

Stigma of eating disorders and recovery-related outcomes: A systematic review

Author Note

Aoife-Marie Foran, Aisling T. O'Donnell, & Orla T. Muldoon.

Centre for Social Issues Research, Department of Psychology, University of Limerick,

Castletroy, Co. Limerick, Republic of Ireland.

E-mail: aoife.marie.foran@ul.ie; aisling.odonnell@ul.ie; orla.muldoon@ul.ie.

Correspondence concerning this article should be addressed to Aoife Marie Foran (aoife.marie.foran@ul.ie), Department of Psychology, University of Limerick, Castletroy, Co. Limerick, Republic of Ireland.

This is the accepted version of the following article:

Foran, A-M., O'Donnell, A T., & Muldoon, O T. (2020). Stigma of eating disorders and recovery-related outcomes: A systematic review. *European Eating Disorders Review*, 1-13.
doi: 10.1002/erv.2735.

This article has been published in final form at: <http://dx.doi.org/10.1002/erv.2735>.

Abstract

People with eating disorders (EDs) tend to engage in behaviours that are ordinarily perceived as normal in society, such as restrictive dieting. However, when people are diagnosed with an ED, they may often feel stigmatised, which is likely to act as a barrier to recovery. To date, there is a limited understanding of how stigma of EDs impacts recovery-related outcomes. A systematic search was performed using PsychINFO and PubMed. Multiple combined searches of terms relating to stigma, EDs, and recovery-related outcomes were conducted. PRISMA guidelines were followed throughout the selection process and resulted in nine studies meeting specific inclusion criteria. The extracted data are examined in a critical narrative synthesis. Our review suggested that across different samples and measures, stigmatisation of EDs is negatively related to a range of factors important for recovery. These include psychological, social and physical health outcomes, ED psychopathology and treatment-seeking behaviours. Based on the quality assessment, it was concluded that future research would benefit from the use of research designs that can demonstrate causality and generalise findings across community samples. Therefore, in order to improve recovery-related outcomes, treatment plans must consider the type of ED stigma experienced and its relation with specific recovery-related outcomes.

Keywords: stigma, eating disorders, recovery-related outcomes, systematic review.

Stigma of eating disorders and recovery-related outcomes: A systematic review

There are approximately 70 million people worldwide with eating disorders (ED) (Bodywhys, 2017), with research suggesting that EDs have the lowest sustained recovery rates of all psychological disorders (Galmiche, Dechelotte, Lambert & Tavoracci, 2019). Stigma is acknowledged as one of the strongest barriers to engaging with treatment services and recovery (Ali et al., 2017). Compared to other psychological disorders, such as depression, people with EDs experience stigmatisation differently. Western culture allows us to believe that some extreme forms of eating behaviours, such as restrictive dieting, are appropriate ways to achieve the ideal body (Thompson & Stice, 2001). The pendulum swings, however, when the high-status thin ideal is transformed into a low-status ED diagnosis, resulting in stigmatisation (Griffiths, Mond, Murray & Touyz, 2014). This has parallels to social representations of use and misuse of substances, where there can be a fine line between normalised ‘partying’ behaviours, and the stigma associated with addiction (Sznitman et al., 2013). People with disordered eating behaviours are often further stigmatised by a prevalent view that those affected brought the problem upon themselves and that these behaviours are within the person’s control. This highlights the importance of understanding the consequences of stigma, as we argue that this has implications for recovery. Any confusion around substance misuse is clarified when a person acknowledges an addiction, and so abstinence is central to recovery (Sznitman & Taubman, 2016). However, for those affected by EDs as eating and weight issues, the associated positive and negative social connotations must be managed for those in recovery. Consequently, the present paper advances prior research by synthesising the relevant literature to explore how the stigma of EDs impacts recovery-related outcomes and assessing the quality of this evidence.

Stigma is the disapproval and shame experienced and felt by people possessing characteristics that society considers improper or unfamiliar (Ahmedani, 2011). Stigma in relation to ED diagnosis appears to be common and is centred around the perception that EDs are ostensibly a female problem, a lifestyle choice, and are easy to overcome (Makowski et al., 2015; Räisänen & Hunt, 2014). According to Dimitropoulos et al. (2016) and Griffiths, Mond, Murray and Touyz (2014), individuals with EDs believed that the public trivialise this disorder through their perceptions that ED behaviours are within their control, and that they are personally responsible for their condition. This is an example of perceived stigma, which is referred to as the perception held in society that certain characteristics about an individual's identity are socially undesirable (Latalova, Kamaradova & Prasko, 2014). Additionally, some people with EDs may experience discrimination (Ebner, Latner, & O'Brien, 2011) and social rejection (Angermeyer et al., 2015). Likewise, stigmatising attitudes are held by health professionals, with people with EDs commonly seen as being personally responsible for their illness (McNicholas, O'Connor, O'Hara & McNamara, 2016). This is sometimes referred to as enacted stigma, which Boyle (2018) defines as the experience of unfair treatment by others, because of one's condition or identity.

Over time, these experiences may result in those with an ED realising they personally are stigmatised for having the disorder, which affects the way they feel about themselves. For instance, individuals with EDs may avoid seeking help due to a fear of continued stigmatisation (Ali et al., 2017). This is known as anticipated stigma, which Earnshaw (2012) defines as the belief that discrimination will be directed at the self from others in the future, due to the stigmatised condition or identity. Moreover, the stigma surrounding ED diagnosis may mean that people feel labelled by their disorder, leading to the internalisation of stigmatising experiences, stemming from negative attitudes held by others (Bradstreet, 2018).

This is often referred to as internalised stigma. When considered together, this body of evidence suggests that ED stigma exists and is experienced by those who have EDs. Therefore, we argue that when one's problem is formalised in an ED diagnosis, this may invoke stigma, which has consequences for recovery-related outcomes.

