

Original Short Paper

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Impact of mental health screening on promoting immediate online help-seeking: Randomised trial comparing normative vs humour-driven feedback

Abstract

Background: Given the widespread availability of mental health screening Apps, providing personalised feedback may encourage people at high risk to seek help to manage their symptoms. While Apps typically provide personal score feedback only, feedback types that are user-friendly and increase personal relevance may encourage further help seeking.

Objectives: The aim of this study is to compare the effects of providing normative and humour-driven feedback on immediate online help seeking, defined as clicking on a link to an external resource, and to explore demographic predictors that encourage help seeking.

Methods: An online sample of 549 adults were recruited using social media advertisements. Participants downloaded a smartphone App known as "Mindgauge", which allowed them to screen their mental wellbeing through completing standardised measures on Symptoms (Kessler 6-item Scale), Wellbeing (WHO Five Wellbeing Index), and Resilience (Brief Resilience Scale). Participants were randomised to receiving normative feedback that compared their scores to a reference group or humour-driven feedback that presented their scores in a relaxed manner. Those who scored in the moderate or poor ranges in any measure were encouraged to seek help by clicking on a link to an external online resource.

Results: 318 participants scored poorly on one or more measures and were provided with an external link after being randomised to receiving normative or humour-driven feedback. There was no significant difference of feedback type on clicking on the external link across all the measures. A larger proportion of participants from the Wellbeing measure (62%) clicked on the links than the Resilience (26%) or Symptoms (35%) measures ($\chi^2 = 60.35, p < .0005$). There were no significant demographic factors associated with help seeking for the Resilience or Wellbeing measures. Participants with a previous episode of poor mental health were less likely than those without such history to click on the external link in the Symptoms measure ($p = .003, OR = 0.83$), and younger adults were less likely to click on the link compared to older adults across all measures ($p = .005, OR = .44$).

Conclusions: This pilot study found that there was no difference in normative and humour-driven feedback on promoting immediate clicks to an external resource, suggesting no impact on online help seeking. Limitations included lack of personal score control group, limited measures of predictors and potential confounders, and other forms of help seeking

were not assessed. Further investigation into other predictors and factors that affect help seeking is needed.

Trial Registration: ACTRN12616000707460

Keywords: online help seeking, screening, feedback, randomised trial, mental health

Introduction

Mental health screening and feedback has been purported to improve recognition and encourage service use, despite minimal evidence supporting its benefits in the community [1]. Mental health screening websites and mobile Applications (Apps) are widely available, and many of which provide personal feedback of mood, anxiety and wellbeing [2] [3]. While personal feedback is often incorporated in web and mobile interventions as an engagement strategy [4], few studies have examined whether providing such feedback encourages help seeking in brief online screening tools. Online mental health screeners with personal feedback appears to engage participants, with a third of participants completing 1 or more follow ups after initial screening and feedback [5]. There is some support from observational studies that providing personal feedback encourages help seeking, for instance, 42% of university students who received positive screening results after using a self-help mental health screening website requested a referral to the university's mental health clinic [6]. Similarly, BinDimh et al (2016) provided personal score feedback in a depression-screening App and recommended users with scores above threshold to seek help from a health care professional. About 38% of users who did not have a previous self-reported depression diagnosis reported they had consulted a health care professional after one month [7]. However, only one randomised controlled trial has been conducted to evaluate whether providing personal score feedback after online screening promotes help seeking from professional sources [8]. A large online sample were randomised to receiving feedback about their mental health and information about treatment services or receiving no feedback after completing a lengthy survey. Participants who received feedback were significantly less likely to complete the follow up measures about help seeking after three months. Among those who responded, there was no effect of depression feedback and social anxiety feedback appeared to have a small negative effect on help seeking. Overall there is mixed evidence to support the effects of online screening, and all studies to date have only focused on seeking professional help. Given the provision of screening and feedback online, it remains unclear whether there is an impact on online help seeking.

