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Mindfulness e Solitude:
efeitos de um programa breve de *mindfulness* em universitários

Universidade do Algarve

Faculdade de Ciências Humanas e Sociais

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Tese para obtenção do grau de Doutor em Psicologia

Trabalho efetuado sob a orientação de:

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Assinatura: _____

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Rumi

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Resumo Expandido

A elevada incidência de problemas de saúde mental em estudantes acadêmicos tem alarmado os órgãos governamentais. Depressão e distúrbios de ansiedade podem levar, entre outros problemas, ao abandono escolar. Em Portugal, a taxa de desistência dos alunos de licenciatura é de 29%. Torna-se fundamental um investimento em suporte psicológico, assim como em programas de prevenção e promoção de saúde mental neste contexto. As intervenções baseadas em *mindfulness* (IBMs) têm alcançado resultados promissores tanto em populações clínicas quanto em não-clínicas. *Mindfulness*, também traduzido como atenção plena, é a consciência que emerge ao prestarmos atenção, de propósito, no momento presente, e sem julgamentos. A presente tese de doutoramento tem como principais objetivos avaliar os efeitos de uma IBM adaptada para estudantes universitários, além de validar uma escala psicométrica que utilize o construto solitude. O conceito de solitude utilizado nesta investigação significa ficar a sós voluntariamente, durante um tempo no qual o desenvolvimento da personalidade e a criatividade podem surgir. Nesse estado, o indivíduo não está evitando a interação social devido à ansiedade ou preferência social. O sujeito gosta da experiência de passar um tempo sozinho e pode usá-la para explorar a si mesmo. Cabe apontar que a prática formal de *mindfulness*, apesar de poder ser praticada em grupo, possui relação com solitude, por ser uma experiência essencialmente individual e solitária. A estrutura desta tese de doutoramento é composta por cinco estudos que se complementam: 1) IBMs em alunos de graduação: uma revisão sistemática; 2) Programa de Interculturalidade e *Mindfulness* (PIM): relato do protocolo de uma intervenção com estudantes universitários; 3) Escala de Solidão e Solitude Positiva (ESSP): Qual é a sensação de estar a sós? Uma validação de escala portuguesa; 4) Efeitos do PIM em *mindfulness*, regulação emocional, depressão, ansiedade, estresse, satisfação com a vida, otimismo, solitude positiva e solidão em estudantes universitários: um estudo quase-experimental; e 5) Comparação entre uma IBM presencial e uma IBM online síncrona: um estudo quase-experimental. O estudo 1 baseia-se em uma revisão sistemática sobre IBMs em estudantes de licenciatura. Os principais achados foram: (a) um crescimento visível de publicações científicas com IBMs em alunos de graduação nos últimos anos; (b) IBMs adaptadas com uma duração mais curta demonstraram resultados favoráveis, indicando que existe uma flexibilidade no formato IBMs sem, necessariamente, alterar seus benefícios; c) percebeu-se uma escassez de uso de medidas fisiológicas e testes de follow-up. O estudo 2 descreve a IBM desenvolvida implementada na presente pesquisa: o PIM. A finalidade deste estudo é facilitar a replicação deste programa. Como a Universidades do Algarve (UAlg) é um ambiente multicultural, recebendo alunos de diferentes nacionalidades e regiões de Portugal,

