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Adolescents' beliefs about what symptoms constitute depression: Are more expansive definitions helpful or harmful?

Isaac L. Ahuvia^{a,*}, Kathryn R. Fox^b, Jessica L. Schleider^a

^aDepartment of Psychology, Stony Brook University, USA

^bDepartment of Psychology, University of Denver, USA

Abstract

Purpose: What symptoms do people think constitute “depression”? In a mental health literacy framework, knowing more of depression’s nine core symptoms (per formal psychiatric diagnostic criteria) is thought to help people identify and seek help for depression. However, the common-sense model of self-regulation suggests that more expansive beliefs about what symptoms constitute an illness may be maladaptive, whereby viewing *more* symptoms as characterizing a disorder predicts greater functional impairment.

Methods: We collected data from $N = 281$ U.S. adolescents experiencing elevated depression symptoms, recruited via social media. Symptom beliefs were assessed descriptively and with a latent profile analysis to test associations with other variables.

Results: Adolescents’ beliefs about what symptoms constitute depression varied widely, and only 49% endorsed all DSM-5 depression symptoms as characterizing the disorder. Adolescents who identified more symptoms as belonging to depression had more severe depression symptoms ($p = .004$), reported more hopelessness ($p = .021$), and were more pessimistic about the permanence of depression ($p = .007$); they were also more likely to rate medication as potentially helpful ($p = .001$).

Conclusion: These findings simultaneously support and challenge elements of both the common-sense model and the mental health literacy framework. Future research on mental health literacy may examine why adolescents with more psychiatrically-accurate understandings of depression experience worse clinical outcomes. Likewise, future research on the common sense model should explore whether more expansive depression symptom beliefs may be adaptive as well as maladaptive.

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*Corresponding author. isaac.ahuvia@stonybrook.edu (I.L. Ahuvia).

CRediT authorship contribution statement

Isaac L. Ahuvia: collaborated on, Conceptualization, Methodology, conducted, Formal analysis, Writing – original draft, wrote the original draft. **Kathryn R. Fox:** collaborated on, Funding acquisition. **Jessica L. Schleider:** collaborated on, Conceptualization, Methodology, collaborated on, Funding acquisition, Writing – review & editing. All coauthors contributed to review and editing.

Declaration of competing interest

Authors report no conflicts of interest to disclose.

Keywords

Depression; Adolescence; Common-sense model; Illness beliefs; Mental health literacy

Depression is a widespread, debilitating condition that commonly onsets during adolescence (Avenevoli et al., 2015). However, beliefs about what symptoms constitute depression vary (Jorm et al., 1997). Different research traditions have illustrated the importance of these beliefs for individuals' management of their disorders (e.g., their odds of seeking treatment), and subsequently, for their clinical outcomes. However, these literatures diverge in the predictions they make about the impact of expansive symptom beliefs. On the one hand, research on mental health literacy argues that individuals who identify more of the symptoms of depression tend to have more confidence in the efficacy of therapy and medication and may therefore be more likely to seek treatment for depression (Furnham and Swami, 2018). On the other hand, research on the common sense model of self-regulation finds that people who identify more symptoms with depression tend to experience more severe symptoms, have a worse quality of life, and may actually engage less in treatment (Leventhal et al., 2016).

Mental health literacy is defined as “knowledge and beliefs about mental disorders which aid their recognition, management or prevention” (Jorm et al., 1997). Research on mental health literacy emphasizes the importance of having accurate (“literate”) understandings of what symptoms constitute a disorder like depression—at least, accurate per prevailing psychiatric definitions, e.g., the symptoms found in the DSM-5—because such understandings are thought to facilitate that individual's recognizing and seeking treatment for the disorder (Furnham and Swami, 2018). This theory has found mixed support; on the one hand, a number of studies show that when laypeople are better able to identify cases of diagnosable mental illness, they are more likely to rate formal, psychiatric treatments as effective and preferable (Wright et al., 2012). Links to actual help-seeking behaviors appear weaker, with studies showing mixed support (Gorczynski et al., 2017; Wei et al., 2013). While most of this research has been cross-sectional, there is evidence that higher levels of mental health literacy prospectively predicts help-seeking behavior, even after controlling for symptom severity and treatment history (Bonabi et al., 2016). Mental health literacy scholars recommend that public education campaigns help adolescents learn to identify the symptoms of depression, so that these adolescents become more likely to seek professional help for the disorder (Jorm, 2012).