Further, the reason for differences in rates of help seeking may be related to how the personal feedback is presented. Providing user-friendly and easily comprehensible information may be more useful than simply providing score feedback, as it increases the personal relevance of messages and subsequently increases the likelihood of deeper processing and strengthens motivation for behaviour change [9]. There are many variations in which personalised feedback can be presented to enhance processing. Normative comparison of an individual's results to a reference group is one of the widely used strategies to increase salience of the message. Normative feedback is effective in reducing

problematic drinking behaviours as it reveals discrepancies in individual behaviour, perceived, and actual group behaviour [10]. Providing normative feedback for mental health may also improve help seeking among those with high scores. Indeed, a qualitative study reported that the majority of undergraduate students with moderately severe to severe depressive symptoms found that receiving normative feedback increased their awareness about their own symptoms and motivated them to seek treatment [11]. Another potential way of engaging respondents is through the use of humour in the feedback messages. Self-stigma of mental illness is associated with low self-esteem [12] and deters help seeking [13] [14]. However, it has been found that people with mental illness who view their illness in a relaxed and humorous way have higher self-esteem [15]. Indeed, humour has been used as a successful strategy to engage Australian men in mental health issues [16] and to reduce mental health stigma among military personnel [17], and may be a useful feedback tool to reduce stigma and encourage help seeking.

The current study describes the results of a pilot randomised trial that compares the impact of receiving personal normative vs humour-driven feedback on promoting immediate online help seeking. This study attempts to address the gaps in existing literature by assessing online help seeking rather than face-to-face help, and to examine immediate help seeking to avoid loss to follow up.

Methods

Participants and procedure:

Participants were recruited on social media websites between June to October 2016. A series of paid advertisements were placed on Facebook mobile with themes about “worried about your mental health?”, “how tough is your mind”, and “are you on the path to happiness?”. Partner organisations’ (beyondblue, the Black Dog Institute and the Movember Foundation) also shared posts about the study on their Facebook and twitter pages. Interested individuals were directed to the study website or the Google Play or Apple App Store to download the “Mindgauge” App for free, which featured measures on symptoms, resilience, and wellbeing. Individuals were eligible to participate if they were 18 years or older, owned a smartphone, and were a resident in Australia, New Zealand, the United States or the United Kingdom. Informed consent to take part in this study was obtained when participants used the App for the first time.

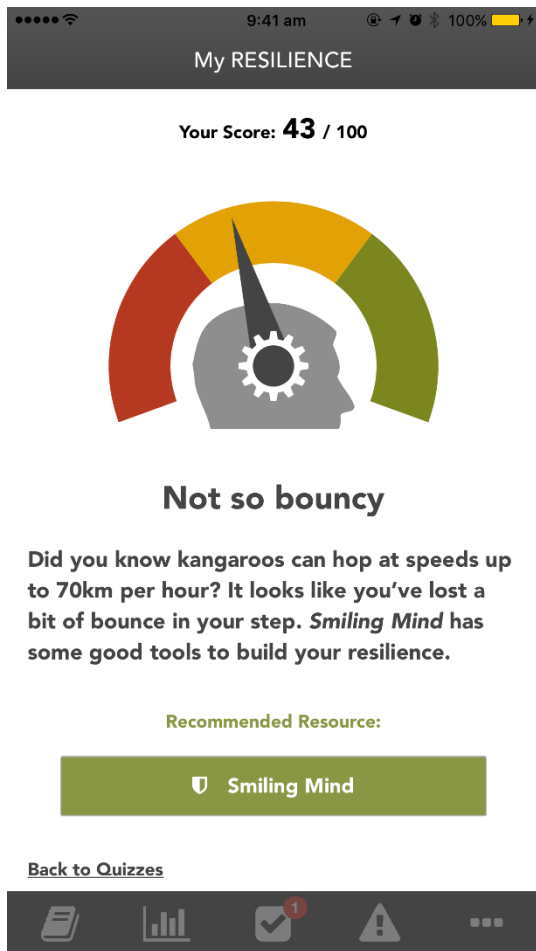
Participants first completed basic demographic questions on gender, age, and whether or not they had a self-reported period of poor mental health for more than one month in the past two years. They were then free to choose to complete any of the measures on symptoms, resilience, and wellbeing. They could complete the measures more than once (following a week’s gap), but for the purposes of this study only the first completion of each

measure was analysed because seeking help after subsequent completions of the measure may indicate heightened interest or concern in that measure rather than the impact of the feedback.

