Cognitive and behavioural factors contributing to distress in LGBTQ+ students: a prospective mediation study

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ABSTRACT
We applied a cognitive behavioural therapy (CBT) model of psychological distress and examined cognitive and behavioural predictors and mediators of depression, anxiety and suicidality among lesbian, gay, bisexual, trans, queer and other sexual or gender minority (LGBTQ+) students. LGBTQ+ university students (N = 385) completed questionnaires at baseline, 1 and 2 months. Structural equation modelling (SEM) was used to test the relationship between baseline negative beliefs (about the self, others and the future) and depression, anxiety and suicidality 2 months later, via cognitive and behavioural response mediators (perseverative thinking, avoidance and self-compassion) assessed at 1 month. The final model demonstrated acceptable fit: \( \chi^2 (16) = 73.36, p < .001 \), comparative fit index (CFI) = 0.96, Tucker–Lewis index (TLI) = 0.93, root-mean-square error of approximation (RMSEA) = 0.09 (90% CI [0.07 – 0.12]), standardized root-mean-square residual (SRMR) = 0.04, accounting for significant variance in depression/anxiety (48%) and suicidality (27%). For depression/anxiety, negative beliefs had a direct effect and an indirect effect via perseverative thinking and avoidance. For suicidality, negative beliefs had a direct effect. A cognitive behavioural conceptualization may improve our knowledge of the psychological mechanisms involved in depression, anxiety and suicidality in LGBTQ+ students. Negative beliefs about the self, others or the future, perseverative thinking, and avoidance are promising targets for prevention and treatment.

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Introduction
People who identify as lesbian, gay, bisexual, transgender, queer or nonbinary (LGBTQ+), have an elevated risk for depression, anxiety and suicidality. Poorer mental health in LGBTQ+ individuals is even more common in younger compared to later adulthood. The main theoretical framework used to explain these mental health disparities is minority stress theory. This proposes that distal stressors (stigma and discrimination) and proximal stressors (group-specific processes such as rejection expectations, concealment and internalized stigma) contribute to the elevated risk (Meyer, 2003). An extension to minority stress theory, the psychological mediation framework (Hatzenbuehler, 2009), suggests that stigma-related stress results in elevations in general psychological processes known to be associated with risk for mental illness, which mediate the impact of stigma-related stressors on mental health.

There is little research testing general psychological factors in the poorer mental health of LGBTQ+ people. Previous research has also rarely drawn on existing evidence-based models of psychopathology, such as cognitive-behavioural methodologies (Beck, 1979). Such models suggest that overgeneralized negative beliefs about the self, others or the world (‘core beliefs’), typically developed in early life, operate as a vulnerability factor for emotional distress, including anxiety and depression. Conditional assumptions develop in relation to these beliefs (e.g. ‘Unless I am successful in all areas, then I am worthless’). These are proposed to contribute to the onset, maintenance and/or recurrence of psychopathology because, when activated by later stressful events, they result in negatively biased interpretations, attentional biases, processing modes (e.g. perseverative thinking such as rumination or worry) and behavioural responses (such as avoidance) (Beck, 1967; Colodro-Conde et al., 2018). However, the authors
are not aware of previous prospective studies which have tested this model in LGBTQ+ individuals. We focus on vulnerability and maintaining or mediating psychological processes because these may be more important in predicting long-term psychopathology than stressors that trigger such processes (Kleim et al., 2012). The design is based on the assumption that all LGBTQ+ students are exposed to a heteronormative society and have experienced some form of identity-related stigma, prejudice or discrimination (Meyer, 2003). Improved understanding of these modifiable cognitive and behavioural processes may have important implications for prevention and early intervention targeted at LGBTQ+ students. This is the first longitudinal study to examine these predictors and mediators, drawing on cognitive-behavioural methodologies, to gain a better understanding of LGBTQ+ students’ mental health.

The main objective here was to use a three-wave longitudinal design to test the influence of LGBTQ+ students’ beliefs (about themselves, others and the future; predictors assessed with measures of self-esteem, hopelessness and unhelpful attitudes) at baseline on depression, anxiety and suicidality symptoms 2 months later, and to test mediating processes, including avoidance, perseverative thinking and self-compassion, assessed at 1-month post-baseline (Figure 1). We hypothesize that:

1. Negative general beliefs about the self, others and the future at Time 1 will be associated with greater depression, anxiety and suicidality at Time 3 (2 months later).
2. This association will be partially mediated by more cognitive and behavioural avoidance, more perseverative/ruminative thinking and less self-compassion, at Time 2 (1 month after baseline; see Figure 1).

