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Original research

Who engages with self-injury related Internet sites, and what do they gain?

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Abstract: Many social media pages, discussion boards and information pages have sections dedicated to self-injury. However, mental health professionals report concerns that some content may be detrimental to self-injury recovery. This hypothesis driven cross-sectional research examined who accesses such sites, and what they believe they gain. An online questionnaire was completed by 199 participants (78.4% female; 55% university students, 45% from social media). We examined relationships between Internet use, self-injurious behaviours, stigma, help-seeking, perceived social support and self-validation. Of 107 self-injurers (53.8%), 17 had attempted suicide. Attempters self-injured more frequently, had lower self-validation, perceived more stigma, and claimed less social support. Despite this, we initially excluded them to gain our non-suicidal self-injury (NSSI) sample, of whom 63 of 90 (70%) reported accessing Internet self-injury sites. Those accessing sites self-injured significantly more frequently ($p < .001$) than those not accessing sites, were more likely to have self-injured in the past 12 months, had someone aware of their self-injury, had received help and sought medical attention, yet reported they gained self-validation and support from the Internet. Compared to passive users, those actively commenting within self-injury sites had fewer perceived other social supports, and self-injured significantly more frequently ($p = .010$). Of all those visiting sites 51 (47.6%) had become upset by online material, and 19 (17.8%) claimed online content had triggered a self-injurious episode.
The study suggests associations between having more serious self-injury, being more troubled, and seeking access to Internet self-injury sites. Unfortunately the cross-sectional design precludes conclusions on causality of Nonsuicidal self-injury.

Keywords: Nonsuicidal self-injury, NSSI, Self-injurious behaviour, Internet self-injury forums, Internet self injury sites.

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Self-injury is also known as self-mutilation, self-injurious behaviour, non-suicidal self-injury (NSSI), and self-harm (Klonsky, Oltmanns, & Turkheimer, 2003). 'Self-harm' by definition includes suicide attempts, and sometimes other behaviours such as poor eating habits (Claes & Vandereycken, 2007).

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Samples of non-suicidal self-injury do sometimes include suicide attempters, but self-injury with suicidal intent versus without is different despite the apparently similar nature of the behaviour (Muehlenkamp & Gutierrez, 2007). Self-injury as a behaviour usually begins in adolescence, and the most common method is consistently found to be 'cutting' (Klonsky & Muehlenkamp, 2007; Andrews et al., 2014; Swannell et al., 2014). While anti-dissociation, anti-suicide, interpersonal boundaries, interpersonal-influence, self-

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punishment and sensation seeking may be implicated in the behaviour, the most commonly reported driver is affect regulation (Klonsky, 2007; Martin, Swannell, Hazell, Harrison, & Taylor, 2010). Negative affect may result from both internal psychological distress and external factors like family discord or childhood abuse (Fliege, Lee, Grimm, & Klapp, 2009; Tatnell et al., 2013; Baetens et al., 2013).

Self-injury is surprisingly common, with lifetime prevalence rates estimated between 16.5-21.5% across several countries (Møhl & Skandsen, 2012; Muehlenkamp, Williams, Gutierrez, & Claes, 2009; Nixon, Cloutier, & Jansson, 2008). The Australian estimated lifetime community prevalence is lower at 8.1% (Martin, Swannell, Hazell, et al., 2010).

Many young self-injurers do not receive professional help (Michelmore & Hindley, 2012; Rowe et al., 2014), commonly preferring informal sources like family members or friends (Fortune, Sinclair, & Hawton, 2008). Barriers to help-seeking include practical factors such as not knowing who to ask, or living in a rural location (Klineberg, Kelly, Stansfeld, & Bhui, 2013), but attitudinal factors are important (Pumpa & Martin, 2015), especially fear of stigmatisation or fear that nobody can help (Vogel, Wester, & Larson, 2007).

Researchers have acknowledged the Internet as a source of help for self-injurers (Rowe et al., 2014), with its anonymity when compared with face-to-face methods of help-seeking (Jones et al., 2011). With the Internet an everyday part of life, it is not surprising that self-injury content appears online. Many social media pages, discussion boards and information pages have sections dedicated to discussion of self-injury. It is a complex domain as some websites promote recovery and identify helpful resources, while others encourage engagement between self-injurers without monitoring by mental health professionals (Lewis, Heath, Michal, & Duggan, 2012). This may have a negative effect on self-injury recovery by normalising and maintaining the behaviour (Whitlock, Powers, & Eckenrode, 2006; Lewis & Baker, 2011).

