Examining the Cultural Consensus on Beliefs About Mindfulness Among US College-Attending Young Adults

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Abstract

Objectives Mindfulness programs are increasingly popular on college campuses in the US, yet little is known about college students' perceptions and beliefs about mindfulness: its origins, how it is learned, its functions, and practitioners. Using methods from Cultural Consensus Theory (CCT), the present study examined whether a cultural consensus on mindfulness exists among this group and what the substantive content of that consensus might be.

Methods College-attending young adults aged 18–25 (Study 1, $N = 275$ —convenience sample; Study 2, $N = 210$ —national sample) completed questionnaires on beliefs about mindfulness, exposure to mindfulness, and demographics. Data were analyzed using a CCT-derived Bayesian cognitive psychometric model. Hypotheses for Study 2 were pre-registered.

Results Young adults converged on a cultural consensus about mindfulness, and the substantive content was replicated across both studies. Participants *consensually agreed* that mindfulness is Buddhist in origin; is both spiritual (but not religious) and secular; can be an antidote to suffering and gives one a competitive edge in business; and is practiced more by women, less by Conservatives. They also viewed mindfulness as a practice that people their age can learn, as a universal practice, and as not limited to older, wealthy, or White people. Prior exposure to mindfulness was related to more agreement with this consensus.

Conclusions The beliefs about mindfulness identified suggest an American cultural consensus amongst young adults that views mindfulness as accessible, learnable, able to relieve suffering, more of interest to women and less to Conservatives, and incorporating both secular and spiritual origins and aims.

Keywords Mindfulness · Cultural consensus theory · Bayesian modeling · Psychometrics · Young adults

Mindfulness has been defined as the awareness that emerges from willfully paying attention to present-moment experience in a non-reactive, non-judgmental, and curious way (Kabat-Zinn, 2005). The past three decades have witnessed significant growth in both popular cultural interest in mindfulness meditation and programs among US adults, as well as scientific research on the impacts of mindfulness-based

programs on adults' health and wellbeing (e.g., Bernstein et al., 2019; Van Dam et al., 2018). As part of a wider interest in mind-body approaches to health and wellbeing in the later part of the twentieth century (Lauche & Cramer, 2018; Sun, 2014), mindfulness has become increasingly present as a cultural practice in many sectors of US and Western societies (e.g., healthcare, education, business, sports; Baminiwatta & Solangaarachchi, 2021; Crane et al., 2017; Pandey et al., 2018; Schonert-Reichl & Roeser, 2016).

Along with the spread of mindfulness practices, the conceptualization and meanings of mindfulness—its origins, who can learn it, its functions, and its practitioners—have evolved, leading to debates among scholars and practitioners regarding its meaning and impact in the wider culture (Kirmayer, 2015). Indeed, some scholars have provocatively suggested that the emergence of mindfulness in various sectors of lay US society can be characterized as “McMindfulness,” arguing that such practices have been shorn of their ethical-relational foundations and instead aims to serve instrumental

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interests of power and privilege in contemporary US society (Purser, 2019). Such debates center many significant issues, including whether mindfulness is conceived of as a sacred Buddhist practice or a secular universal one open to all (Williams & Kabat-Zinn, 2013); as something that novices can learn by practicing a few minutes a day or something that is only more for dedicated, long-term spiritual practitioners (Harrington & Dunne, 2015); and whether mindfulness serves as a self-help therapeutic technique or is seen as an ethical-relational way of life aimed at self and world transformation together (Forbes, 2019; Loy, 2016).

One population in which mindfulness programs have become more prevalent is among college-attending young adults (Ergas & Hadar, 2019). Among this age group and demographic, there is a “crisis of mental health” (Xiao et al., 2017). Mindfulness programs have been seen primarily as a way of ameliorating some of the symptoms of stress, anxiety, and depression that affect many college students today (Bamber & Morpeth, 2019; Dvořáková et al., 2019, 2017; Hirshberg et al., 2022).

Due to the cultural ubiquity of mindfulness and contemplative practices in the US and on college campuses in particular (Ergas & Hadar, 2019), young adults are likely not *tabula rasa* when it comes to their understanding of mindfulness. Young adults may be exposed to a range of images, views, and practitioners of mindfulness, including those in settings related to education, medicine, mental health, business, sports, and even the military (e.g., Jha et al., 2019). As such, young adults may have certain assumptions about mindfulness *a priori* before they participate in a mindfulness course. Understanding preconceptions and cultural beliefs that young adults hold about mindfulness could help to ensure that interventions for this population are adapted to such beliefs. In addition, such an understanding may aid in addressing any misconceptions about mindfulness that could interfere with intervention efficacy or create an understanding of mindfulness that is inconsistent with *samma sati* (“right mindfulness”; Greenberg & Mitra, 2015). That is, clarifying the aims of mindfulness as ethical might be indicated by such data. In addition, gathering data on what young adults think it takes to learn mindfulness might help educators and intervention scientists to instill realistic expectations about outcomes of training among this age group.

Culturally held beliefs about mindfulness may also impact *which* young adults are/are not motivated to seek out and engage with mindfulness practices and programs, based on a perceived fit between such practices and self-relevant identities, goals, and values (Arnett, 2018; Carlson, 2018). For example, beliefs about the origins of mindfulness, how it is learned, what functions it serves, and who practices it may vary across individuals of diverse intersectional identities, with implications for their willingness to engage with mindfulness (Blum, 2014). It has been argued, for instance, that

when developing interventions designed to enhance human flourishing, taking a holistic approach that accounts for culturally held beliefs is imperative. For example, cultural adaptations that account for the target populations’ beliefs and values have been shown to increase treatment efficacy (Barrera et al., 2013). Accordingly, creating mindfulness-based interventions (MBIs) that attend to the background cultural understanding of mindfulness practices may aid in adapting mindfulness interventions and enhancing efficacy for diverse individuals in late adolescence and early adulthood. To develop interventions that are sensitive to such issues, further knowledge regarding young adults’ cultural perceptions of mindfulness is needed.