**Method**

**Participants**

Eligibility criteria were (i) reporting a minority sexual orientation or gender identity (ii) being 16 years or older, and (iii) currently enrolled as a student at a UK further education college or university. A total of 385 people completed the survey at all three-time points.

**Procedure**

Participants completed the online survey at baseline (T1), 1 month (T2) and 2-month follow up (T3). The study was approved by a King’s College London University ethics committee (Reference: HR-15/16-3003) and participants gave informed consent. Participants were recruited over an 18-month period using: (1) posters, (2) emails (to LGBTQ+ focussed organizations and university societies), (3) repeated internet-based promotion on social media (Facebook and Twitter), (4) snowball sampling and (5) a small amount of paid advertising in LGBTQ+ community
news websites and magazines. No incentive was offered for taking part.

**Measures**

The same measures were administered at all three time points.

**Demographic characteristics**

Participants reported their age, relationship status, ethnicity, religion, city and country of residence, student status and parent or guardian’s highest degree and occupation.

**Sexual orientation and gender identity.** Sexual orientation was assessed with the response options ‘heterosexual/straight’, ‘homosexual/gay/lesbian’, ‘bisexual’, ‘asexual’ and ‘other/please specify’. Gender identity was assessed by asking participants how they identify their gender (response options included male/cisgender, female/cisgender, male/transgender (‘FtM’), female/transgender (‘MtF’), other/please specify).

**Measures of negative beliefs (predictor)**

**Rosenberg self-esteem scale (RSE).** This is a 10-item measure of global self-esteem. It consists of 10 statements related to overall feelings of self-worth or self-acceptance, rated on a four-point scale ranging from ‘strongly agree’ to ‘strongly disagree’. An example item is ‘I feel I do not have much to be proud of’. Due to a lack of well-validated measures of negative core beliefs, this was used to assess general negative attitudes towards the self. Cronbach’s alpha was 0.91 at all three time points (Rosenberg, 1965).

**Beck hopelessness scale, 4-item adaptation (BHS).** This is a 4-item scale that includes positive and negative items describing the perception of the future in terms of success, darkness, lack of opportunity and faith. An example item is “my future seems dark to me”. Cronbach’s alpha was 0.76 for Time 1, 0.77 for Time 2 and 0.78 for Time 3 (Aish et al., 2001).

**Dysfunctional attitudes scale (DAS-24).** This is a 24-item measure of unhelpful attitudes that an individual may hold about themselves, the outside world or their future, relating to aspects of personal achievement, dependency on others and self-control. These are designed to correspond to the intermediate level of belief, conditional or unhelpful attitudes, in Beck’s model. An example item is ‘My happiness depends more on other people than it does on me’. Items are rated on a 7-point scale, from “totally agree’ to ‘totally disagree’. Cronbach’s alpha was 0.82 for time 1, 0.84 at time 2 and 0.85 at time 3 (Power et al., 1994).

**Measures of unhelpful cognitive and behavioural processes (mediators)**

**Self-Compassion scale-short form (SCS-SF).** The Self-Compassion scale-short form (SCS-SF) is a 12-item scale measuring how kind and understanding participants are towards themselves in instances of pain or failure (e.g. ‘When I’m going through a very hard time, I give myself the caring and tenderness I need’). Scores range from 1 (almost never) to 5 (almost always). For this study Cronbach’s alphas were 0.84 at time 1, 0.86 at time 2 and 0.84 at time 3 (Raes et al., 2011).

**Perseverative thinking questionnaire (PTQ).** The perseverative thinking questionnaire (PTQ) is a 15-item measure assessing the frequency of content-independent repetitive negative thinking (e.g. ‘The same thoughts keep going through my mind again and again’). Items are rated on a 5-point scale from 0 (never) to 4 (almost always). PTQ scores show good internal consistency, test-retest reliability, and concurrent validity with measures of worry and rumination on clinical and nonclinical samples (Ehring et al., 2011). Cronbach’s alpha was 0.96 for all time points (Ehring et al., 2011).