Research on recovery-related outcomes is important, as unsuccessful ED recovery is associated with a wide range of implications for the individual, their support network, and society (Vallance, Latner & Gleaves, 2011). Indeed, EDs are considered to have the highest mortality rates out of all psychological disorders, with only around 45% of those diagnosed fully recovering (Arcelus et al., 2011). However, there continues to be significant disagreement in the field around the factors that must be present for sustained ED recovery. Outcome studies have framed ED recovery generally as the remission of ED behaviours and/or change in physical health (Le Grange et al., 2014; Vall & Wade, 2015). However, a growing body of literature suggests that ED recovery not only involves overcoming physical and behavioural barriers, but also the attainment of positive psychological and social health outcomes, such as well-being and social functioning (Bachner-Melman et al., 2006; Bardone-Cone et al., 2010; Onken et al., 2007). These findings highlight the importance of including physical, behavioural, psychological and social health outcomes when defining and measuring ED recovery. As such, these recovery-related health outcomes are utilised in the present paper, in order to understand whether ED stigma has the potential to act as a barrier to successful recovery.

Although stigma has been associated with EDs (Ebner & Latner, 2013), the impact this stigma may then have on ED recovery-related outcomes has not received as much attention (Puhl & Suh, 2015). By contrast, in the stigmatised identities literature around chronic illnesses, stigma has been associated with reduced psychological well-being

(Chaudoir & Quinn, 2016; Pérez-Garín, Molero, & Bos, 2015; Quinn et al., 2014), higher avoidance of social interactions (Perlick et al., 2001), reduced quality of life (Beals, Peplau & Gable, 2009; Earnshaw & Quinn, 2012), and impaired physical health (Earnshaw et al., 2013; Hatzenbuehler, Phelan & Link, 2013). Moreover, researchers suggest that stigmatisation is associated with a decreased likelihood of future help-seeking behaviours (Clement et al., 2015; Sharp et al., 2015). Therefore, it is apparent that the stigma associated with chronic illness affects an individual's quality of life, and the possibility of seeking treatment, which is required for sustained recovery. Here, we argue for the application of this knowledge around stigma and recovery-related outcomes to EDs in particular.

Research on the stigma of EDs, and how this in turn impacts recovery-related outcomes, is a novel area. It is also important, in order to develop ways of addressing low sustained recovery rates. To date, there is no available systematic review that investigates the effects of ED stigma on recovery-related outcomes. Therefore, the present paper aims to systematically review the limited, but growing literature to explore the research on stigma of EDs as it pertains to recovery-related outcomes. Specifically, the review focuses on the psychological, social, physical and behavioural health consequences of stigma for individuals with EDs. Through identifying and synthesising relevant quantitative studies, we seek to evaluate how stigma of EDs impacts recovery-related outcomes. We also aim to critically evaluate the findings of these studies. In conducting a quality assessment of the chosen articles, we are able to identify whether the findings can be used as reliable evidence. In doing so, we also aim to identify gaps in order to provide directions for future research and interventions.

Method

We developed a protocol informed by the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) checklist (Moher et al., 2015), detailing the specific criteria for study selection, approach to abstracting data and assessing study quality. A PRISMA flow diagram was utilised to illustrate the study selection process (see Figure 1).

Data Sources and Searches

A systematic literature search of studies published between 2007 and 2019 was conducted using electronic psychological and medical databases: PsychINFO and PubMed. This year range was selected as stigma in ED research is a novel area that has only begun to be explored. Multiple combined searches of the terms ‘stigma’, ‘discrimination’, ‘teasing’, ‘blame’, ‘eating disorders’, ‘anorexia’, ‘bulimia’, ‘binge eating’, ‘disordered eating’, ‘symptoms’, ‘recovery’, ‘psychological distress’, ‘self-esteem’, ‘loneliness’, ‘social rejection’, ‘social support’, ‘physical health’, ‘treatment-seeking’ were conducted. See full details of specific search combinations in Supplementary Materials 1. The terms ‘obesity’, ‘overweight’ and ‘body-acceptance’ were excluded, as they resulted in the retrieval irrelevant articles. Reference lists were also searched for potential studies. However, this did not yield additional articles. Duplicate articles were manually excluded. These processes were developed and carried out by one researcher (AMF) in February 2019, and independently replicated by another in May 2019 (AOD).

Eligibility Criteria

Once duplicates were removed, articles were screened at three stages based on title, abstract, and full text. To be included in the review, articles were required to have met the following inclusion criteria: (a) the study examined specific types of stigma as reported by

the participants; (b) the target population were individuals with disordered eating behaviours, a self-identified /diagnosed ED or those who previously had an ED; (c) the study had primary and sufficient data derived from cross-sectional or longitudinal studies; (d) the study investigated physical, psychological, social, behavioural or other health outcomes related to ED treatment/recovery. Articles in languages other than English, published abstracts, reviews, commentaries, editorials, and book chapters were excluded.

Data Extraction

Information on study design, participants, predictor(s) (stigma), recovery-related outcomes, findings and methodological quality were extracted (see Table 1 and Table 2). The main findings of the nine studies included in this systematic review are reported and narratively synthesised. In the succeeding text, articles that examined similar recovery-related outcomes were grouped together into the following subsections: psychological health; social health; treatment-seeking attitudes; ED symptoms and behaviours; and physical health.

Quality Assessment

A quality assessment was conducted to critically appraise the quality of evidence provided by the primary studies, to determine whether the findings can be used as reliable evidence. Similar to the data extraction and screening, the quality assessment was conducted by one researcher (AMF) and compared for reliability by another (AOD). As the review was concerned with the measurement of stigma as a possible precursor for poor recovery-related outcomes, rather than intervention effects, traditional attributes of study quality (e.g., randomisation) were deemed inappropriate. Therefore, we used the adapted version of the Newcastle-Ottawa Quality Assessment Scale (Wells et al., 2012). This scale is a validated measure and has been utilised in recent systematic reviews, which focus on cross-sectional

studies (e.g., Herzog et al., 2013; Modesti et al., 2016). See full details of quality assessment procedure in Supplementary Materials 2.

Results

Study Selection

Figure 1 shows the complete study selection process. The search strategy produced a total of 137 articles (PubMed: 87 articles; PsychInfo: 50 articles). First, 21 of those articles were removed as a result of being duplicates. 23 articles in languages other than English, published abstracts, reviews, commentaries, editorials, and book chapters were also excluded. At this stage, titles and abstracts were screened, and full reports of potentially relevant studies were selected. To be included, studies were required to include measures of both stigma and recovery-related outcomes. A further 93 studies were eliminated as they did not include stigma measures and/or the pre-defined recovery-related measures. After assessing the remaining studies using the specific criteria, this led to the retention of nine articles for review.

