Journal of Psychiatric Research 94 (2017) 218–229

Contents lists available at ScienceDirect

Journal of Psychiatric Research

journal homepage: www.elsevier.com/locate/psychires

Mental health stigma and barriers to mental health care for first responders: A systematic review and meta-analysis

Peter T. Haugen [a, *], Aileen M. McCrillis [b], Geert E. Smid [c], Mirjam J. Nijdam [c, d]

[a] NYU School of Medicine, NYU School of Medicine WTC Health Program Clinical Center of Excellence, 530 First Avenue, New York, NY, 10016, USA
[b] NYU School of Medicine, Medical Library, 577 First Ave, New York, NY, 10016, USA
[c] Arq Psychotrauma Expert Group, Nienoord 5, 1112 XE, Diemen, The Netherlands
[d] Center for Psychological Trauma, Academic Medical Center at the University of Amsterdam, Meibergdreef 5, 1105 AZ, Amsterdam, The Netherlands

ARTICLE INFO

Article history:
Received 22 May 2017
Received in revised form
11 July 2017
Accepted 3 August 2017

ABSTRACT

Objective: It is unclear how many first responders experience barriers to care and stigma regarding mental health care, and how this influences their help-seeking. A systematic review and meta-analysis was conducted on barriers to care and mental health stigma in first responders and their empirical relationship with psychosocial and psychiatric variables.

Methods: The databases Medline, Embase PsycINFO, CINAHL, PILOTS, LILACS, Sociological Abstracts, SocINDEX, and Social Citation Index were searched to identify relevant studies. A quality assessment and meta-analysis was performed.

Results: Fourteen articles met inclusion criteria, from which data from 12 samples were extracted for meta-analyses. All studies measured stigma regarding mental health care and 33.1% of first responders (95% CI 26.7–40.1; 12 individual samples) endorsed stigma items. The systematic review revealed that the most frequently endorsed items were fears regarding confidentiality and negative career impact. Five of 14 studies measured barriers to mental health care and 9.3% of first responders (95% CI 7.0–12.3; 4 individual samples) endorsed barriers to care items. The most frequently endorsed barriers were scheduling concerns and not knowing where to get help. Indications were found for more stigma and barriers in individuals with mental health problems.

Conclusions: Stigma and barriers to care are experienced by a significant proportion of firs responders, which can potentially lead to delayed presentation in mental health care and therefore, increased risk of chronicity of post-trauma psychopathology for these groups. The current systematic review draws attention to the paucity of research in this area, particularly in non-Western samples.

Contents

* Corresponding author.
E-mail address: peter.haugen@nyumc.org (P.T. Haugen).

http://dx.doi.org/10.1016/j.jpsychires.2017.08.001
0022-3956/

1. Introduction

Working as a first responder is one of a few occupations where individuals repeatedly put themselves in harm's way. First responder groups have historically included police officers (Cardozo et al., 2005; McCaslin et al., 2006), firefighters (Bryant and Harvey, 1995; Tak et al., 2007), search and rescue personnel (Brandt et al., 1995), and ambulance personnel (e.g., emergency medical technicians and paramedics) (Weiss et al., 1995). These professionals often experience taxing work demands (Peñalba et al., 2008) and routine exposure to physical and psychological stressors (Galloucis et al., 1999; McCaslin et al., 2006). Research has shown that these stressful work conditions are associated with the development of new mental health conditions and/or exacerbation of pre-existing mental health conditions (Marmar et al., 2006; Stellman et al., 2008; Wang et al., 2010) with some variation by country (e.g., posttraumatic stress disorder; see (Benedek et al., 2007)). These conditions are not only associated with distress and impairment in responders, but also at-work productivity loss, early retirement, alcohol abuse, divorce, and increased rates of suicide (Dowling et al., 2006; Miller, 1996; O'Hara et al., 2012). Although, to our knowledge, international estimates of the mental health burden experienced by first responders are not readily available, Kleim and Westphal (Kleim and Westphal, 2011) conducted a non-systematic review of primarily US-based samples and found prevalence rates of between 8% and 32% for PTSD and somewhat lower rates for depression. Within the United States, one of the authors (P.T.H.) has estimated that there are likely at least one-quarter million first responders suffering from full- or partial-PTSD (Haugen et al., 2012), making the provision of effective interventions for this population both necessary and justified.

Research across a wide variety of populations and settings demonstrates that as a result of barriers to care, many individuals with mental health difficulties never pursue treatment (Jayasinghe et al., 2005), delay treatment, fail to fully adhere to treatment regimens (P. Corrigan, 2004), or receive inadequate care (Griffiths et al., 2014). These barriers can include lack of perceived need for treatment, pessimism regarding the effectiveness of treatments, and/or not understanding the procedures and options for getting treatment (Andrade et al., 2014). However, the extent to which barriers identified in civilian or military samples generalize to first responders is unclear. Areas of particular concern for this population include negative evaluations by peers and supervisors, negative changes in job duties, and shift work that interferes with access to provided services.

Stigma is one of the most frequently identified barriers to mental health care. Mental health stigma has been conceptualized as a negative and erroneous attitude about a person, similar to a prejudice or negative stereotype, which leads to negative action or discrimination (P. W. Corrigan and Penn, 1999). High levels of mental health stigma have been associated with negative experiences and outcomes and may impact behavior, leading sufferers to avoid seeking help or not fully adhering to treatment recommendations (P. Corrigan, 2004). Rates of help-seeking behavior in first responders require further study, but in one US-based sample, slightly less than half of symptomatic World Trade Center (WTC) utility workers accepted referrals for mental health treatment (Jayasinghe et al., 2005).

Although a number of conceptual frameworks have been proposed describing the stigma of mental illness and its impact on health-seeking in civilian populations (Corrigan, 2004), and to a lesser extent, military populations (Ben-Zeev et al., 2012), to our knowledge, none have been developed specifically for first responders. However, responder culture shares several unique aspects of military culture which distinguish it from civilian populations and other non-responder occupations, and which may make military frameworks an appropriate basis for comparison. Such shared factors include: pre-employment screening for mental health disorders; access to employer-based health care; a demographic profile with significantly more men than women; and norms and values that place a premium on self-reliance in the face of obstacles (See Acosta et al., 2014). It remains to be seen whether and to what extent cultural differences between responders and military personnel are associated with different prevalences of mental health stigma and treatment seeking.

Ben-Zeev et al. (2012) have developed a military-specific conceptual model in which stigma can take three forms: (1) *public stigma* - the extent to which an individual is aware of stereotypes held by the public about individuals who utilize mental health services (Link, 1987; Skinner et al., 1995); (2) *self stigma* - the application of these stereotypes to oneself, leading to internalized devaluation and disempowerment (P. W. Corrigan, 2002); and (3) *label avoidance* – the extent to which individuals purposefully do not acknowledge symptoms or participate in mental health services in order to avoid the stigma and negative consequences a formal diagnostic label might entail (Ben-Zeev et al., 2012). Stigma is conceptualized as a staged process in which: first, mental illness is inferred from explicit cues (e.g., PTSD symptoms); second, these stigmatized cues elicit negative beliefs or stereotypes (e.g., a responder is “weak”); and third, the stigmatized individual agrees with these stereotypes and experiences resulting negative emotions (e.g., shame at being “weak”). Clement et al. conducted a review on the extent to which stigma is present in first responders and found higher levels of mental health stigma among military personnel (a group theoretically similar to first responders) versus other populations (Clement et al., 2015).

Our objectives were to (a) conduct a systematic review of the literature regarding specific barriers to mental health care and stigma concerning help-seeking for mental health conditions identified in first responders and, (b) where possible, perform a meta-analysis to gain more robust estimates of the prevalence of barriers to care and stigma in first responders and, (c) identify the degree to which the findings are associated with mental health conditions and engagement in mental health treatment.