**Cognitive behavioural avoidance scale (CBAS).** The cognitive behavioural avoidance scale (CBAS) is a 31-item measure of cognitive and behavioural avoidance. It has four factors, Behavioural Social Avoidance (e.g. ‘I find that I often want to leave social gatherings’), Behavioural Non-social Avoidance (e.g. ‘I quit activities that challenge me too much’), Cognitive Social Avoidance (e.g. ‘I just wait out tension in my relationships hoping that it will go away’) and Cognitive Non-social Avoidance (e.g. ‘I avoid making decisions about my future’). Ratings are scored from 1 (not at all true for me) to 5 (extremely true for me). Higher scores indicate more avoidance. The CBAS has good internal consistency, strong test-retest reliability, and good convergent and divergent validity (Ottenbreit & Dobson, 2004). Cronbach’s alphas for the total scale in the current study were: 0.94 at Time 1, 0.95 at Time 2 and 0.95 at Time 3 (Ottenbreit & Dobson, 2004).
Mental health and suicidality outcome measures

Generalized anxiety disorder scale-seven item (GAD-7). The 7-item generalized anxiety disorder scale (GAD) is a self-report questionnaire of anxiety symptoms rated over the past two weeks using a 4-point Likert-type scale, ranging from 0 (not at all) to 3 (nearly every day). Higher scores indicate greater symptom severity. The GAD-7 has demonstrated good reliability and constructed validity in previous studies (Kroenke et al., 2007). Cronbach’s alphas were 0.90, 0.91, 0.92 for times 1, 2 and 3, respectively (Spitzer et al., 2006).

Patient health questionnaire-nine item (PHQ-9). The patient health questionnaire-nine item (PHQ-9) is a nine-item scale that examines depressive symptoms experienced over the past 2 weeks with responses ranging from 0 (not at all) to 3 (nearly every day). It targets the nine diagnostic criteria for major depression (American Psychiatric Association, 2013). The scale has high internal consistency and validity (Kroenke et al., 2001). Here, Cronbach’s alphas were 0.90 at time 1 and 0.91 at times 2 and 3.

Suicidal behaviours Questionnaire-Revised (SBQ-R). The suicidal behaviours questionnaire-revised (SBQ-R) comprises four items. Item 1 measures lifetime suicide ideation and attempts (1 = ‘never’ to 4 = ‘I have attempted to kill myself, and really hoped to die’); item 2 assesses the frequency of suicide thoughts over the past 12 months (1 = ‘never’ to 5 = ‘very often’); item 3 the threat of suicidal behaviour (1 = ‘never’ to 3 = ‘yes, more than once, and really wanted to do it’); and item 4 evaluates suicide likelihood (0 = ‘never’ to 6 = ‘very likely’) (Osman et al., 2001).

Cut-off scores (a score of 7 or above) have demonstrated excellent sensitivity (i.e. 0.93–1.00) and predictive power (i.e. 0.93–1.00) in differentiating between young adults at risk for suicide and controls (Osman et al., 2001). In this study, Cronbach’s alpha was 0.82 at all three-time points.

Table 1. Demographic information on the participants.