Study Characteristics

All articles that met the inclusion criteria reported cross-sectional studies. These studies aimed to examine whether ED stigma was related to different recovery-related outcomes. Three of the studies had only female participants, with the remaining six consisting of over 70% female samples. Across the nine studies, participant's ages ranged between 14 and 65 years. Four of the studies reviewed included multi-national or community samples. Two of the remaining studies included samples of undergraduate students. The samples from the last three studies consisted of mental health service users. Six studies had participants who were currently diagnosed with an ED, which together included 654 people

with anorexia nervosa (AN), 255 people with bulimia nervosa (BN), 272 people with binge eating disorder (BED) and 256 people with eating disorder not other specified (EDNOS). Two studies had people who met the criteria for an ED, as determined by validated ED diagnostic checklists ($n = 565$). The remaining two studies were based on individuals who had recovered from AN ($n = 157$), BN ($n = 17$), and EDNOS ($n = 28$). See Table 1 for information on stigma and recovery-related outcome measures.

Key Findings

The review suggests that different types of ED stigma negatively predicts psychological health outcomes, such as self-esteem and depressive symptoms (Dimitropoulos et al., 2016; Griffiths et al., 2014; O'Hara et al., 2016); social health outcomes, such as alienation and social withdrawal (Griffiths et al., 2018); and poor self-reported physical health (Pearl, White & Grilo, 2013). Further, various types of ED stigma predicts negative attitudes towards treatment-seeking behaviours (Dimitropoulos et al., 2016; Griffiths et al., 2014; Griffiths et al., 2015b; Hackler, Vogel & Wade, 2010; Maier et al., 2014); and greater ED symptoms (Griffiths et al., 2014; Griffiths et al., 2015a; Griffiths et al., 2015b; O'Hara et al., 2016).

Quality Assessment

The results of the Newcastle-Ottawa Quality Assessment Scale (Wells et al., 2012), are presented in Table 2. Most studies included in the review were assessed as satisfactory quality on most of the scale items, with one study being unsatisfactory in terms of the quality assessment (Maier et al., 2014). One strength across most studies was the use of well-validated measures of recovery-related outcomes. These measures had previously been used in the mental illness literature and were subsequently used in ED stigma research. We identified that two studies used customised measures to assess stigmatising experiences

(Griffiths et al., 2015b; Maier et al., 2014). However, the items used in these questionnaires were extracted from well-established scales.

Regarding generalisability, none of the studies were evaluated as being representative of the target population, with two of the studies including samples of undergraduate students (Hackler et al., 2010; O'Hara et al., 2016). This is a concern, as undergraduate samples tend to be quite young, and research has shown that EDs can develop at any age. Moreover, Dimitropoulos et al. (2016), O'Hara et al. (2016) and Maier et al. (2014), had 100% female samples. Griffiths et al. (2014), Griffiths et al. (2015a), Griffiths et al. (2015b) and Griffiths et al. (2018), each contained samples which ranged between 92% and 97% female. Further, Hackler et al. (2010) included 83.5% women in their final sample, and Pearl et al.'s (2013) sample was made up of 71.4% women. Therefore, most of the research to date focuses on mainly female-dominated samples. Given that EDs have an impact on people regardless of their gender (Griffiths et al., 2015), there is a need for more gender-balanced samples.

Most higher quality studies, such as those by Griffiths et al. (2015a), Griffiths et al. (2015b) and Hackler et al. (2010), accounted for confounds (e.g. duration of the disorder; ED symptoms), by utilising multivariate analyses to examine their relations. However, two studies were deemed as only satisfactory (i.e. scored less than seven in the quality assessment). Both Griffiths et al. (2018) and Maier et al. (2014) had methodological problems, in terms of failing to account for confounds. In particular, we identified that Griffiths et al. (2018) utilised different subscales of the Internalised Stigma of Mental Illness (ISMI) scale, to measure their variables of interest (i.e., predictor and outcomes). This is a concern, as the original authors of ISMI scale viewed alienation and social withdrawal as factors which constitutes internalised stigma, as opposed to factors that relate to it (Ritsher, Otilingam & Grajales, 2003) – while Griffiths and colleagues used these as social health

outcomes of stigma. Therefore, we argue that while Griffiths et al.'s (2018) study advances the ED recovery literature, by adding social health outcomes, further research is needed to verify their effects by focusing on social aspects of health that are not conflated with the construct of stigma itself.

One major limitation across all studies is their reliance on a cross-sectional design. Consequently, it is not possible to determine whether ED stigma is impacting recovery-related outcomes over time, or whether the timing of each study is representative of the phenomenon being researched. While Griffiths et al. (2018) used bootstrapped confidence intervals (10,000 resamples) to evaluate the indirect effect of ED stigma on symptom severity through alienation and social withdrawal, it is not possible using a cross-sectional design to establish the direction of a causal flow. Therefore, cross-sectional studies make it difficult to rule out the possibility of an alternative explanation and thereby this field would benefit from the use of longitudinal designs. However, these studies are still valuable in investigating the relation between ED stigma and outcomes related to recovery, as they are strong in terms of their use of well-validated stigma and recovery-related outcome measures.

Discussion

This systematic review aimed to explore the impact of ED stigma on recovery-related outcomes. In considering the findings as a whole, there is evidence across samples and measures that stigmatisation of EDs is significantly related to a wide range of factors that are related to ED recovery. These include psychological, social and physical health outcomes, as well as ED symptoms and attitudes towards treatment-seeking behaviours. This evidence ranges in quality from satisfactory to good, with most studies being of good quality.

Summary of Evidence

Research indicates that various types of ED stigma were negatively related to different measures of psychological health, and therefore may predict unsuccessful recovery (Dimitropoulos et al., 2016; Griffiths et al., 2014; O'Hara et al., 2016). These findings are consistent with prior research suggesting that different types of stigma are related with reduced psychological well-being in individuals with chronic illnesses (Chaudoir & Quinn, 2016; Pérez-Garín et al., 2015). They also underscore the conclusions of earlier work about the importance of including psychological dimensions in definitions of recovery. However, little is known about the consequences of ED stigma on other aspects of psychological health, such as its relation with body-image and life satisfaction. Considering this, further research is needed to understand to what extent stigma has implications for psychological functioning more broadly, in individuals recovering from a range of EDs.