It is difficult for researchers to determine the success or failure of the Internet in helping stop self-injurious behaviours, and recent research suggests the Internet may be used predominantly for self-injury disclosure rather than an avenue for seeking help (Rowe et al., 2014). As a result, users are likely to experience support and validation, normalising the behaviour rather than sourcing helpful recovery methods (Lewis & Baker, 2011; Whitlock, Powers, et al., 2006).

Adolescents and young adults are known to engage in more online social networking, including picture and video sharing, than any other age group. Encouraged by widespread access to smart phones, over 90% young people go online via a mobile phone at least once per day, with 24% reporting being online almost constantly, and 76% using at least one form of social media with 17% of adolescents reading or commenting on discussion boards. (Lenhart et al., 2015). It is therefore not surprising that many use online services to solve everyday problems, including mental health issues and self-injury.

Self-injurers have been shown to have a higher rate of Internet use than non self-injurers (Mitchell & Ybarra, 2007) and the number of Internet discussion boards dedicated to self-injury continues to increase (Murray & Fox, 2006; Whitlock, Powers, et al., 2006). A crucial factor is thought to be the supposed anonymity, allowing users to reveal parts of themselves they fear may be condemned in day-to-day relationships offline (Adams, Rodham, & Gavin, 2005). This parallels the suggestion that people admit to suicidal ideation anonymously, but may not if they are identifiable (Safer, 1997). Combining these ideas, it could be argued the Internet enables a more authentic expression of self than is possible in daily life (Bargh, McKenna, & Fitzsimons, 2002).

Explaining why self-injurers might initially go online does not establish possible consequences of doing so, and recent research has explored self-injury Internet content, with the International Society for the Study of Self-Injury (ISSI) recognising the area as important (Lewis et al., 2012). It is complex to draw definitive conclusions given the broad range of websites with seemingly different motives. Information websites run by organisations such as 'beyondblue' or 'ReachOut' act as positive sources of information for those who self-injure (Lewis et al., 2012). However, social media pages and discussion boards allow communication and video and picture sharing between users and may have negative consequences (Lewis et al., 2012). Despite some disagreement, most researchers conclude that use of the Internet as a resource for self-injury often results in reinforcement of self-injurious behaviours (Lewis et al., 2012).

Lewis and Baker (2011) studied 71 websites identified as personally constructed (ie non-professional) and relating to self-injury. Most had both pro and anti self-injury aspects, with statements such as 'NSSI is addictive and cannot be stopped' countered with 'NSSI can be stopped but should not be started'. An interesting avenue of research included analysis of posts discussing both concealment of self-injury and how to properly administer necessary first aid. This seemed to reinforce that help-seeking or even

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informing others of one's self-injury should be avoided, implying self-injury is acceptable but should be self-managed carefully (Lewis & Baker, 2011). A weakness was that researchers coded website responses, making assumptions and drawing conclusions as outsiders, without personal contact with users. Prior research, using almost identical methodology (Whitlock, Powers et al., 2006) had concluded that discussion boards mimic the search for informal support, but having access to a virtual subculture may reinforce the behaviour. Of note, subjects were only those actively posting comments, yet more than half the board members had never posted a comment (passive members or 'readers only'), and outcomes for this group are potentially different.

Two theories attempt to explain how the Internet might maintain self-injury. First, an individual develops responses to certain environments that manifest as an internal 'script' (Abelson, 1976). Scripts are reinforced by observation and storylines (Whitlock, Purington, & Gershkovich, 2009). Reading narratives of other's self-injurious behaviour may enhance a self-injury script as a way of responding to subsequent negative emotions or stressors in the environment.

Alternatively, 'cultivation theory' considers potential consequences of exposure to a message over time. Originally concerned with television, this theory suggests that when a message is repeated and common, its content becomes normalised (Gerbner, Gross, Morgan, Signorielli, & Shanahan, 2002). Those who watch larger amounts of television are more likely to perceive the real world through opinions, images and attitudes reflecting common, recurring messages of the television world (Shanahan & Morgan, 1999). Cultivation theory might suggest that when individuals read repetitive stories from other self-injurers, it normalises the behaviour, especially if they can relate to the story, viewing both the protagonist and self-injurious behaviour favourably (Whitlock et al., 2009). Combining the ideas of script and cultivation theory, self-validation could well be an outcome of using websites dedicated to self-injurious behaviour.

