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Developing Internet interventions to target the individual impact of stigma in health conditions

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ABSTRACT

A number of health problems are associated with significant stigma, a social phenomenon in which individuals become the object of negative stereotypes. In addition to experiencing negative reactions from others, stigmatised individuals and groups can experience harmful consequences when they internalise these negative prevailing attitudes. The objective of this paper was to consider the potential to develop Internet-based health-related interventions explicitly targeting the effects of stigma on the individual. A review of the literature was conducted to synthesise current conceptualisations of stigma and self-stigma across a number of groups, and to identify current intervention developments. Self-stigma reduction strategies developed for in-person services include cognitive reframing, myth busting, contact with other members of the stigmatised group, and disclosure promotion. The development and provision of interventions targeting self-stigma within an online environment is in its infancy. Our review considers there to be particular potential of online interventions for this target, associated with the capacity of the Internet to promote having contact with peers within one's stigmatised group, and for user interaction and empowerment. We conclude that self-stigma is a domain in which there is significant potential for innovation with health-related interventions, and provide a number of recommendations for online intervention development.

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1. Introduction

A number of health problems are associated with significant stigma (Corrigan, 2014), which can lead both to marginalization within society, and to the anticipated reactions of others impacting upon the person's own behaviour and view of themselves. Some of the health problems most frequently associated with stigma include mental health problems (Corrigan, 2007; Corrigan and Watson, 2002b), HIV/AIDS (Lee et al., 2002; Oduguwa et al., 2014), chronic disabilities (Berger et al., 2010), neurological problems such as epilepsy (De Boer et al., 2008), and infectious diseases (e.g. tuberculosis, Baral et al., 2007; leprosy, Tsutsumi et al., 2007). Additionally, some social groups who are a target for health interventions may be subjected to stigma, such as persons who have sex with same-sex partners (Herek, 2009; Herek et al., 2009).

One of the purported advantages of Internet interventions is their potential to make treatment more accessible for individuals concerned

about the stigma attached to mental and physical health problems (Griffiths et al., 2006). However, while there has been development of campaigns targeting community stigma, there has been little consideration of how Internet interventions might support individuals within stigmatised groups (Griffiths et al., 2014), or design considerations of interventions in order to take stigma into account.

In this paper we consider these issues, reviewing contemporary conceptualisations of how community stigma affects individuals, synthesising empirical findings relating to existing interventions, and considering the potential and feasibility of the Internet as a vehicle for delivering interventions that support individuals in dealing with stigma.

2. Conceptualisations of stigma

A basic tenet of social psychology is that societies are comprised of in-groups and out-groups (Hinsshaw and Stier, 2008). Community members tend to privilege in-groups and work to maintain in-group boundaries. This preferential treatment helps consolidate identity and provide social protection (Brewer, 1999). Conversely, out-groups may be portrayed homogeneously and negatively. According to Goffman (1963), an influential early theorist of social exclusion, stigma is a “discrediting attribute” that reduces the bearer “from a whole and

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usual person to a tainted, discounted one” (p. 3). In contemporary definitions, stigma is understood as an attribute or label (such as a particular diagnosis) that links individuals to negative social stereotypes (Jones et al., 1984; Major and Eccleston, 2004). Examples of such stereotypes include that persons with mental health problems are inherently weak, same-sex attracted men irresponsibly engage in unprotected sex, or that persons who have recovered from infectious diseases remain contagious. Endorsement of particular stereotypes, in turn, may lead to negative effects, and ultimately to behavioural enactment (including particular acts of discrimination as well as broader processes of social exclusion and marginalization) (Corrigan and Penn, 1999).

Much contemporary research into stigma originates in labelling theory, which proposes that the self-identity and behaviour of individuals is strongly influenced by the terms used by the wider community to describe them (Scheff, 1974; Thoits, 1999). Building on these earlier accounts of labelling in mental health (Scheff, 1974), Link and colleagues (Link, 1987; Link, Cullen, Struening, Shrout, and Dohrenwend, 1989; Link and Phelan, 2001) proposed a highly influential “modified labelling” theory of stigma. In their conceptualisation, stigma arises through the convergence of four inter-related components. First, conditions in a society must be such that certain types of human difference (such as mental illness, or a particular skin colour) are distinguished and labelled. Second, these differences must be associated with negative attributes that may include social deviance, negative personal characteristics and threat to others. Third, these negative associations serve to justify an “us versus them” mentality in which stigmatised others are increasingly seen as different and threatening. Finally, this process of linking labels to negative attributes and reconceptualising labelled individuals as “others” leads to significant discrimination and status loss (or social devaluation). Discrimination can take both structural forms (such as governmental policies that implicitly disadvantage individuals with a stigmatised label) and interpersonal forms (such as rejection by friends or colleagues) (Stuber et al., 2008).