Research on the common-sense model of self-regulation paints a different picture of how beliefs about depression symptoms might relate to treatment-seeking and illness self-management. Like models underlying mental health literacy research, the common-sense model is based on the assumption that an individual's beliefs about their illness (“illness representations”) inform the strategies they use to manage their illness, and that these strategies, in turn, affect their illness outcomes (Leventhal et al., 2016). Illness representations are broadly categorized as either protective (e.g., seeing depression as something that can be controlled) or threatening (e.g., seeing more symptoms as belonging to depression). This theory has found robust support in both physical and mental illnesses

(Cannon et al., 2022; Hagger et al., 2017), including depression specifically (Fortune et al., 2004). Unlike research on mental health literacy, work using the common-sense model has found that individuals who identify *more* symptoms as belonging to an illness (whether or not those symptoms are “accurate” per prevailing psychiatric definitions) tend to have worse quality of life, experience more severe symptoms, and engage less in treatment (Cannon et al., 2022). However, it is worth noting that most of this research has been conducted with adults, is cross-sectional, and is limited by inconsistent and at times inappropriate measurement (Cannon et al., 2022).

How can these findings be reconciled? One possibility is that identifying more symptoms as belonging to depression is associated with both good *and* bad clinical outcomes; this would highlight the need for mental health literacy researchers to consider the potential downsides to more expansive beliefs about what symptoms constitute depression, and the need for common sense model researchers to consider the ways that more expansive beliefs can be adaptive. A second possibility is that these disparate findings simply result from differences in how illness-related beliefs are defined and operationalized. In the mental health literacy literature, beliefs about what symptoms constitute depression are assessed in a variety of ways (Wei et al., 2015), including a vignette approach (Jorm et al., 1997) and questionnaires (Gabriel and Violato, 2009; O’Connor and Casey, 2015). In research using the common sense model, beliefs about what symptoms constitute depression are generally assessed with the Illness Perception Questionnaire - Revised (IPQ-R; Moss-Morris et al., 2002), the Illness Perception Questionnaire - Mental Health (IPQ-MH; Witteman et al., 2011), and the Brief Illness Perception Questionnaire (BIPQ; Broadbent et al., 2006; Cannon et al., 2022). All three of these are general-purpose measures that evaluate beliefs about what symptoms belong to *any* disorder, rather than depression specifically. This has led many to criticize this generic approach to measuring illness beliefs (e.g., French and Weinman, 2008) and their possible links to illness self-management, treatment seeking, and clinical outcomes. Moreover, while the illness identity dimension of the common sense model is meant to reflect which symptoms an individual associates with a condition (Hagger and Orbell, 2021; Cannon et al., 2022) a single question: “How much do you experience symptoms from your illness?” This question appears to directly assess symptom severity, but it does not directly examine beliefs about what symptoms are associated with the illness in general. Thus, common-sense model findings based on this operationalization of the identity dimension may tap an entirely different construct than other research on the definitional boundaries of an illness. In order to assess which outcomes are associated with identifying more symptoms as belonging to depression, researchers must use a valid and consistent measure of symptom beliefs.

1. Culture and beliefs about depression

Individuals’ understandings of depression reflect cultural knowledge about the construct (Kirmayer and Bhugra, 2009) and differences in exposure to professional models of the disorder (Loo and Furnham, 2013). Differences in beliefs about what symptoms constitute depression have been well documented across racial groups (Ying, 1990), and racial differences in conceptual boundaries about mental illness may contribute to differences

in help-seeking (Tse and Haslam, 2021). However, group differences in beliefs about what symptoms constitute depression have not yet been explored among American adolescents.

2. Changing definitions of depression

Studying individuals' conceptual boundaries of depression is especially important in light of research on how the professional definition of depression has expanded over time (Horwitz and Wakefield, 2007). Some argue that expanding professional definitions of depression lead to broader lay definitions, which have the potential for both helpful (e.g., by facilitating depression identification and treatment) and harmful (e.g., by reducing individuals' sense of agency in dealing with distress) effects (Haslam, 2016). While changes in the professional definition of depression (dubbed "concept creep") are well documented, the effects of such changes on adolescents experiencing depression symptoms are not. Thus, while an examination of change in symptom beliefs over time is outside of the scope of the present study, a cross-sectional investigation into the relationship between such beliefs and clinical outcomes is an important step towards documenting the effects of concept creep.

3. Present study

Research on mental health literacy suggests that identifying more symptoms as being a part of depression may aid in its recognition and facilitate formal help-seeking; at the same time, research on the common-sense model of self-management suggests that identifying more symptoms as being a part of depression may be associated with worse mental health outcomes. However, it is unclear whether these conflicting findings are both accurate (i.e., there are good and bad outcomes associated with having a more expansive definition of depression), or whether these findings are artifacts of the different methods used to explore them. Using a large ($N = 281$), cross-sectional sample of adolescents with elevated depression symptoms, we analyzed which DSM-5 symptoms adolescents believed belong to depression, and we subsequently examined the relationship between these beliefs and constructs including symptom severity, hopelessness, and the perceived helpfulness of therapy and medication.

4. Method

All study procedures, measures, and analytic methods were pre-registered at <https://osf.io/d7wyn/>.