Adams et al. (2005) define self-validation as, "…. the desire to maintain a sense of self that is legitimate, defensible and acceptable, both internally (to themselves) and externally (to others)". Communication triggering primarily positive thoughts increases a sense of validity for your own thoughts, and confidence the thought must be correct (Petty, Briñol, & Tormala, 2002) . Posts that defend self-injury such as "given the situation, it's no wonder you relapsed!" may validate the self-injury (Adams et al., 2005).

The current research attempted to address limitations of previous studies examining the relationship between the use of self-injury related websites and potential outcomes. We aimed to determine what self-injurers believe is gained from such websites, and why use is maintained despite common opinion that this may be detrimental to recovery.

Further to research on personal disclosure (Jones et al., 2011; Rodham, Gavin, & Miles, 2007), we hypothesised self-injurers turning to the Internet are less likely to have sought help elsewhere compared with self-injurers who have not gone online (*Hypothesis 1)*.

Having no experience with a mental health professional may lead to greater levels of perceived stigma about professionals and mental illness, compared to those who have received help (Komiti, Judd, & Jackson, 2006). We hypothesised self-injurers seeking help online would have a greater level of perceived stigma associated with mental illness and mental health professionals than those who have not been online (*Hypothesis 2)*.

Social support appears to be one purpose of self-injury websites (Lewis & Baker, 2011; Rodham et al., 2007). Whitlock, Powers, et al. (2006) suggested posts between users do what most people who trust each other do in day to day conversation. That is they exchange support, share stories, and voice opinions and ideas. The researchers acknowledged differences may exist between users who post comments (active) compared with users who only read pages (passive). We hypothesised that use of self-injury related websites would be positively associated with perceived social support where increased levels of use will result in increased social support, especially for active users (*Hypothesis 3)*.

Self-validation is an underlying theme of many posts between users (Rodham et al., 2007; Whitlock, Powers, et al., 2006). We hypothesised that self-injury Internet use would be positively associated with self-validation where increased Internet use leads to increased levels of self-validation (*Hypothesis 4)*.

The relationship between self-validation and social support has not been compared in the context of self-injury. However, there is a relationship between the two, as most exchanges between users on self-injurious websites are passive, reflect understanding, and defend or excuse episodes of self-injurious behaviours (Adams et al., 2005). 'Posters' are most likely attempting to provide support, but the way they do this may normalise and validate the behaviour (Lewis et al., 2012; Rodham et al., 2007). We hypothesized self-

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validation would have a positive correlation to perceived social support where higher levels of self-validation indicate higher levels of perceived social support (*Hypothesis 4a).*

Finally, we hypothesised an indirect path via self-validation would mediate the relationship between self-injury Internet use and perceived social support (*Hypothesis 4b)*.

Method

Participants

Ethics approval for the study was gained from the University of Queensland School of Psychology and Behavioural and Social Sciences Ethical Review Committee. The online questionnaire used Qualtrics software which directed participants to a debrief sheet on completion. After discarding 66 incomplete surveys, 199 participants completed the study (20.6% male; 78.4% female), one participant not reporting gender. Participants were UQ students (55%) receiving course credit for involvement, or others (45%) accessed through on-campus flyers or the Internet. Study details were posted on social media (Facebook and Twitter), as well as discussion boards dedicated to self-injury (eg. crazyboards.org). The express purpose was to increase the numbers of participants with experience of accessing or using such Internet sites. Participation was voluntary and anonymous. Ages ranged from 12-58yrs (*M* = 24.11, *SD* = 9.89). English was the first language (90.5%) with 123 born in Australia (61.8%), including five identifying as Aboriginal or Torres Strait Islander (2.5%*)*. Other countries of birth included New Zealand, United States of America, China and Canada.