The modified iteration of labelling theory developed by Link and others (Link, 1987; Link et al., 1989; Link et al., 2004) also foregrounds the ways in which individuals may be affected by stigma even in the absence of more direct structural and/or interpersonal discrimination and devaluation. Link and Phelan (2001) explain that over the course of growing up, most members of society will come to share not only in culturally salient stereotypes about people with mental illness (as a group) but also become very aware of norms involving the way in which members of the public react to and behave toward such individuals. For those individuals who, typically in late adolescence or early adulthood, are themselves labelled with a mental illness, awareness of the cultural norms and attitudes become personally relevant. Importantly, coping strategies may be positive or negative and include: i) secrecy, ii) withdrawal from interaction except when necessary (i.e., family and significant others), and iii) educating others (Corrigan and Watson, 2002b). Hence, even when affected individuals do not endorse stereotypes about them, attempts to avoid discrimination and devaluation often generate problematic social and economic circumstances (Thoits and Evenson, 2008).

3. Self-stigma

In addition to the direct effects of discrimination and marginalisation, individuals with a “discrediting” attribute or label may also themselves endorse stereotypes about other individuals with that label (e.g., other people with mental illness) and apply these stereotypes to themselves (Corrigan et al., 2006; Livingston and Boyd, 2010), referred to as *self-stigma* or *internalised stigma*. Health-related self-stigma has been identified as a potentially pernicious consequence of belonging to a stigmatised group and a barrier to recovery for affected individuals (Corrigan et al., 2009), and a number of measures have been developed to operationalise this construct in different populations (e.g. Boyd Ritsher et al., 2003; Corrigan et al., 2006; Ross and Rosser, 1996).

Incidence studies have revealed that high levels of self-stigma are experienced by approximately one third of people with severe mental illness (Brohan et al., 2010; West et al., 2011), 25 per cent of people with HIV/AIDS (Lee et al., 2002), and 20–25 per cent of people with depressive and bipolar disorders (Brohan et al., 2011; Yen et al., 2005). In addition, stigma from within the community can hamper recovery from mental illness and can put individuals subjected to stigma from physical health problems at increased risk of developing mental health problems (Manzo, 2004), which may further compound the presence and severity of self-stigma.

In a model of mental health related self-stigma that has been adopted in other groups, Corrigan et al. (2006) describe three component processes: (a) awareness of community stereotypes, (b) personal agreement with those negative stereotypes, and (c) application of those negative stereotypes to oneself. As a consequence of this internalised stigma, affected individuals may experience feelings of pronounced demoralization and low self-worth and resort to ultimately detrimental coping strategies including social withdrawal, secrecy and the foreclosure of earlier ambitions (such as graduating from college or having kids) (Campbell and Deacon, 2006; Corrigan et al., 2009; Link et al., 2001).

4. The consequences of stigma and self-stigma

Social distancing, or a stated preference for avoiding various types of interactions with stigmatised individuals (such as hiring them for a job, or going out on a date) is considered a central manifestation of stigma (Corrigan et al., 2001; Mak et al., 2007). Population-based data suggests that people try to avoid individuals with mental illness across numerous circumstances, even those that require little direct contact (Jorm and Wright, 2008; Stier and Hinshaw, 2007). In a path analytic study, Corrigan et al. (2002) demonstrated that endorsement of prejudicial attitudes regarding mental illness led to socially avoidant behaviour, including an unwillingness to live and work alongside people labelled mentally ill. These attitudes, and the discriminatory behaviour that ensues, have very real implications for the psychological wellbeing and community engagement of individuals with severe mental illness, beyond the impairments resulting from the mental disorders themselves (Corrigan, 2007).