4.1. Procedures

The study was conducted in June and July of 2021. All study procedures were approved by the University of Denver Institutional Review Board. Adolescents were recruited for this study from the participant pool of a randomized controlled trial of single-session interventions for adolescent depression symptoms, conducted six months earlier (the present study was unrelated to the original study; Schleider et al., 2022). Participants were recruited into this study via emails inviting recipients to complete a 30-min online questionnaire about "how teenagers understand depression," for which they would receive a \$10 gift card. Participants were recruited into the original, separate study via advertisements posted to

Instagram, which invited viewers to determine their eligibility for a confidential, online study, for which they could earn up to \$20 in gift cards. Example advertisements are provided in the manuscript for the previous study (Schleider et al., 2022).

Of the $N = 2452$ participants in the original study, $N = 281$ participants were drawn at random and recruited over email with a small incentive (a \$10 Amazon gift card). To be eligible for this study, adolescents had to be between 13 and 16 years old, speak English well enough to understand the study materials, and have elevated depression symptoms in the recruitment period of the initial study (defined as a score of ≥ 2 on the PHQ-2; Richardson et al., 2010). Participation in the randomized controlled trial conducted six months earlier (Schleider et al., 2022) was not expected to affect participants' beliefs about depression, and this was confirmed with statistical tests detailed in Appendix A.

4.2. Measures

Adolescents reported the following demographic information: race/ethnicity (White non-Hispanic, Black or African American non-Hispanic, Asian non-Hispanic, other non-Hispanic, and Hispanic), gender (girl/woman, boy/man, or a gender minority identity), sexual identity (heterosexual or a sexual minority identity), and age (in years). To assess symptom beliefs, we presented participants with a list of depression symptoms and asked which symptoms, if any, they believed were a part of depression. The list of depression symptoms was adopted from the PHQ-9 (Kroenke et al., 2001). For each depression symptom, participants indicated whether they believed that the symptom belonged to depression. Participants were also allowed to indicate that none of these nine symptoms were characteristic of depression, or that “something else” was also a symptom of depression, in which case they could provide their other symptom in text. The complete measure is reproduced in Appendix B, and was successfully piloted in a previous study (Ahuvia et al., 2022). Additional clinical constructs included depression symptom severity (CDI-2-SF; $\alpha = .85$; Kovacs, 2011), hopelessness ((BHS-4; $\alpha = .86$; Perczel Forintos et al., 2013), the perceived permanence of depression (assessed via a single item as in Lebowitz and Ahn, 2015), the perceived helpfulness of therapy (assessed via a single item as in Khalsa et al., 2011), and the perceived helpfulness of medication (assessed via a single item as in Khalsa et al., 2011).

4.3. Data analytic plan

4.3.1. Analysis 1: description of symptom beliefs—First, we conducted a descriptive analysis of the symptoms that adolescents believe are a part of depression. For each symptom item, we calculated the proportion of participants who endorsed that symptom.

4.3.2. Analysis 2: Latent class analysis and class differences—In order to further characterize adolescents' beliefs about which symptoms constitute depression, we utilized latent class analysis to identify patterns in adolescents' responses. Latent class analysis is a technique used to identify subgroups of cases with similar patterns of data across a set of (categorical) variables; in this case, we used this technique to identify subgroups of adolescents with similar types of symptom beliefs. We conducted this analysis

using the poLCA package in R (Linzer and Lewis, 2011). We used responses to the nine DSM symptom items, excluding the additional items “none” and “something else.” We tested sets of one through five classes and selected the number of classes that minimized the Bayesian information criterion (BIC), demonstrating fit to the data without overfitting. Data were limited to responses with complete data on the symptom belief measure.

4.3.3. Analysis 3: association of classes with additional constructs—Once class membership was estimated using LCA, we planned to use either ANOVA (given more than two classes) or *t*-tests (given only two classes) to determine if certain relevant constructs varied between classes. Moreover, we tested whether group membership depended on participant demographic characteristics; this analysis was not pre-registered, but was added in response to reviewer suggestions. Data were limited to responses with class membership and complete data on the other construct being analyzed. We did not control for any additional variables in these tests.

5. Results

5.1. Sample description

Table 1 reports sample characteristics. A total of 281 adolescents participated. All adolescents were between 13 and 16 years old, with a mean of 15.20 and a standard deviation of 0.87. The majority of adolescents were girls (52.67%), while 8.54% were boys and 38.79% had a gender minority identity (e.g., trans or non-binary). Approximately half of adolescents were White non-Hispanic (54.80%), 17.44% were Hispanic, 15.66% were Asian non-Hispanic, 6.05% were Black non-Hispanic, and 6.05% identified with a different race/ethnicity. A majority of adolescents identified with a sexual minority identity (77.58%), while 22.52% were heterosexual.