Measures

Self-Injury Questionnaire (Rotolone & Martin, 2012). Participants read a definition of self-injury before answering the question: '*Have you ever deliberately hurt yourself? If even once, please select yes*.' Participants answering '*no*' were forwarded automatically to the next scale. Those answering '*yes*' completed questions assessing frequency, type, and whether anyone was aware of the self-injury, if medical attention was required, whether they had accessed other help (and the source), and whether self-injury was ever an attempt at suicide (and frequency of this). One question was added relevant to specific aims of the study: '*Do you consider the Internet a valid resource for self-injury help?*'

Internet use dedicated to self-injury

Items on activity type, frequency, and functional assessment were adapted from Lewis et al., 2012. '*Have you ever used the Internet in relation to self-injury?*' (Yes/No). If 'Yes', '*Have you ever actively engaged with message boards, by posting/replying? If even once please select yes.*' (Yes/No). Those indicating they had posted formed the group *'active posters'*. Other items were descriptive, and consisted of checklist, multiple choice and free response items primarily to understand the function of visiting such sites. An example is the free response question: '*If such websites have caused upset and/or triggered you, why do you continue to use them as a resource for self-injury?*' (questionnaire available from authors).

Perceived Stigma

We used the 'stigma tolerance' (5-item) and 'confidence in mental health professionals' (9-item) subscales of the Attitudes Toward Seeking Professional Help Scale (ATSPHS) (Fischer & Turner, 1970). These are from a factor analysis of the ATSPHS. Items were measured on a 5-point Likert scale ranging from 1 (*strongly disagree)* to 5 (*strongly agree).* Of fourteen items, six reflect stigma. For example: '*Having been mentally ill carries with it a burden of shame'.* The other eight reflect positive attitudes toward help (reverse scored for analysis). For example: '*If I thought I needed psychiatric help, I would get it no matter who knew about it'*. Overall higher scores represent higher perceived stigma towards mental health professionals and mental health illnesses. Scores ranged from 21-57 (mean 35.43). Internal reliability for our shortened scale was adequate (α = .75).

Perceived Social Support

We used the Medical Outcomes Study (MOS) Social Support Survey (Sherbourne & Stewart, 1991). Participants read an introduction, slightly adapted from Sherbourne and Stewart's original guide to account for the Internet medium. For example, '*People sometimes look externally (to resources other than themselves) for companionship, assistance or other types of support. How much does going online make you feel the following kinds of support are available to you if you need it?*' The scale consists of nineteen items on 5-point Likert scales ranging from 1 (*none of the time)* to 5 (a*ll of the time).* All items were combined to form a perceived social support scale, higher scores indicating higher levels of perceived social support. The four subscales are 'emotional/informational support', 'tangible support', 'positive interaction' and 'affection'. Overall scores ranged from 18-89 (mean 52.02). Internal reliability for the scale in this study was high (α = .95).

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Self-Validation

The self-validation subscale 'Friend's Functions' from the McGill Friendship Questionnaire (Mendelson & Aboud, 1999) was used. Participants first read an introduction adapted to account for the Internet medium: '*Think about how engaging with your favourite self-injury Internet site makes you feel. With your favourite self-injury website in mind, respond how often each statement applies. My favourite internet site… .*' Nine items measured responses on a 5-point Likert scale ranging from 1 (*never)* to 5 (*always)*. Eight items were part of the original scale. One was added in the same format: '*Defends me when I've done something bad'*, to more obviously target the defensive nature of many discussion board posts. All items were combined to determine the participant's level of self-validation, where higher scores indicate higher levels of self-validation. Scores ranged from 9-44 (mean 24.34). Internal reliability for the adapted scale was high (α = .93).

Statistical Analysis

All analyses were completed in SPSS version 21. Of 199 participants, 24 failed to answer at least 1 question. However, no single variable was missing more than 5% of data, and Missing Value Analysis indicated no systematic variation between missing data points. Little's MCAR confirmed data was randomly missing across the entire data set (χ^2 (1676, N = 199) = 762.69, *p* > .999).

Two variables, stigma and age (*z* = .435 and 10.9 respectively) were found to have significant positive skew, falling outside a range of +/- 2.9. Age was not transformed as not being an arbitrary value (Norris & Aroian, 2004). Stigma was transformed using a square root transformation. No univariate outliers were present in the data set. For all analyses, our threshold for significance was *p*-values <.05 (Field, 2013).