Stigma of EDs was also shown to be related to social health outcomes, and thereby may have important implications for the overall recovery process (Griffiths et al., 2018). Given that recovery is both an interpersonal and social process (Bardone-Cone et al., 2010), findings such as these are important to understand how ED stigma is impacting social health outcomes important for recovery. This association has been suggested in the chronic illness literature, which found that stigma predicts avoidance of social interactions and lower perceived friendship quality (Earnshaw & Quinn, 2012; Perlick et al., 2001).

While the study reviewed here was a positive first step, by including social health in the ED stigma and recovery-related outcomes research, there appears to be a conceptual disagreement between Griffiths et al. (2018) and the authors of the ISMI scale, regarding what constitutes internalised stigma. As internalised stigma can be viewed as a multi-factorial concept, researchers may often differ in their operationalisation. However, it was instructed by Ritsher et al. (2003) that the items which are drawn from the five areas (Alienation,

Stereotype Endorsement, Perceived Discrimination, Social Withdrawal, and Stigma

Resistance) of the ISMI, which conceptually represent internalised stigma, cannot be utilised to form subscales measuring these areas separately. Therefore, further research is required to verify Griffiths et al.'s (2018) findings. Research is also needed to determine whether ED stigma interferes with protective factors such as social support, and whether this impacts the possibility of seeking help and recovering from the disorder.

Moreover, we identified across multiple studies that stigma of EDs may play a decisive role for those with EDs, which impacts their motivation to seek professional help and their attitudes towards recovery (Dimitropoulos et al., 2016; Griffiths et al., 2014; Griffiths et al., 2015a; Griffiths et al., 2015b; Hackler et al., 2010; Maier et al., 2014). These findings provide support for prior research, which suggested that greater frequency of stigmatising experiences predicted greater avoidance of treatment-seeking behaviours across a range of chronic physical and mental illnesses (Ali et al., 2017; Clement et al., 2015; McNicholas et al., 2016). Additionally, the results of these studies highlight the importance of understanding the association between different types of ED stigma and attitudes towards treatment-seeking behaviours, in order to determine ways of facilitating sustained recovery.

Furthermore, ED stigma was associated with the maintenance and severity of disordered eating behaviours, and thereby may influence the likelihood of ED recovery (Griffiths et al., 2014; Griffiths et al., 2015a; Griffiths et al., 2015b; O'Hara et al., 2016). These findings both support and advance the arguments of Griffiths et al. (2015) that various types of stigma are a risk factor for continued disordered eating behaviours. Considering these findings, researchers should consider examining to what extent stigma of EDs influences continued eating pathology, in order to develop strategies that reduce the effects of specific types of ED stigma on behavioural aspects of recovery.

While there is a reasonably limited amount of research examining the psychological, behavioural and treatment-seeking consequences of ED stigma, evidence is even rarer regarding physical health outcomes. To date, one study suggests that ED stigma may predict unsuccessful physical recovery (Pearl et al., 2013). This finding strengthens prior research stating that stigmatisation is associated with poor physical health in individuals with a range of chronic mental illnesses (Earnshaw et al., 2013; Hatzenbuehler et al., 2013). However, Pearl et al. (2013) relied on self-reported measures of physical health. Based on this one study, we argue that very little is known about the consequences of ED stigma on physical health. Therefore, further research is needed to understand this relation, in order to promote sustained recovery. We recommend that more objective measures of physical health should be used, including: BMI, blood pressure, and symptoms of fatigue. This would advance the existing literature that suggests a negative relation between stigma and physical health.

Limitations and Future Directions

While the quality of research that examines the relation between stigma of EDs and recovery-related outcomes is good overall, it can be improved as well as expanded. For example, all studies in this review are cross-sectional in nature. Therefore, it is not possible to draw firm causal conclusions from the current research. Future research would benefit from employing a longitudinal approach to examining the impact of ED stigma on recovery-related outcomes overtime, as a means of determining a causal impact.

Further, all included studies used wholly or predominantly female samples. Strother et al. (2012) reported that men with EDs are consistently being neglected in terms of diagnosis and treatment, because of the perception that EDs are a ‘female disorder’. This also appears to be the case for research, with eight of the studies included in the review having much smaller proportions of men than the estimated 25% (Bodywhys, 2017). We argue the need for

the inclusion of men in ED research, to gain a more representative insight of the types of ED-related stigma people experience. Therefore, researchers should consider examining whether gender influences the relation between stigma and ED recovery-related outcomes. This in turn may result in the development of treatment interventions, facilitating positive recovery-related outcomes for both men and women.

Finally, we identified that the literature examining the impact of ED stigma on social and physical health outcomes is scarce. Research in these areas is essential, as researchers have highlighted the importance of including social and physical health components when defining ED recovery (Bardone-Cone et al., 2010; Onken et al., 2007). In the present review, we found that Pearl et al.'s (2013) study, relied on self-reported measures of physical health and thereby would benefit from the use of objective measures. Additionally, we identified that Griffiths et al.'s (2018) study was limited in their measures used for stigma and social health outcomes. As internalised stigma can be viewed as a multi-factorial concept, researchers need to be conscious of this in the future, to avoid conflating predictor and outcome.

Conclusion

This systematic review argues that ED stigma may have an impact on recovery, as it is related to poor psychological, social and physical health outcomes, as well as greater ED psychopathology and a decreased likelihood of treatment-seeking behaviours. We have identified that the findings of all studies showed consistent effects, across different types of ED stigma and recovery-related outcomes. However, the association between stigma of EDs and recovery-related outcomes is complex, as different types of stigma impact different recovery-related outcomes. Given that people with EDs experience stigma differently than those with other psychological disorders, future research must consider this difference when

examining the impact of stigma on recovery-related outcomes. Therefore, in order to improve ED recovery outcomes, treatment plans must consider the type of stigma experienced. While most studies included in this review were of satisfactory quality, they lacked in terms of their generalisability and correlational design. Future research should employ research designs that can demonstrate causality and aim to generalise findings across community populations. We also suggest that research should illuminate the relation between stigma and EDs in more gender-balanced samples, to further identify the implications of ED stigma for the recovery process.