5.2. Analysis 1: description of symptom beliefs

The percent of participants who endorsed each symptom item is presented numerically in Table 2. The symptoms that were most commonly endorsed as a part of depression were feeling down, depressed, irritable, or hopeless (95.02%) and feeling little interest or pleasure in doing things (95.02%). The symptom least endorsed as a part of depression was moving or speaking especially quickly or slowly (58.01%). Six adolescents identified additional symptoms as a part of depression, including social isolation and feeling unmotivated.

5.3. Analysis 2: latent class analysis and class differences

A two-class model (Fig. 1) was the best fit to the data, as it minimized the Bayesian information criterion relative to one-, three-, four-, and five-class models. The first class ($N = 190$) was associated with a higher probability of endorsing each symptom item, while participants in the second class ($N = 91$) endorsed each symptom item less. In the first and larger class, adolescents endorsed nearly all (96.96%) symptom items. In the second and smaller class, adolescents endorsed only two-thirds (64.96%) of symptom items.

5.4. Analysis 3: association of profiles with additional constructs

Class membership predicted significant differences in four of the five clinically-relevant constructs tested. Adolescents in the first class, who believed that more symptoms were a part of depression, had more severe depression symptoms ($M = 11.86$ vs $M = 10.11$, $t = 2.90$, $p = .004$), reported more hopelessness ($M = 5.72$ vs $M = 4.85$, $t = 2.32$, $p = .021$), and were more pessimistic about the permanence of depression ($M = 6.49$ vs $M = 5.89$, $t = 2.75$, $p = .007$). Adolescents in the first class were also more likely to see medication as potentially helpful ($M = 6.07$ vs $M = 5.00$, $t = 3.31$, $p = .001$). These differences are presented visually in Fig. 2.

Class membership was not significantly associated with participant race ($X^2 = 6.81$, $p = .146$), gender ($X^2 = 0.25$, $p = .884$), sexual orientation ($X^2 = 0.11$, $p = .737$), or age ($t = 0.25$, $p = .805$).

6. Discussion

Theories of mental health literacy and the common-sense model of self-regulation agree that individuals' beliefs about what symptoms constitute an illness matter for their outcomes, but tend to focus solely on adaptive (in the case of mental health literacy) or maladaptive (in the case of the common-sense model) outcomes. Our findings suggest that, in the context of U.S. adolescents experiencing elevated depression symptoms, there are positive *and* negative outcomes associated with broader beliefs about what symptoms constitute depression.

Adolescents who believed that more symptoms were a part of depression tended to experience more severe depression symptoms, reported more hopelessness, and were more pessimistic about the permanence of depression. This is consistent with prior research on the common-sense model, which broadly finds that broader perceptions as to an illness's identity are associated with worse self-management and more severe mental illness symptoms (Cannon et al., 2022). Unlike prior studies, however, we found that adolescents who hold broader conceptualizations of depression *in general* (i.e., not just of their own depression) tended to report more severe symptoms. This suggests that the relationship between broader identity beliefs and worse clinical outcomes is not just a result of some measures conflating illness identity and symptom severity (e.g., by asking "how much do you experience symptoms from your illness"; Broadbent et al., 2006). Moreover, while most prior studies have been done with adults, our study supports the presence of this relationship in adolescence, adding to new research documenting the applicability of the common-sense model to mental health management in adolescence (e.g., Bear et al., 2023).

On the other hand, adolescents who saw more symptoms as constituting depression were also significantly more likely to see medication—but not therapy—as helpful. This is somewhat consistent with past research on mental health literacy, which finds that when individuals are better able to identify the symptoms of mental illnesses, they are more likely to rate formal, psychiatric treatments as effective (Wright et al., 2012). Taken together, these results support the notion that broader understandings of depression are associated with positive and negative outcomes in adolescence, and that differences in conclusions drawn by common-sense model and the mental health literacy model are not the result of

methodological differences in how symptom beliefs are operationalized between the two literatures.

There are certain limitations on the conclusions that can be drawn from this research. First, the sample significantly over-represents sexual and gender minority adolescents relative to the larger U.S. population; to the extent that symptom beliefs differ across sexual and gender identity groups, these results may not fully generalize to U.S. adolescents in general. However, this concern is mitigated by the finding that symptom beliefs did not vary across sexual and gender minority groups within this sample. Moreover, it should be said that neither this study nor the original RCT intentionally over-sampled sexual and gender minority adolescents, so this sample may in fact reflect help-seeking high-symptom adolescents on social media. A second limitation stems from the checklist approach used to assess adolescents' beliefs about what symptoms constitute depression. Because this measurement approach conforms with both mental health literacy and common-sense models, this allowed us to test relationships theorized by each model using the same measure. However, it should be noted that the checklist approach is different from how beliefs about symptoms are traditionally measured in both mental health literacy and common-sense model research (Cannon et al., 2022; Wei et al., 2015). Thus, it is possible that differences between measurement approaches limits the comparison of our findings to previous findings in those literatures. A third limitation is due to the cross-sectional nature of our study; while this study demonstrates cross-sectional relationships between symptom beliefs and both positive and negative outcomes, we cannot exclude the possibility of third variable explanations or reverse causality (e.g., more severe depression symptoms leading to more expansive beliefs about what symptoms constitute depression).