Cultural perceptions of mindfulness can be conceptualized as a shared group schema, or a network of beliefs. Such a network of beliefs, at the group level, is hypothesized to have “functional significance” for meaning and motivation at the individual level (Boutyline & Soter, 2021). In other words, group-level or consensus beliefs can affect individuals’ choices about whether or not mindfulness is (a) something that is identity-consistent enough to be worthy of exploring and investing in, (b) able to be learned, and (c) valuable with respect to various goals (e.g., Arnett, 2018). In that sense, knowing if such a consensus exists and how demographic characteristics (e.g., race, gender, personal experience with mindfulness) are or are not related to such a consensus can offer practical information about how to frame such programs in the future in ways that address identity-related opportunities and barriers, correct misperceptions, and potentially, promote more inclusive participation in such programs in the future (Condon & Makransky, 2020; Woods-Giscombé & Gaylord, 2014).

In order to understand beliefs about mindfulness in early adults, appropriate methods are needed that can account for group-level beliefs while considering how individual differences may impact such beliefs. The Cultural Consensus Theory (CCT) framework (Batchelder et al., 2018) is one method that can be used to examine lay beliefs about mindfulness in young adults. CCT has been widely used to explore systematic beliefs and knowledge about various content domains, such as psychological concepts (Oravecz et al., 2015), causes and cures of illnesses (Baer et al., 1999), love (Dickens et al., 2021; Heshmati et al., 2019; Oravecz et al., 2016), and eyewitness reports (Waubert de Puiseau et al., 2012). In this framework, “culture” is defined based on the substantive content domain of interest, as long as it represents a set of relevant individuals who share common knowledge or a common set of beliefs. Such belief systems have been referred to in various ways, such as lay theories, implicit theories, mindsets, mental models, and schemas (Lickel et al., 2001).

While CCT may be applied to more traditional cross-cultural research approaches (e.g., people in China vs. the

US), it may also be applied to more localized cultural groups (e.g., young adults in the US; Democrats; sports fans; Hesmati et al., 2019). This approach is also ideally suited to examining lay beliefs about mindfulness in young adults, as we can assume that they share some common beliefs to a certain degree and we can tap into these beliefs by formulating a set of items to determine whether there is shared understanding on a given content domain (e.g., mindfulness). In addition, the CCT method also takes into account individual differences in awareness of this consensus.

The overall aims of applying a CCT model are to (1) test whether there is one or more latent cultural consensus on answers to a set of questions (e.g., about mindfulness), (2) derive the culturally agreed-upon answers (e.g., regarding the origins, functions, and practitioners of mindfulness), and (3) tie individual differences in group consensus knowledge to other demographic and person-level variables (e.g., race, gender). In the present paper, we aim to explore cultural consensus beliefs about mindfulness among young adults attending college. Does this group of young adults see mindfulness as a Buddhist religious practice or something universal (e.g., origins)? How long do they believe it takes to learn mindfulness (e.g., how it is learned)? Do they perceive mindfulness as a way to relieve suffering, give one an edge in business, both, or neither (e.g., functions)? What groups of people do they believe are most likely to practice mindfulness (e.g., women, Conservatives) and what are the identity labels associated with mindfulness (e.g., masculine, feminine)? To this end, we conducted two studies: Study 1 used an exploratory approach designed to generate hypotheses about the cultural consensus, and was conducted with a convenience sample of college-attending young adults. Study 2 was a pre-registered replication study with a national sample of college-attending young adults. As such, Study 2 represented a confirmatory approach with a priori hypotheses that were pre-registered on the Open Science Framework (linked below).

Study 1

The aim of Study 1 was to examine lay beliefs about mindfulness from the perspective of US young adults using cognitive psychometric modeling in the CCT framework. Specifically, we explored the following research questions in Study 1: (1) Do young adults converge towards a cultural consensus on beliefs about mindfulness? (2) What is the specific nature of the meaning content of mindfulness beliefs that make up this consensus? (3) Are individual differences in cognitive response parameters linked to person-specific predictors (e.g., demographic characteristics and prior exposure to mindfulness)?

Methods

Participants

Participants in Study 1 were $N = 275$ (52% women; one participant identified as non-binary) undergraduate students at a large, public university in the northeast US. Participants were recruited from the psychology department's subject pool who enrolled in the study in exchange for course credit. Participants identified their race as follows: White (78%), Asian-American (10%), Latino/a (5%), Black or African American (3%), and other (4%).

Procedure

After providing informed consent, the participants completed a survey online that included demographic items, the Mindfulness Beliefs Questionnaire, and a set of items that assessed their prior exposure to mindfulness practices, as detailed below.