References

- Ahmedani, B. K. (2011). Mental health stigma: society, individuals, and the profession. *Journal of Social Work Values and Ethics*, 8(2), 4-1.
- Ali, K., Farrer, L., Fassnacht, D. B., Gulliver, A., Bauer, S., & Griffiths, K. M. (2017). Perceived barriers and facilitators towards help-seeking for eating disorders: A systematic review. *International Journal of Eating Disorders*, 50, 9-21.
<https://doi.org/10.1002/eat.22598>.
- Angermeyer, M. C., Daubmann, A., Wegscheider, K., Mnich, E., Schomerus, G., & vd Knesebeck, O. (2015). The relationship between biogenetic attributions and desire for social distance from persons with schizophrenia and major depression revisited. *Epidemiology and Psychiatric Sciences*, 24(4), 335-341.
<https://doi.org/10.1017/S2045796014000262>.
- Arcelus, J., Mitchell, A. J., Wales, J., & Nielsen, S. (2011). Mortality rates in patients with anorexia nervosa and other eating disorders: a meta-analysis of 36 studies. *Archives of General Psychiatry*, 68(7), 724-731. doi:10.1001/archgenpsychiatry.2011.74.
- Bachner-Melman, R., Zohar, A. H., & Ebstein, R. P. (2006). An examination of cognitive versus behavioral components of recovery from anorexia nervosa. *The Journal of Nervous and Mental Disease*, 194(9), 697-703. DOI: 10.1097/01.nmd.0000235795.51683.99.
- Bardone-Cone, A. M., Harney, M. B., Maldonado, C. R., Lawson, M. A., Robinson, D. P., Smith, R., & Tosh, A. (2010). Defining recovery from an eating disorder: Conceptualisation, validation, and examination of psychosocial functioning and

psychiatric comorbidity. *Behaviour Research and Therapy*, 48(3), 194-202.

<https://doi.org/10.1016/j.brat.2009.11.001>.

Beals, K. P., Peplau, L. A., & Gable, S. L. (2009). Stigma management and well-being: The role of perceived social support, emotional processing, and suppression. *Personality and Social Psychology Bulletin*, 35(7), 867-879. doi: 10.1177/0146167209334783.

Bodywhys (2017). *Annual Report*. Dublin. <https://www.bodywhys.ie/wp-content/uploads/2018/07/BW-AR-210x280mm-2017-final2.pdf>.

Boyle, M. P. (2018). Enacted stigma and felt stigma experienced by adults who stutter. *Journal of Communication Disorders*, 73, 50-61.
<https://doi.org/10.1016/j.jcomdis.2018.03.004>.

Bradstreet, S., Dodd, A., & Jones, S. (2018). Internalised stigma in mental health: an investigation of the role of attachment style. *Psychiatry Research*, 270, 1001-1009.
<https://doi.org/10.1016/j.psychres.2018.03.047>.

Chaudoir, S. R., & Quinn, D. M. (2016). Evidence that anticipated stigma predicts poorer depressive symptom trajectories among emerging adults living with concealable stigmatised identities. *Self and Identity*, 15(2), 139-151.
<https://doi.org/10.1080/15298868.2015.1091378>.

Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., ... & Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological Medicine*, 45, 11-27. <https://doi.org/10.1017/S0033291714000129>.

- Dimitropoulos, G., McCallum, L., Colasanto, M., Freeman, V. E., & Gadalla, T. (2016). The effects of stigma on recovery attitudes in people with anorexia nervosa in intensive treatment. *The Journal of Nervous and Mental Disease*, 204(5), 370-380. doi: 10.1097/NMD.0000000000000480.
- Earnshaw, V. A., & Quinn, D. M. (2012). The impact of stigma in healthcare on people living with chronic illnesses. *Journal of Health Psychology*, 17(2), 157-168. doi: 10.1177/1359105311414952.
- Earnshaw, V. A., Smith, L. R., Chaudoir, S. R., Amico, K. R., & Copenhaver, M. M. (2013). HIV stigma mechanisms and well-being among PLWH: a test of the HIV stigma framework. *AIDS and Behaviour*, 17(5), 1785-1795. <https://doi.org/10.1007/s10461-013-0437-9>.
- Ebneter, D. S., & Latner, J. D. (2013). Stigmatising attitudes differ across mental health disorders: a comparison of stigma across eating disorders, obesity, and major depressive disorder. *The Journal of Nervous and Mental Disease*, 201(4), 281-285. doi: 10.1097/NMD.0b013e318288e23f.
- Ebneter, D. S., Latner, J. D., & O'Brien, K. S. (2011). Just world beliefs, causal beliefs, and acquaintance: Associations with stigma toward eating disorders and obesity. *Personality and Individual Differences*, 51(5), 618-622. <https://doi.org/10.1016/j.paid.2011.05.029>.
- Galmiche, M., Déchelotte, P., Lambert, G., & Tavalacci, M. P. (2019). Prevalence of eating disorders over the 2000–2018 period: a systematic literature review. *The American*

Journal of Clinical Nutrition, 109(5), 1402-1413.

<https://doi.org/10.1093/ajcn/nqy342>.

Griffiths, S., Mitchison, D., Murray, S. B., Mond, J. M., & Bastian, B. B. (2018). How might eating disorders stigmatisation worsen eating disorders symptom severity? Evaluation of a stigma internalisation model. *International Journal of Eating Disorders*, 51(8), 1010-1014. <https://doi.org/10.1002/eat.22932>.

Griffiths, S., Mond, J. M., Li, Z., Gunatilake, S., Murray, S. B., Sheffield, J., & Touyz, S. (2015b). Self-stigma of seeking treatment and being male predict an increased likelihood of having an undiagnosed eating disorder. *International Journal of Eating Disorders*, 48(6), 775-778. <https://doi.org/10.1002/eat.22413>.

Griffiths, S., Mond, J. M., Murray, S. B., & Touyz, S. (2014). The prevalence and adverse associations of stigmatisation in people with eating disorders. *International Journal of Eating Disorders*, 48(6), 767-774. <https://doi.org/10.1002/eat.22353>.

Griffiths, S., Mond, J. M., Murray, S. B., Thornton, C., & Touyz, S. (2015a). Stigma resistance in eating disorders. *Social Psychiatry and Psychiatric Epidemiology*, 50(2), 279-287. <https://doi.org/10.1007/s00127-014-0923-z>.

