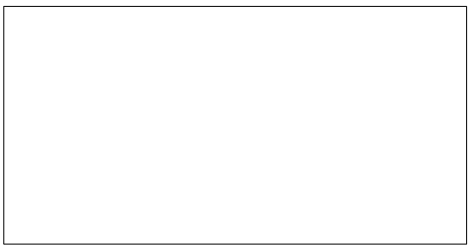

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Burnout Literacy:

A Novel Model and Measure to Aid the Recognition, Management, and Prevention of Student Burnout

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Abstract

Burnout is an increasingly common and debilitating phenomenon among students. However, while progress is being made, there are still limited options to promote its recognition, and aid in its management and prevention. Our aim was to provide one such option by introducing the concept of burnout literacy (i.e., knowledge and beliefs about burnout). Following a pre-registered protocol with open data, methods, and code, and using a multi-stage process, we developed and tested the Burnout Literacy Questionnaire-Student Version. We recruited multiple samples of university/college students from the UK and USA (total *N* = 500) and used exploratory factor analysis, confirmatory factor analysis, and exploratory structural equation modelling to test its psychometric properties. We also provided an initial exploration of its construct validity, and we examined differences in burnout literacy among various student subgroups. Overall, the findings supported a 17-item, five-factor measure with robust psychometric properties. The freely available Burnout Literacy Questionnaire-Student Version provides the first means to assess burnout literacy in students, which will aid in the recognition, management, and prevention of student burnout.

Keywords: Mental health literacy; exhaustion; wellbeing

Introduction

Students are facing ever-increasing levels of adversity worldwide. This has included responding to significant uncertainty during the COVID-19 pandemic, but also ongoing pressures from increased standardized assessment, precarious financial support, and societal expectations of perfectionism (Bartholomae & Fox, 2021; Curran & Hill, 2019; Timmis et al., 2016). Perhaps unsurprisingly, student mental health and wellbeing are suffering as a consequence. One such issue that epitomizes these struggles in an academic context, and is similarly increasing, is burnout (Abraham et al., 2024). Burnout not only hinders student wellbeing but it also has negative implications for student motivation and performance, making it a growing threat to student success (Madigan & Curran, 2021). The present study, therefore, provides a means to support the recognition, management, and prevention of burnout by, for the first time, introducing the concept and associated measure of burnout literacy.

What is Burnout and Why is it Important?

Burnout was first explored in human services professions (Maslach & Jackson, 1981). Among those working in these contexts, a process of gradual exhaustion, cynicism, and loss of commitment was observed. This led Maslach and colleagues (1986) to provide a formal definition of burnout as a multidimensional syndrome comprised of three symptoms: emotional exhaustion (feelings of being emotionally drained and exhausted because of your work), cynicism (a cynical and impersonal response toward those around you), and reduced efficacy (no longer feeling like you are competent and successful at work). This definition is by far the most commonly used in burnout research and has recently been adopted by the World Health Organization (2020).

Since its inception, burnout has been found to be relevant to a range of contexts and professions. In this regard, a growing body of work suggests that it may be particularly

common among college students (Rosales-Ricardo et al., 2021). Indeed, the activities that students undertake for education are very similar to those undertaken in work contexts (Schaufeli et al., 2002). For instance, they are requested to regularly attend classes and undertake structured activities focused on specific outcomes (e.g., achieving a certain grade). To reflect differences in contexts, and to better reflect their experiences, the definition of burnout is adapted to the academic domain for students. In this manner, student burnout represents a multidimensional syndrome of exhaustion from studying, cynicism directed towards studying, and reduced efficacy in relation to academic work (Salmela-Aro et al., 2009; Schaufeli et al., 2002).

There is increasing evidence to support the need to examine burnout in students. Most notable are the many deleterious consequences of burnout for this group. These include serious implications for student mental health, with an increased risk of depression, anxiety, and even suicide ideation (Dyrbye et al., 2008; Walburg, 2014). Supporting the idea that burnout for students differs compared to occupational contexts, burnout directly affects student experiences at school and university/college. For example, student motivation shifts towards more controlled forms, test-related fatigue increases, academic self-worth diminishes, students disengage from coursework, and disruptive behaviours in the classroom become more commonplace (Cazan, 2015; Law, 2007; Lavrijsen et al., 2023; Schramer et al., 2019). Cumulatively, these changes contribute to worse student performance (Madigan & Curran, 2021).

Introducing Burnout Literacy

Given its consequences, it is clear that protecting students from burnout is a worthwhile endeavour. There has been some progress in this regard. Most notably, a recent systematic review of 17 controlled studies has shown that interventions may help reduce burnout in students (Madigan et al., 2024) and that a range of different types of intervention have been

used (e.g., mindfulness; O'Driscoll et al., 2019). Problematically, however, one thing all prior interventions have in common is that they target individuals experiencing burnout, rather than aiming to prevent it in the first place. They also rely on relatively intensive therapeutic modalities and so are difficult to scale to larger populations. As with other mental health problems, primary prevention (i.e., intervening before burnout and its consequences develop) is extremely important because it has the potential to significantly reduce the burden on healthcare systems, schools/colleges, and students themselves. As too do interventions that are scalable.