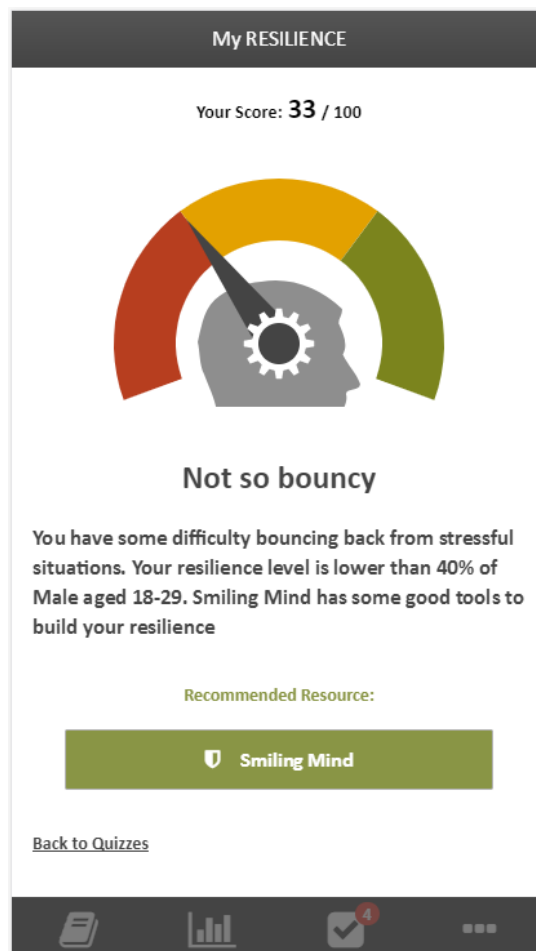
Randomisation:

Upon completion of each measure, participants were randomly allocated to receiving either 1) normative feedback comparing their scores to a relevant reference group, or 2) humour-driven feedback that presented their scores in a light-hearted manner (see figure 1 for an example). Randomisation was independent for each measure (i.e. a participant was randomised for the symptoms measure, and randomised again for the resilience measure). The humour-driven feedback was pilot tested among the larger research team. The feedback messages were slightly different depending on the score range and the list of feedback for each measure is shown in Appendix 1.

Participants received feedback immediately after completing each measure. To assess the impact of type of feedback on immediate online help-seeking, participants who scored within the moderate or poorer categories of any measure (as described below) were additionally provided with a link to an appropriate external online resource and were included in the analyses. Figure 2 shows the flow of participants.



a) Humour-driven feedback



b) Normative feedback

Figure 1. Screenshot of the feedback for moderate resilience.