| Demographic Information | Monosexual | Bisexual | Asexual | Other | Trans |
|-------------------------|------------|----------|---------|-------|-------|
| Total (n)               | 196        | 109      | 30      | 72    | 117   |
| Gender identity         | n (%)      | n (%)    | n (%)   | n (%) | n (%) |
| Man                     | 86 (43.9)  | 20 (18.3)| 5 (16.7)| 10 (13.9)| 30 (25.6)|
| Woman                   | 84 (42.9)  | 73 (67.0)| 11 (36.7)| 29 (40.3)| 8 (6.8) |
| Non-binary              | 26 (13.3)  | 16 (14.7)| 14 (46.7)| 33 (45.8)| 79 (67.5)|
| Sexual orientation      |            |          |         |       |       |
| Monosexual              | –          | –        | –       | –     | 20 (18.0) |
| Bisexual                | –          | –        | –       | –     | 31 (27.9) |
| Asexual                 | –          | –        | –       | –     | 18 (16.2) |
| Other                   | –          | –        | –       | –     | 42 (37.8) |
| Age                     |            |          |         |       |       |
| Mean                    | 23.6       | 23.0     | 22.0    | 20.8  | 21.0  |
| Range                   | 16–64      | 16–54    | 16–53   | 16–33 | 16–53 |
| Race                    |            |          |         |       |       |
| White                   | 184 (95.3)| 92 (84.4)| 27 (90.0)| 66 (91.7)| 110 (94.0)|
| Asian                   | 4 (2.1)    | 6 (5.5)  | –       | 1 (1.4)| 1 (9) |
| Mixed race              | 4 (2.1)    | 7 (6.4)  | 10 (10.0)| 4 (5.6)| 5 (4.3) |
| Latino/Hispanic         | 1 (0.5)    | 2 (1.8)  | –       | –     | –     |
| Black                   | –          | 2 (1.8)  | –       | 1 (1.4)| 1 (9) |
| Type of student         |            |          |         |       |       |
| College                 | 40 (20.4)  | 18 (16.5)| 6 (20.0)| 23 (31.9)| 37 (31.6)|
| Undergraduate           | 107 (54.6)| 63 (57.8)| 16 (53.3)| 30 (41.7)| 52 (44.4)|
| Masters                 | 27 (13.8)  | 16 (14.7)| 6 (20.0)| 13 (18.1)| 20 (17.1)|
| PhD                     | 22 (11.2)  | 12 (11.0)| 2 (6.7)| 6 (8.3)| 8 (6.8) |

Other = Other Orientation (e.g. queer), Trans = transgender. Dashed cells indicate that there were no such participants.

College students = pre-University in the UK, typically 16–18 years.

Statistical analytic plan

Preliminary analyses were performed using SPSS. To test the hypothesized model (Figure 1), structural equation modelling (SEM) was performed using MPlus version 7.4 (Muthén & Muthén, 2015). Analyses were performed by using a maximum likelihood (ML) estimator. Model fit to the observed data was assessed through a two-step procedure (Kline, 2011). First, a measurement model was tested using confirmatory factor analysis (CFA) to determine if the observed variables adequately defined the latent constructs. Then, the hypothesized structural path model was tested to describe interrelationships among the constructs (Weston & Gore, 2006). Standardized path coefficients of less than 0.10 indicated a small effect, 0.30 a medium effect and 0.50 or greater a large effect.
Modification indices were inspected for significant areas of model misfit. Model fit was assessed by comparative fit index (CFI) and Tucker–Lewis Index TLI, the root-mean-square error of approximation (RMSEA) and the standardized root-mean-square residual (SRMR). Recommended criteria of acceptable fit were used and considered to be CFI ≥ 0.90; TLI ≥ 0.90, RMSEA ≤ 0.10; SRMR ≤ 0.10 (Little, 2013; Weston & Gore, 2006). As recommended, we considered sample size and model complexity when judging model fit instead of solely using strict cut-offs, which may have led us to inappropriately reject models, given our sample was less than 500 (Weston & Gore, 2006).

In the structural model, interactions that did not significantly predict any of the observed outcome variables were trimmed for parsimony. Total effects, direct effects and indirect effects are reported. Mediation was examined by calculating indirect effects. For high precision, 10,000 bootstrap samples were chosen (Geiser, 2013). Standardized path coefficients and 95% bias-corrected confidence intervals (BC 95% CIs) were reported as recommended (Williams & MacKinnon, 2008). CIs that do not contain zero indicate a significant indirect effect via the specific mediator.

Missing data on items ranged from 0.0% to 1.9% and appeared to be missing at random. Thus, mean imputation was used for missing responses. The small amount of missing data (<5%) in this large sample means this method is not likely to distort the distribution of the data by reducing variability (Kline, 2011).

Results

Sample
A total of 385 participants completed measures at all three time-points after excluding 12 who met outlier criteria and others who did not enter codes to allow for matching over time. Overall retention rates from time 1 to time 3 were 49%. Demographic information about the participants is shown in Table 1.