One successful avenue for primary prevention and scalable intervention in the context of mental health more broadly has been the focus on mental health literacy. Mental health literacy represents the knowledge and beliefs about mental health disorders (Jorm et al., 1997). Jorm et al. (1997) posited that mental health literacy is comprised of several components: (a) the ability to recognise specific disorders or different types of psychological distress, (b) knowledge of how to seek mental health information, (c) knowledge and beliefs about risk factors and causes, (d) knowledge and beliefs about self-help interventions, (e) knowledge and beliefs about professional help available, and (f) attitudes which facilitate recognition and appropriate help-seeking. These components are thought to significantly affect individuals' symptom management activities. That is, for individuals experiencing psychological symptoms, or are in close contact with others with such problems, it will improve their attempts to manage those symptoms or to offer advice and support (Jorm, 2000). As research shows that mental health literacy can be increased (e.g., Potvin-Boucher et al., 2010), indicating its malleable nature, providing individuals with increased mental health literacy may reduce symptomology and aid prevention.

Research has supported the utility of mental health literacy. For example, the detection of a mental disorder is greater if the individual presents their symptoms as reflecting a

psychological problem (Furnham & Swami, 2018), indicating the usefulness and importance of the individual's understanding of mental health. Mental health literacy can also destigmatise mental disorders — a significant barrier to help-seeking (Suka et al., 2016). Similarly, providing skills and changing attitudes can be helpful in seeking professional help (Perry et al., 2014). For these reasons, many national and global organisations have advocated for a focus on increased mental health literacy to aid mental health (LaMontagne et al., 2014).

While models and measures of mental health literacy make reference to some specific disorders (e.g., Social Phobia, Generalized Anxiety Disorder, Drug Dependence), they do not cover the broad range of psychological problems and disorders that may befall students. In this regard, a growing body of work has sought to apply mental health literacy to other specific problems (e.g., depression literacy, perfectionism literacy; Etherson et al., 2025; Singh et al., 2019). There is evidence to support the utility of this approach. For example, as articulated by others (Etherson et al., 2025), for both the general population and healthcare professionals, knowledge of more general mental health problems does not equate to knowledge of specific problems or disorders (Hadjimina & Furnham, 2017). Furthermore, low levels of literacy in relation to specific mental health problems are common even for those individuals tasked with providing signposting or direct support for such problems (e.g., Worsfold & Sheffield, 2018). At this stage, we note that burnout does not feature at all in any existing model or measure of general or specific mental health literacy. Burnout is associated with its own unique antecedents, symptoms, and consequences, and so the most effective prevention and treatment approaches will differ from other disorders. Such absence seems like a notable oversight. It is here, then, that we wish to make a substantive contribution to the burnout literature by introducing the concept of burnout literacy.

Building on the seminal work of Jorm and colleagues (1997), we define burnout literacy as knowledge and beliefs about burnout that aid its recognition, management, and prevention. In line with mental health literacy research more broadly (see Jorm, 2000), we posit that burnout literacy is comprised of six specific dimensions: (a) ability to recognise burnout, (b) knowledge of how to seek information regarding burnout, (c) knowledge of the risk factors and causes of burnout, (d) knowledge of self-treatments available for burnout, (e) knowledge of professional treatments available for burnout, (f) attitudes that promote recognition and appropriate help-seeking for burnout.

In developing a measure of burnout literacy, we aligned our work with the structure of the Mental Health Literacy Scale (O'Connor & Casey, 2015), which is considered to be the gold standard measure of mental health literacy with strong psychometric properties (e.g., reliable factor structure, high test-retest reliability, robust internal consistency). Like other researchers (e.g., Etherson et al., 2025), we adopt this approach because it ensures we capture the key aspects of literacy and that our measure aligns with mental health literacy broadly and measures that have been developed in relation to specific mental health literacy (e.g., Hart et al., 2014). The development of a burnout literacy measure may have significant practical utility, including: (a) aiding early detection of burnout by increasing awareness of symptoms, (b) in improving therapy outcomes by promoting help-seeking behaviours and increasing adherence, and (c) aiding prevention by increasing awareness of risk factors and helping individuals provide support and advice to others.

The Present Study

Against this background, the goal of the present study was to develop the *Burnout Literacy Questionnaire-Student Version*. In developing our measure, we aimed to provide a test of its reliability and validity using a range of psychometric techniques (e.g., exploratory and confirmatory factor analytic techniques), to provide a test of construct validity via

correlations with mental health literacy and student burnout, and to provide an initial examination of approximate measurement invariance and differences in burnout literacy across student subgroups.

In terms of the subgroups of interest, because there is evidence that female students have higher levels of mental health literacy (e.g., Cotton et al., 2006) and hold more positive attitudes towards help-seeking (Wildey et al., 2024) than male students, we aimed to determine whether this is the case for burnout literacy too. In addition, because US and UK colleges and universities have differing policies and priorities in relation to mental health (see e.g., Francis & Horn, 2017), it is possible that this is reflected in the levels of burnout literacy across the two countries. Furthermore, because postgraduate students report higher levels of mental health difficulties (Wyatt & Oswalt, 2013), it is possible that they have lower levels of burnout literacy than undergraduate students. Finally, because students from racial/ethnic minority groups are less likely to seek mental health treatments (Harris et al., 2005), it is possible that this too is reflected in lower levels of burnout literacy.

Methods

Following ethical approval, we pre-registered our study (https://doi.org/10.23668/psycharchives.14170). We have also made the associated data, materials, and code openly available (https://doi.org/10.25421/yorksj.30657104.v1). We now report on the six stages involved in the development and validation of the Burnout Literacy Questionnaire-Student Version (BLQ-SV; https://doi.org/10.25421/yorksj.30657125.v1) and have done so by separating the process into six stages.[1]

[1]We note that in the preregistration our analyses were separated into three stages. However, for ease of presentation we have separated stage three into multiple stages. We have also updated the planned analyses for examining group differences in burnout literacy. Rather than using traditional methods (t-tests and ANOVA), in Stage Six, we now use a contemporary multi-group factor analysis technique (multiple group alignment for CFA) that aims to produce a factor model that is sufficient to make factor mean comparisons (i.e., a model that is approximately invariant; Luong & Flake, 2023). This change was necessary as

Stage One

The aim of stage one was to develop questionnaire items that capture the components of burnout literacy. Following a similar approach to the development O'Connor and Casey's (2015) Mental Health Literacy Scale and specific mental health literacy scales (Etherson et al., 2025), we developed operational definitions and items for the distinct components of burnout literacy.