este programa alia o desenvolvimento de habilidades intrapessoais (*mindfulness*) com as competências interpessoais (interculturalidade). Desta forma, além das atividades de atenção plena, foram incluídas dinâmicas que abordam aspectos da competência intercultural. Esta competência compreende a habilidade de comunicar-se efetivamente em situações transculturais e de se relacionar apropriadamente em uma variedade de contextos culturais. O PIM possui 6 sessões com duração de 2 horas cada em uma frequência semanal. Entre cada sessão, os participantes recebem uma mensagem de lembrete e incentivo a fim de realizarem as práticas meditativas propostas na sessão anterior. Já no estudo 3, desenvolveu-se a ESSP e, através de uma amostra de 724 estudantes, detectaram-se indicadores psicométricos adequados para esta escala, a qual possui duas dimensões: a solidão, que representa a frequência com que o sujeito tem um desconforto em ficar a sós; e a solitude positiva, que indica a frequência com que o indivíduo se sente bem ao ficar consigo mesmo. A análise da ESSP demonstrou uma correlação positiva da dimensão de solidão com as variáveis de dificuldades de regulação emocional, depressão, stress e ansiedade. Por outro lado, a dimensão de solitude positiva mostrou uma correlação negativa com as mesmas variáveis. Além dos dados da validação, os achados mostraram que os participantes mais novos tinham uma maior aversão a ficar a sós do que os mais velhos. Sabe-se que a solidão é considerada uma epidemia em países como Japão e Inglaterra. O isolamento social imposto pelo Covid-19 intensificou este problema. Espera-se que esta escala permita uma exploração mais profunda de temas tão subjetivos a atuais como a solidão e solitude positiva. O estudo 4 avaliou os efeitos do PIM em três grupos [presencial (n = 70), *online* (n = 44) e controle (n = 36)] e em dois tempos (pré e pós teste). O grupo presencial demonstrou um efeito de interação positivo em *awareness* e satisfação com a vida, enquanto o grupo online indicou um efeito de interação favorável em impulso. Os resultados apresentaram um impacto benéfico significativo em stress, regulação emocional, *mindfulness*, solitude positiva e otimismo em ambos os formatos do PIM (presencial e online síncrono). Não houve reduções significativas em ansiedade e depressão em nenhum grupo. Por último, o estudo 5 comparou os formatos do PIM em três tempos (testes pré, pós, e *follow-up*). O principal achado apontou uma superioridade predominante da intervenção síncrona online sobre a intervenção presencial nos efeitos do PIM ao analisar os resultados dos testes de *follow-up*, ocorridos três meses após a intervenção. Além disso, as variáveis depressão e ansiedade, que não haviam demonstrado reduções representativas na análise de dois tempos, indicaram melhoras no grupo online. A hipótese encontrada para explicar os resultados positivos do formato online reside no fato de que os participantes do grupo online desenvolvem maior autoeficácia para cumprir as tarefas de *mindfulness* em casa já que neste formato a "dependência" ou importância do grupo

tende a ser menor do que no formato presencial. Apesar de existirem achados similares na literatura referente à superioridade do formato online no *follow-up*, os fatos de as amostras serem por conveniência e de que os grupos online somente ocorreram a partir do contexto pandêmico podem ter influenciado os resultados. Os estudos que compõem esta tese contemplaram seus objetivos e aprofundaram o conhecimento de temas atuais e relevantes. Baseando-se nas principais limitações desta investigação, é recomendado que pesquisas futuras utilizem medidas concorrentes para examinar as dimensões de solidão e solitude positiva na ESSP a fim de certificar-se da fidedignidade dos constructos avaliados; e que os efeitos do PIM sejam investigados em amostras aleatórias e homogêneas. Espera-se que estes estudos colaborem para a ciência e, consequentemente para a população em geral.

Palavras-chave: intervenções baseadas em *mindfulness*, solitude, estudantes universitários, interculturalidade, intervenções presenciais, intervenções online síncronas