The psychological and social sequelae of self-stigma may also be far-reaching (Yanos et al., 2010). Psychologically, self-stigma is correlated with feelings of shame (Campbell and Deacon, 2006), depression and demoralisation (Corrigan et al., 2003; Link, 1987; Link et al., 1991; Link et al., 1997), diminished hope and self-esteem (Corrigan et al., 2006; Lysaker et al., 2008; Werner et al., 2008), and the exacerbation of illness-related symptoms. Ritsher and Phelan (2004) argue that the most damaging aspect of experiencing self-stigma may be the feeling that one is no longer a full member of society and/or no longer like “normal” community members. Attempts to hide a stigmatised label or diagnosis may further exacerbate a sense of difference, contribute to social isolation, and engender substantial background stress and fear concerning the consequences of inadvertent disclosure (or ‘being found out’) (Bromley and Cunningham, 2004; Dinos et al., 2004; Goffman, 1963; Rüsich et al., 2005), which may further perpetuate the internal sense of ‘otherness’ and isolation.

Group membership and identification may play an important role in moderating an affected individual’s reaction to stigma (Tajfel and Turner, 1979). High group identification, for instance, may be protective early in the process of ‘internalisation’ by reducing stereotype agreement and self-concurrence, and strengthening self-esteem and self-efficacy (Crabtree et al., 2010; Yanos et al., 2010). Group identification may also provide a basis for giving, receiving and benefiting from peer social support, in turn increasing resistance to stigma and the rejection of negative in-group stereotypes (Turner et al., 1994).

In Watson and colleagues’ (2007) more multi-faceted conceptualisation, the relationship between group identification and self-stigma

constitutes a paradox: some individuals internalise negative stereotypes and suffer as a consequence, while others, often those with low group identification, express indifference and describe relatively few negative effects. A third group, however—individuals who strongly identify with their group and reject and challenge stereotypes—may suggest that one effective way of combatting stigma is through collective (group) empowerment: i.e. a sense of solidarity and shared social justice goals that helps promote both positive group identity and a commitment to taking action to promote social justice both for oneself and one's group. Such collective empowerment may also involve the so-called helper–helped principle (Riessman, 1965), whereby individuals personally benefit from helping others. In the case of stigma, helping, or joining others in activities motivated by common cause, may lead to a mutual sense of empowerment and greater self-esteem and self-efficacy.

5. Ways in which stigma and self-stigma impact upon health

There are a number of ways in which stigma and self-stigma are of particular importance in relation to health interventions. First, stigma is frequently identified as a barrier to seeking help for stigmatised health problems, reflecting, in particular, fears surrounding disclosure of illness, concerns about confidentiality, and shame (Cheng et al., 2013; Corrigan and Rao, 2012; Costa et al., 2013; Vogel et al., 2011). For example, a recent meta-synthesis of 144 studies of help seeking for mental health problems indicated that stigma was predictive of help-seeking, and was cited as one of the most common barriers to seeking help (Clement et al., 2014). This is demonstrated by lower rates of help-seeking in problems associated with community stigma (e.g. Barney et al., 2006).

Second, self-stigma appears to be a variable that predicts poorer health outcomes (Stuber et al., 2008). This has been observed prospectively on outcomes such as chronic stress (Link and Phelan, 2006), enhanced illness-related symptoms (Weiss et al., 2006), diminished quality of life (Staring et al., 2009), and impaired self-control (Inzlicht et al., 2006). The flow-on effects of impaired self-control are related to other disease outcomes, including smoking, and alcohol and substance abuse. Further, discrimination exposure is related to non-participation in health promotion behaviours, including cancer screening, diabetes management and condom use (Pascoe and Richman, 2009).

Third, stigma appears to have a specific impact upon self-efficacy. Corrigan et al. (2009) have highlighted the behavioural impact of self-stigma of mental illness, the “why try?” effect, which can contribute to ongoing disability and social withdrawal. Moreover, the degradation of self-efficacy could have more far reaching consequences for health, via its importance in relation to health-related behaviour (Li et al., 2011). Efficacy expectations are a key component of many models of health behaviour change (Holloway and Watson, 2002; Strecher et al., 1986), and self-efficacy appears to be one of the most important variables which prospectively predicts engagement in a range of health behaviours (Webb et al., 2010), and in mediating the impact of health interventions (Marks and Allegrante, 2005).