On the whole, our results indicate that more expansive beliefs about what symptoms constitute a mental illness may be associated with both positive and negative outcomes. This has implications for both research on the common-sense model and on mental health literacy; research on the common-sense model must account for the ways that more expansive beliefs about what symptoms constitute an illness can be adaptive, not only maladaptive (e.g., by facilitating help-seeking). Likewise, research on mental health literacy must account for the way that these beliefs, which have appeared to be adaptive in certain contexts, can be associated with worse clinical outcomes. Is it possible that they are not universally adaptive? Do these beliefs play a different role across different populations? Is there another explanation that accounts for the positive or negative associations? By integrating the common-sense model and mental health literacy approaches, future research can provide a more thorough account of the role of these beliefs.

Moreover, future research should examine this question using longitudinal or experimental data, in order to address concerns about reverse-causality. The use of cross-sectional data—and subsequently, the inability to rule out alternative explanations (such as increased symptom severity leading to broader beliefs regarding what symptoms constitute depression)—is a limitation common to studies on both the common-sense model and mental health literacy (Bonabi et al., 2016; Cannon et al., 2022). However, in order to deliver on the causal claims made by both theories about the effects of such beliefs on clinical outcomes, future research must begin to examine these questions longitudinally.

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Appendix A.: Robustness Checks

Method.

To assess the possibility that participants' responses in the present study might have been affected by their participation in the previous study, which evaluated whether single-session online interventions could ameliorate depressive symptoms (Schleider et al., 2022), we conducted chi-square tests of independence to determine if symptom beliefs endorsed by respondents varied significantly by the intervention to which they were randomized in the initial study (i.e., whether they received one of two single-session online interventions, or an active control program). Moreover, we assessed whether participants' symptom beliefs were associated with their treatment history, assessed both with three categories (no treatment history/past treatment/current treatment) and as a binary variable (no treatment history/any treatment history).

Result.

Class membership was not associated with intervention assignment in the original study ($X^2 = 0.39$, $p = .822$), nor with treatment history when defined either with three categories (no treatment history/past treatment/current treatment; $X^2 = 1.33$, $p = .514$) or with two categories (no treatment history/any treatment history; $X^2 = 0.34$, $p = .558$).

Appendix B.: Symptom Belief Measure

Now we'd like to ask some questions about something called depression.

Everybody goes through emotional ups and downs. by "depression" we mean emotional downs that start to **get in the way** of relationships, school, hobbies, or family relationships.

Some people describe "depression" as feeling very sad, down, or blue more than usual. Other people describe depression as feeling tired, unmotivated, or cranky more than usual.

Which of these experiences do you think are a part of depression? (Click all that apply).

- Feeling down, depressed, irritable, or hopeless
- Feeling little interest or pleasure in doing things
- Having trouble falling asleep, staying asleep, or sleeping too much
- Having a poor appetite, weight loss, or overeating
- Feeling tired, or having little energy
 - Feeling bad about yourself - or feeling that you are a failure, or that you have let yourself or your family down.

- Having trouble concentrating on things like school work, reading, or watching TV
- Moving or speaking so slowly that other people could have noticed, or the opposite - being so fidgety or restless that you were moving around a lot more than usual
- Having thoughts that you would be better off dead, or of hurting yourself in some way
- None of these
- Something else: _____

