infrequent users.²⁹ On the level of individual patients, the risk for becoming a frequent user increased significantly from year to year if their score on the SCL-8 increased by one point. Thus, the authors suggested that increased psychological distress scores are a causal predictor of frequent use of primary care. Six of the seven studies used cross-sectional data, and so it still remains to be seen if psychological distress is in fact a persistent predictor or correlate of frequent use of primary care and emergency.

Although there is a link between psychological distress and frequent healthcare use, the mechanism for this remains to be better understood. On the one hand, persons with psychological distress may seek health care as a result of a 'symptom' or to relieve their distress and thus become frequent users. Conversely, others may become frequent users and subsequently develop psychological distress as a result of undiagnosed ailments, difficulties managing a comorbidity, or a long-standing chronic disease. Further qualitative or mixed-methods research aiming to understand the factors that lead psychologically distressed frequent users to consult primary care or EDs could better explore this mechanism.

Four of the five studies on frequent use of primary care took place in countries with widely used public health care^{27–29,31} (with the exception of the study from Germany, where the majority of primary care is through for-profit, private providers³⁰). The two studies from EDs were from the United States,^{32,33} where health care is generally privatized. Further studies could be conducted in EDs in countries with public health care before generalizing results in this context.

The major strengths of this scoping review are the systematic and rigorous literature search that was conducted to identify relevant studies and that two reviewers were heavily involved in the process to select studies. Although this scoping review was conducted before publication of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses - Scoping Reviews (PRISMA-ScR) guidelines proposed by Tricco et al.,³⁸ the checklist was used to confirm that all essential components were included in this scoping review. In addition, multiple study designs were included in the review, supporting the replicability of findings across different studies. Frequent use is a pertinent issue in an array of healthcare systems, and so recognizing prominent risk factors

benefits healthcare practitioners so that they can identify candidates for interventions and implement changes to practices to reduce or prevent frequent use.

One of the main limitations of the definitions of frequent use (in all seven of the studies) is that patients just below the threshold are considered 'infrequent users.' This means that patients with seven annual visits or in the 89th percentile for visits to primary care, for example, may account for an over-representation of psychological distress among controls. This categorization may actually underestimate the discrepancies in psychological distress between frequent and infrequent users. Only one longitudinal study met the inclusion criteria for this scoping review,²⁹ and so it is difficult to conclude whether or not psychological distress is a persistent correlate or risk factor for frequent use of primary care or EDs. The number of included studies reflects that little research has been conducted to explore psychological distress and frequent healthcare use in a general population; this dearth of research limited the data that could be included in this scoping review and, again, highlights the need for further research on this topic. Narrative synthesis was the only method used to amalgamate the studies' results, and the quality of the research in each study was not appraised. According to the PRISMA-ScR,³⁸ forgoing critical appraisals of included studies is acceptable in scoping reviews.

Conclusion

Psychological distress has important implications for frequent primary healthcare and ED use. Therefore, primary care and ED clinicians should be evaluating and addressing frequent users' psychological distress to reduce their healthcare utilization or refer them to appropriate interventions. Infrequent users with psychological distress should also have their psychological symptoms addressed to prevent increases in healthcare usage.

Author statements

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Competing interests

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Author contributions

C.H. conceived the review and participated in its design and coordination. E.M.D. conducted the data collection and drafted the manuscript under the guidance of C.H. All authors were involved in drafting and editing the manuscript.

REFERENCES

- Hansagi H, Allebeck P, Edhag O, Magnusson G. Frequency of emergency department attendances as a predictor of mortality: nine-year follow-up of a population-based cohort. *J Public Health Med* 1990;12(1):39–44.
- Bodenheimer T, Berry-Millett R. Follow the money—controlling expenditures by improving care for patients needing costly services. *N Engl J Med* 2009;361(16):1521–3.
- LaCalle E, Rabin E. Frequent users of emergency departments: the myths, the data, and the policy implications. *Ann Emerg Med* 2010 Jul;56(1):42–8.
- Wodchis W. *High cost users: driving value with a patient-centered health system. Ontario, Canada.: health links and beyond: the long and winding road to person-centred care.* 2013.
- Jyväsjärvi S, Joukamaa M, Väisänen E, Larivaara P, Kivelä S-L, Keinänen-Kiukaanniemi S. Somatizing frequent attenders in primary health care. *J Psychosom Res* 2001;50(4):185–92.
- Adam P, Brandenburg DL, Bremer KL, Nordstrom DL. Effects of team care of frequent attenders on patients and physicians. *Fam Syst Health* 2010;28(3):247–57.
- Byrne M, Murphy AW, Plunkett PK, McGee HM, Murray A, Bury G. Frequent attenders to an emergency department: a study of primary health care use, medical profile, and psychosocial characteristics. *Ann Emerg Med* 2003 Mar;41(3):309–18.
- Locker T, Baston S, Mason S, Nicholl J. Defining frequent use of an urban emergency department. *Emerg Med J* 2007;24(6):398–401.
- Mandelberg JH, Kuhn RE, Kohn MA. Epidemiologic analysis of an urban, public emergency department's frequent users. *Acad Emerg Med* 2000;7(6):637–46.
- Pines JM, Asplin BR, Kaji AH, Lowe RA, Magid DJ, Raven M, et al. Frequent users of emergency department services: gaps in knowledge and a proposed research agenda. *Acad Emerg Med* 2011 Jun;18(6):64–9.
- Vedsted P, Christensen MB. Frequent attenders in general practice care: a literature review with special reference to methodological considerations. *Publ Health* 2005;119(2):118–37.
- Ruger J, Richter C, Spitznagel E, Lewis L. Analysis of costs, length of stay, and utilization of emergency department services by frequent users: implications for health policy. *Acad Emerg Med* 2005;11(12):1311–7.
- Gili M, Sesé A, Bauza N, Serrano MJ, Salvador-Carulla L, Molina R, et al. Mental disorders, chronic conditions and psychological factors: a path analysis model for healthcare consumption in general practice. *Int Rev Psychiatry* 2011;23(1):20–7.
- Grabe HJ, Baumeister SE, John U, Freyberger HJ, Völzke H. Association of mental distress with health care utilization and costs: a 5-year observation in a general population. *Soc Psychiatr Psychiatr Epidemiol* 2009;44(10):835–44.
- Kersnik J, Svab I, Vegnuti M. Frequent attenders in general practice: quality of life, patient satisfaction, use of medical services and GP characteristics. *Scand J Prim Health Care* 2005;19(3):174–7.
- Krieg C, Hudon C, Chouinard M-C, Dufour I. Individual predictors of frequent emergency department use: a scoping