Cultural Consensus Item Development To generate the items used to assess cultural consensus in mindfulness beliefs, a focus group of experts that included mindfulness researchers, mindfulness practitioners, school teachers, and implementation scientists worked on developing an initial list of items based on their lived experience of teaching young adults mindfulness practices. The initial item set included 100 items across five broad domain beliefs, and these were later whittled down to the four primary domains of interest: origins, learning, functions, and practitioners of mindfulness. Items were selected to cover all four domains, and also to assess specific claims about mindfulness made by scholars (e.g., mindfulness has been turned into an instrumentality for personal gain in the US), and in line with recommended practices for CCT item development (Weller, 2007). The resulting measure, termed the *Mindfulness Beliefs Questionnaire*, consisted of 31 items that assessed participants' beliefs about mindfulness. The complete list of items, denoted by the domain they were designed to assess, is available in Appendix A in the Supplementary Materials. All items started with the stem "*Most young adults think mindfulness ...*" and the following items were loosely organized into four broad domains: *origins* of mindfulness ("... is a Buddhist practice"; "... is universal"; "... is a religious practice"); *learning* of mindfulness ("... can be learned in a few days"; "... can be learned by young adults (18–25 years old)"); *functions* of mindfulness ("... is an antidote for the universal nature of suffering"; "... gives you a competitive edge in the business world"; "... is an American fad"); and *practitioners* of mindfulness and related identity labels ("... is practiced mostly by women"; "... is very masculine").

Participants indicated their answer to each statement in terms of the following response options: true/false/don't know.

Measures

Demographics Participants reported on their age, gender, income, and primary ethnic/racial group. These items were constructed in a multiple-choice format, with open-ended options for gender and race to capture all possible respondent options. Gender was coded as a binary variable, where 1 = woman and 0 = man. We excluded one participant who identified as non-binary from our analyses as we were underpowered to draw any meaningful conclusions about non-binary individuals. Each racial category was coded as a binary variable with White as the reference group used in the ECM analysis.

Mindfulness Beliefs Questionnaire The 31 true/false/don't know items regarding mindfulness are presented in Appendix A of the Supplementary Materials.

Prior Mindfulness Exposure Participants responded to 12 items that assessed their prior exposure to mindfulness practices. Items were rated on a 7-point Likert scale from "1 = disagree strongly" to "7 = agree strongly." Example items include "*I have heard of mindfulness*" and "*I've never practiced mindfulness myself*" (reverse-scored). The complete list of items can be found in Appendix B of the Supplementary Materials. After reverse-scoring the appropriate items, mean scores were calculated, and the average scores were used in the ECM analysis. Reliability was high, as indicated by Cronbach's $\alpha = .84$ and McDonald's $\omega = .87$.

The goal of assessing the participants' prior exposure to mindfulness was to assess its relation to their knowledge of the cultural consensus regarding mindfulness among their same-aged peers. We assumed that the greater the exposure to mindfulness, the greater the knowledge of the cultural consensus regarding it. Therefore, this measure also served as a kind of validation check for the pool of mindfulness items.

Data Analyses

Data analyses consisted of (a) calculating descriptive statistics and (b) fitting a cultural consensus model using Bayesian estimation that relied on an iterative procedure to establish optimal fit of the consensus and person-level estimates. We calculated descriptive statistics in R (Version 3.6.0; Team R Core, 2019). To fit the cultural consensus models, we used the Hierarchical Condorcet Modeling Toolbox (HCMT;

Batchelder et al., 2018), a standalone MATLAB-based (Higham & Higham, 2016) software program that interfaces with a Bayesian estimation engine, JAGS (Plummer, 2003). As a result of Bayesian estimation, posterior probability distributions were generated for every parameter in the model, such as for the consensus answers and the person-specific consensus knowledge levels. From these posterior probability distributions, we calculated point estimates (e.g., the mean of the posterior, M) and standard error of estimates (the standard deviations in the posterior probability distributions, i.e., posterior standard deviation, PSD), as well as 95% posterior credibility intervals (95% CI).

Extended Condorcet Model The Extended Condorcet Model (ECM; Oravecz et al., 2014) is the specific type of CCT model used in the present studies. In common with other CCT models, the ECM accounts for individual differences in knowledge of the cultural consensus and guessing tendencies when the respondent does not know the culturally consensual answer (Batchelder & Anders, 2012; Karabatsos & Batchelder, 2003; Oravecz et al., 2014, 2015; Romney et al., 1986). Responses from individuals with higher levels of cultural knowledge are weighted more heavily, thereby enabling a reasonable estimate of consensus even with smaller sample sizes, which is particularly helpful when studying hard-to-reach or hard-to-recruit participants (Weller, 2007). Note that "knowledge" here refers not to ground truth or factual knowledge, but instead refers to how much one represents their culture (i.e., agrees with the consensus). The relevance of the weighting is to get an accurate estimate of what the consensus is. Importantly, these weights are not arbitrarily chosen but are instead used to establish the consensus as they are optimized in the analytical process to estimate the latent shared consensus "truth." Weighting is performed automatically in Bayesian model fitting, and not set by the researcher. All in all, the ECM accounts for heterogeneity in item-level and person-level characteristics, which is necessary for accurate determination of the consensus beliefs on a set of items.

Compared with other CCT models, a particular advantage of the ECM is that it can also handle "don't know" responses in addition to "true" vs. "false" responses, whereas many other CCT models can only handle dichotomous ("true" vs. "false") response options (Oravecz et al., 2016). When studying culturally consensual mindfulness beliefs, providing a "don't know" response option is important, as respondents may not always be certain of their answers regarding the phenomenon (Batchelder & Anders, 2012). Capturing such information by allowing an option to indicate uncertainty enables researchers to model these response tendencies in order to more accurately estimate the consensus answers, as well as to account for guessing tendencies (Oravecz et al., 2014).