2. Method

This meta-analysis follows the Preferred Reporting Items for

Systematic Reviews and Meta-Analyses (PRISMA) checklist and was registered at the PROSPERO International Prospective Register of Systematic Reviews (CRD42015017532). Two study investigators (P.T.H. and M.J.N.) independently screened the results of the literature searches and included or excluded studies based on predefined eligibility criteria.

2.1. Data sources and literature search

We conducted electronic literature searches using the databases Medline (Ovid), Embase (Ovid), PsycINFO (Ovid), CINAHL (EbscoHost), Published International Literature on Traumatic Stress (PILOTS), Latin American and Caribbean Health Sciences Literature (LILACS), Sociological Abstracts (ProQuest), the Social Citation Index (Web of Science), and SocIndex (EbscoHost). Databases were searched using both subject headings and text keywords that describe first responders, mental health services, and barriers/stigma. The search was conducted in September 2016 and was not restricted to any date range. The search terms were translated from English to Spanish, Dutch, German, and French to capture all relevant international studies. In addition, *Police Practice and Research* was searched using keywords related to stigma and barriers to mental health services because the journal was not indexed in the databases searched. Appendix 1 describes our full MEDLINE search strategy in detail.

2.2. Study selection and critical appraisal

Non-interventional studies that examined barriers to care or stigma associated with mental health services among first responders were considered. To be eligible for inclusion, studies were required to include at least one variable related to barriers to care or stigma in their analysis. Additionally, we determined whether the study investigated barriers or stigma in relationship to mental health diagnosis/screening criteria and to mental health care use.

A two-step process for consideration was used. First, two investigators independently screened for relevancy the titles and abstracts of articles. Next, the investigators reviewed the full-text of the remaining articles to determine eligibility. At the end of this process, any differences in the findings of the two independent reviews were resolved by consensus among the investigators and where necessary, the inclusion of a third investigator.

2.3. Risk of bias (quality) assessment

We employed the quality assessment checklist from Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (QATOCCSS) (Institute). The tool was adapted for use with our review by removing items 7–8, 10, 12–13 because they were not applicable to any included studies.[1] Two independent reviewers participated. Disagreements were addressed through discussion until consensus was reached.

2.4. Data synthesis and analysis

Percentages on stigma or barriers to care items were extracted from all included studies if available and the average percentage from each study was calculated. If studies reported data in another format, authors were contacted to recalculate the percentage of participants with an 'agree' or 'strongly agree' response on stigma or barriers to care items. We were able to contact six authors who provided additional data which enabled us to include their studies in the meta-analysis (Fox et al., 2012; Hyland et al., 2015; Sanders-Guerrero, 2013; Wester et al., 2010); we were not able to contact two additional authors (Bloodgood, 2005; Meyer, 2000). Instrument items were cross-checked across all studies for comparative purposes using the questions defined by Hoge et al. (2004). as a guide. The Attitudes Toward Seeking Professional Health Scale-Short Form (ATTPSH-SF; (Fischer and Farina, 1995)) was excluded as this scale did not have a separate subscale for stigma.

For the meta-analysis, Comprehensive Meta-Analysis, SPSS version 23 for Windows and the macros provided by Wilson (2006) were used. Random-effects models were chosen to take into account that true effect sizes are likely to vary beyond subject-level sampling error (Lipsey and Wilson, 2001). We first determined an overall pooled percentage estimate for stigma and for barriers to care. Prior to calculations, estimates of the proportions of first responders endorsing barriers to care or stigma were first transformed into logits to aid estimations, and subsequently transformed back to aid in interpretation (Lipsey and Wilson, 2001). We performed a sensitivity analysis to investigate the influence of the separate studies by recalculating the pooled outcome proportions with one study removed and all others included. Tests of heterogeneity (Cochran's Q) were applied to determine whether differences in estimates were greater than expected by chance. Possible publication bias was inspected by means of a funnel plot and Egger tests.

3. Results

Fig. 1 shows the process of study selection. The original searches yielded 2868 records. After duplicates were removed and titles and abstracts were screened, 196 articles were considered for inclusion. One hundred and eighty-two records were excluded: 156 did not include a variable representing a barrier to care or stigma in the study or the barrier variable was not included in the analysis, 22 records were reports of interventional studies or were review articles, and four studies did not examine first responders. Fourteen records met all inclusion criteria and are described in Table 1. Six of the included studies reported percentages (Chapman et al., 2012, 2014; Davenport, 2012; Goldstein, 2002; Melerski, 2006; Price, 2006) while an additional six supplied percentages to us (Fox et al., 2012; Heffren and Hausdorf, 2016; Hyland et al., 2015; Karaffa and Koch, 2016; Sanders-Guerrero, 2013; Wester et al., 2010). As the two Chapman studies had partly-overlapping samples, we excluded the smaller study (Chapman et al., 2012) from the meta-analysis for both stigma and barriers to care. Price (2006) included independent samples of police and paramedic trainees and both samples were included in the analyses.

3.1. Study characteristics

Most studies were conducted in the United States with two exceptions: one was conducted in Ireland (Hyland et al., 2015) and one in Canada (Heffren and Hausdorf, 2016). All studies were convenience samples. Twelve studies involved police officers (Bloodgood, 2005; Davenport, 2012; Fox et al., 2012; Goldstein, 2002; Heffren and Hausdorf, 2016; Hyland et al., 2015; Karaffa and Koch, 2016; Meyer, 2000; Sanders-Guerrero, 2013; Wester et al., 2010). Two studies involved army combat medics (Chapman et al., 2012, 2014). One study involved both police trainees and paramedic trainees (Price, 2006). One study involved firefighters and rescue workers (Melerski, 2006).

Five studies investigated barriers to care (Chapman et al., 2012, 2014; Davenport, 2012; Fox et al., 2012; Sanders-Guerrero, 2013); fourteen studies examined stigma (Chapman et al., 2012, 2014; Davenport, 2012; Fox et al., 2012; Goldstein, 2002; Heffren and

[1] Items 7,10, 12, 13.