We operationalised the first dimension, *ability to recognise burnout*, as the ability to correctly identify features of burnout. For this dimension, we used Maslach and Jackson's (1986) theoretical framework to help develop items. This was because this framework is the most commonly employed in burnout research and it ensured the alignment of our measure with the World Health Organization's conceptualisation of burnout (which is based on the aforementioned framework).

We operationalised the second dimension, *knowledge of how to seek information regarding burnout*, as the knowledge of where to access information about burnout and the capacity to do so. For this dimension, in line with O'Connor and Casey's (2015) Mental Health Literacy Scale, we focused on a variety of sources of information when seeking support for burnout that were considered appropriate (versus inappropriate).

We operationalised the third dimension, *knowledge of the risk factors and causes of burnout*, as the knowledge of the factors increasing the risk of burnout development. For this dimension, we focused on external pressures and stress that have been identified as important risk factors for student burnout (Maslach & Leiter, 2017; Walburg, 2014).

We operationalised the fourth dimension, *knowledge of self-treatments available for burnout*, as the knowledge of the typical treatments recommended by mental health

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group comparisons are only valid if a measure is sufficiently invariant. No other changes to the content of our analyses or processes were made.

professionals and activities that can be conducted by the individual to counteract burnout. For this dimension, items were generated by reviews and recommendations in this area (e.g., Madigan et al., 2024).

We operationalised the fifth dimension, *knowledge of professional treatments available for burnout*, as the knowledge that mental health professionals are available and the services that they offer to deal with burnout. For this dimension, items were also generated by reviews and recommendations in this area (see again Madigan et al., 2024).

We operationalised the sixth dimension, *attitudes that promote recognition and appropriate help-seeking for burnout*, as the attitudes that can impact the recognition of burnout and the willingness to engage in help-seeking behaviours for burnout. For this dimension, based on O'Connor and Casey's (2015) work, we listed beliefs that are likely to encourage help-seeking for burnout.

Next, items were reviewed by the authors for their clarity, readability, relevance, similarity to other generated items and to existing burnout and Mental Health Literacy Scale items (Maslach et al., 1986; O'Connor & Casey, 2015), as well as their appropriateness for college student populations. This process resulted in a revised pool of 55 items.

Stage Two

In the next stage, items were reviewed by an expert panel. The panel comprised four experts with relevant experience and expertise in burnout research. The panel was asked to provide comments on specific items, propose new items where relevant, and provide more succinct wording for existing items. Following this process, a revised pool of 61 items was identified.

Stage Three

The aim of stage three was to explore the psychometric properties of the initial item pool via exploratory factor analysis (EFA).

Participants

We used Prolific (an online crowdsourcing tool; prolific.com) to recruit a sample of 250 college students (142 female, 108 male; M_{age} = 27.84, SD_{age} = 8.70) from the U.K. (*n* = 219) and the USA (*n* = 31). All participants were actively engaged in studying at collage/university and were studying at undergraduate (*n* = 162) and postgraduate levels (*n* = 87; 1 missing), and were in their first (*n*= 76), second (*n* = 62), third (*n* = 48), fourth (*n*= 42), or fifth (*n* = 21) year of study. Broadly reflecting the demographics of college/university students, the ethnicity of the students was White (*n* = 149); Black, Black British, Caribbean or African (*n* = 42); Asian or Asian British (*n* = 31); mixed or multiple ethnic groups (*n* = 24); or other ethnic group (*n* = 4).

Measures

After providing informed consent, participants were instructed to read each item and rate the extent to which they agreed or disagreed with the items using a five-point scale (1 = *strongly disagree* to 5 = *strongly agree*).

Data Analysis

We conducted our EFA in *Mplus* 8.1 using robust maximum likelihood estimation and oblique (GEOMIN) rotation. We followed an iterative procedure based on several recommendations for scale development (Fabrigar & Wegener, 2012). We retained factors based on eigenvalues (in combination with parallel analysis), goodness of fit statistics for competing models, and model interpretability. We assessed the pattern of factor loadings from each model based on their magnitude (≥ .30 was considered meaningful), degree of cross-loading (number of items loading meaningfully on more than one factor), and interpretability (Morin et al., 2020).

We used multiple fit indices to evaluate the overall fit of our models: chi-square statistic (χ^2), comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error

of approximation (RMSEA), and standardised root-mean-square residual (SRMR). In line with established guidelines, we considered models meeting the following criteria to reflect at least adequate model fit: > .90 CFI, TLI; < .08 RMSEA; 90% CI < .05 to < .08; < .08 SRMR (Marsh et al., 2004).

Results

In our first EFA model (using all 61 items), six eigenvalues from the sample correlation matrix exceeded the corresponding eigenvalues derived from the parallel analysis. However, factor six appeared to be uninterpretable and the model provided suboptimal model fit (χ^2/df = 1.96, CFI = .78, TLI = .72, RMSEA = .06 [.06, .07], SRMR = .05). Upon further inspection, it appeared that the two "treatment" components had collapsed to load onto one factor ("knowledge of treatments for burnout"), which has been seen in other literacy-based measures of mental health constructs (e.g., Chao et al., 2020; Etherson et al., 2025). As it appeared that participants were unable to differentiate between the treatment types (e.g., self-treatments versus professional treatments), we revised our model accordingly.