Fourth, in persons with persisting mental health problems, stigma has been proposed as particularly important in consumer-derived conceptualisations of recovery (Leamy et al., 2011). Influential within current mental health policy in a number of countries (Ostrow and Adams, 2012; Ramon et al., 2007), the consumer movement in mental health has strongly advocated a shift away from a sole focus on symptom amelioration to consider the broader personal context of an individual's mental health problems and their subjective impact (Bellack, 2006). In analyses of consumer accounts of their own recovery, the role of identity in relation to illness, in particular overcoming a view of self dominated by negative stereotypes, has repeatedly been highlighted as central (Andresen et al., 2003; Davidson and Strauss, 1992; Leamy et al., 2011).

6. Interventions to target stigma and self-stigma

While stigma and discrimination are social problems, the presence of individual differences in responses to and internalisation of stigma suggests there may be benefits in interventions that promote greater resilience to societal stigma, reduce self-stigmatisation, and minimise the impact of stigma on behaviour. Among interventions that have been developed to target stigma, most have targeted stigmatised attitudes by persons in the general community, including both educational interventions that provide corrective information to challenge stereotypes, and interventions which challenge stereotypes via contact with the stigmatised group (Clement et al., 2013; Corrigan and Rao, 2012; Griffiths et al., 2014). A meta-analysis of mental health stigma interventions by Griffiths et al. (2014) found beneficial effects of both educational and contact-based interventions on measures of stigma-related attitudes, with somewhat larger effect sizes for interventions involving contact. It also found that Internet-based interventions were as effective as interventions delivered face-to-face in reducing stigma. However, only three of the studies in the meta-analysis reported on the effect of the interventions on self-stigma and none of these were delivered via the Internet.

Overall, few studies have been conducted targeting self-stigma among persons within the stigmatised group, but this is an area of growth (Griffiths et al., 2014; Yanos et al., 2014). A recent review by Yanos et al. (2014) identified six self-stigma reduction interventions for mental health that have been described in the literature. All were delivered face-to-face and included the common elements of (a) education to correct myths about mental illness, (b) cognitive techniques to combat self-stigmatising thoughts, (c) use of narrative to make sense of one's own experiences, and (d) empowerment to act in line with personal values. Initial results suggest that such interventions lead to reductions in self-stigma at post-intervention (Yanos et al., 2014), although there have been few randomized controlled trials (Griffiths et al., 2014).

As an alternative to interventions that seek to directly combat the internalisation and endorsement of stereotypes, Corrigan and colleagues (Corrigan and Rao, 2012; Corrigan et al., 2013) have developed what they term a “coming out proud” intervention, revolving around the exploration of the potential risks and benefits of self-disclosure with an eye to increasing public disclosure (where feasible) and thereby reducing self-stigma and increasing collective empowerment. Likening their intervention philosophy to parallel efforts in the lesbian, gay, bisexual and transgender communities, Corrigan et al. underscore empirical studies suggesting that the public disclosure of “closeted” secrets and concurrent claims to a positive group identity (e.g. “gay pride”) improve self-esteem and increase both personal and collective self-efficacy (Beals et al., 2009; Derlega et al., 1998; Greene et al., 2006).

7. Potential of Internet interventions to target self-stigma

So what potential does the Internet have for combating stigma and associated self-stigma? In addressing community stigma, the Internet has provided a means of mass communication through utilising social media and other means of engaging people online. As such, Internet-based campaigns have been used to address public stigma, for example in the *Time to Change* campaign in the UK (Henderson and Thornicroft, 2013). Internet-based interventions for self-stigma may likewise be positioned to reach far more individuals than in vivo interventions, including isolated individuals with few or no existing social contacts and/or who may be unlikely to participate in face-to-face groups or interventions (Andersson et al., 2014).

Second, the potential for anonymity in Internet-based interventions may encourage participation in related health or mental health interventions by circumventing fears about social judgement and disclosure (Barak et al., 2008). For example, an individual with mental illness and diabetes may be more likely to take part in an anonymous Internet-

based diabetes intervention because he or she can do so in the privacy of his or her home, with few or no social risks. Indeed, feedback from users of Internet-based interventions indicates that anonymity is frequently viewed as a major advantage of online interventions (Clement et al., 2014). Whilst this has long been proposed as an advantage of Internet interventions broadly, it is especially pertinent for self-stigma. Internet delivery may thus provide a means of delivering direct interventions to a large number of people and in facilitating participation in other health interventions either online or in person.