Hackler, A. H., Vogel, D. L., & Wade, N. G. (2010). Attitudes toward seeking professional help for an eating disorder: The role of stigma and anticipated outcomes. *Journal of Counselling & Development*, 88(4), 424-431. <https://doi.org/10.1002/j.1556-6678.2010.tb00042.x>.

Hatzenbuehler, M. L., Phelan, J. C., & Link, B. G. (2013). Stigma as a fundamental cause of population health inequalities. *American Journal of Public Health*, 103(5), 813-821.

- Herzog, R., Álvarez-Pasquin, M. J., Díaz, C., Del Barrio, J. L., Estrada, J. M., & Gil, Á. (2013). Are healthcare workers' intentions to vaccinate related to their knowledge, beliefs and attitudes? A systematic review. *BMC Public Health*, *13*, 154. <https://doi.org/10.1186/1471-2458-13-154>.
- Kamaradova, D., & Prasko, J. (2014). Perspectives on perceived stigma and self-stigma in adult male patients with depression. *Neuropsychiatric Disease and Treatment*, *10*, 1399. <https://dx.doi.org/10.2147%2FNDT.S54081>.
- Le Grange, D., Accurso, E. C., Lock, J., Agras, S., & Bryson, S. W. (2014). Early weight gain predicts outcome in two treatments for adolescent anorexia nervosa. *International Journal of Eating Disorders*, *47*(2), 124-129. <https://doi.org/10.1002/eat.22221>.
- Maier, A., Ernst, J. P., Müller, S., Gross, D., Zepf, F. D., Herpertz-Dahlmann, B., & Hagenah, U. (2014). Self-perceived stigmatisation in female patients with anorexia nervosa-Results from an explorative retrospective pilot study of adolescents. *Psychopathology*, *47*(2), 127-132. <https://doi.org/10.1159/000350505>.
- Makowski, A. C., Mnich, E. E., Angermeyer, M. C., Löwe, B., & von dem Knesebeck, O. (2015). Sex differences in attitudes towards females with eating disorders. *Eating Behaviours*, *16*, 78-83. <https://doi.org/10.1016/j.eatbeh.2014.10.017>.
- McNicholas, F., O'Connor, C., O'hara, L., & McNamara, N. (2016). Stigma and treatment of eating disorders in Ireland: healthcare professionals' knowledge and attitudes. *Irish Journal of Psychological Medicine*, *33*, 21-31. <https://doi.org/10.1017/ipm.2015.24>.

- Modesti, P. A., Reboldi, G., Cappuccio, F. P., Agyemang, C., Remuzzi, G., Rapi, S., ... & Parati, G. (2016). Panethnic differences in blood pressure in Europe: a systematic review and meta-analysis. *PloS One*, *11*, e0147601.
<https://doi.org/10.1371/journal.pone.0147601>.
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., ... & Stewart, L. A. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews*, *4*, 1.
<https://doi.org/10.1186/2046-4053-4-1>.
- O'Hara, L., Tahboub-Schulte, S., & Thomas, J. (2016). Weight-related teasing and internalised weight stigma predict abnormal eating attitudes and behaviours in Emirati female university students. *Appetite*, *102*, 44-50.
<https://doi.org/10.1016/j.appet.2016.01.019>.
- Onken, S. J., Craig, C. M., Ridgway, P., Ralph, R. O., & Cook, J. A. (2007). An analysis of the definitions and elements of recovery: A review of the literature. *Psychiatric Rehabilitation Journal*, *31*, 9. doi: 10.2975/31.1.2007.9.22.
- Pearl, R. L., White, M. A., & Grilo, C. M. (2014). Overvaluation of shape and weight as a mediator between self-esteem and weight bias internalisation among patients with binge eating disorder. *Eating Behaviours*, *15*(2), 259-261.
<https://doi.org/10.1016/j.eatbeh.2014.03.005>.
- Pérez-Garín, D., Molero, F., & Bos, A. E. (2015). Internalised mental illness stigma and subjective well-being: The mediating role of psychological well-being. *Psychiatry Research*, *228*(3), 325-331. <https://doi.org/10.1016/j.psychres.2015.06.029>.

- Perlick, D. A., Rosenheck, R. A., Clarkin, J. F., Sirey, J. A., Salah, J., Struening, E. L., & Link, B. G. (2001). Stigma as a barrier to recovery: adverse effects of perceived stigma on social adaptation of persons diagnosed with bipolar affective disorder. *Psychiatric Services*, 52(12), 1627-1632.
<https://doi.org/10.1176/appi.ps.52.12.1627>.
- Puhl, R., & Suh, Y. (2015). Stigma and eating and weight disorders. *Current Psychiatry Reports*, 17(3), 10. <https://doi.org/10.1007/s11920-015-0552-6>.
- Quinn, D. M., Williams, M. K., Quintana, F., Gaskins, J. L., Overstreet, N. M., Pishori, A., ... & Chaudoir, S. R. (2014). Examining effects of anticipated stigma, centrality, salience, internalisation, and outness on psychological distress for people with concealable stigmatised identities. *PloS One*, 9(5), e96977.
<https://doi.org/10.1371/journal.pone.0096977>.
- Räsänen, U., & Hunt, K. (2014). The role of gendered constructions of eating disorders in delayed help-seeking in men: a qualitative interview study. *BMJ Open*, 4(4), e004342.
<http://dx.doi.org/10.1136/bmjopen-2013-004342>.
- Ritsher, J. B., Otilingam, P. G., & Grajales, M. (2003). Internalised stigma of mental illness: psychometric properties of a new measure. *Psychiatry Research*, 121, 31-49.
<https://doi.org/10.1016/j.psychres.2003.08.008>.
- 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. *Epidemiologic Reviews*, 37, 144-162.
<https://doi.org/10.1093/epirev/mxu012>.