Resumo

Elevados índices de problemas de saúde mental em universitários tem alarmado os órgãos governamentais. Torna-se fundamental um investimento em programas de prevenção e promoção da saúde mental neste contexto. Esta tese de doutoramento tem como principais objetivos avaliar os efeitos de uma intervenção baseada em *mindfulness* (IBM) adaptada para estudantes acadêmicos, além de validar uma escala psicométrica que utilize o construto solitude, que denota a capacidade de um indivíduo ficar consigo mesmo de forma positiva. As práticas formais de *mindfulness* estão relacionadas à solitude, pois são experiências essencialmente individuais e solitárias. Esta tese é composta por cinco estudos complementares: 1) IBMs em alunos de graduação: uma revisão sistemática; 2) Programa de Interculturalidade e *Mindfulness* (PIM): relato do protocolo de uma intervenção com estudantes universitários; 3) Escala de Solidão e Solitude Positiva (ESSP): Qual é a sensação de estar a sós? Uma validação de escala portuguesa; 4) Efeitos do PIM em *mindfulness*, regulação emocional, depressão, ansiedade, estresse, satisfação com a vida, otimismo, solitude positiva e solidão em estudantes universitários: um estudo quase-experimental; e 5) Comparação entre uma IBM presencial e uma IBM online síncrona: um estudo quase-experimental. Os principais resultados indicaram um crescimento visível de publicações científicas com IBMs em alunos de licenciatura nos últimos anos; indicadores psicométricos adequados para a ESSP; um impacto benéfico sobre os participantes em ambos os formatos PIM (presencial e online síncrono); e uma superioridade predominante da intervenção síncrona online sobre a intervenção presencial nos efeitos do PIM ao analisar os resultados dos testes ocorridos 3 meses após a intervenção. Recomenda-se que pesquisas futuras utilizem medidas concorrentes para examinar as dimensões de solidão e solitude positiva na ESSP e que os efeitos do PIM sejam investigados em amostras aleatórias e homogêneas.

Palavras-chave: intervenções baseadas em *mindfulness*, solitude, estudantes universitários, interculturalidade, intervenções presenciais, intervenções online síncronas

Abstract

The high incidence of mental health problems among academic students has alarmed government agencies. Investing in the psychological support sector, as well as in mental health promotion programs is fundamental. The main objectives of this thesis are to evaluate the effects of a mindfulness-based intervention (MBI) adapted for university students, and to validate a psychometric scale that utilizes the solitude construct, which denotes an ability to spend time by oneself in a positive way. Formal mindfulness practices are related to solitude, as they are essentially individual and solitary experiences. This investigation is structured in five studies: 1) MBIs in Undergraduate Students: a Systematic Review; 2) Interculturality and Mindfulness Program: a protocol report of an intervention with university students; 3) Loneliness and Positive Solitude Scale (LPSS): How does it feel to be alone with yourself? A Portuguese scale validation; 4) Effects of the Interculturality and Mindfulness Program (PIM) on mindfulness, emotional regulation, depression, anxiety, stress, life satisfaction, optimism, positive solitude, and loneliness in university students: a quasi-experimental study; and 5) Comparison between an in-person and a synchronous online MBI: a quasi-experimental study. PIM, a program that combines intrapersonal (mindfulness) with interpersonal skills (interculturality) was developed and implemented. Similarly, the LPSS was designed and assesses how often someone interprets his/her solitary moment as something beneficial (positive solitude) or unsatisfactory (loneliness). Major results indicated a visible growth of scientific publications with MBIs in undergraduate students in the past years; adequate psychometric indicators for the LPSS; beneficial impact on participants in both PIM formats (in-person and synchronous online); a predominant superiority of the synchronous online intervention over the in-person intervention on PIM effects when analyzing the 3-month follow-up outcomes. It is recommended future research utilize concurrent measures to examine LPSS' loneliness and positive solitude dimensions and employ a randomized sample to investigate PIM effects.

Keywords: mindfulness-based interventions, solitude, university students, interculturality, in-person interventions, synchronous online interventions

Introdução

Mindfulness, tema central da tese, muitas vezes é traduzido para o português como "atenção plena" ou "consciência plena". Este conceito provém da tradução para o inglês do termo "sati", em Pali, língua da psicologia budista datada por volta de 2500 a.c.. *Mindfulness* é o ensinamento central desta tradição e sugere estar atento (*awareness*), atenção e lembrar-se (Germer, Siegel, & Fulton, 2016). Este termo também é encontrado em documentos taoístas e yogis, as quais são abordagens que enfatizam os benefícios de estar concentrado no presente pelo uso da meditação. Um dos primeiros textos relevantes publicados no ocidente foi "O milagre de *mindfulness*", pelo monge vietnamita Thich Nhat Hanh, em 1975 (Collard & McMahon, 2012). A clássica e atual definição de *mindfulness* é a consciência que emerge ao prestar atenção, de propósito, no momento presente, e sem julgamentos (Kabat-Zinn, 2013).