Our aim at this stage was to identify the most parsimonious and best fitting model. To do so, we removed problematic items (e.g., items that failed to load on any factor [8 items] or loaded on more than one factor [7 items]). We also removed an additional 29 items based on factor loading magnitude (items with weaker factor loadings were primary candidates for removal) and potential item redundancy (items with very similar wording were identified and only preferred items were retained). In doing so, we ran a further two models before reaching our final model based on conceptual clarity and model fit.

Our final model consisted of 17 items loading onto five factors: (a) ability to recognise burnout, (b) knowledge of how to seek information regarding burnout, (c) knowledge of the risk factors and causes of burnout, (d) knowledge of treatments available for burnout, and (e) attitudes that promote recognition and appropriate help-seeking for

burnout. This model provided excellent fit (χ^2/df = 1.62, CFI = .97, TLI = .94, RMSEA = .05 [.03, .07], SRMR = .03). See Table 1 for means, standard deviations, and factor loadings.

Stage Four

The aim of stage four was to confirm the psychometric properties of the five-factor model from Stage Three using via confirmatory factor analysis (CFA) and exploratory structural equation modelling (ESEM) techniques.

Participants

We used Prolific to recruit a second sample of 250 college students (140 female, 110 male; M_{age} = 27.19, SD_{age} = 8.85) from the U.K. (*n* = 166) and the USA (*n* = 84). Students were studying at undergraduate (*n* = 165) and postgraduate levels (*n* = 84; 1 missing) and were in their first (*n*= 62), second (*n* = 72), third (*n* = 55), fourth (*n*= 43), or fifth (*n* = 18) year of study. The ethnicity of the students was White (*n* = 121), Black, Black British, Caribbean or African (*n* = 41), Asian or Asian British (*n* = 69), mixed or multiple ethnic groups (*n* = 11), or other ethnic group (*n* = 8).

Measures

Participants completed items in the same manner as in Stage Three.

Data Analysis

Our CFA and ESEM analyses were conducted in *Mplus* 8.0 using robust maximum likelihood estimation. For the CFA, we specified a first-order model in which: (a) items were constrained to load on target factors; and (b) all latent factors were specified to covary. For the ESEM, we used an oblique target rotation and stipulated a main target for items (the relevant subscale) while allowing for cross-loadings (targeted to be as close to zero as possible). We assessed our models in relation to goodness of fit statistics and the magnitude and statistical significance of factor loadings (≥ .30 was considered meaningful; Morin et al., 2020).

Results

CFA. The CFA for the 17-item five-factor model provided excellent fit to the data (χ^2/df = 1.70, CFI = .94, TLI = .93, RMSEA = .05 [.04, .07], SRMR = .06). All factor loadings were significant ($p < .001$) and meaningful ($.57 \geq \lambda \leq .89$). See Table 2 for means, standard deviations, and factor loadings.

ESEM. The ESEM for the 17-item five factor model provided excellent fit to the data (χ^2/df = 1.52, CFI = .98, TLI = .94, RMSEA = .05 [.03, .06], SRMR = .02). In addition, there were only a few minor cross loadings (none of which exceeded our .30 threshold). See Table 2 for factor loadings.

Our final measure, then, has five dimensions: ability to recognise burnout (e.g., "burnout makes attending class difficult"), knowledge of how to seek information regarding burnout (e.g., "if I was concerned about burnout, I would contact a psychologist"), knowledge of the risk factors and causes of burnout (e.g., "pressures to achieve high grades can be related to burnout"), knowledge of treatments available for burnout (e.g., "relaxation techniques can help reduce burnout"), and attitudes that promote recognition and appropriate help-seeking for burnout (e.g., "burnout can be detrimental to your health"). We have provided the final dimensions, operational definitions, and corresponding items for the BLQ-SV in Table 3 (also available from [blinded for peer review]).

Stage Five

The aim of stage five was to explore the construct validity of the scale (via correlations with burnout and mental health literacy). We had two exploratory aims to: (a) examine whether burnout literacy is sufficiently distinct from these related constructs; and (b) identify the various ways these constructs are linked together.

Participants

We used the combined samples from Stage three and four (n = 500).

Measures

Burnout Literacy. Burnout literacy was measured using the 17-item five-factor BLQ-SV developed in Stage Three (see Table 3).

Student Burnout. Student burnout was measured using the 15-item Maslach Burnout Inventory–Student Survey (MBI-SS; Schaufeli et al. 2002). The MBI-SS is formed of three subscales: Exhaustion (5-items, e.g., "I feel emotionally drained by my studies"; Cynicism (4-items, e.g., "I have become less enthusiastic about my studies"); and Professional Efficacy (6-items, e.g., "I can effectively solve the problems that arise in my studies"). Participants responded to items on a 7-point frequency rating scale ranging from 0 ('*never'*) to 6 ('*always'*). Previous research has provided evidence for the reliability and validity of the MBI-SS (Schaufeli et al. 2002).

Mental Health Literacy. Mental health literacy was measured using 35-item Mental Health Literacy Scale (MHLS; O'Connor & Casey, 2015). The MHLS is a unidimensional measure that includes items related to all the aforementioned attributes of mental health literacy (e.g., attitudes). Participants responded to items on either a 4-point scale ranging from 1 ("*very unlikely/unhelpful*") to 4 ("*very likely/helpful*") or a 5-point scale ranging from 1 ("*strongly disagree/definitely unwilling*") to 5 ("*strongly agree/definitely willing*"). Previous research has provided evidence for the reliability and validity of the MHLS (O'Connor & Casey, 2015).