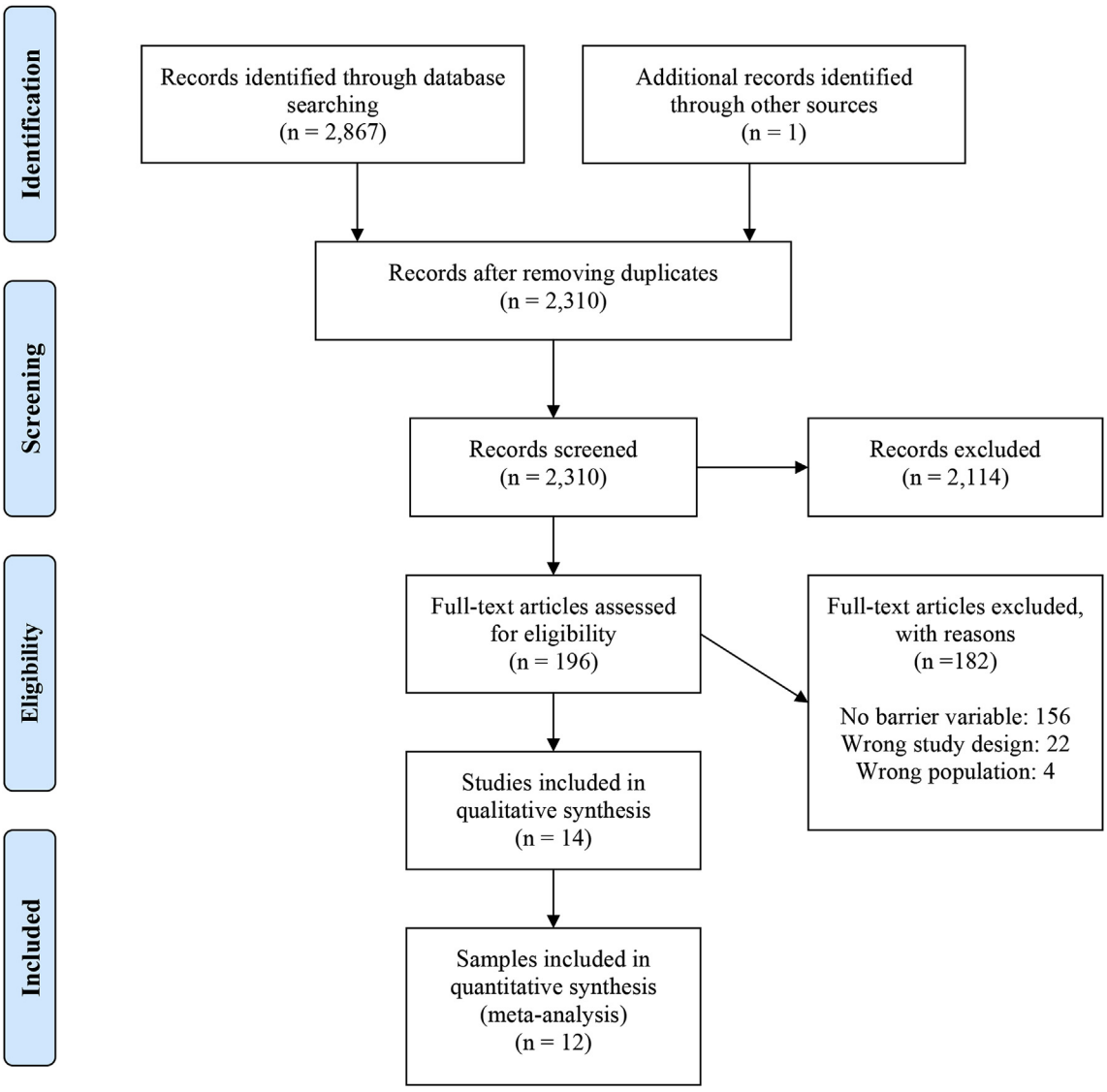


Fig. 1. Flow diagram of study selection.

Hausdorf, 2016; Hyland et al., 2015; Karaffa and Koch, 2016; Melerski, 2006; Price, 2006; Sanders-Guerrero, 2013; Wester et al., 2010); and five studies investigated both barriers to care and stigma (Chapman et al., 2012, 2014; Davenport, 2012; Fox et al., 2012; Sanders-Guerrero, 2013).

All 14 included studies used a cross-sectional study design (Bloodgood, 2005; Chapman et al., 2012, 2014; Davenport, 2012; Fox et al., 2012; Goldstein, 2002; Heffren and Hausdorf, 2016; Hyland et al., 2015; Karaffa and Koch, 2016; Melerski, 2006; Meyer, 2000; Price, 2006; Sanders-Guerrero, 2013; Wester et al., 2010). Seven of the 14 studies were dissertations (Bloodgood, 2005; Davenport, 2012; Goldstein, 2002; Melerski, 2006; Meyer, 2000; Price, 2006; Sanders-Guerrero, 2013) and the remainder were published in peer-reviewed journals. Six studies reported response rates that ranged from 22% to 100%. The remaining eight studies did not report response rates. Sample sizes ranged from 30 to 544 participants.

3.2. Research instruments used in surveys

Nine of the 14 studies provided information on the validation of the instrument they used (Bloodgood, 2005; Chapman et al., 2014; Davenport, 2012; Goldstein, 2002; Meyer, 2000; Sanders-Guerrero, 2013; Wester et al., 2010). Seven of the 14 studies used instruments which had been validated elsewhere (Bloodgood, 2005; Chapman et al., 2012, 2014; Heffren and Hausdorf, 2016; Hyland et al., 2015; Karaffa and Koch, 2016; Wester et al., 2010). One study used author-written adaptations of validated instruments (Davenport, 2012). One of the studies used an author-written adaptation of an unpublished validated instrument (Goldstein, 2002). Two studies included items from validated instruments as well as researcher-designed items (Meyer, 2000; Sanders-Guerrero, 2013). Three of the 14 studies used researcher-designed questionnaires (Fox et al., 2012; Melerski, 2006; Price, 2006).

3.3. Quality analysis

A quality assessment was performed on a total of 14 quantitative studies (Table 1). Most of the identified studies had clearly defined objectives and study populations; however, most did not report high quality sampling methods. Several studies had a participation rate of less than 50% or did not report the participation rate of

Table 1
Study characteristics.

Study	Year	Sample size	Country	Research question	Methodology					
				Population studied	Data collection	Barrier measure	Stigma measure	Mental health diagnosis measure	Dissertation	Quality assessment score
Bloodgood, E	2006	256	USA	Police officers	Survey	n/a	Validated Instrument[a]	n/a	Yes	0.63
Chapman, P, Cabrera, D, Varela-Mayer, C, Baker, M, Elnitsky, C, Figley, C, Thurman, R, Line, CD, Mayer, P	2012	347	USA	Army combat medics	Survey	Validated instrument[b]	Validated instrument	n/a	No	0.57
Chapman, P, Elnitsky, C, Thurman, R, Pitts, B, Figley, C, Unwin, B	2014	452	USA	Army combat medics	Survey	Validated instrument	Validated instrument	PCL, PHQ-9	No	0.56
Davenport, P	2012	44	USA	Police officers	Survey	Author adaptation of published instrument	Author adaptation of published instrument	PCL,PDHRA, AUDIT,BDI-II, BAI, BPAQ	Yes	0.78
Fox, J, Desai, M, Britten, K, Lucas, G, Luneau, R, Rosenthal, M	2012	150	USA	Police officers	Survey	Researcher designed instrument	Researcher designed instrument	BRFSS, PTSD-PC, CAGE	No	0.33
Goldstein, D	2002	131	USA	Police officers	Survey	n/a	Author adaptation of unpublished instrument[c]	n/a	Yes	0.67
Heffren,C, and Hausdorf,	2016	421	Canada	Police officers	Survey	n/a	Validated instrument[d]	n/a	No	0.89
Hyland, P, Boduszek, D, Dhingra, K, Shevlin, M, Maguire, R, Morley, K	2014	331	Ireland	Police officers	Survey	n/a	Validated instrument[e]	n/a	No	1.00
Karaffa, K, and Koch, J	2016	248	USA	Police officers	Survey	n/a	Author adaptation of published instrument[f]	n/a	No	1.00
Melerski, J	2006	30	USA	Rescue workers, consisting of firefighters, police officers, and emergency medical technicians/ paramedics	Interview, Survey	n/a	Researcher designed instrument	PCL, CAGE	Yes	0.40
Meyer, T	2001	508	USA	Police officers	Survey	n/a	Researcher designed instrument[g]	n/a	Yes	0.89
Price, J	2006	544	USA	Police officers, police trainees, paramedics, paramedic trainees	Interview, Survey	n/a	Researcher designed instrument	GHQ	Yes	0.33
Wester, SR, Arndt, D, Sedivy, SK, Arndt, L	2010	178	USA	Police officers	Survey	n/a	Validated instrument[h]	n/a	No	0.56

[a] Fischer, E. H., & Turner, J. L. (1970). Orientations to seeking professional help: Development and research utility of an attitudinal scale. *Journal of Consulting and Clinical Psychology, 35,* 7 9–90.

[b] Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine 351,* 13–22.

[c] Judge. A. (1997). Psychotherapy and stigma scale: Development and validation of an instrument to measure stigma as it is attached to seeking psychotherapy. Unpublished doctoral dissertation. University o f Maryland. College Park.