A psicologia ocidental tem se aproximado dos preceitos de *mindfulness*, porém, somente nos tempos atuais estes princípios têm sido acessados. Considerado o "pai" da psicologia norte-americana, William James, no início do século 20, comentou com seus alunos: "Essa (psicologia budista) psicologia é a psicologia que todos estarão estudando daqui há 25 anos" (Germer et al., 2016, p. 10). Embora muitos anos depois, sua previsão se concretizou. *Mindfulness* tornou-se predominante nas terapias comportamentais contextualistas e se estabeleceu como uma característica central destas (Hayes & Feldman, 2004). Entre elas destacam-se a Terapia de Aceitação e Compromisso (ACT), a Psicoterapia Analítica Funcional (FAP) e a Terapia Comportamental Dialética (DBT).

O início deste movimento ocorreu em 1979, quando Jon Kabat-Zinn desenvolveu a primeira Intervenção Baseada em *Mindfulness* (IBM), um curso de oito semanas nomeado programa de redução de stress baseado em *mindfulness* (*Mindfulness-based stress reduction* [MBSR]), Kabat-Zinn, 2003). Apesar de ser um praticante de meditações budistas, ele removeu o enquadramento religioso e inseriu o MBSR em um contexto científico. A partir dos resultados promissores do MBSR, outras IBMs foram criadas para populações específicas. Alguns exemplos mais conhecidos são as IBMs que concentram-se em tratar depressão, como é o caso da Terapia Cognitiva baseada em *mindfulness* (*Mindfulness-Based Cognitive Therapy* [MBCT]; Segal et al., 2002), da prevenção ao relapso baseado em *mindfulness* para os casos de adição (*Mindfulness Based Relapse Prevention* [MBRP]; Bowen et al., 2014), comportamento alimentar (Mason et al., 2015), entre outras aplicações (para uma revisão mais aprofundada, veja Dimidjian & Segal, 2015). Há ainda IBMs para populações não-clínicas, como a terapia cognitiva para a vida baseada em *mindfulness* (*Mindfulness-Based Cognitive Therapy for Life* [MBCT-L]; *Oxford Mindfulness Centre*, 2020), autocompaixão (*Mindfulness Self-Compassion*

[MSC], Germer & Neff, 2019) e *mindfulness* baseado na terapia de Aceitação e Compromisso (ACT; Robinson et al., 2005).

Devido a muitos estudos robustos com IBMs, o *mindfulness* tornou-se uma respeitada prática baseada em evidências (Creswell, 2017) e tem sido adotada por políticas públicas em alguns países (*The Mindfulness Initiative*, 2019b). No Reino Unido, os políticos nacionais participaram de cursos de treinamento derivados de IBMs de oito semanas. Eles relataram benefícios pessoais para a regulação da atenção, controle do impulso, cuidado, compaixão e metacognição. Muito provavelmente, devido a esta experiência, tais políticos estão começando a considerar a atenção plena como uma capacidade fundamental, e não apenas como uma intervenção direcionada para problemas específicos (Bristow, 2019). Além da consistente implementação de IBMs no sistema educacional britânico (Bristow, 2019) há uma forte campanha para que o mesmo aconteça de forma mais enfática na polícia, serviços de emergência, locais de trabalho, justiça criminal e no sistema nacional de saúde (*The Mindfulness Initiative*, 2019a).