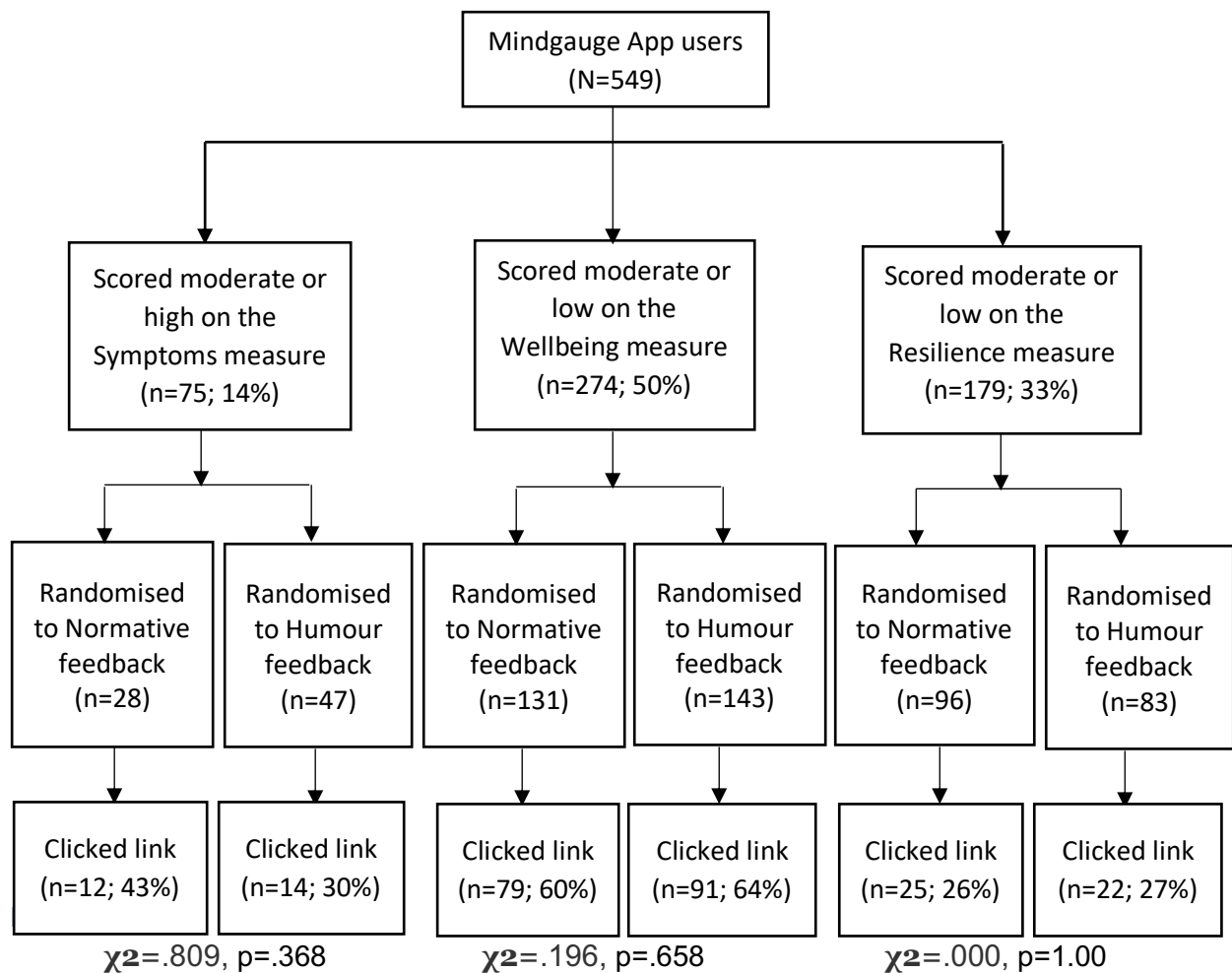


Figure 1. Participant flow in the trial.

Measures:

Primary outcome:

The study website automatically recorded whether participants clicked on the link to the online resource presented as part of their feedback as a proxy of online help seeking.

Self-reported measures:

Symptoms: The Kessler 6-item Scale (K6) [18] is a measure of nonspecific psychological distress validated for use among the Australian population. Participant with scores ranging from 12-19 were considered to have moderate symptoms, and scores from 20-30 were high symptoms, based on standardised cut-points [19].

Wellbeing: The WHO (Five) Well-Being Index (WHO-5) [20] is a commonly used measure of subjective wellbeing. Five items produce a score ranging from 0 to 25, with higher scores indicating better quality of life. Using the population mean as the centre, scores between 0-12 were considered as low wellbeing, and scores between 13-21 were moderate wellbeing.

Resilience: The Brief Resilience Scale (BRS) [21] measures one's ability to bounce back from difficult times. Scores range from 6 to 30, with higher scores indicating better resilience. Similarly using the population mean as the centre, scores between 6-17 were considered as low resilience while scores between 18-24 were moderate resilience.

Statistical analysis

Results were analysed using IBM SPSS 24 statistical software. Chi-square tests were used to compare the proportion of participants who clicked on a link between the normative and humour-driven feedback conditions for each measure, and to compare difference in clicks among the measures. Logistic regressions examined the association between clicks on the link and demographic factors for each measure independently and pooled.

Ethical approval

The study was approved by the Human Research Ethics Committee at the University of New South Wales (HC15584).

Results

Participant characteristics:

Of the 549 unique Mindgauge App users, 318 participants scored in the moderate or poorer ranges on one or more measures and were included in the analyses, with 161 participants (29%) having scored undesirably on 1 measure, 104 (19%) on 2 measures, and 53 (10%) on all three measures. Over half (197; 62%) of the included sample were female, 118 (37%) were male, and 3 (1%) did not specify their gender. There were 93 participants (29%) aged between 18-29 years, 79 (25%) were aged between 30-39 years, 98 (31%) were aged between 40-49 years, and 48 (15%) were aged 50 or above. More than two thirds (228; 72%) reported they had an episode of poor mental health in the past.