At its core, the ECM captures the latent decision process behind the manifest true/false/don't know responses on the items via a multinomial processing tree (Oravecz et al., 2014; see Appendix C, Figure 1). Specifically, the ECM models cognitive decision-making processes in terms of three person-specific parameters: cultural competency (e.g., knowing the group consensus), participants' willingness to guess when they do not know the answer about whether an item reflects the consensus or not (e.g., compared to indicating "don't know"), and guessing bias (e.g., general tendency of guessing "true"). For example, a correct answer can result from two sources: a respondent knowing the answer or correctly guessing the answer. Using the ECM approach allows simultaneous estimation of these two sources of correct answers—specifically, those that result from answers provided with certainty, as well as those that result from guessing correctly.

Accordingly, the ECM accounts for individual differences in the decision-making process when deriving the consensus answer, which enables the researcher to link these individual differences in cognitive processes to person-specific parameters. Specifically, in the studies presented below, ECM allowed us to derive the shared agreement on mindfulness items by accounting for individual differences (i.e., in terms of prior exposure to mindfulness) as well as dependencies in the data (i.e., items centering on the same concepts as well as respondents sharing the same cultural background). Furthermore, if the one-culture assumption is not met, there is the possibility of testing multicultural consensus models (Anders et al., 2018), which would reveal if there are two or more subcultures that hold a different set of beliefs regarding the domain of interest.

Unlike traditional approaches to construct validity that validate related items through factor analysis and the

establishment of a nomological net of related constructs (e.g., Cronbach & Meehl, 1955), the CCT approach evaluates the entire set of mindfulness items at once, as the interest is not in defining each conceptually related set of items as separate factors, but rather in examining whether a given set of beliefs about mindfulness is reflective of an underlying cultural schema or belief system around mindfulness as a whole. Thus, CCT essentially treats the content domain as the latent construct of interest, and the individual items are the corresponding manifest variables for exploring that construct. For example, in order to evaluate culturally held beliefs about the common cold, researchers developed items covering three domains of beliefs about colds: causes, symptoms, and treatments (Baer et al., 1999), but evaluated these items as a set since the interest in a CCT model is in examining whether there is a consensus on these beliefs as a set, rather than in each individual domain *per se*.

Results

One-Factor Cultural Consensus

To examine our first research question, whether young adults converge (i.e., agree) on a single consensus regarding beliefs about mindfulness, the cultural consensus analysis was performed. The panel in Fig. 1a displays the eigenvalues from Study 1. These are calculated from the person-by-person correlations based on the participants' answers and represent how much variation the first, second, and subsequent factors accounted for (a measure similar to traditional factor analysis). If young adults converged towards a one-cultured consensus on mindfulness beliefs, then one would expect

Note: Figures 1a and 1b depict the eigenvalues for Study 1 and Study 2, respectively. As can be seen, a one-culture solution fits the data based as indicated by the sharp drop off between the first and second eigenvalues.

Fig. 1 Eigenvalues from cultural consensus models for study 1 (a) and study 2 (b)

the resulting eigenvalues to indicate a one-factor solution, which would manifest as a sharp decline in eigenvalues from first to second, and a relatively flat line afterwards. As seen in Fig. 1a, the pattern of the data suggested that this was the case—there was a sharp drop-off between the first and second eigenvalues, and the remaining eigenvalues essentially follow a straight line. This indicates that the other factors might only be fitting noise. Thus, we can conclude that a one-factor consensus model fits the data well, suggesting that young adults in this convenience sample at a single university shared a single consensus (i.e., cultural understanding) about mindfulness based on the items used to assess that consensus in this study.

Content of Cultural Consensus

After verifying that the one-culture assumption was met, we can describe the “answer key” generated by the ECM for the mindfulness belief items by examining the model-based agreement (i.e., consensus estimates) for each item. The answer key indicates what the shared meaning consensus about mindfulness was among young adults—in other words, what beliefs do they endorse as “true” vs. “false,” and which items had the most agreement, thereby addressing our second research question.

Table 1 shows the model parameter estimates for the mindfulness belief items for study 1 (left side of table). The first column for each study contains the item content stem, while the second column is the model-estimated posterior mean score for that item (the model-estimated consensus answer), where “true” responses are coded as 1 and “false” responses are coded as 0. The third column shows the posterior standard deviations (PSD) indicating the amount of uncertainty in the model-estimated consensus answers for each item. Higher PSD values indicate less consensual agreement on an item, whereas posterior standard deviations (PSD) at or very near 0 suggest little uncertainty in the posterior mean scores (e.g., respondents strongly agreed on these items).

The upper half of the table displays the items for which consensus answers were “true” (consensually agreed upon), while the lower half of the table displays the items that were estimated as “false” (consensually disagreed upon). True/false items in Table 1 were rank-ordered according to the amount of uncertainty in the consensus estimate (PSD) within the true (upper) and false (lower) item sections. In Table 1, across true and false items and both studies, items that are not in italics were consensually agreed upon or disagreed with and form the core beliefs of the cultural consensus. True and false items with higher consensus PSD values (e.g., those for which there was less agreement) are located at the bottom of the true and false item sections.

Regarding origins of mindfulness, young adults thought that mindfulness was a Buddhist practice (item 8), and were

clear that mindfulness was not an indigenous American idea (item 5) nor a Christian practice (item 18). At the same time, participants did not believe that mindfulness was foreign to our country (item 3). Young adults thought that mindfulness was more of a spiritual practice (item 11) than a religious one (item 1), and also endorsed that “mindfulness is a secular mental training practice” (item 21). Young adults did not think that mindfulness was an “American fad” (item 24) and thought that it was a universal practice (item 12) that “belongs to everyone everywhere” (item 15).