Data Analysis

We first computed the descriptive statistics and scale reliability estimates (alpha and omega). We then calculated the bivariate correlations between all scales. These analyses were conducted in IBM Statistics SPSS 28.0.

Results

The results of the analyses can be found in Table 4. We found that alpha and omega values were adequate for all scales. In terms of the correlations, all burnout literacy dimensions were significantly correlated with at least one of the burnout dimensions. *Ability to recognise burnout*, *knowledge of the risk factors and causes of burnout*, and *attitudes that promote recognition and appropriate help-seeking for burnout* showed small-to-medium sized positive correlations with burnout dimensions, while *knowledge of how to seek information regarding burnout* and *knowledge of treatments available for burnout* showed small-to-medium sized negative correlations with the burnout dimensions. Finally, all burnout literacy dimensions, aside from *knowledge of how to seek information regarding burnout*, were positively and significantly correlated with mental health literacy.

Stage Six

The aim of stage six was to examine the BLQ-SV for approximate measurement invariance and explore group differences in latent BLQ-SV factors. We wanted to know: (a) whether it is appropriate to make comparisons across groups that differ in relation to sex (male and female groups), level of study (undergraduate and postgraduate), geographical location (U.K. and US); and ethnicity (Asian, White, and Black ethnic background groups); and, if so, (b) which groups differ substantially in terms of their burnout literacy.[2]

Participants

We used the combined samples from Stages Three and Four (n = 500).

Data Analysis

We tested the model from Stage Four using multiple group alignment for CFA in Mplus (Asparouhov & Muthén, 2014; Luong & Flake, 2023). We identified the models using FIXED alignment configuration when two groups were compared (sex, geographical

[2]Two of the ethnicity subgroups had small sample sizes: mixed or multiple ethnic groups (n = 35) and other ethnic group (n = 12). These groups were therefore omitted from our multi-group analyses.

location, and level) and FREE alignment configuration when more than two groups were compared (ethnicity). In each model, we evaluated: (a) model fit (using the same model fit criterion as previously specified); (b) the percentage of significantly non-invariant parameters (≤ 25% constitutes good performance); and (c) group differences (statistically significant differences in latent BLQ-SV scores flagged at the $p < .05$ level).

Results

Sex. The alignment model for sex (male and female groups) provided excellent fit to the data ($\chi^2/df = 1.46$, CFI = .96, TLI = .95, RMSEA = .04 [.03, .05], SRMR = .05). In this model, zero non-invariant parameters were identified (0% non-invariant item loadings and 0% non-invariant item intercepts). With evidence of good performance (approximate measurement invariance), it was reasonable to explore the factor mean comparisons provided by the alignment methodology. These analyses identified that, in comparison to the male (M) reference group, the female group (F) had significantly higher levels of *ability to recognise burnout* ($\Delta M_{F–M} = .27$, $p < .05$), *knowledge of the risk factors and causes of burnout* ($\Delta M_{F–M} = .38$, $p < .05$), and *attitudes that promote recognition and appropriate help-seeking for burnout* ($\Delta M_{F–M} = .28$, $p < .05$). No significant differences in levels of *knowledge of how to seek information regarding burnout* ($\Delta M_{F–M} = .09$, $p > .05$) or *knowledge of treatments available for burnout* ($\Delta M_{F–M} = .09$, $p > .05$) were evident.

Geographical location. The alignment model for geographical location (U.K. and US groups) provided excellent fit to the data ($\chi^2/df = 1.62$, CFI = .95, TLI = .94, RMSEA = .05 [.04, .06], SRMR = .06). In this model, zero non-invariant parameters were identified. With evidence of good performance, it was reasonable to explore the factor mean comparisons provided by the alignment methodology. These analyses identified that, in comparison to the U.K. reference group, the US group had significantly higher levels of *ability to recognise burnout* ($\Delta M_{US–U.K.} = .37$, $p < .05$), *knowledge of how to seek information regarding burnout*

($\Delta M_{US–U.K.}$ = .44, p < .05), and *knowledge of treatments available for burnout* ($\Delta M_{US–U.K.}$ = .44, p < .05). No significant differences in levels of *knowledge of the risk factors and causes of burnout* ($\Delta M_{US–U.K.}$ = .07, p < .05) or *attitudes that promote recognition and appropriate help-seeking for burnout* ($\Delta M_{US–U.K.}$ = .01, p < .05) were evident.

Study level. The alignment model for study level (undergraduate and postgraduate groups) provided excellent fit to the data (χ^2/df = 1.52, CFI = .96, TLI = .95, RMSEA = .05 [.04, .06], SRMR = .05). In this model, zero non-invariant parameters were identified. With evidence of good performance, it was reasonable to explore the factor mean comparisons provided by the alignment methodology. These analyses identified that, in comparison to the undergraduate (UG) reference group, the postgraduate group (PG) had significantly higher levels of *knowledge of how to seek information regarding burnout* ($\Delta M_{PG–UG}$ = .23, p < .05) and *knowledge of treatments available for burnout* ($\Delta M_{PG–UG}$ = .21, p < .05). No significant differences in levels of *ability to recognise burnout* ($\Delta M_{PG–UG}$ = .07, p > .05), *knowledge of the risk factors and causes of burnout* ($\Delta M_{UG–PG}$ = .09, p > .05), or *attitudes that promote recognition and appropriate help-seeking for burnout* ($\Delta M_{PG–UG}$ = .18, p > .05) were evident.