Preliminary analyses

Supplementary Table 1 (see supplementary materials) shows the baseline descriptive statistics for the study variables. 84% and 78% of participants showed symptoms indicating mild depression and anxiety, respectively; 78% reported symptoms indicating suicidal ideation. Bivariate correlations of the predictors at time 1, mediators at time 2 and outcomes at time 3 are presented in Supplementary Table 2. According to Cohen’s benchmarks, observed indicators of the
hypothesized latent constructs were moderately to highly correlated \((r = 0.38–0.79)\) with each other, indicating that the observed variables for each hypothesized latent variable could be viewed as representing common constructs.

**Measurement model**

The measurement model did not have acceptable fit when the anxiety, depression and suicidality measures were loading onto a single distress factor, or with suicidality as a separate observed outcome variable. Inspection of the modification indices and measure content indicated that the self-compassion scale could be an indicator of negative beliefs as well as the mediating factor it was hypothesized to load onto. Some of the items of the self-compassion scale may represent beliefs, rather than processes and resources which the mediating factor is thought to embody. Thus, we excluded self-compassion from the model in order to have greater distinction between negative beliefs and mediating processes. Excluding the self-compassion scale resulted in acceptable fit: \(\chi^2 (11) = 63.71, p < .001, \text{CFI} = 0.96, \text{TLI} = 0.93, \text{RMSEA} = 0.1\) (90% CI [0.09–0.14]), SRMR = 0.03. Factor loadings for the remaining indicators of all three latent variables were high (\(\beta > 0.60\), with an average loading of \(\beta > 0.70\) onto each factor).

**Structural model**

The structural model had acceptable fit: \(\chi^2 (15) = 73.29, p < .001, \text{CFI} = 0.96, \text{TLI} = 0.93, \text{RMSEA} = 0.1\) (90% CI [0.08–0.12]), SRMR = 0.04. General negative beliefs were associated with distress directly and indirectly via general cognitive and behavioural processes. They were associated with suicidality directly, but not indirectly via general cognitive and behavioural processes (Figure 2). For more details about paths and effects please see Appendix A in the supplementary materials.

A trimmed version of the hypothesized general mediation model was estimated in which the non-significant path between the mediator and suicidality was constrained to 0 (i.e. eliminated). This model also provided acceptable fit: \(\chi^2 (16) = 73.36, p < .001, \text{CFI} = 0.96, \text{TLI} = 0.93, \text{RMSEA} = 0.09\) (90% CI [0.07–0.12]), SRMR = 0.04. A nested model comparison indicated that the trimmed model did not differ significantly from the less-restrictive model in terms of fit, \(\Delta \chi^2 (1) = 0.07, p > .05\). The Akaike information criterion (AIC = 19644.171) and Bayesian information criterion (BIC = 19756.862) were smaller for the trimmed model than for the less-restrictive hypothesized model (AIC = 19648.099, BIC = 19762.744).

The model was then tested using 10,000 bootstrap samples to compute BC 95% CI for indirect effects. One of the two mediation effects was significant. The indirect effect from negative beliefs to mediators to distress was significant \((\beta = 0.36, BC 95% \{0.1, 0.67\})\). The indirect effect from negative beliefs to suicidality via the mediators was not significant \((\beta = 0.03, BC 95% \{-0.24, 0.25\})\). The total effect of negative beliefs on distress was \(\beta = 0.65, BC 95% \{0.57, 0.73\}\) and from negative beliefs on suicidality was \(\beta = 0.52, BC 95% \{0.42, 0.60\}\).

**Discussion**

This study tested the relationship between LGBTQ+ students’ general negative beliefs and depression, anxiety and suicidality, and the effects of mediating cognitive and behavioural processes measured at 1-month post-baseline.

Overall, findings from this study support the hypothesized model. Results support Hypothesis 1, that general negative beliefs about the self, others, world and future are prospectively associated with anxiety, depression, and suicidality. This suggests that general negative beliefs about the self, world and others may play an important role in the prediction of mental health problems in LGBTQ+ students.