A prática do *mindfulness*, apesar de poder ser praticada em grupo, é uma experiência essencialmente individual e solitária (Leavitt et al., 2021). Entre muitas definições existentes, a meditação (prática formal das IBMs) pode ser conceituada como a capacidade de estar a sós (Rajneesh, 1978). Entretanto, estar sozinho e sem distrações é um verdadeiro desafio e pode gerar muita angústia (Wilson et al., 2014). Além disto, a solidão em particular, é um problema sério para muitas pessoas, e o isolamento forçado é considerado uma punição severa. A solidão já era considerada uma epidemia em alguns países (Jeste et al., 2020) antes do Covid-19 e aumentou consideravelmente após o surgimento da pandemia (Tso & Park, 2020). Consequentemente, as investigações em psicologia têm se concentrado em aliviar os efeitos negativos de estar sozinho (Bhagchandani, 2017).

De acordo com investigações, vivemos aproximadamente um terço da nossa vida sozinhos (Larson, Csikszentmihalyi, & Graef, 1982). Em média, americanos com 60 anos ou mais passam mais da metade de suas horas acordadas a sós (Livingston, 2019). A questão é como passamos estes tempos solitários. São momentos em que conseguimos algum benefício, como descanso ou aprendizado? Ou são momentos insatisfatórios? Alguns autores definem o construto solitude como ficar a sós voluntariamente, durante um tempo no qual o desenvolvimento da personalidade e a criatividade podem surgir. Nesse estado, o indivíduo não está evitando a interação social devido à ansiedade ou preferência social, mas gosta da experiência de passar o tempo sozinho e pode usá-lo para explorar a si mesmo (Galanaki, 2004; Storr, 1988).

Historicamente, a solitude tem sido associada com resultados benéficos, especialmente com crescimento espiritual e criatividade. Muitos líderes religiosos, (e.g., Moisés, Buda, Jesus), poetas e escritores (e.g., Proust, Kafka, Thoreau) passaram um tempo significativo em solitude (Storr, 1988). Contudo, o constructo solitude pode ter uma conotação positiva ou negativa. Long et al. (2003) analisaram nove tipos de *solitude* baseados em pesquisas anteriores (anonimato, criatividade, distração, paz interior, intimidade, solidão, resolução de problemas, autodescoberta e espiritualidade). Através da análise fatorial dos dados de 320 estudantes de graduação, foram identificadas três dimensões de solitude, sendo duas positivas e uma negativa: solitude direcionada para o interior (autodescoberta, paz interior, anonimato, criatividade e resolução de problemas), solitude direcionada para o exterior (intimidade, espiritualidade e criatividade) e solidão (solidão, distração e intimidade). Para facilitar a compreensão, alguns pesquisadores utilizam o termo solitude positiva, o qual significa um momento solitário determinado pelo indivíduo que permite a autorregulação emocional e a introspecção (Ost Mor et al., 2020).

Estudos sobre este tema na psicologia ocidental tem origem no artigo de Winnicott (1958) "*The Capacity to be Alone*", no qual ele enfatiza a capacidade de estar sozinho como a autonomia do indivíduo e sendo um dos sinais mais importantes de maturidade no desenvolvimento emocional. Segundo o autor, esta capacidade depende da presença de um ambiente suficientemente forte durante períodos da infância para suportar que o sujeito se discrimine sem risco de ruptura e solidão. Ele teorizou que o adulto totalmente maduro pode usar a solitude para superar a ansiedade e restabelecer a homeostase emocional. Yang et al. (2020) analisaram 562 universitários a fim de correlacionar a capacidade de solitude com variáveis psicológicas. Os resultados revelaram que a capacidade de solitude está significativamente correlacionada com autoestima, autoeficácia e a favorabilidade das relações familiares.

Cabe destacar que, mesmo que ambos os constructos-chave desta investigação (*mindfulness* e solitude), definidos na entrega do projeto de tese (em 2018), tiveram sua relevânca acentuada devido à insurgência do Covid-19. O *mindfulness*, pelo fato de ser uma ferramenta capaz de reduzir ansiedade, depressão e stress, assim como aumentar níveis de bem-estar em uma ampla escala, já que as IBMs são facilitadas em grupo. Enquanto que a importância de se abordar a solitude ocorre no sentido de sensibilizar o indivíduo em tempos de isolamento social sobre a possibilidade de transformar um momento a sós em algo agradável e gratificante.