References

- Ahuvia IL, Fox KR, Schleider JL, 2022. Depression Beliefs Among High-Symptom Adolescents: Correlates, Parent-Child Agreement, and Stability over Time. 10.31234/osf.io/sqt8g.
- Avenevoli S, Swendsen J, He J-P, Burstein M, Merikangas KR, 2015. Major depression in the national comorbidity survey—adolescent supplement: prevalence, correlates, and treatment. *J. Am. Acad. Child Adolesc. Psychiatr* 54 (1), 37–44 e2.
- Bear H, Moon Z, Wasil A, Ahuvia I, Edbrooke-Childs J, Wolpert M, 2023. Development and validation of the illness perceptions questionnaire for youth anxiety and depression. *Counseling Psychology Quarterly*. 10.1080/09515070.2023.2232320.
- Bonabi H, Müller M, Ajdacic-Gross V, Eisele J, Rodgers S, Seifritz E, Rössler W, Rüsç N, 2016. Mental health literacy, attitudes to help seeking, and perceived need as predictors of mental health service use: a longitudinal study. *J. Nerv. Ment. Dis* 204 (4), 321–324. [PubMed: 27015396]
- Broadbent E, Petrie KJ, Main J, Weinman J, 2006. The brief illness perception questionnaire. *J. Psychosom. Res* 60 (6), 631–637. [PubMed: 16731240]
- Cannon M, Credé M, Kimber JM, Brunkow A, Nelson R, McAndrew LM, 2022. The common-sense model and mental illness outcomes: a meta-analysis. *Clin. Psychol. Psychother* 10.1002/cpp.2721.
- Fortune G, Barrowclough C, Lobban F, 2004. Illness representations in depression. *Br. J. Clin. Psychol./the British Psychological Society* 43 (Pt 4), 347–364.
- French DP, Weinman J, 2008. Current issues and new directions in Psychology and Health: “Assessing illness perceptions: beyond the IPQ.” *Psychol. Health* 23 (1), 5–9. [PubMed: 25159903]
- Furnham A, Swami V, 2018. Mental health literacy: a review of what it is and why it matters. *International Perspectives in Psychology* 7 (4), 240–257.
- Gabriel A, Violato C, 2009. The development of a knowledge test of depression and its treatment for patients suffering from non-psychotic depression: a psychometric assessment. *BMC Psychiatr.* 9, 56.
- Gorczyński P, Sims-schouten W, Hill D, Wilson JC, 2017. Examining mental health literacy, help seeking behaviours, and mental health outcomes in UK university students. In: *The Journal of Mental Health Training, Education and Practice*, 12, pp. 111–120. 10.1108/jmhtep-05-2016-0027. Issue 2.
- Hagger MS, Koch S, Chatzisarantis NLD, Orbell S, 2017. The common sense model of self-regulation: meta-analysis and test of a process model. *Psychol. Bull* 143 (11), 1117–1154. [PubMed: 28805401]
- Hagger MS, Orbell S, 2021. The common sense model of illness self-regulation: a conceptual review and proposed extended model. *Health Psychol. Rev* 1–31.
- Haslam N, 2016. Concept creep: psychology’s expanding concepts of harm and pathology. *Psychol. Inq* 27 (1), 1–17.
- Horwitz AV, Wakefield JC, 2007. *The Loss of Sadness: How Psychiatry Transformed Normal Sorrow into Depressive Disorder*. Oxford University Press, USA.

- Jorm AF, 2012. Mental health literacy: empowering the community to take action for better mental health. *Am. Psychol* 67 (3), 231–243. [PubMed: 22040221]
- Jorm AF, Korten AE, Jacomb PA, Christensen H, Rodgers B, Pollitt P, 1997. “Mental health literacy”: a survey of the public’s ability to recognise mental disorders and their beliefs about the effectiveness of treatment. *Med. J. Aust* 166 (4), 182–186. [PubMed: 9066546]
- Khalsa S-R, McCarthy KS, Sharpless BA, Barrett MS, Barber JP, 2011. Beliefs about the causes of depression and treatment preferences. *J. Clin. Psychol* 67 (6), 539–549. [PubMed: 21365652]
- Kirmayer LJ, Bhugra D, 2009. Culture and mental illness: social context and explanatory models. In: *Psychiatric Diagnosis*. John Wiley & Sons, Ltd, pp. 29–40.
- Kovacs M, 2011. *Children’s Depression Inventory 2nd Edition (CDI 2): Technical Manual*. Multi-Health Systems.
- Kroenke K, Spitzer RL, Williams JB, 2001. The PHQ-9: validity of a brief depression severity measure. *J. Gen. Intern. Med* 16 (9), 606–613. [PubMed: 11556941]
- Lebowitz MS, Ahn WK, 2015. Emphasizing Malleability in the biology of depression: durable effects on perceived agency and prognostic pessimism. *Behav. Res. Ther* 71, 125–130. [PubMed: 26112398]
- Leventhal H, Alison Phillips L, Burns E, 2016. The Common-Sense Model of Self-Regulation (CSM): a dynamic framework for understanding illness self-management. In: *Journal of Behavioral Medicine*, 39, pp. 935–946. 10.1007/s10865-016-9782-2. Issue 6. [PubMed: 27515801]
- Linzer DA, Lewis JB, 2011. polCA: an R package for polytomous variable latent class analysis. *J. Stat. Software* 42, 1–29.
- Loo P-W, Furnham A, 2013. Knowledge and beliefs about depression among urban and rural Indian Malaysians. *Ment. Health Relig. Cult* 16 (10), 1009–1029.
- Moss-Morris R, Weinman J, Petrie K, Horne R, Cameron L, Buick D, 2002. The revised illness perception questionnaire (IPQ-R). *Psychol. Health* 17 (1), 1–16.
- O’Connor M, Casey L, 2015. The Mental Health Literacy Scale (MHLS): a new scale-based measure of mental health literacy. *Psychiatr. Res* 229 (1–2), 511–516.
- Perczel Forintos D, Rózsa S, Pilling J, Kopp M, 2013. Proposal for a short version of the Beck Hopelessness Scale based on a national representative survey in Hungary. *Community Ment. Health J* 49 (6), 822–830. [PubMed: 23756722]
- Richardson LP, Rockhill C, Russo JE, Grossman DC, Richards J, McCarty C, McCauley E, Katon W, 2010. Evaluation of the PHQ-2 as a brief screen for detecting major depression among adolescents. *Pediatrics* 125 (5), e1097–e1103. [PubMed: 20368315]
- Schleider JL, Mullarkey MC, Fox KR, Dobias ML, Shroff A, Hart EA, Roulston CA, 2022. A randomized trial of online single-session interventions for adolescent depression during COVID-19. *Nat. Human Behav* 6 (2), 258–268. [PubMed: 34887544]
- Tse JSY, Haslam N, 2021. Inclusiveness of the concept of mental disorder and differences in help-seeking between asian and white Americans. *Front. Psychol* 12, 699750. [PubMed: 34393934]
- Wei Y, Hayden JA, Kutcher S, Zygmunt A, McGrath P, 2013. The effectiveness of school mental health literacy programs to address knowledge, attitudes and help seeking among youth. *Early Intervention in Psychiatry* 7 (2), 109–121. [PubMed: 23343220]
- Wei Y, McGrath PJ, Hayden J, Kutcher S, 2015. Mental health literacy measures evaluating knowledge, attitudes and help-seeking: a scoping review. *BMC Psychiatr.* 15, 291.
- Witteman C, Bolks L, Hutschemaekers G, 2011. Development of the illness perception questionnaire mental health. *J. Ment. Health* 20 (2), 115–125. [PubMed: 20854175]
- Wright A, Jorm AF, Mackinnon AJ, 2012. Labels used by young people to describe mental disorders: which ones predict effective help-seeking choices? *Soc. Psychiatr. Psychiatr. Epidemiol* 47 (6), 917–926.
- Ying YW, 1990. Explanatory models of major depression and implications for help-seeking among immigrant Chinese-American women. *Cult. Med. Psychiatr* 14 (3), 393–408.