Ethnicity. The alignment model for ethnicity (Asian, Black, and White ethnic background groups) provided adequate fit to the data (χ^2/df = 1.52, CFI = .93, TLI = .91, RMSEA = .06 [.05, .07], SRMR = .06). In this model, zero non-invariant parameters were identified. With evidence of good performance, it was reasonable to explore the factor mean comparisons provided by the alignment methodology. These analyses identified that, in comparison to the White ethnic backgrounds (WEB) group, the Black ethnic backgrounds group (BEB) had significantly higher levels of *knowledge of how to seek information regarding burnout* ($\Delta M_{BEB–WEB}$ = .49, p < .05). The Asian ethnic backgrounds group (AEB) were not significantly different from the BEB group ($\Delta M_{BEB–AEB}$ = .25, p > .05) or WEB ($\Delta M_{AEB–WEB}$ = .24, p > .05) groups for this BLQ-SV factor. No significant differences in

levels of *ability to recognise burnout* ($M_{AEB\text{-}BEB}$ = .23, p > .05; $M_{WEB\text{-}BEB}$ = .21 p > .05; $M_{AEB\text{-}WEB}$ = .02 p > .05), *knowledge of the risk factors and causes of burnout* ($M_{WEB\text{-}BEB}$ = .26, p > .05; $M_{AEB\text{-}BEB}$ = .19 p > .05; $M_{WEB\text{-}AEB}$ = .08 p > .05), *knowledge of treatments available for burnout* ($M_{BEB\text{-}WEB}$ = .28, p > .05; $M_{BEB\text{-}AEB}$ = .16 p > .05; $M_{AEB\text{-}WEB}$ = .02 p > .11), or *attitudes that promote recognition and appropriate help-seeking for burnout* ($M_{AEB\text{-}BEB}$ = .26, p > .05; $M_{WEB\text{-}BEB}$ = .25 p > .05; $M_{AEB\text{-}WEB}$ = .01 p > .05) were evident.

Discussion

The goal of the present study was to develop a model and measure of burnout literacy in students. Across six stages, we tested the reliability and validity of our measure. Overall, we found strong psychometric support for a 17-item, five-factor measure – the *Burnout Literacy Questionnaire-Student Version (BLQ-SV)*. We also found support for its construct validity with significant correlations with burnout and mental health literacy. Finally, we found evidence of approximate measurement invariance and significant differences in burnout literacy among different student subgroups. Together, this evidence suggests that the BLQ-SV provides a reliable and valid means to assess burnout literacy in students.

We developed our model of burnout literacy using burnout theory (e.g., Maslach & Jackson, 1981), work on mental health literacy (Jorm et al., 1997; O'Connor & Casey, 2015), and relevant reviews (e.g., Madigan et al., 2024). Our operationalization was supported with evidence for factors that mostly reflect the components of mental health literacy (cf. O'Connor & Casey, 2015). The only minor difference we noted was that the two treatment factors (knowledge of self-treatments and knowledge of professional treatments) appeared to collapse into one factor – it appeared that students were unable to differentiate between these aspects. This minor deviation aside, however, our multidimensional measure appears to capture the breadth and complexity of "mental health" literacy as originally proposed but, for

the first time, offers a distinct contribution to the literature by applying this approach to burnout and does so across five dimensions (see Table 3).

Our results also support the construct validity of our measure. In this regard, we found both positive and negative correlations with student burnout itself. Most importantly, it appears that those with higher levels of knowledge of how to seek information regarding burnout and knowledge of treatments available for burnout reported lower levels of burnout (with effect sizes indicative of medium-sized effects; Cohen, 1992). These findings make sense given that these dimensions are focused on help-seeking and treatments and are similar to the results from work on help seeking more broadly (e.g., Dyrbye et al., 2015). These findings, then, highlight the importance of these particular dimensions because they suggest that increasing these aspects of burnout literacy may provide a means to prevent and/or reduce burnout symptoms in students. It is possible that when faced with burnout experiences, students high in burnout literacy are more able to manage those symptoms or to seek advice and support. For these reasons, so as to increase ways to safeguard students from burnout, these dimensions should certainly be considered key aspects to be explored further in future work on burnout literacy.

Aside from one dimension, we found positive correlations between burnout literacy and mental health literacy. First, then, this supports the idea that we are indeed capturing relevant aspects of "literacy". But importantly, however, the size of these correlations (only sharing a maximum of 19% of variance) suggests that burnout literacy is a distinct construct from mental health literacy. Furthermore, in line with our initial arguments highlighting that existing measures of mental health literacy do not make reference to burnout, we note that, in the present study, mental health literacy provided little explanatory power when considering student burnout, with small-to-no correlations with student burnout (compared to medium-sized correlations for certain burnout literacy dimensions; see Table 4). Notably, when

considered together, these findings show that the concept of burnout literacy is complementary to mental health literacy, and is more relevant to understanding student burnout, and thus more likely to be a useful mechanism for the prevention of the syndrome.