Third, the Internet is an ideal means of presenting multimedia as part of the content of any intervention. Campaigns targeting public stigma typically utilise contact with or exposure to the stigmatised group as a means of intervention, sometimes taking the form of video material containing interviews with, or narratives presented by, representatives of the stigmatised group (e.g. Henderson and Thornicroft, 2013). Potentially, such strategies disconfirm stereotypes and humanise group members, fostering empathy. The posting of recovery stories on sites like YouTube is an example of increasingly common contact-based intervention on the Internet.

While contact-based multimedia interventions have not been evaluated to date (Yanos et al., 2014), informal feedback in other health domains (e.g. concerning prostate cancer and serious mental illness; Thomas et al., in press; Wootten et al., 2014) has been very positive suggesting promise. Such Internet-based interventions may have multiple impacts when considering self-stigma. As with public stigma, recovery stories and other narratives may work to disconfirm stereotypes and promote positive attitudes. Featured peers may also serve as “role models” or exemplars of recovery and success, combatting low self-esteem and demoralization. Along these lines, qualitative studies of face-to-face contact with peers with mental illness suggest that positive role modelling is one of the most commonly perceived benefits of such contact (Walker and Bryant, 2013).

Beyond challenging stereotypes, Internet-based peer videos may also have particular application in modelling open discussion of stigma-related concerns, to challenge experiences of shame and feelings of isolation. This may have particular value in compensating for secrecy and social withdrawal as common responses to stigma, as well as providing procedural learning about open disclosure. Additionally, peer

Table 1
Possible ways of targeting stigma and self-stigma via online interventions.

Intervention target	Specific intervention possibilities	Broader design considerations
Education about the nature of stigma and self-stigma	<ul style="list-style-type: none"> Present concepts of stigma and self-stigma, acknowledging the unique contribution of each level of prejudice and discrimination involved in these processes Consider recovery-oriented practices within the context of self and other 	<ul style="list-style-type: none"> Acknowledge presence of stigma and self-stigma Acknowledge the social and structural power dynamics, social comparison tendencies, and personal influences that protect and predispose, including resilience and affect
Altering internalised stigmatising beliefs and attitudes	<ul style="list-style-type: none"> Provide incidence/prevalence information to normalise individual experiences Identify and challenge negative stereotypes (mythbusting) with factual information Use first person narratives that include real-world examples which challenge stereotypes 	<ul style="list-style-type: none"> Utilise accessible language that promotes consumer ownership as opposed to biomedical language to position the individual in agentic ways Avoid describing what may be normal human responses as a reflection of pathology Present information in form of first-person perspectives to humanise experiences Include a significant range of diversity within first person accounts to reduce stereotyping
Transforming identity	<ul style="list-style-type: none"> Assistance in constructing a new “sense of self”: discovering new ways to capture sense of purpose through daily activities Transforming undervalued identities associated with self-stigma and replacing them with more individualised “empowered” identities 	<ul style="list-style-type: none"> Consider ways to incorporate opportunity for program users to express individuality, e.g. through sharing stories by writing, artwork or music
Building resilience to stigma	<ul style="list-style-type: none"> Information and exercises to promote efficacy expectancies about health behaviour change that compensate for negative stereotypes Self-esteem, self-compassion and/or self-acceptance related material Material designed to create empowered identities 	<ul style="list-style-type: none"> Utilise peer stories to model efficacy expectancies Include more detailed first-person narratives that promote group identification
Contact with peers within stigmatised group	<ul style="list-style-type: none"> Provide material highlighting first person accounts of persons within the stigmatised group that disconfirm negative stereotypes Include material on positive group identity Use peer forums, social networks and other forms of user interaction to promote a sense of community and allow for ‘safe’ disclosure opportunities 	<ul style="list-style-type: none"> Use authentic, credible and relatable first person material Incorporate additional elements into websites that promote a positive sense of community and group identity, e.g. text, images, videos
Enhancing coping strategies for when encountering discrimination	<ul style="list-style-type: none"> Integrate therapeutic materials to promote self-acceptance Provide information about how, if choosing to, the individual can challenge prejudicial attitudes and discriminatory behaviour to promote assertive coping and resilience Include content affirming civic and human rights Provide targeted information about how to challenge prejudicial attitudes and discriminatory behaviour 	<ul style="list-style-type: none"> Incorporate broad spectrum of coping strategies Facilitate peer discussion of experiences with using coping strategies
Facilitating positive group identification	<ul style="list-style-type: none"> Peer forums and other interactive elements Content on social and political perspectives on empowerment Content supporting the person identifying positive aspects of membership of the stigmatised group Facilitation of user-generated content 	<ul style="list-style-type: none"> Incorporate positive material featuring peers, which supports dignity, celebrates diversity and/or models empowerment of the stigmatised group Facilitate interaction between users Visible authentic peer involvement in site administration and production, including writing and/or curating content, and forum moderation
Disclosure	<ul style="list-style-type: none"> Incorporate material addressing the complexities associated with disclosure in different contexts 	<ul style="list-style-type: none"> Facilitate use of peer discussion on forums and other interaction elements to facilitate sharing, model openness and provide a safe community for disclosure