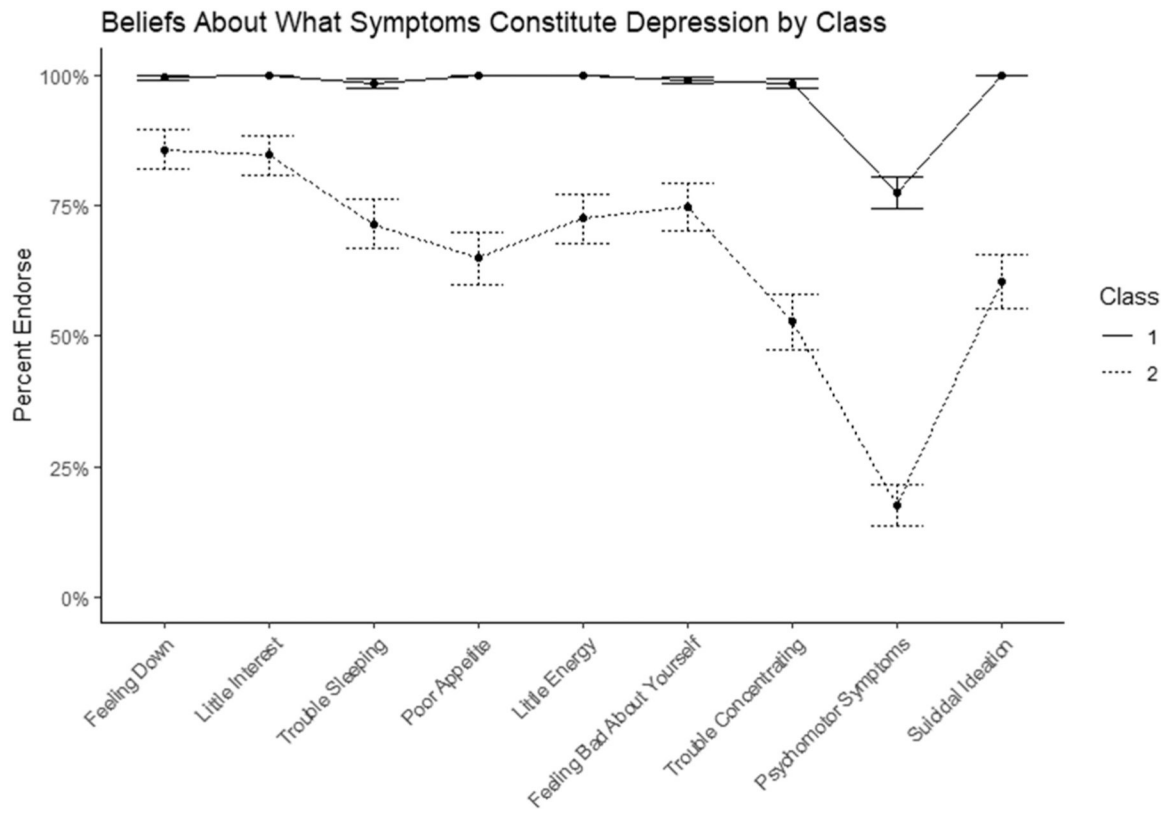


Fig. 1.
Latent class analysis.