We also provided initial evidence that the BLQ-SV is at least approximately invariant across groups that differ in relation to sex, geographical location, level of study, and race/ethnicity. This was important in the context of the present study as it allowed us to explore and identify differences in burnout literacy across a range of different student subgroups. Here, several noteworthy findings could be useful in informing future work. For example, we identified specific student subgroups who reported lower levels of burnout literacy. As has been found in the context of mental health literacy more broadly, we found male students to report lower levels of burnout literacy. However, contrary to our initial thoughts regarding postgraduate students, we found undergraduate students to have lower levels of burnout literacy. Given the complexities and difficulties that arise during the transition and early years of college, lower levels of burnout literacy could be particularly problematic. Finally, we also found some evidence that race/ethnicity may be a factor worth considering in future research. In this regard, it may be pertinent to examine cultural and contextual factors that might influence burnout literacy in such work. Educating students about burnout would inevitably provide a means to increase literacy and in so doing improve help-seeking behaviours if and when necessary. Ultimately, enhancing burnout literacy should provide a means to prevent its development, aid in its recognition, and promote appropriate help-seeking behaviours. In addition, given the significant differences found between subgroups (e.g., sex, geography, race/ethnicity), we recommend that future studies explore the underlying reasons for these disparities and their impact on burnout literacy.

Practical Recommendations

The model and measure of burnout literacy may be implemented in practice. For example, the results could be used to inform the design of targeted inventions or awareness programmes for groups with lower burnout literacy. Moreover, the measure could be applied in educational and clinical settings to identify at-risk students and tailor interventions accordingly. Importantly, intervention studies are needed to begin to examine the ease with which burnout literacy can be improved. As has been effective in relation to mental health literacy more broadly, approaches such as psychoeducational workshops, digital apps, or even peer-support programmes are recommended. Examining these ideas further provides clear directions for future research concerning practice and supporting the mental health of students.

Limitations and Avenues for Future Research

The present study has several limitations. First, the present study adopted a cross-sectional design. Consequently, we are limited in our conclusions concerning causality. We recommend that future work adopts longitudinal designs to establish temporal precedence and so provide stronger evidence for causal relationships. Doing so would also allow for an examination of the test-retest reliability of the BLQ-SV. Second, our study relied on self-report measures. As such, there is an increased risk of common method variance (systematic error that potentially inflates relationships) that should be noted when considering the study findings. Third, although there is substantial disagreement concerning adequate sample sizes for exploratory factor analysis, against some metrics, our initial sample could be considered relatively small. As validity and reliability of a measure is an ongoing process, we recommend further tests of the psychometric properties of our scale with larger samples and controlling for possible confounding variables. Finally, another clear avenue for future work would be to apply burnout literacy to other areas of education – here, teachers come first to mind given the implications that burnout can have for them. This would likely necessitate

some minor alterations of the items but would be worthwhile to aid to address teacher issues such as current teacher shortages, which are likely partly due to the high levels of burnout in this context (e.g., Madigan & Kim, 2021).

Conclusion

For the first time, we have introduced a model and measure of burnout literacy. Overall, our findings supported a 17-item, five-factor measure with robust psychometric properties. The Burnout Literacy Questionnaire-Student Version, then, provides the first means to assess burnout literacy in students. We are hopeful that this approach and measure will aid the recognition, management, and importantly, prevention of burnout in student populations.

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Table 1. Geomin rotated loadings for the five-factor EFA model in Stage Three.

Item	*M*	*SD*	F1	F2	F3	F4	F5
1. Burnout makes attending class difficult	4.21	0.81	**.47**	.09	.09	.02	.12
2. Burnout can make you question the usefulness of your studies	3.84	1.04	**.83**	-.02	-.03	.05	.02
3. Burnout can make studying seem unimportant	3.63	1.16	**.66**	.08	-.00	-.03	.03
4. Burnout involves losing interest in your studies	3.91	1.00	**.61**	-.03	.13	-.04	-.03
5. If I was concerned about burnout, I would contact a counsellor	2.94	1.14	-.01	**.64**	-.02	.07	.11
6. If I was concerned about burnout, I would contact a psychologist	2.51	1.08	-.03	**.95**	.07	-.04	-.03
7. If I was concerned about burnout, I would contact a psychiatrist	2.27	1.03	.05	**.78**	-.04	.00	-.01
8. If I was concerned about burnout, I would contact a helpline	2.65	1.16	.06	**.46**	-.08	.12	-.00
9. Pressures to achieve high grades can be related to burnout	4.39	0.65	-.02	.03	**.83**	-.02	.02
10. Demands to get perfect grades can be related to burnout	4.35	0.69	.04	-.07	**.80**	.02	.03
11. Parents who demand high grades can increase the risk of burnout	4.32	0.73	.01	.04	**.66**	.08	-.03
12. Mindfulness can help reduce burnout	3.95	0.91	-.02	-.01	.04	**.76**	.09
13. Relaxation techniques can help reduce burnout	3.99	0.94	-.12	.06	.06	**.79**	.03
14. Meditation can help reduce burnout	3.70	1.04	.09	-.02	-.05	**.92**	**-.07**
15. Burnout can be detrimental to your studies	4.48	0.69	.05	-.06	.18	-.06	**.63**
16. Burnout can be detrimental to your health	4.36	0.73	-.05	.04	-.02	.01	**.90**
17. Burnout can be detrimental to your relationships	4.27	0.76	.10	-.00	.00	.09	**.65**

Note. $N = 250$; Bold typeface denotes meaningful loading ($\geq .30$) on target factor; F1 = *Ability to recognise burnout*, F2 = *Knowledge of how to seek information regarding burnout*, F3 = *Knowledge of the risk factors and causes of burnout*, F4 = *Knowledge of treatments available for burnout*, F5 = *Attitudes that promote recognition and appropriate help-seeking for burnout*; All target factor loading are significant at $p < .05$ (two-tailed).

Table 2. Standardized factor loadings for the five-factor CFA and ESEM models in Stage Four.