[d] Bathje, G. J., & Pryor, J. B. (2011). The relationships of public and self-stigma to seeking mental health services. *Journal of Mental Health Counseling, 33* (2), 16., Fisher, E. H., & Farina, A. (1995). Attitudes toward seeking professional psychological help: A shortened form and considerations for research. *Journal of College Student Development*, 36 (4), 368–373., Vogel, D. L., Wade, N. G., & Ascheman, P. L. (2009). Measuring perceptions of stigmatization by others for seeking psychological help: Reliability and validity of a new stigma scale with college students. *Journal of Counseling Psychology*, *56* (2), 301., Vogel, D. L., Wade, N. G., & Haake, S. (2006). Measuring the self-stigma associated with seeking psychological help. *Journal of Counseling Psychology, 53,* 325–337.

[e] Mackenzie, C., Knox, V., Gekoski, W., & Macaulay, H. (2004). An adaptation and extension of the attitudes toward seeking professional psychological help scale. Journal of Applied Social Psychology, 34, 2410–2435.

[f] Fisher, E. H., & Farina, A. (1995). Attitudes toward seeking professional psychological help: A shortened form and considerations for research. *Journal of College Student Development*, 36 (4), 368–373., Skopp, N. A., Bush, N. E., Vogel, D. L., Wade, N. G., Sirotin, A. P., McCann, R. A., & Metzger-Abamukong, M. J. (2012). Development and initial testing of a measure of public and self-stigma in the military. *Journal of clinical psychology*, *68* (9), 1036–1047.

[g] Fischer, E. H., & Turner, J. L. (1970). Orientations to seeking professional help: Development and research utility of an attitudinal scale. *Journal of Consulting and Clinical Psychology, 35,* 7 9–90.

[h] Komiya, N., Good, G. E., & Sherrod, N. B. (2000). Emotional openness as a predictor of college students' attitudes toward seeking psychological help. *Journal of Counseling Psychology, 47,* 138–143., Vogel, D. L., Wade, N. G., & Haake, S. (2006). Measuring the self-stigma associated with seeking psychological help. *Journal of Counseling Psychology, 53,* 325–337.

subjects. Most of the studies did not report sample size justification, power description, or variance and effect estimates. In addition, most of the studies did not include subjects from similar populations or did not uniformly apply pre-specified inclusion and exclusion criteria to subjects. Exposure and outcome variables were clearly defined, valid, and reliable in the majority of studies. Overall, most of the studies were considered to be of fair quality with a mean QATOCCSS score of 0.66.

4. Main findings

4.1. Main findings from the systematic review

All 14 studies measured stigma. Approximately a third of participants endorsed stigma items. Five of the 14 studies measured barriers to care. Of those studies less than a quarter of those surveyed endorsed a barrier to care. Inspection of the studies by type of first responder group did not reveal considerable differences on stigma or barriers to care between police officers and other first responder groups (rescue workers, paramedic trainees, and combat medics).

The most commonly endorsed barriers were difficulty scheduling an appointment (Chapman et al., 2012, 2014; Davenport, 2012) and not knowing where to get help (Chapman et al., 2012; Davenport, 2012; Fox et al., 2012), with participants endorsing each in three of five studies. These items were followed by difficulty getting time off (Chapman et al., 2012, 2014), leaders discouraging mental health treatment (Chapman et al., 2012, 2014), and not having adequate transportation (Chapman et al., 2012; Davenport, 2012)with participants endorsing each in two of the five studies.

The most commonly endorsed stigma items were fear of services not being confidential (Chapman et al., 2012; Fox et al., 2012; Goldstein, 2002; Meyer, 2000; Sanders-Guerrero, 2013), and the fear that seeking psychological services would have a negative impact on one's career (Chapman et al., 2012, 2014; Davenport, 2012; Fox et al., 2012; Price, 2006), with participants endorsing each in five of the 14 studies measuring stigma. These items were followed by feelings of judgment from coworkers and leadership (Chapman et al., 2012, 2014; Davenport, 2012), which was endorsed by participants in three of the 14 studies measuring stigma. Of the studies that employed separate measures for public and self-stigma, one study found percentages twice as high for public stigma than for self-stigma (Wester et al., 2010), one study found slightly higher percentages for self-stigma than public stigma (Heffren and Hausdorf, 2016), and one study found similar percentages for both types of stigma (Karaffa and Koch, 2016).

Two of the 14 studies assessed mental health conditions in relationship to stigma or barriers to care (Chapman et al., 2014; Davenport, 2012). Davenport (Davenport, 2012) found a positive relationship between stigma and alcohol use. Chapman (Chapman et al., 2014) found that participants who met screening criteria for either PTSD or depression endorsed barriers to care and stigma more frequently than those who did not. Three of the 14 studies assessed experience with mental health care and stigma or barriers to care (Bloodgood, 2005; Goldstein, 2002; Hyland et al., 2015). Bloodgood (Bloodgood, 2005) found more stigma tolerance if participants had more previous experience with mental health services as compared to less experience. Goldstein (Goldstein, 2002) found lower stigma scores among those who had utilized a peer support program as compared to those who did not. Hyland (Hyland et al., 2015) found no significant association between indifference to stigma and intentions to seek mental health services.

4.2. Pooled incidence estimate from meta-analysis

Forest plots for stigma and barriers to care are displayed in Fig. 2. For the stigma sample ($k = 12$), we found that 33.1% (95% CI 26.7–40.1) of first responders endorsed stigma items. The Q-test for pooled estimates was significant ($Q = 125.40$, $df = 11$, $p < 0.001$), indicating heterogeneity across studies. For the barriers sample ($k = 4$), we found that 9.3% (95% CI 7.0–12.3) of first responders endorsed stigma items. The Q-test for pooled estimates was not significant ($Q = 4.92$, $df = 3$, $p = 0.18$), indicating no heterogeneity across studies.