With respect to beliefs about learning mindfulness, as depicted in Table 2, the items that were estimated by the model to have strong consensual agreement (respondents endorsed as “true”) revealed that young adults believed that mindfulness required patience to learn (item 16), though the consensus also held some potentially conflicting views on how long mindfulness takes to learn. For example, both the ideas that mindfulness takes a lifetime to master (item 6) and that mindfulness “can be learned in a few months” (item 20) were estimated by the model to be “true.” Young adults agreed that while mindfulness is something older adults do (item 23), young adults and teenagers can also learn mindfulness (items 13 and 4, respectively). Young adults also thought that mindfulness was “something anyone can practice” (item 10) and that mindfulness cannot be learned in a few days (item 27).

Turning to beliefs about the functions of mindfulness, the results of the consensus model revealed that young adults thought that mindfulness is “an antidote to the universal nature of human suffering” (item 2), a natural ability of the human mind (item 17), and something that “gives you a competitive edge in the business world” (item 26), as indicated by consensus as “true.” Another item (item 25), “Mindfulness is a consumer product in our times,” displayed more disagreement—even though the model estimated this item as “true” in the overall consensus, respondents were not in strong agreement in this, as indicated by a consensus PSD of .49.

When it comes to practitioners of mindfulness, young adults thought that mindfulness “is practiced mostly by women” (item 29), was *not* very masculine (item 19), and is *not* something that political Conservatives tend to practice (item 30). However, young adults were more split on the belief that mindfulness is practiced by people who are politically Liberal (item 9). In addition, young adults also thought that mindfulness was not necessarily only for wealthy (item 14) or White people (item 31).

Person-Specific Characteristics

Our third research question was about how individual differences in consensus knowledge are linked to prior mindfulness exposure. We focused on prior mindfulness exposure as a validation check, expecting that young adults who have

Table 1 Content of cultural consensus about mindfulness in early adults

Study 1			Study 2			
<i>Most young adults think mindfulness ...</i>	Estimated T/F mean	Consensus label	Standard error (PSD)	Estimated T/F mean	Consensus label	Standard error (PSD)
Item no.	True items (consensual to less consensual)					
4 ... is something teenagers (age 13–18 years) can learn.	1	True	0	1	True	0
6 ... takes a lifetime to master.	1	True	0	1	True	0
7 ... is something that some people are naturally better at than others.	1	True	0	1	True	0
10 ... is something anyone can practice.	1	True	0	1	True	0
11 ... is a spiritual practice.	1	True	0	1	True	0
12 ... is universal.	1	True	0	1	True	0
13 ... can be learned by young adults (18–25 years old).	1	True	0	1	True	0
15 ... belongs to everyone everywhere.	1	True	0	1	True	0
16 ... requires patience to learn.	1	True	0	1	True	0
17 ... is a natural ability of the human mind.	1	True	0	1	True	0
20 ... can be learned in a few months.	1	True	0	1	True	0
21 ... is a secular mental training practice.	1	True	0	1	True	0
23 ... is something older adults do.	1	True	0	1	True	0
26 ... gives you a competitive edge in the business world.	1	True	0	1	True	0
28 ... comes more easily to some people than others.	1	True	0	1	True	0
2 ... is an antidote to the universal nature of suffering.	1	True	0.01	1	True	0.01
22 ... belongs in America.	1	True	0.01	1	True	0.01
29 ... is practiced mostly by women.	1	True	0	0.98	True	0.14
8 ... is a Buddhist practice.	0.93	True	0.25	0.90	True	0.30
9 ... is practiced by people who are politically liberal.	0.6	True	0.49	1	True	0.06
25 ... is a consumer product in our times.	0.58	True	0.49	0.19	False	0.40
Item no.	False items (consensual to less consensual)					
27 ... can be learned in a few days.	0	False	0	0	False	0
3 ... is foreign to our country.	0	False	0	0	False	0
14 ... is for wealthier people.	0	False	0	0	False	0
19 ... is very masculine.	0	False	0	0	False	0
31 ... is a practice done by White people, mostly.	0	False	0	0	False	0
24 ... is an American fad.	0	False	0	0	False	0
30 ... is practiced by people who are politically conservative.	0	False	0	0	False	0.05
18 ... is a Christian practice.	0	False	0	0	False	0.01
1 ... is a religious practice.	0	False	0.02	0.02	False	0.15
5 ... is an indigenous American idea.	0.01	False	0.10	0	False	0.04

Note: PSD stands for posterior standard deviation of the consensus estimate, which quantifies the standard error on the estimate. Higher PSD values indicate less consensual agreement on an item. Items are rank-ordered according to the PSD in study 1. Thus, items in upper/bottom of table are ordered from most to least agreed/disagreed-upon true and false items, respectively. The consensus labels reflect the overall summary of the item by sample. The left half of the table refers to study 1 results, the right half to study 2 results. The upper half of the table displays the items for which consensus answers were “true” (agreed upon consensually), while the bottom half of the table displays the items that were estimated as “false” (disagreed upon consensually). The italicized items in the full table represent the items with lower agreement. As such, these items represent the content essence of the cultural consensus early adults hold about mindfulness given these items. Note that study 1 contained a repeated item “*is foreign to our country*” and the consensus answer for this item replicated across both instances of the item

heard about, have practiced, or are otherwise more familiar with mindfulness would have more knowledge about the cultural consensus on mindfulness. Exploratory analyses

also examined how demographic characteristics (e.g., race, gender) were linked to consensus knowledge among young adults.