stories may be helpful in modelling the use of narrative to frame and contextualise personal experiences. Such benefits may be further augmented by interactive online exercises (optimally involving more dialogic contact with peers) geared toward the facilitation of personal narratives. Finally, multimedia interventions with a more political component may help strengthen positive group identity and empowerment, as theorised by Corrigan et al. (2001).

Fourth, as an important vehicle for communication, the Internet might be harnessed to promote contact and interaction between users with shared experience of stigmatised health problems. In addition to providing a dynamic source of information about the stigmatised group, which may, in turn, undermine negative stereotypes, user interactions may contribute to both an online sense of community and broader group identification. The potential anonymity of Internet-based forums may also engender a space for honest discussion of the risks and also benefits of disclosure, perhaps paradoxically helping those (for whom it is feasible) to “come out proud” among “live” friends, family members and colleagues (Corrigan and Watson, 2002a). The reach of the Internet may also allow rural individuals or those with less common experiences (e.g. individuals with unusual sensory hallucinations) to find each other and reciprocate support. Once again, collective empowerment may also be strengthened through processes of group “consciousness raising” and heightened awareness of both the socio-political struggles and accomplishments of individuals labelled with mental illnesses.

To date, forums have been piloted in a number of mental health problems and at least some studies show strong beneficial effects (Eysenbach et al., 2004; Horgan et al., 2013; Nicholas et al., 2009; Wootten et al., 2014), although self-stigma has not been measured directly as an outcome. Social networks have also evolved for people with a range of mental health problems. In terms of feasibility, Alvarez-Jimenez et al. (2013) have demonstrated the viability of developing dedicated social media platforms for people recovering from mental health problems, which may support peer-to-peer interaction and engagement in specific interventions.

Finally, the capacity of the Internet to facilitate widespread sharing of user-generated content may be of particular relevance to discussions of self-stigma reduction involving both individual and group empowerment (Bos et al., 2008; Kamel Boulos and Wheeler, 2007). The evolution

of Internet that is often referred to as *Web 2.0* includes not only Internet forums and chat rooms, but blogs, micro-blogs, re-blogging platforms such as Tumblr, the ‘remixing’ of existing video, audio and other materials, and serious games (including game-based components of multimedia websites or Internet interventions; Fernández-Aranda et al., 2012; Kato, 2010; Thompson et al., 2010). The potential benefits of these developments in the context of learning and personal/collective growth are further highlighted by conceptual work involving what Thomas and Brown (2011) have termed the “new culture of learning”. Specifically, the dynamic, interactive spaces capacitated by the Internet and other new technologies (including games and user-generated content) are thought to lead to substantially greater experimentation and collaboration. Considering the social context of the value of empowering marginalised groups, this democratisation of health-related information and interaction might encourage and empower stigmatised individuals to generate their own “interventions,” create multi-media, and directly contribute to the collective empowerment of their “in group” rather than (or in addition to) more passively benefitting from interventions designed by professionals (or even other peers).

8. Discussion

This paper has considered the potential role that targeted online interventions can have for addressing health-related self-stigma. This is an area in its infancy, but one in which there appears to be significant potential to develop interventions uniquely suited to the environment of the Internet. There are a number of implications of this. The most obvious is that further work is needed developing and evaluating online interventions that target health-related self-stigma.

The small literature on self-stigma interventions, in combination with consideration of the environment of the Internet discussed above, suggests a number of potential areas of content and design for online interventions. These are highlighted in Table 1. This includes the need for much more explicit promotion of peer-contributed material in the form of lived-experience stories, multimedia, and software features which promote dynamic user interaction and contribution of content. This highlights both the potential and necessity for the active participation of persons belonging to the stigmatised group in

Table 2
Example measures for evaluation of Internet-based stigma interventions.