Clicks on links:

There was no significant impact of feedback type on whether participants clicked on the external link for each of the measures (all p s > .05) (Figure 1), nor when the measures were pooled ($\chi^2 = .022$, $p = .881$). A significantly higher proportion of participants who scored below threshold on the wellbeing measure (62%) clicked on the links than those who scored undesirably on the resilience (26%) or symptoms (35%) measures ($\chi^2 = 60.35$, $p < .0005$).

Factors associated with clicking on the link:

Logistic regressions found that participants with previous poor mental health were less likely than those without such history to click on the link in the symptoms measure ($B = -2.48$, Wald = 8.54, $p = .003$, OR = 0.83). There were no significant demographic factors associated with clicking on the link for the wellbeing or resilience measures. When all three measures

were pooled, participants aged 18-29 were significantly less likely to click on the link compared to those above 50 years ($B = -.82$, $Wald = 7.78$, $p = .005$, $OR = .44$).

Discussion

This pilot randomised trial showed no significant difference between normative and humour-driven feedback on the likelihood of an individual who has screened positive for a poor mental health outcome clicking through to online resources to seek further help. There was no evidence to suggest that the manner in which personal feedback was presented encouraged individuals to seek treatment, suggesting that there may be other factors influencing whether one seeks help after receiving personal feedback, which warrant further investigation. These could be related to personal characteristics or other external factors, such as stages of change, the perceived credibility of feedback or helpfulness of an intervention. Web-based and smartphone App interventions are often perceived as low in credibility and helpfulness, which are key considerations for patients in choosing to engage with a mental health treatment [22]. Given there is support that providing simple information about the intervention improves attitudes towards Internet interventions and intention to use [23] [24], it is possible that the rate of clicks to resources in this study may be improved if we provided further information about those resources in the feedback.

Nonetheless, the online help-seeking rate in our study ranged from 26% to 60% and was comparable to the rates of seeking face-to-face help following online screening as previously reported [6] [7] [8]. Interestingly, the wellbeing measure had more frequent clicks than the symptoms or resilience measures regardless of feedback type. It is possible that online resources aimed at improving “wellbeing” were seen as more attractive or achievable than improving “symptoms” or “resilience”, which may have a negative connotation related to poor mental health. It is also possible that receiving negative personal feedback on the symptoms and resilience measures may have been confronting and inadvertently exacerbated avoidance behaviours [8].

The finding that those with previous poor mental health were less likely to click on external resources on the symptoms measure suggested that they may be using screening Apps for symptom monitoring rather than treatment seeking. On the other hand, this provides some support that such screening tools may be targeted to those who were distressed but without history of mental health problems to improve recognition and treatment seeking. However, this finding should be interpreted with caution given the small numbers in the symptoms measure and it was not significant when all measures were pooled. Younger people were also less likely to click on the link across all measures compared to the oldest age group.

This is in line with previous studies showing that there is lack of evidence that online services facilitated mental health help seeking in young people [25].

A strength of this study was that it measured clicks to an online resource as a proxy of immediate online help seeking. The use of objective measures of help seeking within the App overcame some of the limitations in previous studies, such as reliance on participant self-report of help-seeking and loss to follow up [4] [5], which may have led to recall bias and sampling bias. However, it is important to note that clicks to the online resource only suggests interest in seeking further help online, but it does not indicate actual engagement in further online help seeking. Participants may have also engaged in other forms of help seeking using other online resources and treatments or sought face-to-face help, but this was not assessed. Future studies could also explore reasons participants did not seek further help and explore longer-term outcomes. Another limitation of the study was the lack of a personal score control group, and so we were unable to determine if there were any added effects of normative and humour-driven feedback to simply providing personal scores. Further, there were limited measures of predictors and we were unable to control for potential confounders such as self-esteem and stigma. Despite pilot testing the humour-driven feedback, humour perception is subjective and not necessarily transcultural, and thus may be misunderstood or even be seen as trivialising the matter of mental health. However, there is support that the use of humour as a communication tool in medical contexts has a small but positive effect on perceived credibility [26], and our results suggest that the humour-driven feedback used in this study did not appear to negatively impact on help seeking.