Esta tese de doutoramento vem no seguimento da dissertação de mestrado intitulada "Efeitos de um programa breve de mindfulness em universitários concluintes" (Chiodelli, 2017). Tal dissertação analisou os efeitos de uma intervenção baseada em *mindfulness* (IBM) em depressão, ansiedade, estresse, regulação da emoção e atenção plena em alunos finalistas (Chiodelli et al. 2018; Chiodelli, Mello, Jesus, et al., 2020).

A estrutura do presente trabalho é composta em cinco estudos que se "entrelaçam": 1) *Mindfulness-based Interventions in Undergraduate Students: a Systematic Review* (Chiodelli, Mello, Jesus, Beneton, et al., 2020); 2) *Interculturality and Mindfulness Program: a protocol report of an intervention with university students*; 3) *Loneliness and Positive Solitude Scale (LPSS): How does it feel to be alone with yourself? A Portuguese scale validation*; 4) *Effects of the Interculturality and Mindfulness Program (PIM) in university students: a quasi-experimental study*; e 5) *Comparison between an in-person and a synchronous online mindfulness-based intervention: a quasi-experimental study*.

Os cinco estudos desta tese possuem uma ordem cronológica de realização. Primeiramente, através de uma revisão sistemática, pretende-se descrever como as IBMs têm sido realizadas no ambiente acadêmico, sistematizar os resultados destas intervenções e apontar possíveis limitações. Esta análise aprofundada possibilita um maior conhecimento sobre os estudos com IBMs adaptadas, incentivando o desenvolvimento de uma intervenção para os estudantes da Universidade do Algarve (estudo dois).

Sabe-se que o contexto universitário pode representar um ambiente bastante desafiador ao aluno. Assis et al. (2013) citam o acréscimo das demandas em relação ao ensino médio, como prazos mais rigorosos, necessidade de trabalhar concomitantemente, apresentação de seminários e exames. Os resultados de uma revisão sistemática apontam que os estudantes universitários apresentam taxas de depressão substancialmente mais altas do que as encontradas na população geral, com uma prevalência média de 30,6% (Ibrahim et al., 2013). Em Portugal, a taxa de desistência dos alunos de licenciatura é de 29% (Direção Geral de Estatísticas da Educação e Ciência [DGEEC], 2018). Vários estudos com IBMs têm sido realizados nesta população. Dentre estas investigações, aspectos como autorregulação, autoeficácia, humor, estresse e qualidade do sono (Caldwell et al., 2010), bem-estar (Drolet & Rodgers, 2010), engajamento, exaustão emocional e fadiga (Arias et al., 2010) têm sido avaliados ao redor do mundo, com resultados promissores.

Sendo a Universidade do Algarve (UAlg) um ambiente multicultural, com elevado índice de alunos estrangeiros (Sul Informação, 2020), optou-se por desenvolver e implementar um programa que conjugasse o *mindfulness* com a competência intercultural: o Programa de

Interculturalidade e *Mindfulness* (PIM). A competência intercultural é definida como a habilidade de comunicar-se efetivamente em situações transculturais e de se relacionar apropriadamente em uma variedade de contextos culturais (Bennett & Bennett, 2004). Com base na psicologia intercultural, que estuda o comportamento humano e os processos mentais sob diversas condições culturais (Ho & Wu, 2001), dinâmicas sobre estratégias de aculturação (Sam & Berry, 2016), bem como atividades que facilitam a interação do aluno (Intercultural Learning, 2018) foram adicionados ao PIM. Desta forma, o segundo estudo tem por objetivo detalhar o protocolo do PIM por meio de um relatório de intervenção.