Chi-square was used to clarify demographic differences between non-self-injurers and self-injurers, and then differences between self-injurers visiting self-injury online sites compared with self-injurers who had not. Independent samples t-tests were used to clarify differences between self-injurers attempting suicide, and self-injurers without suicidal intent. Welch-Satterthwaite adjustments were made for analyses of pooled variance, given Levene's test for equality of variances was violated.

Process macro was used for moderation analysis given the advantage of being able to enter a dichotomous moderator (Hayes, 2013). This examined the relationship between Internet use and 'perceived social support', focused on Internet users with a history of self-injury.

Bootstrapping mediation was used to determine if self-validation mediated the relationship between Internet use and perceived social support. This estimates both direct and indirect effects and has more power to find an indirect effect compared to the causal steps approach (Preacher & Hayes, 2008).

Results

Self-Injury

A history of self-injury was reported by 54% of the sample (n = 107), 24 'only once' (22.4%), 25 less than once a month (23.4%), 8 'once a month' (7.5%), 14 '2-3 times per month' (13.1%), 10 'weekly' (9.3%), 12 '2-3 times per week' (11.2%) and 14 'daily' (13.1%). Overall, 64 (60%) admitted to self-injury 'within the last 12 months'. 'Cutting' was the most common method (n = 78), followed by 'hitting self' (n = 52), ' burning' (n = 32), 'wound picking' (n = 43), 'substance abuse' (n = 19) and 'scratching' (n = 10). Sixty self-injurers (56%) had received help for their self-injury, usually from multiple sources, including professional (n = 49), friends (n = 30), Internet discussion boards (n = 31) and Internet information websites (n = 26). The majority of self-injurers (n = 72, 67.3%) believed the 'Internet was a useful resource for self-injurers'. Gender did not appear to influence the likelihood of self-injury (χ^2 (1, N = 197) = 1.342, p = .181, phi = -.097).

Suicidality

Of 107 self-injurers, 16% (n = 17) had attempted suicide. Independent samples t-tests suggested they self injured more frequently, had lower self-validation, perceived more stigma, and claimed less social support (see Table 1). Given the focus of this study on self-injury without suicidal intent (ie NSSI), these participants were excluded from further analysis, leaving 182 participants (90 self-injurers) of whom 103 were Internet users.

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Table 1

Independent Samples T-tests Comparing Self-injurers who had and had not attempted Suicide

Variable	Suicide Attempt	Mean	*T*	df	*p* (*2 tailed*)	η^2
SI frequency	Yes	5.06	3.468	105	.001	.103
	No	3.20				
Stigma	Yes	6.61	3.325	105	.001	.095
	No	6.10				
Self-validation	Yes	18.46	-2.792	89	.006	.081
	No	24.75				
Perceived social support	Yes	43.06	-1.874	96	.064	.035
	No	51.46				

Note. SI equals self-injury.

Internet use

Overall 103 of 182 participants (56%) had visited websites with self-injurious content, and completed all questionnaires. Of these, 63 (61%) reported a history of self-injury, with 40 denying this but still visiting such websites, and 27 (30%) of self-injurers not using Internet sites. Most common sites were social media pages (eg Facebook, n=60), information-based pages (eg 'beyondblue', n = 58), discussion boards (eg 'crazyboards.org', n = 42) and video or picture sharing (eg Instagram, n = 30). Participants indicated they sought information (n = 102, 99% of visitors), understanding (n = 94, 91.3%) or support (n = 64, 62.1%). Few participants indicated they desired 'defence' (n = 3) or conversely 'to trigger others' (n = 2).

Similarly, nearly half of those visiting self-injury sites (n = 47, 45.6%) indicated posting comments online. Half the sample (n = 51, 49.5%) claimed they had become upset by viewing material online, 19 (30.2%) of self-injurers indicating that online content had triggered a self-injurious episode.

As expected there were differences between self-injurers who had visited sites online compared with self-injurers who had not. Chi square revealed 'visitors' were significantly more likely to have self-injured in the past 12 months, have someone aware of their self-injury, have received help, have sought medical attention and consider the Internet useful. There was no association between going online and gender. (See Table 2).

Table 2

Comparison of non-suicidal self-injurers online (63, 70%) with those not online (27, 30%).

Variable	X^2	df	p (2 tailed)	Phi
SI in last 12 months	5.151	1	.023	.241
Someone Aware	6.190	1	.013	.262
Received Help	7.067	1	.008	.280
Medical attention	6.667	1	.010	.272

Note: Suicide attempters excluded.