Outcome variable	Target group/Health condition	Example measures
<i>Direct outcomes</i>		
Perceived stigma/stereotype awareness	HIV/AIDS	HIV Stigma Scale (Berger et al., 2001); See also ICRW (2006) for a review of various HIV/AIDS stigma measures
	Intellectual disability Mental health problems	See Werner et al. (2012) for review of stigma (and self-stigma) measures Depression Stigma Scale (Griffiths et al., 2004); Devaluation and Discrimination Scale (Link et al., 2004)
	Other health conditions Sexual identity Ethnic identity	See Van Brakel (2006) for review of health-related stigma measures The Sexual Identity Distress Scale (Wright and Perry, 2006) Multigroup Ethnic Identity Measure (Phinney, 1992); See also Hatzenbuehler et al. (2008) for review of minority stress measures
Internalised stigma/stereotype endorsement	HIV/AIDS Mental health problems	Internalized AIDS-Related Stigma Scale (Kalichman et al., 2009) Internalised Stigma of Mental Illness Scale (Boyd Ritsher et al., 2003); Self-Stigma of Mental Illness Scale (Corrigan et al., 2006); Implicit Self-stigma (using implicit association test, Rüscher et al., 2010)
	Obesity Sexual identity	The Weight Self-Stigma Questionnaire (Lillis et al., 2010) Internalized Homophobia Scale (Ross and Rosser, 1996)
Self-efficacy	Global HIV	Generalized Self-Efficacy Scale (Schwarzer and Jerusalem, 1995) HIV Treatment Adherence Self-Efficacy Scale (Johnson et al., 2007)
<i>Indirect health outcomes</i>		
Symptom outcomes – depression, self esteem, etc.	Multiple target groups and health conditions	Beck Depression Inventory-II (Beck et al., 1996); Demoralization Scale (Kissane et al., 2004); Perceived Stress Scale (Cohen et al., 1983); Positive and Negative Syndrome Scale (Kay et al., 1987); Rosenberg Self-Esteem Scale (Rosenberg, 1965);
Engagement in health related behaviour	Global	Smoking status; Alcohol consumption; Body mass index; Physical activity in last week

intervention development and delivery. The feasibility of using a number of these features is currently being examined as part of an online peer-modelling based intervention to promote personal recovery in people with serious mental illness (Thomas et al., in press). However there is also a need for study of specific Internet-based interventions for self-stigma across a range of diagnostic and social groups who experience stigma. In such evaluations, measures of self-stigma provide a direct outcome, while other target outcomes include self-efficacy, health-related behaviour and broader health outcomes.

In concert with the development of stigma-based Internet interventions, evaluation of the utility of these interventions for both direct and indirect health outcomes will be important. Possible avenues for evaluation of these outcomes are presented in Table 2. Selection of evaluation measures requires careful consideration. Angermeyer and Dietrich (2006) have shown that attitudes towards beliefs about mental illness are not uniform across some disorders (for e.g., depression and schizophrenia). Given this purported variability, perceived stigma and stereotype awareness measures may need to differ across target groups and health conditions. Further, there is evidence of prejudiced language in standard outcome measures (for e.g., the incorporation of heteronormative language in the Social Interaction Anxiety Scale, Lindner et al., 2013), which may impede data validity and further perpetuate stigma outcomes.

Another consideration is how interventions targeting broader health outcomes can be better designed when targeting members of stigmatised groups. Design features listed in Table 1 may be useful considerations in such interventions, and are being utilised, for example, in an online intervention targeting mental health in same-sex attracted youth (Abbott et al., 2014). Future research is needed to consider whether these elements of design are important in promoting better outcomes and/or improved engagement in interventions for stigmatised groups. This gives rise to further questions about engagement and consumer preferences, given that the degree of an individual's identification with the stigmatised group at baseline may influence their reactions to content. A further consideration is whether more general health-focused interventions can be better designed in order to meet the needs of subgroups of users who may experience higher rates of stigma and self-stigma.

In sum, the Internet appears to be well suited to the development and adaptation of interventions which assist people dealing with social stigma, and this appears to be an important area for ongoing research.

Conflict of interest

There is no conflict of interest in this paper.

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