Table 2 Summary of relations between mindfulness exposure, gender, and race in response to mindfulness cultural consensus items

Study 1		Study 2					
Parameter	Predictor	Mean	PSD	95% CI	Mean	PSD	95% CI
Knowledge of consensus	Mindfulness exposure	0.12	0.06	0.00, 0.23	0.26	0.07	0.13, 0.40
	Gender (1: woman)	0.06	0.06	− 0.05, 0.18	0.02	0.07	− 0.11, 0.16
	Race (Black)	− 0.21	0.10	− 0.42, − 0.03	0.13	0.11	− 0.08, .340

Note: Boldfaced values indicate a credible difference from zero

Table 2 summarizes the results of regression analyses with person-specific latent variables of consensus knowledge regressed on the predictors of interest. First, results showed that, as predicted, the mindfulness exposure validation measure was related to greater consensus knowledge ($M = .12$; $PSD = .06$). Second, while there were no gender differences in consensus knowledge (i.e., agreement with consensus), results suggested that Black individuals displayed less agreement with the consensus ($M = -0.21$; $PSD = 0.10$) compared to White individuals.

Discussion

Results of Study 1 provided empirical evidence of a one-factor cultural consensus around mindfulness among college-attending young adults at a large university. The consensus included a range of beliefs about the origins, learning, functions, and practitioners of mindfulness. Greater exposure to mindfulness was associated with greater knowledge of the cultural consensus, and there was some evidence of cultural differences between White and Black college students with regard to agreement with this consensus. Overall, Study 1 provided evidence that young adults generally agree on a set of mindfulness beliefs, and that knowledge of culturally shared beliefs varies across individual difference factors, such as prior mindfulness exposure and race.

Study 2

The aim of Study 2 was to replicate the results of Study 1 in a national sample of college-attending young adults aged 18–25. Hypotheses were pre-registered on the Open Science Framework (OSF) platform and are accessible here: <https://osf.io/e58by/>. Specifically, based on the findings of Study 1, we predicted that (H1) young adults share beliefs about mindfulness as indicated by a one-cultured consensus on mindfulness beliefs, and a comparison of the “key” items that constitute this consensus in Study 2 will reveal the same “key” of items that constituted this consensus in Study 1. (H2) Individual differences in knowledge of the cultural consensus will be credibly

linked with greater mindfulness exposure, replicating the findings of Study 1.

Method

Participants

Participants were recruited through Qualtrics Online Sample service (Qualtrics, Provo, UT, USA). Participants ($N = 210$) were restricted to college-attending young adults, aged 18–25. The resulting sample identified their race as follows: White (44.3%), Black or African American (21.9%), Latino/a (17.1%), Asian or Pacific Islander (13.3%), Native American or American Indian (1%), and other (2.4%). We oversampled Black and Latinx individuals to ensure a gender balance within each group. The Qualtrics Online Panel service implements quality control by including attention check filters and by eliminating those who completed the survey faster than the minimal estimated time required to read and respond to the questions. In order to increase the representation across socioeconomic status, we recruited participants who were attending both 2-year and 4-year post-secondary institutions. This resulted in a sample with 10.5% of participants who were working towards a 2-year associates degree, and 89.5% were working towards a bachelor's degree (BA/BS); 91.9% were attending college full time, while 8.1% were attending part time. We recruited an even number of men and women ($n = 104$ each; 49.5%), with the remaining 1% of the sample identifying as non-binary or transgender ($n = 2$). The latter were removed from analyses so that comparisons between binary gender could be inferred in the ECM, given the small sample size was too small to draw conclusions about non-binary/transgender individuals.

Procedure

Participants completed an online survey that included demographic items, the Mindfulness Beliefs Questionnaire, and a set of items that assessed their prior exposure to mindfulness practices.

Measures

Demographics Participants reported on their age, gender, income, and primary ethnic/racial group. These items were constructed in a multiple-choice format, with open-ended options for third-gender and for “other” racial category. Gender was coded as a binary variable, where 1 = woman and 0 = man. Each racial category was coded as a binary variable with White as the reference group used in the ECM analysis.

Mindfulness Beliefs The mindfulness beliefs questionnaire from study 1 consisting of 31 items that assessed participants’ beliefs about mindfulness was used. Participants evaluated the accuracy of each statement in terms of the following response options: true/false/don’t know.

Prior Mindfulness Exposure Participants responded to the same 12 items that assessed their prior exposure to mindfulness practices as used in study 1. After reverse-scoring the appropriate items, average scores were used in the ECM analysis. The scale had high reliability, $\alpha = .89$; McDonald’s $\omega = .91$.

Data Analyses

Data analytic procedures were identical to those performed in Study 1.

Results

One-Factor Cultural Consensus

Results of Study 2 replicated those of Study 1, showing that college-attending young adults share consensual beliefs about mindfulness, as indicated by a one-cultured consensus on mindfulness beliefs. Specifically, analyses revealed a one-culture solution, as indicated by the sharp drop-off between the first and second eigenvalues (Fig. 1b) and a relatively flat line afterwards. This result suggests that young adults from a national sample of college-attending young adults also shared a single consensus on mindfulness beliefs as assessed with the items of this study.

Content of Cultural Consensus

With regard to the meaning content of the beliefs that constitute the culturally agreed-upon items in Study 2, results in the right side of Table 2 show that the item content was nearly identical. Notably, the consensus answer keys (i.e., whether the item was estimated by the model to be “true”

vs. “false”) replicated across the two studies. This was true for items assessing origins, learning, functions, and practitioners. There was one item (item 25) “... *is a consumer product in our times*” that was estimated as “true” in study 1 but “false” in Study 2. The mean for this item in study 2 was .19 (as compared to .48 in study 1), and thus, this “false” answer seems a more reliable estimate of this belief in the consensus.

Person-Specific Characteristics

Consistent with our hypothesis, results depicted on the right-hand side of Table 2 show that greater mindfulness exposure predicted greater knowledge of young adults’ consensual beliefs about mindfulness, replicating study 1. Further, consistent with Study 1, there were no gender differences in consensus knowledge.