- Strother, E., Lemberg, R., Stanford, S. C., & Turberville, D. (2012). Eating disorders in men: underdiagnosed, undertreated, and misunderstood. *Eating Disorders*, 20(5), 346-355. <https://doi.org/10.1080/10640266.2012.715512>.
- Sznitman, S. R., & Taubman, D. S. (2016). Drug use normalization: a systematic and critical mixed-methods review. *Journal of Studies on Alcohol and Drugs*, 77(5), 700-709. <https://doi.org/10.15288/jsad.2016.77.700>.
- Sznitman, S. R., Kolobov, T., Ter Bogt, T., Kuntsche, E., Walsh, S. D., Boniel-Nissim, M., & Harel-Fisch, Y. (2013). Exploring substance use normalization among adolescents: A multilevel study in 35 countries. *Social Science & Medicine*, 97, 143-151. <https://doi.org/10.1016/j.socscimed.2013.08.038>.
- Thompson, J. K., & Stice, E. (2001). Thin-ideal internalization: Mounting evidence for a new risk factor for body-image disturbance and eating pathology. *Current Directions in Psychological Science*, 10(5), 181-183. <https://doi.org/10.1111%2F1467-8721.00144>.
- Vall, E., & Wade, T. D. (2015). Predictors of treatment outcome in individuals with eating disorders: A systematic review and meta-analysis. *International Journal of Eating Disorders*, 48(7), 946-971. <https://doi.org/10.1002/eat.22411>.
- Vallance, J. K., Latner, J. D., & Gleaves, D. H. (2011). The relationship between eating disorder psychopathology and health-related quality of life within a community sample. *Quality of Life Research*, 20(5), 675-682. <https://doi.org/10.1007/s11136-010-9799-x>.
- Wells, G. A., Shea, B., O'connell, D., Petersen, J., Welch, V., Losos, M., & Tugwell, P. (2012). The Newcastle-Ottawa Scale (NOS) for assessing the quality of

nonrandomised studies in meta-analyses. Department of Epidemiology and
Community Medicine, University of Ottawa, Canada. *University of Ottawa, Canada:*
Available at: www.ohri.ca/programs/clinicalepidemiology/oxford.asp. Latalova, K.,

Table 1

Study characteristics and summary of findings from selected articles

Author (year) & Study Location	Sample	% Female	Stigma measure	Recovery measure	Key findings
Maier et al. (2014); Germany	75 former adolescent patients ($M_{age} = 19.3$) with AN	100%	Enacted stigma of EDs – Customised questionnaire on stigmatisation of EDs, using items from well-established questionnaires	Treatment-seeking attitudes - Attitudes toward Seeking Professional Psychological Help – Short Form	31% reported delaying visits to physicians due to a fear of criticism and blame from peers, family, and health professionals; 34% reported waiting to undergo treatment due to a fear of social rejection.
Griffiths et al. (2014);	Cross-national sample of 317 individuals ($M_{age} =$	95%			Frequent stigmatisation predicted higher levels of continued ED

Australia, United States and United Kingdom	24.7) with a diagnosis of AN (165), BN (66) and EDNOS (86)	Perceived stigma of EDs - Perceived Discrimination and Devaluation Scale	Treatment-seeking attitudes – Self-Stigma of Seeking Psychological Help Scale; Psychological health: Self- Esteem - Rosenberg Self- Esteem Scale; Psychological health: Depression symptoms – Depression subscale of the Depression, Anxiety and Stress Scale; ED symptoms - Eating Disorder Examination Questionnaire	psychopathology, lower self- esteem, greater depressive symptoms and fewer attitudes towards seeking psychological help.
O'Hara et al. (2016);	420 Emirati undergraduate students	100%		Internalised stigma and weight- based teasing were significantly

United Arab Emirates	($M_{age} = 23.1$) that met the criteria for disordered eating		Internalised stigma of EDs – Combined multiple scale: Weight and Body-Related Shame Scale; Social Appearance Anxiety Scale; Sociocultural Attitudes Towards Appearance Questionnaire for People with EDs; and Anti-Fat Attitudes Questionnaire; Enacted stigma of EDs – Weight-Based Teasing Questionnaire	Psychological health: Self-esteem - Rosenberg Self-Esteem Scale; Disordered eating behaviours – Abnormal Eating Behaviours and Attitudes	related to lower self-esteem and abnormal eating behaviours.
Griffiths et al. (2018); Australia, United States	Cross-national sample of 260 individuals ($M_{age} = 27.2$) with self-reported AN (46.9%), BN (18.9%), BED (5.7%) and EDNOS (18.9%)	93.4%		Social health: Alienation – alienation subsection of the Internalised Stigma of Mental Illness Scale;	Increased exposure to ED stigmatisation predicted increased social withdrawal and increased alienation; Increased social withdrawal and increased

and United Kingdom		of the Internalised Stigma of Mental Illness Scale	Social health: Social withdrawal - social withdrawal subsection of the Internalised Stigma of Mental Illness Scale;	alienation predicted greater ED symptom severity; Using bootstrapped confidence intervals, internalised stigma indirectly predicted ED symptom severity via alienation and social withdrawal.
Hackler, Vogel and Wade (2010);	145 undergraduate students that met the criteria for disordered eating	83.5%	ED symptom severity – Eating Disorder Examination Questionnaire	Self-stigma and anticipated outcomes significantly predicted attitudes towards seeking psychological help for people with disordered eating behaviours.
		Internalised stigma of seeking help for an ED – Self-Stigma of Seeking Help Scale	Treatment-seeking Attitudes – Attitudes toward Seeking Professional	

Iowa State, University, United States		Anticipated stigma of EDs – Disclosure Expectations Scale	Psychological Help – Short Form ED symptoms - Eating Disorder Examination Questionnaire;	
Multi-national sample of 456 people ($M_{\text{age}} = 24.6$): 94.7% diagnosed with AN (168), BN (69), and Griffiths et al. (2015a); Australia, United States and United Kingdom	EDNOS (88); recovered ($M_{\text{age}} = 25.3$ years) from AN (82), BN (17), and EDNOS (28)	Internalised stigma of EDs and Stigma Resistance – Internalised Stigma of Mental Illness Scale	Treatment-seeking Attitudes – Self-Stigma of Seeking Psychological Help Scale; Psychological health: Depression symptoms - Depression subscale of the Depression, Anxiety and Stress Scale;	Greater stigma resistance among the currently diagnosed participants was associated with less marked ED and depression symptoms, higher self-esteem, greater positive attitudes towards seeking psychological help, and lower internalised stigma.