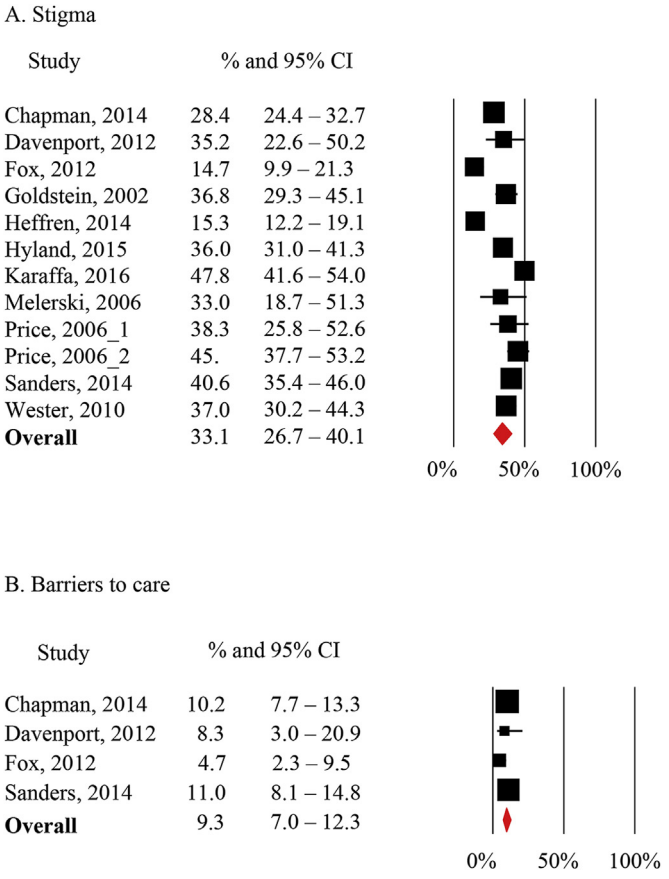


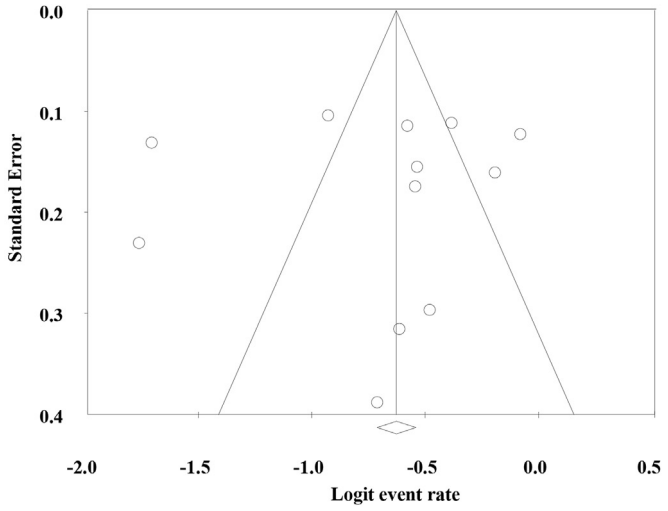
Fig. 2. Forest plots of average percentages of first responders endorsing stigma (A.) and barriers to care (B.) items. CI indicates confidence interval.

4.3. Sensitivity analysis and publication bias

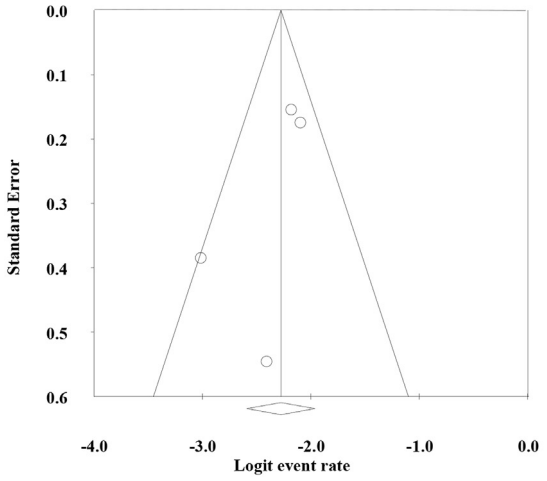
Sensitivity analyses revealed that pooled estimates did not differ substantially when a specific study was removed from the analysis and all others were included. Pooled percentage estimates ranged from 31.7% (95% CI 25.5–38.7) to 35.5% (95% CI 30.2–41.2) for stigma. For barriers to care, pooled percentage estimates ranged from 7.9% (95% CI 4.7–12.9) to 10.4% (95% CI 8.5–12.7). Separate funnel plots were created for barriers and stigma studies to assess possible publication bias (Fig. 3). These funnel plots did not yield indications for publication bias, as smaller studies did not report higher percentages than larger studies. Egger tests were not significant for stigma, $t = 0.25$, $df = 10$, $p = 0.40$, nor for barriers to care, $t = 1.50$, $df = 2$, $p = 0.14$.

5. Discussion

The goal of the present study was to summarize the evidence base regarding the nature and impact of barriers to care and mental health stigma in first responders. The results from the meta-analysis indicate that on average, about one in three first responders (33.1%) experiences stigma regarding mental health and that about one in eleven first responders (9.3%) experience barriers to care. The most frequently endorsed stigma-related concerns were fears regarding the confidentiality of services and fears that seeking psychological services would have a negative impact on one's career. The most commonly reported barriers to care were difficulty scheduling an appointment and not knowing where to get help.



A. Stigma studies



B. Barriers to care studies

Fig. 3. Funnel plots for stigma (A.) and barriers to care (B.) studies.

The present review provides some preliminary evidence regarding a relationship between specific mental health conditions and stigma. Positive relationships were found between stigma and probable alcohol use disorder, as well as stigma and probable PTSD or depression. A positive screening test result for PTSD or depression was also positively linked to experiencing barriers to care. The results of the systematic review also provide some preliminary evidence regarding the relationship between past use of mental health services and stigma indicating stigma-related concerns occurred at lower rates in first responders who had experience with mental health services. No indications were found for consistent differences between public stigma and self-stigma in our systematic review.

Our findings correspond well with research on stigma and barriers to care in military populations and indicate some contrasts with research in the general civilian population. They are in line with findings that stigma is consistently reported at a greater level than practical or logistical barriers to care in military personnel (Britt, 2000; Hoge et al., 2004; Iversen et al., 2011). Although there are differences in instrumentation and precise definitions, a recent meta-analysis (Clement et al., 2015) indicated rates of stigma in the general population to be somewhat lower than in the first responder populations included in the current study. Another recent meta-analysis found that stigma items were endorsed by, on average, 37% of military personnel with probable mental health problems (range 0.26–0.44; (Sharp et al., 2015)), indicating that rates of experiencing stigma across military and first responder populations may be approximately in the same range. The current meta-analysis and the one by Sharp and colleagues thus showed that 67% of first responders and 63% of participants in the military indicated that they did not experience stigma regarding mental health care to a significant degree. Factors that promote the absence of stigma may be an interesting subject for further study. Consistent with our systematic review, a greater degree of stigma and barriers to care was reported in military personnel reporting more mental health complaints (Hoge et al., 2004; Iversen et al., 2011; Osório et al., 2013; Pietrzak and Southwick, 2011). This relationship may be especially salient for responders and military personnel under high work overload, where work may function as a barrier to getting time off for necessary treatment (See Britt et al., 2008). In contrast with our findings, Sharp and colleagues (Sharp et al., 2015) did not find evidence for a consistent relationship between stigma and mental health service use in military populations. Another concept which, to the authors' knowledge, has not been studied in first responders, is the preference for handling mental health problems on one's own. Preference for self-management was negatively related to treatment seeking for mental health problems in the military, whereas stigma and barriers to care did not predict help-seeking (Adler et al., 2015).

Regarding the currently available literature, we note that systematic research on stigma and barriers to care in first responders has been sparse, including notably, dissertation studies not subjected to peer review. Our review identified 14 studies which met inclusion criteria, whereas a similar systematic review in military populations identified 20 studies (Sharp et al., 2015). This topic is also relatively new (the first study identified in our review was published in 2001) but is generating increased interest, with more than half of the studies identified in this review published since 2012. Similar to research with first responders on other topics[17], police officers represented the most frequently investigated occupational group and future studies in fire fighters, paramedics and rescue workers are warranted. Despite our efforts to identify relevant studies of European and non-Western samples, only one European and one Canadian study were found and all other studies identified were conducted in the United States. Percentages of military personnel from the UK scoring positive on stigma were consistently higher than percentages from the United States (Sharp et al., 2015). Therefore, it is possible that estimates regarding the prevalence of stigma in first responders would be higher if more international studies were available. Results regarding the association between increased stigma and barriers to care and specific mental health conditions (alcohol use, probable PTSD or depressive disorder) should be interpreted cautiously, as only two studies assessed this relationship. More studies in this area are clearly needed, and a range of other specific mental health conditions has yet to be addressed. Cautious interpretation is also warranted for the relationship between a lower incidence of stigma and barriers to care and previous mental health service utilization, because only two studies are available on this topic. Only a single study investigated the association between stigma and help-seeking intentions. The paucity of research on this topic is surprising when compared with the volume of research that documents the

prevalence rates and risk factors for various posttraumatic stress reactions in first responders (Berger et al., 2012).