An independent samples t-test suggested participants visiting sites self-injured significantly more frequently (m = 3.64) compared to those not visiting (m = 1.91) (t (88) = 5.246, p < .001, η^2 = .238). However, contrary to prediction, stigma was not associated with online habits (t (88) = .864, p = .490, η^2 = .008). Appropriate Welch-Satterthwaite adjustments were made for these analyses given Levene's test for equality of variances was violated (F (1, 88) = 25.858, p < .001 and F (1, 88) = 8.644, p = .004 respectively).

As expected there were differences between active users (those who commented) (n = 47, 45.6%) compared with passive users (reading only) (n = 56, 4%). Welch-Satterthwaite adjustments were used in the present analysis given Levene's test of equal variances was violated, (F (1,101) = 17.511, p < .001). An independent samples t-test not assuming homogeneity of variances suggested active users were significantly older (m = 25.13yrs) compared to passive users (m = 20.13yrs) (t (101) = 3.15, p = .002, η^2 = .090). A series of chi square tests also suggested active users were more likely to self-injure (χ^2 (1, N = 103) = 4.54, p = .033, phi = .210). Self-injurers who were also 'active' Internet site users were more likely to have self-injured within the past 12 months, have someone aware of their self-injury, have received help, have sought

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medical attention and consider the Internet useful. Males and females were equally likely to be active or passive users (See Table 3).

Table 3

Comparison of active versus passive users.

Variable	X^2	df	p (2 tailed)	phi
12 Months	6.645	1	.010	.325
Someone Aware	11.401	1	.001	.426
Received Help	19.168	1	<.001	.552
Medical attention	8.605	1	.003	.370
Internet useful	5.652	1	.017	.300
Gender	.838	1	.360	-.116

Note. N = 63 for all comparisons (The 61% of the sample reporting a history of self-injury).

A second independent samples t-test determined active users were self-injuring significantly more frequently (m = 4.18) than passive users (m = 2.12) (t(61) = 2.64, p = .010, η^2 = .103).

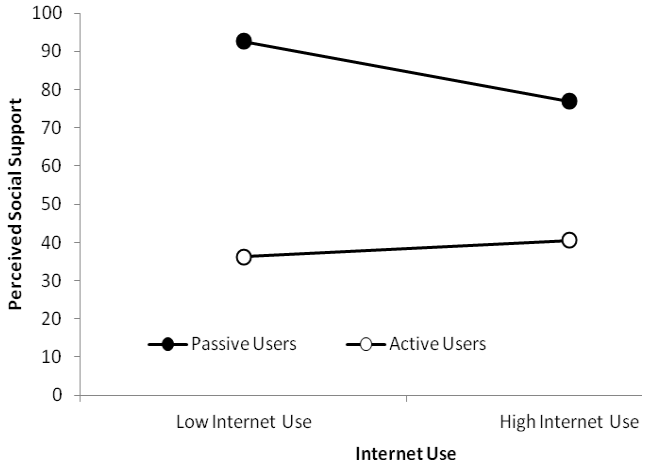
Moderation Analysis

This focused on Internet users with a history of self-injury. Internet use was entered as the predictor variable, 'perceived social support' was entered as the outcome variable and 'active or passive engagement' was entered as the moderating variable. Contrary to hypotheses, moderation analysis did not show a significant association between Internet use and perceived social support (n = 76), (R^2 = .068, p = .166) for those with a history of self-injury. The analysis was repeated, focussing on discussion board users, discarding users of information or social media based websites only (n = 37). This model showed a significant association (R^2 = .218, p = .042). While the main effect of Internet use was non-significant (b = -1.524, p = .259), the main effect of engagement (active vs. passive) was significant (b =-22.090, p = .013). The interaction term was also significant ($R^{2\ change}$ = .108, p = .041). Using simple slopes analysis, conditional effects for both active and passive users were non significant as 0 fell within both confidence intervals. Active confidence intervals were 'lower bound' = -1.754, 'upper bound' = 4.361 and passive confidence intervals were, 'lower bound' = -8.801, 'upper bound' = .098.