- review. *Internet BMC Health Serv Res* 2016 Dec. cited 2017 Jan 25];16(1):594–603. Available from: <http://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-016-1852-1>.
17. Leporatti L, Ameri M, Trincherio C, Orcamo P, Montefiori M. Targeting frequent users of emergency departments: prominent risk factors and policy implications. *Health Policy* 2016;120(5):462–70.
 18. Preville M, Potvin L, Boyer R. Psychological distress and use of ambulatory medical services in the Quebec Medicare system. *Health Serv Res* 1998;33(2 Pt 1):275.
 19. Ridner SH. Psychological distress: concept analysis. *J Adv Nurs* 2004;45(5):536–45.
 20. Stockbridge EL, Wilson FA, Pagán JA. Psychological distress and emergency department utilization in the United States: evidence from the medical expenditure panel survey. *Acad Emerg Med* 2014;21(5):510–9.
 21. Indig D, Eyeson-Annan M, Copeland J, Conigrave KM. The effects of alcohol consumption, psychological distress and smoking status on emergency department presentations in New South Wales, Australia. *Internet BMC Public Health* 2007;7. Available from: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-34247281029&doi=10.1186%2f1471-2458-7-46&partnerID=40&md5=3bf76bbb6d5c8d021dd0a4df28a12846>.
 22. Kapur N, Hunt I, McBeth J, Creed F, Macfarlane G. Psychosocial and illness related predictors of consultation rates in primary care – a cohort study. *Psychol Med* 2004 May;34(4):719–28.
 23. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2005 Feb;8(1):19–32.
 24. Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implement Sci* 2010;5(1):69.
 25. Kessler R, Andrews G, Colpe LJ. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med* 2002;32:956–9.
 26. Popay J, Roberts H, Sowden A, Petticrew M, Arai L, Rodgers M, et al. *Guidance on the conduct of narrative synthesis in systematic reviews*. 1st ed. National Centre for Research Methods; 2006.
 27. Jyväsjärvi S, Joukamaa M, Väisänen E, Larivaara P, Kivelä S-L, Keinänen-Kiukaanniemi S. Alexithymia, hypochondriacal beliefs, and psychological distress among frequent attenders in primary health care. *Compr Psychiatr* 1999;40(4):292–8.
 28. Karlsson H, Lehtinen V, Joukamaa M. Are frequent attenders of primary health care distressed? *Scand J Prim Health Care* 1995 Jan;13(1):32–8.
 29. Vedsted P, Fink P, Olesen F, Munk-Jørgensen P. Psychological distress as a predictor of frequent attendance in family practice: a cohort study. *Psychosomatics* 2001;42(5):416–22.
 30. Dinkel A, Schneider A, Schmutzer G, Brähler E, Häuser W. Family physician–patient relationship and frequent attendance of primary and specialist health care: results from a German population-based cohort study. *Patient Educ Counsel* 2016 Jul;99(7):1213–9.
 31. Báez K, Aiarzaguena JM, Grandes G, Pedrero E, Aranguren J, Retolaza A. Understanding patient-initiated frequent attendance in primary care: a case-control study. *Br J Gen Pract* 1998;48(437):1824–7.
 32. Sandoval E, Smith S, Walter J, Schuman S-AH, Olson MP, Striefler R, et al. A comparison of frequent and infrequent visitors to an urban emergency department. *J Emerg Med* 2010 Feb;38(2):115–21.
 33. Sun BC, Burstin HR, Brennan TA. Predictors and outcomes of frequent emergency department users. *Acad Emerg Med* 2003;10(4):320–8.
 34. Lin EH, Katon W, Von Korff M, Bush T, Lipscomb P, Russo J, et al. Frustrating patients: physician and patient perspectives among distressed high users of medical services. *J Gen Intern Med* 1991 Jun 5;6(3):241–6.
 35. Ovens HJ, Chan BT. Heavy users of emergency services: a population-based review. *Can Med Assoc J* 2001;165(8):1049–50.
 36. Bodenmann P, Baggio S, Iglesias K, Althaus F, Velonaki V-S, Stucki S, et al. Characterizing the vulnerability of frequent emergency department users by applying a conceptual framework: a controlled, cross-sectional study. *Internet Int J Equity Health* 2015 Dec. cited 2017 Jan 25];14(1):146–155. Available from: <http://www.equityhealthj.com/content/14/1/146>.
 37. Wiklund-Gustin L. Struggling on my own: a cognitive perspective on frequent attenders' conception of life and their interaction with the healthcare system. *Psychiatry J* 2013;2013. 580175–580175.
 38. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med* 2018;169:467–73.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.puhe.2019.03.024>.