The results of the current study should be considered in the context of several strengths and limitations. This is the first systematic review and meta-analysis that brings together available studies on stigma and barriers to care in first responder populations, including findings of doctoral theses that are relatively more difficult to access. Further strengths of the study include independent scoring of studies by two independent raters, quality assessment, sensitivity analysis and assessment of publication bias. A limitation is that we were not able to contact all authors to obtain data on percentages for the meta-analysis, and therefore were not able to include all studies from the systematic review in the meta-analysis. A further limitation is the use of different versions of stigma and barriers to care instruments. However, we tried to ascertain the comparability of the instruments as much as possible by cross-checking the individual items with the instrument used by Hoge and colleagues (Hoge et al., 2004). We also note that the quality evaluation for the majority of studies was "fair," so a number of research design issues of the included studies may have influenced our findings. Finally, due to the small total number of studies, we were not able to analyze potential mediators of heterogeneity that were detected in stigma studies.

In conclusion, the findings of this systematic review and meta-analysis indicate that stigma is experienced by a significant proportion of first responders and that stigma-related concerns are experienced by a greater percentage of first responders than are practical or logistical barriers to care. Stigma-related concerns may induce delayed presentation in mental health settings, and therefore, increased risk of chronicity of post-trauma psychopathology in first responders. Despite the significance of stigma as a public health problem and the need to implement strategies to address it, effect sizes for interventional studies that target stigma are in the small-to-medium range and have been conducted primarily with civilian samples (Griffiths et al., 2014; Mehta et al., 2015). Stigma-related interventions in military populations may be even less effective (Greenberg et al., 2010; Mulligan et al., 2012) with some suggesting that the pressures of being deployed, including working as part of a tight-knit team, may result in the belief that soldiers should not ask for accommodation for mental health concerns for fear of letting their comrades down (Osório et al., 2013). However, there are several structural recommendations that, if implemented by organizations that employ first responders, may mitigate the most frequently-identified barriers to care and stigma in this population: (1) offering psychiatric assessment/care in general health care settings instead of distinct mental health sites (Rutkow et al., 2011); (2) making that assessment/care routine rather than based on symptoms, in the form of annual monitoring exams (e.g., National Institute of Occupational Safety and Health WTC Health Program; (Crane et al., 2013)); (3) offering assessment, feedback and treatments based on well-validated bio-behavioral metrics of emotion known to be altered in PTSD samples, such as heart rate variability (Gillie and Thayer, 2014; Tan et al., 2011); (4) offering easily accessible self-screening tools and secondary prevention tools online and by means of digital applications (Olff, 2015); and (5) relying on medical models of psychopathology to mitigate stigma and self-blame (Buchman et al., 2013). Hopefully, by decreasing barriers to care, including stigma, we can improve treatment provided to first responder groups and facilitate new research in this domain.

Conflict of interest

All authors declare that they have no conflicts of interest.

Appendix 1. Medline (Ovid) search strategy

1. police.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
2. politie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
3. Polizei.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
4. force publique.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
5. Policia.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
6. policemen.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
7. politieagenten.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
8. politiemannen.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
9. Polizist.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
10. Polizisten.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
11. Polizeibeamter.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
12. agents de police.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
13. policiers.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
14. El Policia.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
15. policewomen.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
16. politieagentes.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
17. politievrouw.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
18. Polizeibeamtin.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
19. agentes de police.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
20. policieres.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
21. La Policia.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
22. firefighters.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
23. brandweer.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
24. Feuerwehr.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
25. garde d'incendie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
26. service d'incendie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
27. Bombero.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
28. firefighter.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
29. brandweer.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
30. Feuerwehr.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
31. corps des sapeurs-pompiers.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]

32. Bombero.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
33. fire fighters.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
34. los bomberos.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
35. fire fighter.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
36. fireman.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
37. brandweerman.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
38. Feuerwehrmann.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
39. sapeur-pompier.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
40. pompier.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
41. pompiere.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
42. firemen.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
43. brandweermannen.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
44. Freuerwehrmanner.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
45. sapeurs-pompiers.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
46. pompiers.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
47. pompieres.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
48. firefighting.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
49. feuer loschen.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
50. Lucha para apagar incendios.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
51. (fire and rescue).mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
52. noodhulpdienst.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
53. Aushilfedienst.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
54. Hilfsarbeiter.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
55. secour d'urgence.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
56. Fuego y Rescate.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
57. emergency responders.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
58. eerste hulpdienst.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
59. Notdienstpersonal.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
60. service de premier secours.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
61. Respondedores de emergencia.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
62. emergency medical technicians.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
63. eerste hulp technici.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
64. Notdiensttechniker.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
65. technicien de premier secours.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
66. Tecnicos en emergencias medicas.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
67. paramedics.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
68. ambulance.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
69. Sanitater.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
70. ambulancier.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
71. brancardier.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
72. Paramedico.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
73. emergency response.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
74. eerste hulp.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
75. Notdienst.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
76. premier secours.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
77. Respuesta de emergencia.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
78. first responders.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
79. Primeros auxillios.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
80. rescue workers.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
81. reddingswerkers.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
82. Rettungsarbeiter.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
83. equipe de secours.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
84. Traajadores de rescate.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
85. rescue personnel.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
86. reddingspersoneel.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
87. Rettungspersonal.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
88. personnel de secours.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
89. Personal de rescate.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
90. rescue service.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
91. reddingsdienst.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
92. Rettungsdienst.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
93. service de secours.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
94. Servicio de rescate.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
95. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or

36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 or 75 or 76 or 77 or 78 or 79 or 80 or 81 or 82 or 83 or 84 or 85 or 86 or 87 or 88 or 89 or 90 or 91 or 92 or 93 or 94

96. mental.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
97. geestelijk.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
98. psychisch.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
99. geistlich.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
100. psychisch.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
101. mental.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
102. psychique.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
103. mental health services.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
104. geestelijke gezondheidszorg.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
105. psychische Gesundheitsdienst.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
106. systeme de soin de sante psychique.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
107. Servicios de salud mental.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
108. mental health.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
109. geestelijke gezondheid.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
110. psychische Gesundheit.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
111. sante psychique.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
112. Salud mental.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
113. counseling.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
114. Beratung.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
115. conseiller.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
116. conseilleur.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
117. Asesoramiento.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
118. psychiatry.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
119. psychiatrie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
120. Psychiatrie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
121. psychiatrie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
122. Psiquiatria.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
123. psychology.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
124. psychologie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
125. Psychologie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
126. psychologie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
127. Psicologia.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
128. psychotropic drugs.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
129. psychotrope medicatie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
130. Psychofarmakum.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
131. Psychofarmaka.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
132. medicament psychotrope.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
133. remede psychotrope.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
134. Agentes psicotropicos.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
135. psychiatric treatment.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
136. psychiatrische behandeling.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
137. Psychiatrische Behandlung.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
138. traitement psychiatrique.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
139. Tratamiento psiquiatrico.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
140. psychopharmacotherapy.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
141. farmacotherapie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
142. Farmakotherapie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
143. pharmacotherapie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
144. Psicofarmacoterapia.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
145. social support.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
146. sociale steun.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
147. soziale Unterstutzung.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
148. aide sociale.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
149. Apoyo social.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
150. Mental Disorders.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
151. psychische stoornissen.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
152. psychische Krankheiten.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
153. psychische Storungen.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
154. trouble psychique.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
155. desordre psychique.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
156. Trastornos mentales.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]