Item	CFA			ESEM				
	M	*SD*	λ	F1	F2	F3	F4	F5
1. Burnout makes attending class difficult	4.31	0.75	**.59**	**.31**	-.07	.20	.01	.27
2. Burnout can make you question the usefulness of your studies	4.07	0.96	**.68**	**.67**	-.03	-.08	-.01	.07
3. Burnout can make studying seem unimportant	3.85	1.05	**.77**	**.80**	.05	.07	-.02	-.06
4. Burnout involves losing interest in your studies	3.94	0.99	**.64**	**.74**	.02	-.04	.00	-.07
5. If I was concerned about burnout, I would contact a counsellor	3.08	1.11	**.78**	-.03	**.76**	.04	.03	-.03
6. If I was concerned about burnout, I would contact a psychologist	2.71	1.13	**.76**	-.08	**.89**	-.02	-.02	.14
7. If I was concerned about burnout, I would contact a psychiatrist	2.44	1.09	**.68**	.07	**.68**	.05	-.01	-.13
8. If I was concerned about burnout, I would contact a helpline	2.57	1.16	**.57**	.09	**.55**	-.07	.02	.02
9. Pressures to achieve high grades can be related to burnout	4.37	0.75	**.81**	.00	-.00	**.99**	-.02	-.13
10. Demands to get perfect grades can be related to burnout	4.38	0.75	**.82**	.02	.02	**.67**	-.03	.11
11. Parents who demand high grades can increase the risk of burnout	4.39	0.73	**.57**	.06	.01	**.39**	.13	.13
12. Mindfulness can help reduce burnout	3.97	0.80	**.79**	-.02	-.00	.07	**.78**	.05
13. Relaxation techniques can help reduce burnout	4.07	0.82	**.89**	-.04	-.02	-.03	**.90**	.02
14. Meditation can help reduce burnout	3.85	0.91	**.75**	.04	.05	-.03	**.76**	-.08
15. Burnout can be detrimental to your studies	4.44	0.65	**.68**	-.08	-.01	.12	-.02	**.69**
16. Burnout can be detrimental to your health	4.46	0.63	**.87**	.07	.06	-.03	-.04	**.88**
17. Burnout can be detrimental to your relationships	4.34	0.73	**.84**	.14	-.03	.02	.12	**.69**

Note. N=250. Bold typeface denotes meaningful loading (≥ .30) on target factor; F1 = *Ability to recognise burnout*, F2 = *Knowledge of how to seek information regarding burnout*, F3 = *Knowledge of the risk factors and causes of burnout*, F4 = *Knowledge of treatments available for burnout*, F5 = *Attitudes that promote recognition and appropriate help-seeking for burnout*; All target factor loadings are significant at $p < .05$ (two-tailed).

Table 3. Dimensions, operational definitions, and corresponding items for burnout literacy dimensions.

Dimension	Operational definition	Final items
Ability to recognise burnout	The ability to correctly identify features of burnout	1. Burnout makes attending class difficult 2. Burnout can make you question the usefulness of your studies 3. Burnout can make studying seem unimportant 4. Burnout involves losing interest in your studies
Knowledge of how to seek information regarding burnout	The knowledge of where to access information about burnout and the capacity to do so	1. If I was concerned about burnout, I would contact a counsellor 2. If I was concerned about burnout, I would contact a psychologist 3. If I was concerned about burnout, I would contact a psychiatrist 4. If I was concerned about burnout, I would contact a helpline
Knowledge of the risk factors and causes of burnout	The knowledge of the factors increasing the risk of burnout development	1. Pressures to achieve high grades can be related to burnout 2. Demands to get perfect grades can be related to burnout 3. Parents who demand high grades can increase the risk of burnout
Knowledge of treatments available for burnout	The knowledge of the typical treatments recommended by mental health professionals that can counteract burnout	1. Mindfulness can help reduce burnout 2. Relaxation techniques can help reduce burnout 3. Meditation can help reduce burnout
Attitudes that promote recognition and appropriate help-seeking for burnout	The attitudes that can impact the recognition of burnout and the willingness to engage in help-seeking behaviours for burnout	1. Burnout can be detrimental to your studies 2. Burnout can be detrimental to your health 3. Burnout can be detrimental to your relationships

Note. Based on the work of O'Connor & Casey (2015).

Table 4. Descriptive statistics, scale reliability estimates, and bivariate correlations from Stage Five.

	1	2	3	4	5	6	7	8	9
Burnout literacy									
1. Ability to recognise burnout									
2. Knowledge of how to seek information regarding burnout	.13**								
3. Knowledge of the risk factors and causes of burnout	.36***	-.00							
4. Knowledge of treatments available for burnout	.13**	.28***	.16***						
5. Attitudes that promote recognition and appropriate help-seeking for burnout	.46***	.05	.49***	.22***					
Burnout									
6. Exhaustion	.29***	-.06	.21***	-.20***	.19***				
7. Cynicism	.31***	-.07	.07	-.17***	.10*	.71***			
8. Reduced Efficacy	.00	-.17**	-.09	-.31***	-.04	.31***	.40***		
Mental health literacy									
9. Mental health literacy	.20***	.02	.40***	.13**	.44***	.08	-.02	.11*	
M	3.97	2.65	4.37	3.92	4.39	4.21	3.50	4.93	3.63
SD	0.75	0.89	0.60	0.80	0.60	1.34	1.68	1.08	0.41
α	.77	.81	.79	.86	.82	.92	.92	.86	.89
Ω	.78	.81	.79	.86	.82	.92	.92	.86	-

Note. $N = 500$. *$p < .05$; **$p < .01$; ***$p < .001$, two-tailed. We were not able to calculate omega for mental health literacy due to negative or zero item covariances. Efficacy correlations are reversed so as to reflect *reduced* efficacy.