Discussion

The primary aim of Study 2 was to replicate results of Study 1 in a national sample of college-attending young adults. Results revealed a one-factor cultural consensus consisting of nearly identical beliefs as those found in Study 1, thus generalizing those results to a representative sample of college-attending young adults in the US. The fact that we were able to replicate the structure of associations that young adults hold when it comes to mindfulness beliefs in this representative sample provides greater confidence in our initial findings, suggesting that our items assessing mindfulness beliefs capture a meaningful consensual understanding that is broadly shared across US young adults who attend 2- or 4-year colleges. In addition, while the association between mindfulness exposure and gender was replicated across the two studies, results of Study 2 suggest that with a larger, more representative Black sample, racial differences in agreement with consensus were not found.

General Discussion

The present paper used a cognitive psychometric modeling approach, based on Cultural Consensus Theory, to examine college-attending young adults’ consensual beliefs about mindfulness. Results across the two studies were largely consistent and showed that on the assessed items in this study, young adults held a consensual view, and that the more exposure young adults had had with mindfulness, the greater their knowledge of this consensus. Across studies, we did not find a consistent relation of gender or race to this consensus, suggesting it may apply equally across these

groups on the assessed items. Future research with other samples will be needed to determine if this is so or not.

The most interesting results from the present set of studies were those that pertain to identifying what content of the cultural schema or network of associated beliefs about mindfulness was amongst young adults. Specifically, the meaning content of this cultural consensus indicated that with regard to origins, young adults consensually agreed that mindfulness is a Buddhist practice that is universal; is not foreign but belonged in America; is not a religious practice, but rather a spiritual and secular mental training practice; and belongs to everyone, everywhere. With regard to how one learns mindfulness, young adults thought that mindfulness was a practice that takes patience to learn and is not easy, that it is naturally easier for some, and that it takes somewhere between months and a lifetime to master. With respect to functions, young adults consensually agreed that mindfulness was both an antidote to the universal nature of suffering and something that gives one a competitive edge in the business world. They were undecided as to whether mindfulness had become a commodity in contemporary America. Finally, with regard to practitioners, young adults consensually agreed that mindfulness was a practice that anyone could do, including people their own age (as well as adolescents and older adults). They disagreed that mindfulness was more likely to be practiced by White or wealthier people. Young adults did not perceive mindfulness as very masculine, and thought that women and Liberals were more likely to practice mindfulness, while also endorsing that Conservatives were less likely to do so. Thus, the pattern of agreement amongst young adults indicated that as a group, they hold a complex and nuanced view of mindfulness and its origins, learning, functions, and practitioners.

Furthermore, individual differences in mindfulness exposure were consistently linked to consensus knowledge across both studies, suggesting that the selected set of items captured meaningful information about young adults' experiences with and perceptions of mindfulness and mindfulness practices. Although we tested whether there were cultural differences in consensus knowledge (i.e., by gender and race), there were no gender differences in consensus knowledge, and this was consistent across both studies. With respect to race, in Study 1, we found that Black individuals exhibited less agreement with what was, given the sample demographics, a largely White-majority consensus on mindfulness beliefs compared to White individuals. However, in the national sample in Study 2 (which oversampled for Black individuals), this result did not replicate. Thus, we can conclude that while prior mindfulness exposure is linked to greater consensus knowledge, neither race nor gender reliably impacted consensus knowledge.

Research Implications

When considering the results of the present investigation in the context of the popular discourse around the growing popularity of mindfulness in Western societies and how this has potentially changed the meaning of mindfulness (e.g., in terms of its origins, learning, functions, and practitioners), our results provide empirical data bearing on various of these on-going debates (McCaw, 2020; Purser, 2019). For instance, when examining the pattern of responses across the entire item set, young adults endorsed some beliefs aligned with the view that mindfulness is instrumental towards materialistic pursuits (e.g., a secular training practice; helps one to get ahead in the business world), in line with the “McMindfulness” perspective (e.g., Purser, 2019). At the same time, they also held beliefs seemingly more consistent with a classical view of mindfulness (e.g., a natural ability of the human mind; an antidote to the universal nature of human suffering), more in line with a Buddhist worldview (e.g., Lavelle, 2017). One way to interpret these findings is that, when it comes to young adults' understanding of mindfulness, there seems to exist an eclectic mix of beliefs that include both classical and self-focused elements (e.g., McMindfulness) among this age group in the US. Clarifying the specific nature of the beliefs underlying the consensual view of mindfulness in a specific age cohort affords empirical data that can inform broader critiques regarding how the incorporation of mindfulness in individualistic cultures may go awry and focus too much on self (Lavelle, 2016, 2017).

Regarding beliefs about learning mindfulness, young adults thought that people “like them” (teenagers; young adults) could learn mindfulness, and that mindfulness was a practice accessible to everyone everywhere. Furthermore, while they acknowledged individual differences in mindfulness ability (e.g., comes more easily to some than others), there was also a shared understanding that mindfulness is a skill that takes patience, cannot be learned quickly, and requires months to learn and a lifetime to master. Overall, these findings are encouraging with respect to the perceived appropriateness of mindfulness interventions targeted towards this age group—it is seen as an educable quality that can be learned with practice and effort over time (Goleman & Davidson, 2017). In addition, these results suggest that young adults do not necessarily see mindfulness as a “quick fix” to their problems, despite reasonable concerns that have been raised in this regard (Harrington & Dunne, 2015).