157. psychopharmacology.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
158. psychofarmacologie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
159. Psychofarmakologie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
160. psychopharmacologie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
161. Psicofarmacologia.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
162. psychopharmacology.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
163. psychofarmacologie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
164. Psychofarmakologie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
165. psychopharmacologie.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
166. Psicofarmacologia.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
167. 96 or 97 or 98 or 99 or 100 or 101 or 102 or 103 or 104 or 105 or 106 or 107 or 108 or 109 or 110 or 111 or 112 or 113 or 114 or 115 or 116 or 117 or 118 or 119 or 120 or 121 or 122 or 123 or 124 or 125 or 126 or 127 or 128 or 129 or 130 or 131 or 132 or 133 or 134 or 135 or 136 or 137 or 138 or 139 or 140 or 141 or 142 or 143 or 144 or 145 or 146 or 147 or 148 or 149 or 150 or 151 or 152 or 153 or 154 or 155 or 156 or 157 or 158 or 159 or 160 or 161 or 162 or 163 or 164 or 165 or 166
168. Attitudes.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
169. attitudes.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
170. houding.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
171. Attituden.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
172. Haltungen.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
173. Actitudes.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
174. Attitude.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
175. Haltung.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
176. Actitud.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
177. Barriers.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
178. barrieres.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
179. Hurden.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
180. Barrieren.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
181. Hindernisse.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
182. barrieres.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
183. Barreras.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
184. Barrier.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
185. barriere.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
186. Hurde.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
187. Barriere.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
188. Hindernis.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
189. barriere.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
190. Barrera.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
191. stigma.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
192. Stigmatisierung.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
193. stigmate.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
194. shame.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
195. schaamte.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
196. Scham.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
197. honte.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
198. embarass.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
199. Verguenza.mp. [mp = ti, ab, ot, nm, hw, kf, px, rx, ui, an, tc, id, tm, sh, tn, dm, mf, dv, kw]
200. 168 or 169 or 170 or 171 or 172 or 173 or 174 or 175 or 176 or 177 or 178 or 179 or 180 or 181 or 182 or 183 or 184 or 185 or 186 or 187 or 188 or 189 or 190 or 191 or 192 or 193 or 194 or 195 or 196 or 197 or 198 or 199
201. 95 and 167 and 200

References

Adler, A.B., Britt, T.W., Riviere, L.A., Kim, P.Y., Thomas, J.L., 2015. Longitudinal determinants of mental health treatment-seeking by US soldiers. Br. J. Psychiatry 207 (4), 346–350.

Andrade, L.H., Alonso, J., Mneimneh, Z., Wells, J., Al-Hamzawi, A., Borges, G., et al., 2014. Barriers to mental health treatment: results from the WHO World Mental Health surveys. Psychol. Med. 44 (06), 1303–1317.

Acosta, J.D., Becker, A., Cerully, J.L., Fisher, M.P., Martin, L.T., Vardavas, R., et al., 2014. Mental Health Stigma in the Military. RAND NATIONAL DEFENSE RESEARCH INST, SANTA MONICA CA.

Ben-Zeev, D., Corrigan, P.W., Britt, T.W., Langford, L., 2012. Stigma of mental illness and service use in the military. J. Ment. Health 21 (3), 264–273.

Benedek, D.M., Fullerton, C., Ursano, R.J., 2007. First responders: mental health consequences of natural and human-made disasters for public health and public safety workers. Annu. Rev. Public Health 28, 55–68.

Berger, W., Coutinho, E.S.F., Figueira, I., Marques-Portella, C., Luz, M.P., Neylan, T.C., et al., 2012. Rescuers at risk: a systematic review and meta-regression analysis of the worldwide current prevalence and correlates of PTSD in rescue workers. Soc. psychiatry psychiatric Epidemiol. 47 (6), 1001–1011.

Bloodgood, E., 2005. Law Enforcement Officers' Previous Experience with, Attitude toward, and Willingness to Participate in Mental Health Services (Psy.D.). Alliant International University, Fresno, United States – California.

Brandt, G.T., Fullerton, C.S., Saltzgaber, L., Ursano, R.J., Holloway, H., 1995. Disasters: psychologic responses in health care providers and rescue workers. Nordic J. psychiatry 49 (2), 89–94.

Britt, T.W., 2000. The stigma of psychological problems in a work environment: evidence from the screening of service members returning from Bosnia1. J. Appl. Soc. Psychol. 30 (8), 1599–1618.

Britt, T.W., Greene–Shortridge, T.M., Brink, S., Nguyen, Q.B., Rath, J., Cox, A.L., et al., 2008. Perceived stigma and barriers to care for psychological treatment: implications for reactions to stressors in different contexts. J. Soc. Clin. Psychol. 27 (4), 317–335.

Bryant, R.A., Harvey, A.G., 1995. Posttraumatic stress in volunteer firefighters: predictors of distress. J. Nerv. Ment. Dis. 183 (4), 267–271.

Buchman, D.Z., Borgelt, E.L., Whiteley, L., Illes, J., 2013. Neurobiological narratives: experiences of mood disorder through the lens of neuroimaging. Sociol. health & Illn. 35 (1), 66–81.