Já o terceiro estudo tinha como propósito adaptar uma escala já existente com o construto *solitude* para a população portuguesa. No entanto, as escalas encontradas não analisavam este construto da forma pretendida nesta tese. A escala *Preference for solitude* (Burger, 1995), por exemplo, avalia apenas a preferência do indivíduo, sem considerar se estar sozinho é benéfico ou não para ele. Portanto, decidiu-se por desenvolver a escala de solidão e solitude positiva (LPSS), que avalia a frequência com que o respondente consegue estar sozinho de forma positiva, bem como a frequência com que se sente desconfortável quando está sozinho. A finalidade do estudo três, portanto é desenvolver e validar a escala de solidão e *solitude* positiva (LPSS) para Portugal.

A aplicação do PIM também foi impactada pela pandemia que eclodiu em março de 2020. Devido à necessidade de distanciamento social, o formato presencial foi alterado para o formato online síncrono (por meio de uma plataforma de videoconferência). Portanto, esta investigação compreende uma análise de 10 PIMs, com seis programas presenciais e quatro online síncronos. No total, 114 participantes preencheram o pré e pós-teste, enquanto 82 também responderam o teste de *follow-up*, o qual foi realizado três meses após a intervenção. Essa nova circunstância permitiu a avaliação e comparação de dois grupos experimentais (presencial e *online*) e um controle (passivo).

Deste modo, o estudo quatro investigou os efeitos do PIM em universitários sobre as variáveis *mindfulness*, regulação emocional, depressão, ansiedade, stress, satisfação com a vida, otimismo, solidão positiva e *solitude*. Ressalta-se que efeito do PIM foi avaliado em três grupos (presencial, *online* e controle) e em dois tempos (pré e pós teste). Como o grupo controle (passivo) não realizou o teste *follow-up*, optou-se por examinar os resultados do pré e pós-teste neste estudo, a fim de facilitar a análise estatística.

Por último, realizou-se o estudo cinco, que tem como finalidade comparar os efeitos do programa PIM entre os formatos presencial e online síncrono. Neste estudo, foram avaliados os três tempos (testes pré, pós e *follow-up*). As comparações entre intervenções online e

presenciais no contexto da promoção da saúde mental ainda são escassas e espera-se que este estudo possa colaborar com a literatura (Gayed et al., 2021).

Como toda investigação, esta tese foi um processo "vivo" que sofreu alterações devido a circunstâncias contextuais, como a adição de um tema novo (interculturalidade) na IBM a fim de se adaptar às necessidades dos alunos, as dificuldades de se encontrar uma escala psicométrica, assim como a pandemia, que afetou a todos. De qualquer modo, estas alterações ofereceram mais riqueza ao trabalho, como o desenvolvimento do PIM, o desafio de se desenvolver uma nova escala e a possiblidade de comparação entre uma intervenção online e uma intervenção presencial – um tema muito atual e relevante.

Tanto os temas (*mindfulness*, solitude, solidão, IBMs e formas de aplicação, interculturalidade, universitários e saúde mental), assim como os tipos de estudos (revisão sistemática, relato de protocolo, validação de escala, análise de impacto de intervenção e comparação dos efeitos de intervenções) abordados nesta tese são diversos, contemporâneos e complementares. Esta complementaridade entre as investigações oferece uma coesão interna do presente trabalho.

Study 1 – Mindfulness-Based Interventions in Undergraduate Students: a Systematic Review

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Abstract

Objective: To describe how MBIs are held with undergraduate students, systematize the outcomes of these interventions and indicate possible limitations. Method: Systematic searches were performed in seven databases in January 2019 with the following descriptors: ("mindfulness intervention" AND ("undergraduate" OR "college" OR "students")). Results: A total of 510 articles were found, and 19 articles fully met the inclusion criteria. The searches showed a visible growth in this field of research as article publications increased in the past years. Regardless of intervention's length, most studies reported beneficial effects. The examination of Anxiety, Stress and Depression constructs have shown to be predominant. Even though study designs were mostly Randomized Controlled Trials (RCT), a shortage use of physiological measures and follow-up assessments were noticed. Conclusions: Nonetheless, MBIs have shown to be promising interventions to promote mental health in academic settings.