When self-injurers with suicidality were added back into the discussion board model, (n = 49) the model remained significant (R^2 = .220, p = .010). The main effect of engagement was significant (b =-22.647, p = .002). The main effect of Internet use was non-significant (b = -1.686, p = .094). The interaction term was also significant ($R^{2\ change}$ = .150, p = .005). An analysis using simple slopes suggested a conditional effect of Internet use on perceived social support, significant for passive users (b = -2.717, p = .009) as 0 did not fall within the confidence intervals ('lower bound' = -7.976 and 'upper bound' = -1.185). However, the conditional effect of Internet use on perceived social support for active users was non-significant (b = 1.181, p = .244), as 0 fell within the confidence intervals, 'lower bound' = -.852, 'upper bound' = 3.271. (See Figure 1).

Figure 1

Simple slopes of Internet use for active and passive users.



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Mediation Analysis

Those who indicated no history of self-injury were excluded from mediation analysis. Bootstrapping mediation was used to determine if self-validation mediated the relationship between Internet use and perceived social support. This estimates both direct and indirect effects and has more power to find an indirect effect compared to the causal steps approach (Preacher & Hayes, 2008). The model was tested using 1000 bootstrap samples with replacement to adequately provide power to detect the indirect effect of the mediator. Internet use was the predictor variable, perceived social support was the outcome variable and self-validation was the proposed mediator.

Contrary to hypotheses, the indirect effect via self-validation for self-injuring Internet users (n = 61) was non-significant as 0 fell within the confidence intervals (lower bound = -.024, upper bound = .433). Despite this, the model still accounted for 19% of the variance in perceived social support (R^2 = .19, F (2, 58) = 7.33, p = .002). The same analyses were run for discussion board users, discarding those who only used information or social media pages (n = 37). The indirect path via self-validation in this model was also non-significant (lower bound = -4.328, upper bound = 2.977). The model still accounted for 21% of the variance in perceived social support, R^2 = .21, F(2, 34) = 4.97, p = .013.

Putting participants with suicidal intent back into the original model (n = 76), the indirect effect via self-validation was non-significant (lower bound = -.2967, upper bound = 1.222). Despite the indirect path being 0, the model still accounted for 24% of the variance in perceived social support, R^2 = .24, F(2, 73) = 11.64, p < .001. Despite non-significant mediation, Pearson's correlation suggests a strong overall association between perceived social support and self-validation (r (61) = .445, p < .001). When those with suicidal intent were included in correlation analysis, the association strengthened (r (76) = .506, p < .001).

Discussion

The primary conclusion from this research is that self-injurers believe they gain both perceived social support and self-validation from visiting online self-injury sites, and the two are positively inter-related. Self-injurers using the Internet as a resource were a distinct subgroup of self-injurers, and there was preliminary evidence that those commenting on sites (active users compared to passive users) are likely to be more frequent self-injurers, and more likely to have had suicidal intent.

That over half our sample indicated a history of self-injury reflects a skewed sample, a direct result of our active online search for self-injurers. Our sample is not a random community sample, even though mean age was similar to that found in other University and college based samples (Whitlock, Eckenrode & Silverman, 2006). Beyond prevalence, the study did replicate previous research regarding community self-injurious samples. Cutting was the most common type of self-injury and emotion regulation was the most common motive (Martin et al., 2010). There were equal prevalence rates for males and females (Rowe et al., 2014) and many participants had not sought help for self-injury (Klonsky & Muehlenkamp, 2007; Rowe et al., 2014).

Over half our sample had gone online to look at websites even though many denied a history of self-injury. This is likely due to the high proportion of psychology undergraduate students who, even if they did not self-injure, could have had emerging professional interest in clinical areas such as self-injury. Conversely, of those with a self-injury history, three-quarters had gone online. Our research differs from previous research, because of our active online search for self-injurers, and access to an anonymous questionnaire placed on several websites. Previous literature suggested a large proportion of website members were female (Whitlock, Powers, et al., 2006) but the current study found no association between gender and either the likelihood of going online, or commenting on such webpages.

In line with hypotheses one and two, self-injurers going to online self-injury sites were different to self-injurers who did not. They were more likely to have self-injured within the past 12 months, to have received help including medical attention, and more likely to believe the Internet useful. This reflects recent research (Frost & Casey, 2016) suggesting self-injurers will seek help from wherever they can get it - those going online also have greater intentions to seek help from mental health professionals compared with those not going online. This research also noted those going online self-injured more frequently than those who refrained. However, that active contributors to online self-injury sites are likely to self-injure more than passive users, is a novel finding from the current study.