			Psychological health: Self-esteem - Rosenberg Self-Esteem Scale	
36 women ($M_{\text{age}} = 27.9$) with AN				Better attitudes toward treatment-seeking was positively related
100%			Treatment-seeking Attitudes - Attitudes toward Seeking Professional Psychological Help – Short Form;	with higher self-esteem, and negatively related with greater internalised and public stigma.
Dimitropoulos et al. (2016); Toronto, Canada		Perceived stigma of EDs - Perceived Discrimination and Devaluation Scale		
Multi-national sample of 360 individuals diagnosed with AN			Internalised stigma of seeking help for an ED – Internalised Stigma of Mental Illness Scale	
92.6%			Psychological health: Self-esteem – Rosenberg Self-Esteem Scale;	Self-stigma of seeking psychological help was

Griffiths et al. (2015b); Australia, United States and United Kingdom	(163), BN (70), BED (17) and EDNOS (110); undiagnosed (125)	Internalised stigma of seeking help for an ED- Self-Stigma of Seeking Psychological Help; Perceived stigma of EDs – Customised set of stigmatising perceived attitudes and beliefs adapted from prior research	ED symptoms - Eating Disorder Examination Questionnaire	significantly associated with an increased likelihood of being undiagnosed with an ED. This association was significantly stronger for men. Perceived stigma is associated with help- seeking may act as a barrier to recovery from an ED.
Pearl, White and Grilo (2013);	255 treatment-seeking adults ($M_{\text{age}} = 48$) that met the diagnostic criteria for BED	71.4%	Psychological health: Depression symptoms – Beck Depression Inventory; Physical health – Short-	Greater weight bias internalisation was associated with lower levels of physical health, with depressive symptoms mediating this relation.

Yale

Form 36 Heath Survey

University,

United States

Table 2

Quality assessment of selected studies

Study	Representativeness of the sample	Sample size	Non- respondents	Validated measurement tool	Comparability	Assessment of the outcome	Statistical test	Quality Assessment
Maier et al. (2014)	Not representative	Not justified	Described	Tool available	No	Self-report	Appropriate	Unsatisfactory (4)
Griffiths et al. (2014)	Not representative	Not justified	Described	Validated	Yes	Self-report	Appropriate	Satisfactory (6)
O'Hara et al. (2016)	Not representative	Justified	Not described	Validated	Yes	Self-report	Appropriate	Satisfactory (6)

Griffiths et al. (2018)	Not representative	Not justified	Described	Validated	No	Self-report	Appropriate	Satisfactory (5)
Hackler, Vogel and Wade (2010)	Not representative	Justified	Described	Validated	Yes	Self-report	Appropriate	Good (7)
Griffiths et al. (2015a)	Not representative	Justified	Described	Validated	Yes	Self-report	Appropriate	Good (8)
Dimitropoulos et al. (2016)	Not representative	Not justified	Not described	Validated	Yes	Self-report	Appropriate	Satisfactory (6)
Griffiths et al. (2015b)	Not representative	Justified	Described	Validated	Yes	Self-report	Appropriate	Good (8)

Pearl, White and Grilo (2013)	Not representative	Not justified	Not described	Yes	Yes	Self-report	Appropriate	Satisfactory (6)
-------------------------------------	--------------------	------------------	------------------	-----	-----	-------------	-------------	---------------------

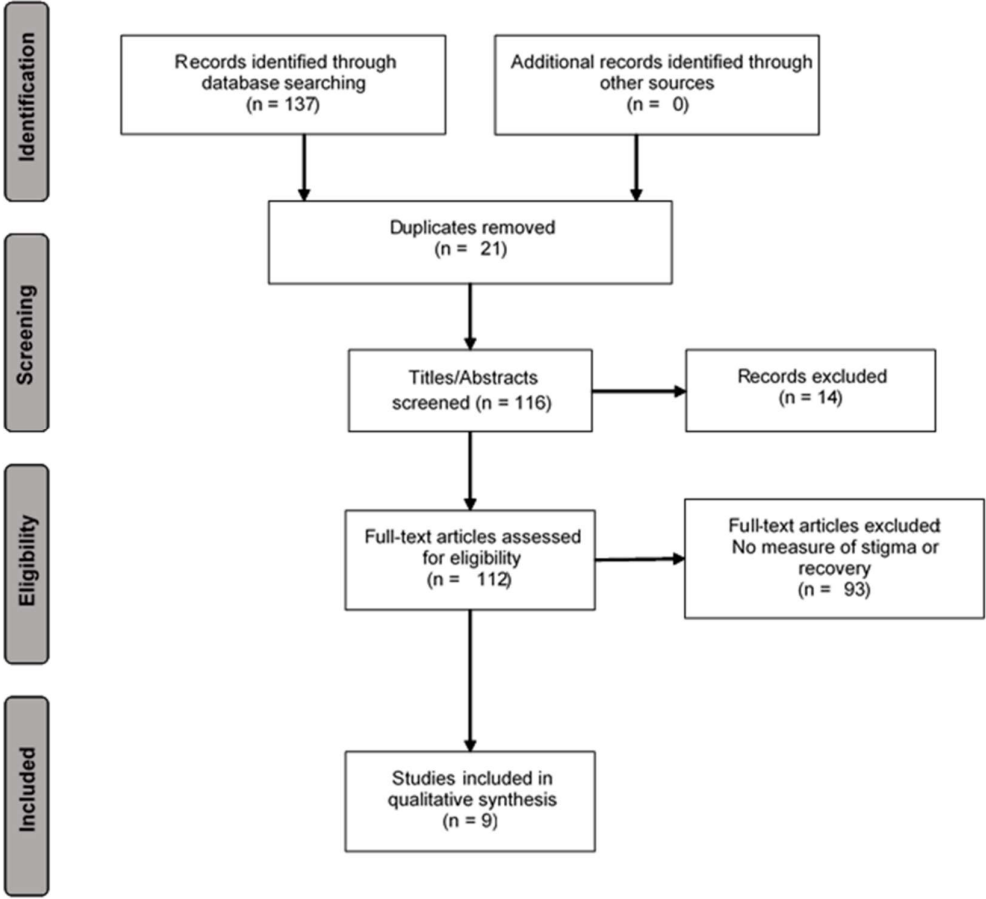


Figure 1. Flow diagram of study selection process