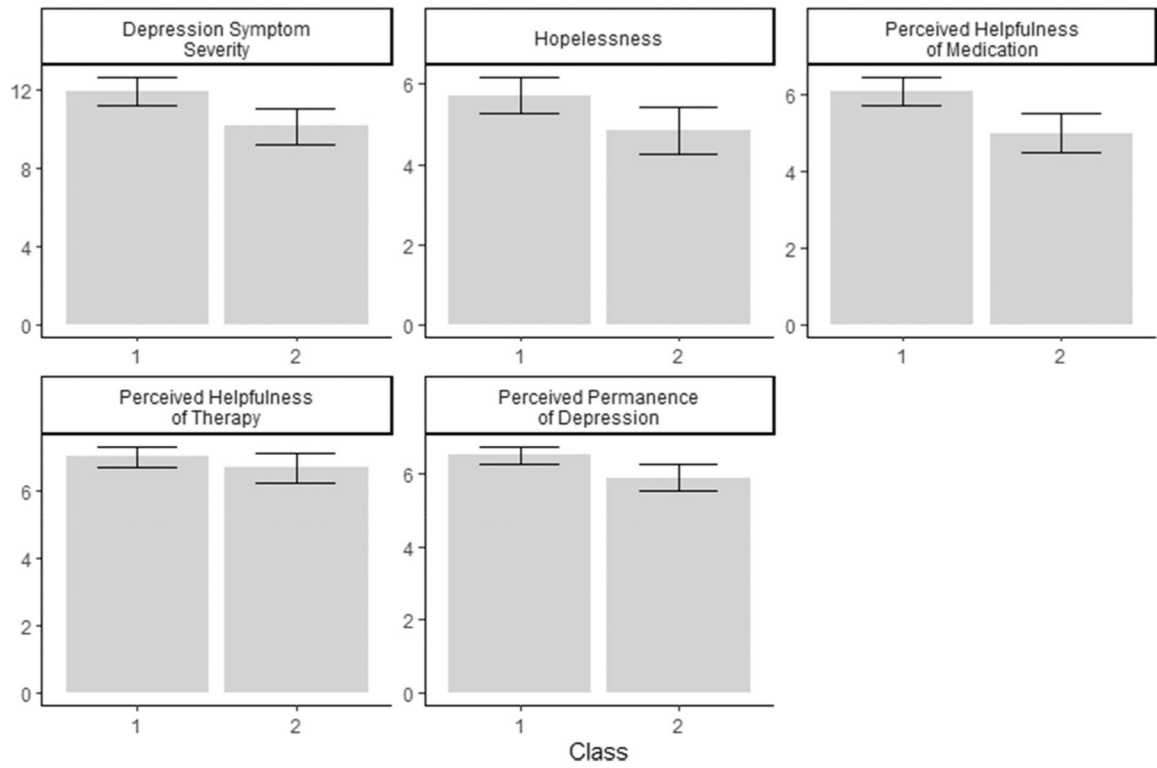


Fig. 2. Clinical variables by class membership, means and 95% confidence intervals.

Table 1

Sample characteristics.

Variable	n	Percent
Race/Ethnicity		
White non-Hispanic	154	54.80%
Black non-Hispanic	17	6.05%
Asian non-Hispanic	44	15.66%
Other non-Hispanic	17	6.05%
Hispanic	49	17.44%
Gender		
Cisgender girl/woman	148	52.67%
Cisgender boy/man	24	8.54%
Gender minority	109	38.79%
Sexual Orientation		
Heterosexual	63	22.42%
Sexual minority	218	77.58%
Age		
13	12	4.27%
14	47	16.73%
15	93	33.10%
16	127	45.20%

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Table 2

Symptom beliefs.

Symptom	Percent Endorsed
Feeling down, depressed, irritable, or hopeless	95.02%
Feeling little interest or pleasure in doing things	95.02%
Having trouble falling asleep, staying asleep, or sleeping too much	91.10%
Having a poor appetite, weight loss, or overeating	88.61%
Feeling tired, or having little energy	89.68%
Feeling bad about yourself - or feeling that you are a failure, or that you have let yourself or your family down	91.10%
Having trouble concentrating on things like school work, reading, or watching TV	83.63%
Moving or speaking so slowly that other people could have noticed, or the opposite - being so fidgety or restless that you were moving around a lot more than usual	58.01%
Having thoughts that you would be better off dead, or of hurting yourself in some way	87.19%
Other	2.49%

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