Self-injurers prefer help from informal sources like family and friends (Fortune et al., 2008; Pumpa & Martin, 2015), and fear of stigmatisation has been suggested as the reason for avoiding professionals and medical or psychological services, and seeking help online. Unfortunately a recent thematic

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analysis of research work suggests even online help-seeking may hold a risk of stigmatisation (Lewis and Seko, 2016). In our current study perceived stigma levels were relatively high for all self-injurers regardless of online activity. The complex nature of this area was highlighted in results for the third hypothesis. With all types of webpages included, no meaningful associations were found, implying that Internet use per se, or those sites providing information only, have little specific impact on self-injurers. In contrast, for discussion board users, Internet use appeared to increase perceived social support.

Our moderation analysis results support the idea that Internet use differs for active and passive users, though not in the way expected. We anticipated the relationship between Internet use and overall perceived social support to be stronger for active users. However, passive users reported higher levels of perceived social support, although as Internet use increased perceived social support decreased. This is hard to explain, and further work is necessary to replicate this finding, and clarify its meaning.

Whilst mediation (hypothesis 4b) was not apparent from our mediation analysis, preliminary support for the positive association between perceived social support and self-validation was strong. Increased social support has been found to successfully increase coping and decrease stress and depression levels (Dumont & Provost, 1999). However, self-validation is complex. While validation of the self is important, validation of self-injurious behaviours has been linked to justifying self-injurious behaviour as acceptable (Adams et al., 2005). The majority of Internet site users may have good intentions to provide others with support, but inadvertently through improving others' self-validation may maintain the behaviour. The current research was unable to clarify this further.

While our main focus was on non-suicidal self-injury, the presence of suicide attempters in our sample resulted in an unpredicted finding concerned the difference between self-injurers with and without suicidal intent. Those with suicidal intent were more likely to go to sites online, self-injured more frequently, and reported greater perceived stigma towards mental health professionals and mental health illnesses. Despite their online engagement, they reported lower levels of perceived social support and self-validation. This result raises a research question that needs to be answered: *'Are suicidal self-injurers more likely to go online or do those who go online become more suicidal?'*

Strengths and Limitations

Our study used only validated scales and well tried questions within the questionnaire, high reliabilities were retained, and we believe our results can be interpreted with confidence. Participants were assured of anonymity, likely to ensure truthful and accurate information (Muehlenkamp, Claes et al., 2012). Despite this, there were limitations. A major one relates to self-report of Internet use. Given it is unlikely direct monitoring of individual usage could be deemed ethical, future research could enhance accuracy of the Internet use measure, through questions on time spent on self-injury related websites, connections made online, and perceived dependence on websites as a mechanism of support. A further limitation was the cross-sectional design, which does not allow us to draw conclusions about causality. Finally, our participants were recruited from a random mix of discussion boards, social media pages and university students. Despite recruiting a broad range of users, results from this sample may not generalise to all Internet users.

Practical Implications and Future Directions

Despite limitations, the research addressed two key gaps in the literature. Previously, the majority of research discussing self-injury and the Internet has focused on the content of such webpages. The current study asked why self-injurers visit particular sites, and what they believe they gain. Similarly, it has been suggested differences may exist between active and passive users of self-injury sites, but the current study is the first to show a quantitative difference, suggesting Internet sites have different outcomes for various subsets of users.

Despite mental health professionals' apparent agreement that access to online self-injury sites has a negative impact, users told us they gained both social support and self-validation. Lewis et al. (2012) created a website aimed at self-injurers with a culture of help-seeking, presenting key resources, but blocking direct interaction. Our current research suggests this could have reduced social support and interaction, which appears to be what users desire. In addition, it reduces opportunities for developing self-validation, even if this could have the downside of maintaining the self-injurious behaviour. Perhaps a novel program to solve this dilemma would be a planned, online and live group chat moderated by a mental health professional. This might increase self-validation and perceived social support, but allow for active intervention by the professional, if necessary, to block the validation of self-injury.

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Overall, the study, even with its limitations, has wide implications for development of practical interventions as well as expanding the limited literature on self-injurers and Internet use.

Declaration of Conflicting Interest.
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