When considering young adults' understanding about the origins of mindfulness, there was a consensus that mindfulness has Buddhist origins, that mindfulness was not an indigenous American idea or a Christian practice but that it was universal; and that it was not necessarily thus truly foreign to the US. These results suggest that mindfulness in the West may not be perceived as totally “divorced” from its

Buddhist roots but also universal. Young adults also thought that mindfulness was more of a secular-spiritual practice than a religious one. Considering these results in the context that a growing minority of Americans, particularly young adults, identify as “spiritual but not religious” (SBNR; Bender, 2010; Hastings, 2016) might suggest that mindfulness may be particularly appealing to those who identify as SBNR or with no religion at all. Future studies could examine these research questions by assessing the interplay between beliefs about Buddhism, spirituality, and mindfulness to further elucidate how these two sets of beliefs are interlinked in the minds of young adults.

In terms of examining the practitioners of mindfulness, young adults believed that mindfulness was practiced more by women and was more feminine (i.e., less masculine), Liberal, and non-Christian/non-religious. When considering how one’s own social identity may interact with these beliefs about mindfulness, these results could have interesting implications for intervention uptake and who feels welcomed in mindfulness spaces. For example, somebody who identifies as a Christian man may be less likely to feel that mindfulness is “for” them. This is particularly interesting to consider in light of prior work that suggests one of the reasons that uptake may be lower in the African American community is that many Black individuals identify as Christian, and therefore may feel that mindfulness, having Buddhist origins, or being a secular practice, may be at odds with their cultural values (Proulx et al., 2018). Linking mindfulness practice both to its secular underpinnings, and to other sacred practices within specific faith traditions like Christianity (e.g., centering prayer), might be skillful for addressing potential barriers to access in various cultural-ethnic and religious populations (e.g., Woods-Giscombé & Gaylord, 2014).

In addition to the need to attend more to issues of race, religion /spirituality, and socioeconomic status in mindfulness research and practice (Blum, 2014), our results suggest attending to gender identity is also important. For instance, if men feel that mindfulness is more feminine or more for women, they may feel less comfortable participating in MBIs. Past research has already identified that mindfulness practitioners tend to skew more female (62%; Morone et al., 2017). Consequently, understanding more about how beliefs about who practices mindfulness/who mindfulness is for could provide useful information that may shed light on how social identity factors could impact intervention uptake, as well as pointing to future directions in terms of how to advertise and make curricular changes that make MBIs more welcoming to people from diverse gender, racial, religious, and sociocultural backgrounds. Future research could examine these possibilities empirically by examining the links between mindfulness beliefs, social identity, cultural responsiveness of intervention, and intervention uptake. The kinds

of beliefs identified here may be useful in such translational research.

Limitations and Future Directions

Certain study limitations warrant mention. First, we were only interested in a specific developmental stage and social setting: our samples were limited to college-attending young adults. Future work should attempt to replicate these findings in individuals who are not attending college, as well as in younger and older age groups who also are exposed to mindfulness programs, in order to examine the generalizability of the cultural consensus on mindfulness beliefs in different populations and at different times in the lifespan.

Second, the items were selected based on a focus group of experts and cannot therefore account for additional but unmeasured beliefs that individuals might hold about mindfulness that are important to consider. Creating item pools based on culturally diverse experts of various ages might improve the item content and reveal other important facets for achieving consensus or cultural consensus that may vary by region or based on other factors. It is our hope that our paper can serve as an introduction to this method so that other researchers can use a similar approach in order to complement this paper, with these items, for further example of this kind of work to other possible beliefs about mindfulness in the future.

Third, while we exceeded recommended sample sizes for performing cultural consensus analyses (Weller, 2007), replicating this work in additional samples is important to increase representativeness.

Fourth, any single sample is only a subset of the larger population and therefore replication in future samples is important. How our results would compare with a truly nationally representative probability sample, for example, remains an open question.

Understanding the cultural notions young adults hold about mindfulness may prove to be a useful tool in the design and implementation of interventions for this specific age cohort. Such approaches can be adapted to tackle misconceptions about mindfulness that could interfere with intervention efficacy or instill an understanding of mindfulness that is inconsistent with *samma sati* (“right mindfulness”; Greenberg & Mitra, 2015). Thus, an interesting future direction for this work could be to examine how features of mindfulness interventions (e.g., instructor background, training approach) may differentially impact beliefs about mindfulness in young adults. It may well be that within a given practice context, such measures regarding the “consensus” of what mindfulness is and does could be used to examine pre/post-intervention change in a group’s “view” of mindfulness. Investigating how interventions may change existing beliefs over time as an outcome measure could

help instructors to better align their approach with a classical view, for example. Finally, knowing at baseline what *a priori* beliefs young adults hold about mindfulness can also be a useful pre-intervention assessment tool to identify additional targets of the intervention or supports to help foster a welcoming and inclusive environment for all participants.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s12671-022-01956-x>.

Author Contribution NVD: conceptualized and designed both studies; collected data for study 1; analyzed the data; wrote the paper. ZO: conceptualized and designed both studies; oversaw the data analyses; collaborated on writing the paper, particularly the sections pertaining to methods and data analysis. JAS: provided funding for study 2; oversaw data collection for study 2; collaborated on writing the paper. RWR: conceptualized and designed both studies; generated initial items for the mindfulness questionnaire; oversaw the data collection, analyses, and writing; wrote the paper.

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Data Availability All data are available at the Open Science Framework (<https://osf.io/e58by/>).

Declarations

Ethics Approval This study was approved by the ethical review board of the Pennsylvania State University (Approval Number: STUDY00012747).

Consent to Participate The current research involves human participants, who all provided written informed consent prior to their participation.

Conflict of Interest The authors declare no competing interests.

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