This is the first study to compare the impact of different types of feedback on seeking online mental health support. The nil findings suggest that feedback type do not affect online help seeking, and less frequent clicks on the “Resilience” and “Symptoms” measures echo previous studies that feedback on certain measures may be less conducive to help seeking [8]. Nonetheless, the 60% click rate on the “Wellbeing” measure provides encouraging support that online screening tools can promote help seeking. Given the widespread use of online and mobile screening tools, and the limited research on its efficacy, further research is needed to explore predictors and factors that improve help seeking, such that developers and researchers can better tailor such tools to address the gaps in service use.

Acknowledgements

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Conflicts of Interest

The funders had no role in the study design, in the collection, analysis, and interpretation of data, in the writing of the report or in the decision to submit the article for publication.

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Appendix 1. Normative and humour-driven feedback provided for scores on the measures.

Measure	Category (Score)	Normative condition:	Humour-driven condition
Symptoms (K6)	Low (6-11)	Doing well: Your mood was well over the past week. Your mood was higher than XX% of (insert gender) aged (insert age group). Keep it up!	Doing well: Looks like you're kicking life's arse right now! Your mood scores show that you've been feeling good over the past week. Keep it up!
	Moderate (12-19)	Watch out: You've been feeling a bit low and anxious over the past week. Your mood was lower than XX% of (insert gender) aged (insert age group). You could get instant help from our online program My Compass to improve the way you feel.	Watch out: Sometimes we hit a bit of a rough patch, hey, even the Mona Lisa needs upkeep now and then. If you're looking for an upgrade, try our online program MyCompass for instant online help.
	High (20-30)	Time to take action: You've been feeling depressed and anxious over the past week. Your mood was lower than XX% of (insert gender) aged (insert age group). There are a range of treatments that can help these types of symptoms. You could speak to your GP or get instant help from our online program My Compass "	Time to take action: Life can be a real rollercoaster sometimes and it seems like you've hit a bump. As a humble tracking app, there's not a whole lot I can do to upgrade your system. However, I do have some very capable friends. Try My Compass - it can point you to real solutions. Or if you prefer someone in real life, speak to your GP.
Wellbeing (WHO-5)	Low (0-12)	Room for improvement: Your wellbeing score shows that you haven't been feeling healthy and happy lately. Your wellbeing was lower than XX% (insert gender) aged (insert age group). There are lots of practical things we can do to improve our wellbeing - learn more at Daily Challenge .	Room for improvement: What do humans and dung beetles have in common? We both feel crap sometimes. Life can wear us down, but there are lots of practical things we can do to improve our wellbeing - learn more at Daily Challenge (no advice for dung beetles)
	Moderate (13-21)	Feeling ok: Your wellbeing levels are fair. Your score was lower than XX% of (insert gender) aged (insert age group).	Feeling ok: Sounds like your daily life can sometimes be a daily grind, check out the Daily Challenge for a whole

		Check out the Daily challenge for practical tips to improve your wellbeing.	load practical ways to improve things...daily.
	High (22-25)	Feeling great: Your wellbeing levels are great. Your score was higher than XX% of (insert gender) aged (insert age group). Well done!	Feeling great: Feeling healthy and happy about yourself is like being outside when the weather is just right. Looks like the weather has been perfect for you!
Resilience (BRS)	Low (6-17)	Feeling flat: It seems you get overwhelmed by stressful events. Your resilience is lower than XX% of (insert gender) aged (insert age group). Smiling Mind has some good tools to build your resilience.	Feeling flat: It's not unusual to feel like a basketball that's gone flat, get your bounce back at Smiling Mind . It has some good tools to build your resilience.
	Moderate (18-24)	Not so bouncy: You have some difficulty bouncing back from stressful situations. Your resilience level is lower than XX% of (insert gender) aged (insert age group). Smiling Mind has some good tools to build your resilience.	Not so bouncy: Did you know kangaroos can hop at speeds up to 70km per hour? It looks like you've lost a bit of bounce in your step. Smiling Mind has some good tools to build your resilience.
	High (25-30)	Bouncing back well: You are well equipped to bounce back from stress. You are more resilient than XX% of (insert gender) aged (insert age group).	Bouncing back well: Looks like you'd bounce back from a black hole! Well done coping with stress, keep it up!