As predicted (Hypothesis 2), the latent mediator representing cognitive and behavioural responses, which included avoidance and rumination, partially mediated the association between beliefs and distress (measured by depression and anxiety). Specifically, more general negative beliefs were associated with more unhelpful responses, which in turn were associated with more depression/anxiety. This is consistent with findings from general population studies (eg. Liu et al., 2019). No previous research with sexual or gender minorities have tested a general cognitive model in this way. Future research should endeavour to test other possible mediators, including specific cognitive processes such as self-criticism or other behavioural responses such as compensatory strategies or self-harm. Stigma-specific responses could also be assessed which may have a positive effect on distress (i.e. associated with lower distress), such as raising stigma awareness, in-group attachment, and blaming others for stigma rather than the self (Armstrong et al., 2020).
Cognitive and behavioural responses did not mediate the relationship between general negative beliefs and suicidality. The non-mediation may be due to the direct effect of general negative beliefs, which included hopelessness and self-esteem, on suicidality being strong. Previous research indicates that hopelessness is particularly strongly associated with suicidality (e.g. Ribeiro et al., 2018). Furthermore, studies show that self-esteem (another indicator of latent negative beliefs) is negatively associated with suicidal ideation beyond the effect of depression (e.g. Jang et al., 2014). The correlations presented in Supplementary Table 2 (supplementary materials) show that self-esteem and hopelessness were more strongly correlated with suicidality than perseverative thinking and avoidance were associated with suicidality.

Limitations
This study had several strengths. This was the first study, to our knowledge, to test such a cognitive behavioural model using a longitudinal mediation design in LGBTQ+ students. However, several limitations need to be considered. Participants were recruited through purposive sampling and may not be representative of LGBTQ+ students overall. Racial and ethnic minority individuals were also underrepresented. Despite having a diverse sample of LGBTQ+ people (monosexual, bisexual, cisgender, transgender and nonbinary), the subgroups were too small for tests of moderation by sub-group status. An additional limitation is that participants who did not complete all three-time points of the study were excluded from the SEM analyses, which may have introduced bias. The students who dropped out had significantly higher levels of anxiety and depression compared to the participants who completed all three-time points. However, the key aim of the study was to examine relationships between study variables. When correlations between study variables at Time 1 were compared between those with and without data at all three time-points, no significant differences were found. Change over the 2-month period of the outcome measures was small; future longitudinal research should use longer follow-up periods.

Conclusion
In this prospective study drawing on cognitive behavioural models, the results showed that negative general beliefs showed predictive power in accounting for later depression, anxiety and suicidality in LGBTQ+ students. Evidence was also strong for the mediation of general psychological processes in relation to depression and anxiety. However, findings suggest that for suicidality, general negative beliefs are the main risk factors and should be addressed. CBT interventions specifically targeting avoidance or perseverative thinking may be helpful for LGBTQ+ students. Findings highlight the need for LGBTQ+ suicide interventions to specifically address general negative beliefs about the self, others and the future.

Disclosure statement
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References
Aish, A. M., Wasserman, D., & Renberg, E. S. (2001). Does Beck’s Hopelessness Scale really measure several components? Psychological Medicine, 31(2), 367–372. https://doi.org/10.1017/S0033291701003300
Armstrong, L., Henderson, C., & Rimes, K. A. (2020). Development and psychometric validation of the discrimination and prejudice responses scale: the DAPR. Sigma and Health, 5(3), 294–303. https://doi.org/10.1037/sah0000204
American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Washington, DC: Author.
Beck, A. T. (1967). Depression: Clinical, experimental and theoretical aspects. Harper & Row.
Beck, A. T. (1979). Cognitive therapy and the emotional disorders. Penguin.
Colodro-Conde, L., Couvy-Duchesne, B., Zhu, G., Coventry, W. L., Byrne, E. M., Gordon, S., Wright, M. J., Montgomery, G. W., Madden, P. A. F., Ripke, S., Eaves, L. J., Heath, A. C., Wray, N. R., Medland, S. E., & Martin, N. G. (2018). A direct test of the diathesis–stress model for depression. Molecular Psychiatry, 23(7), 1590–1596. https://doi.org/10.1038/mp.2017.130
Ehring, T., Zetsche, U., Weidacker, K., Wahl, K., Schönfeld, S., & Ehlers, A. (2011). The Perseverative Thinking Questionnaire (PTQ): Validation of a content-independent measure of repetitive negative thinking. Journal of Behavior Therapy and Experimental Psychiatry, 42(2), 225–232. https://doi.org/10.1016/j.jbtep.2010.12.003
Geiser, C. (2013). Data analysis with MPlus. Guildford Press.