Cardozo, B.L., Holtz, T.H., Kaiser, R., Gotway, C.A., Ghitis, F., Toomey, E., Salama, P., 2005. The mental health of expatriate and kosovar Albanian humanitarian aid workers. Disasters 29 (2), 152–170.
Chapman, P.L., Cabrera, L.D., Varela-Mayer, C., Baker, M.M., Elnitsky, C., Figley, C., et al., 2012. Training, deployment preparation, and combat experiences of deployed health care personnel: key findings from deployed US Army Combat Medics assigned to line units. Mil. Med. 177 (3), 270–277.
Chapman, P.L., Elnitsky, C., Thurman, R.M., Pitts, B., Figley, C., Unwin, B., 2014. Posttraumatic stress, depression, stigma, and barriers to care among U.S. Army healthcare providers. Traumatology Int. J. 20 (1), 19–23. http://dx.doi.org/10.1037/h0099376.
Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., et al., 2015. What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. Psychol. Med. 45 (01), 11–27.
Corrigan, P., 2004. How stigma interferes with mental health care. Am. Psychol. 59 (7), 614–625. http://dx.doi.org/10.1037/0003-066X.59.7.614.
Corrigan, P.W., 2002. Empowerment and serious mental illness: treatment partnerships and community opportunities. Psychiatr. Q. 73 (3), 217–228.
Corrigan, P.W., Penn, D.L., 1999. Lessons from social psychology on discrediting psychiatric stigma. Am. Psychol. 54 (9), 765–776.
Crane, M.A., Milek, D.J., Globina, Y., Seifu, L., Landrigan, P.J., 2013. Health effects of the world trade center 9/11 disaster: an overview. Fire Technol. 49 (3), 813–825.
Davenport, P.B., 2012. Assessing Deployment Risk and Resiliency Factors and the Adjustment Outcomes of Police Officers Serving in Operation Iraqi Freedom and Operation Enduring Freedom. Virginia Commonwealth University (2671).
Dowling, F.G., Moynihan, G., Genet, B., Lewis, J., 2006. A peer-based assistance program for officers with the New York City Police Department: report of the effects of Sept. 11, 2001. Am. J. Psychiatry 163 (1), 151–153.
Fischer, E.H., Farina, A., 1995. Attitudes toward seeking professional psychological help: a shortened form and considerations for research. J. Coll. Student Dev. 368–373.
Fox, J., Desai, M.M., Britten, K., Lucas, G., Luneau, R., Rosenthal, M.S., 2012. Mental-health conditions, barriers to care, and productivity loss among officers in an urban police department. Conn. Med. 76 (9), 525–531.
Galloucis, M., Silverman, M., Francek, H., 1999. The impact of trauma exposure on the cognitive schemas of a sample of paramedics. Int. J. Emerg. Ment. health 2 (1), 5–18.
Gillie, B.L., Thayer, J.F., 2014. Individual differences in resting heart rate variability and cognitive control in posttraumatic stress disorder. Front. Psychol. 5.
Goldstein, D., 2002. The Vermont State Police Peer Support Program. Unpublished Doctoral Dissertation. Walden University.
Greenberg, N., Langston, V., Everitt, B., Iversen, A., Fear, N.T., Jones, N., Wessely, S., 2010. A cluster randomized controlled trial to determine the efficacy of Trauma Risk Management (TRiM) in a military population. J. Trauma. stress 23 (4), 430–436.
Griffiths, K.M., Carron-Arthur, B., Parsons, A., Reid, R., 2014. Effectiveness of programs for reducing the stigma associated with mental disorders. A meta-analysis of randomized controlled trials. World Psychiatry 13 (2), 161–175.
Haugen, P.T., Evces, M., Weiss, D.S., 2012. Treating posttraumatic stress disorder in first responders: a systematic review. Clin. Psychol. Rev. 32 (5), 370–380. http://dx.doi.org/10.1016/j.cpr.2012.04.001.
Heffren, C.D.J., Hausdorf, P.A., 2016. Post-traumatic effects in policing: perceptions, stigmas and help seeking behaviours. Police Pract. Res. 17 (5), 420–433.
Hoge, C.W., Castro, C.A., Messer, S.C., McGurk, D., Cotting, D.I., Koffman, R.L., 2004. Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. N. Engl. J. Med. 351 (1), 13–22.
Hyland, P., Boduszek, D., Dhingra, K., Shevlin, M., Maguire, R., Morley, K., 2015. A test of the inventory of attitudes towards seeking mental health services. Br. J. Guid. Couns. 43 (4), 397–412.
Iversen, A.C., van Staden, L., Hughes, J.H., Greenberg, N., Hotopf, M., Rona, R.J., et al., 2011. The stigma of mental health problems and other barriers to care in the UK armed forces. BMC health Serv. Res. 11 (1), 1.
Jayasinghe, N., Spielman, L., Cancellare, D., Difede, J., Klausner, E., Giosan, C., 2005. Predictors of treatment utilization in world trade center attack disaster workers: role of race/ethnicity and symptom severity. Int. J. Emerg. Ment. health 7 (2), 91.
Karaffa, K.M., Koch, J.M., 2016. Stigma, pulralistic ignorance, and attitudes toward seeking mental health services among police officers. Crim. Justice Behav. 43 (6), 759–777. http://dx.doi.org/10.1177/0093854815613103.
Kleim, B., Westphal, M., 2011. Mental health in first responders: a review and recommendation for prevention and intervention strategies. Traumatology 17 (4), 17–24. http://dx.doi.org/10.1177/1534765611429079.
Link, B.G., 1987. Understanding labeling effects in the area of mental disorders: an assessment of the effects of expectations of rejection. Am. Sociol. Rev. 96–112.
Lipsey, M.W., Wilson, D.B., 2001. Applied social research methods series. In: Practical Meta-analysis, vol 49. Sage Publications, Thousand Oaks, CA.
Marmar, C.R., McCaslin, S.E., Metzler, T.J., Best, S., Weiss, D.S., Fagan, J., et al., 2006. Predictors of posttraumatic stress in police and other first responders. Ann. N. Y. Acad. Sci. 1071 (1), 1–18.
McCaslin, S.E., Rogers, C.E., Metzler, T.J., Best, S.R., Weiss, D.S., Fagan, J.A., et al., 2006. The impact of personal threat on police officers' responses to critical incident stressors. J. Nerv. Ment. Dis. 194 (8), 591–597.
Mehta, N., Clement, S., Marcus, E., Stona, A.-C., Bezborodovs, N., Evans-Lacko, S., et al., 2015. Evidence for effective interventions to reduce mental health-related stigma and discrimination in the medium and long term: systematic review. Br. J. Psychiatry 207 (5), 377–384.
Melerski, J.E., 2006. Trauma, Coping, and Functioning in a Sample of Rescue Workers 34 to 39 Months after September 11th. ProQuest.
Meyer, T.A., 2000. An Investigation of Attitudes and Beliefs about Mental Health Services and Service Utilization within a Law Enforcement Population.
Miller, I., 1996. Demography & Attrition in the New Zealand Police, 1985-95. New Zealand Police National Headquarters.
Mulligan, K., Fear, N.T., Jones, N., Alvarez, H., Hull, L., Naumann, U., et al., 2012. Postdeployment Battlemind training for the UK armed forces: a cluster randomized controlled trial. J. Consult. Clin. Psychol. 80 (3), 331.
O'Hara, A.F., Violanti, J.M., Levenson Jr., R., Clark Sr, R., 2012. National police suicide estimates: web surveillance study III. Int. J. Emerg. Ment. health 15 (1), 31–38.
Olff, M., 2015. Mobile mental health: a challenging research agenda. Eur. J. psychotraumatology 6.
Osório, C., Jones, N., Fertout, M., Greenberg, N., 2013. Perceptions of stigma and barriers to care among UK military personnel deployed to Afghanistan and Iraq. Anxiety, Stress & Coping 26 (5), 539–557.
Peñalba, V., McGuire, H., Leite, J.R., 2008. Psychosocial interventions for prevention of psychological disorders in law enforcement officers. Cochrane Libr. (3)
Pietrzak, R.H., Southwick, S.M., 2011. Psychological resilience in OEF–OIF Veterans: application of a novel classification approach and examination of demographic and psychosocial correlates. J. Affect. Disord. 133 (3), 560–568.
Price, J., (2006). Psychological support and stigma in the helping professions. Paper presented at the CLINICAL PSYCHOLOGY FORUM-NEW SERIES-.
Rutkow, L., Gable, L., Links, J.M., 2011. Protecting the mental health of first responders: legal and ethical considerations. J. Law, Med. Ethics 39 (s1), 56–59.
Sanders-Guerrero, J., 2013. Officers' and Supervisors' Opinions Regarding Mental Health Services Utilization Among Law Enforcement Personnel (PhD). Sam Houston State University.
Sharp, M.-L., Fear, N.T., Rona, R.J., Wessely, S., Greenberg, N., Jones, N., Goodwin, L., 2015. Stigma as a barrier to seeking health care among military personnel with mental health problems. Epidemiol. Rev. mxu012.
Skinner, L.J., Berry, K.K., Griffith, S.E., Byers, B., 1995. Generalizability and specificity of the stigma associated with the mental illness label: a reconsideration twenty-five years later. J. Community Psychol. 23 (1), 3–17.
Stellman, J.M., Smith, R.P., Katz, C.L., Sharma, V., Charney, D.S., Herbert, R., et al., 2008. Enduring mental health morbidity and social function impairment in world trade center rescue, recovery, and cleanup workers: the psychological dimension of an environmental health disaster. Environ. health Perspect. 116 (9), 1248.
Tak, S., Driscoll, R., Bernard, B., West, C., 2007. Depressive symptoms among firefighters and related factors after the response to Hurricane Katrina. J. Urban Health 84 (2), 153–161.
Tan, G., Dao, T.K., Farmer, L., Sutherland, R.J., Gevirtz, R., 2011. Heart rate variability (HRV) and posttraumatic stress disorder (PTSD): a pilot study. Appl. Psychophysiol. biofeedback 36 (1), 27–35.
Wang, Z., Inslicht, S.S., Metzler, T.J., Henn-Haase, C., McCaslin, S.E., Tong, H., et al., 2010. A prospective study of predictors of depression symptoms in police. Psychiatry Res. 175 (3), 211–216.
Weiss, D.S., Marmar, C.R., Metzler, T.J., Ronfeldt, H.M., 1995. Predicting symptomatic distress in emergency services personnel. J. Consult. Clin. Psychol. 63 (3), 361.
Wester, S.R., Arndt, D., Sedivy, S.K., Arndt, L., 2010. Male police officers and stigma associated with counseling: the role of anticipated risks, anticipated benefits and gender role conflict. Psychol. Men Masculinity 11 (4), 286.
Wilson, D., 2006. Meta-analysis Macros for SAS, SPSS, and Stata. Retrieved February 1, 2015.