Keywords: mindfulness, mindfulness-based intervention, university, undergraduate students, systematic review

Introduction

Mindfulness meditation can make people more aware of their thoughts, emotions, and behaviors and hence allow them to have a better relationship with themselves and with their peers (Carlson, 2013). Mindfulness is defined by Kabat-Zinn (2003a) as the psychological ability to be voluntarily present to the moment with an attitude of non-judgment and acceptance, thus generating warm, friendly and curious openness to the experience. The practice of paying careful attention to an experience in a deliberate and structured manner has strong roots in eastern traditions and Buddhist Psychology of ancient India (Olendzki, 2016). Mindfulness can be cultivated through a wide range of techniques such as sitting meditation or physical practices, e.g., yoga or tai chi, which help to increase attention span (Wallace & Shapiro, 2006).

The Mindfulness-based Stress Reduction Program (MBSR), established in 1979, is the main Mindfulness-based Intervention (MBI) in use in psychological research; more than 700 programs were offered worldwide in 2012 (Kabat-Zinn, 2003b, Germer, Siegel & Fulton,

2016). It consists of eight 2.5-hour weekly meetings. In addition to the sessions, the participant is advised to engage in a daily practice of 45 minutes on average. Other MBIs have been developed based on this program; for instance, the Mindfulness-based Cognitive Therapy (MBCT), the Dialectical Behavior Therapy (DBT) and the Acceptance and Commitment Therapy (ACT) (Segal, Williams & Teasdale, 2002, Linehan, 1993, Hayes, Strosahl & Wilson, 1999).

Interest in MBIs as well as the number of scientific publications on the subject have grown exponentially in recent years (Germer, Siegel & Fulton, 2016). Results of more than three decades of research have reported several reliable positive effects of mindfulness on health, which improve the quality of life of both general and clinical populations (Pagnini, Phillips, Bosma, Reece& Langer, 2015). Researchers indicate benefits of the practice for difficulties with anxiety and depression, addiction, eating disorder and chronic pain (Hofmann & Gómez, 2018, Cavicchioli, Movalli & Maffei, 2018, Mason et al., 2016, Hilton et al., 2017). Based on the evidence mentioned above, the educational context can be seen as a fertile ground for the implementation of MBIs. Systematic reviews and meta-analysis have been conducted in the school context, and they refer to MBIs as promising practices that can primarily develop cognitive performance and resilience to stress (Felver, Celis-de Hoyos, Tezanos & Singh, 2016, Zenner, Herrnleben-Kurz & Walach, 2014).

College years are a crucial and challenging period of development, both for habit formation, which leads to future success and well-being in life, and for knowledge of how to deal with stress and the occurrence of psychological difficulties (Hunt & Eisenberg, 2010). According to the UK's Institute for Public Policy Research, five times as many students as 10 years ago have manifested a mental health issue to their university (Thorley, 2017). Relationship issues used to be the most frequently reported problems at university counseling centers before 1994. But after this year, stress and/or anxiety problems became more common. The number of people with depression doubled and that of suicidal students tripled over the following decade (Benton, Robertson, Tseng, Newton & Benton, 2003). Several MBIs have been conducted with undergraduate students to evaluate various aspects, e.g., stress, depression, fatigue and burnout, self-efficacy and stress and alcohol-related problems (Daya & Hearn, 2018, Rayan, 2019, Bravo, Pearson, Stevens & Henson, 2016).

Considering there are no systematic reviews on MBIs in higher education students, the present systematic review intends to assess MBIs studies in this population, particularly. The proposal put forward is to provide the capacity of observing these interventions in a broader manner as well as the effects they have generated in order to guide future empirical work.

Therefore, the aim of this study is to describe how MBIs are being conducted with undergraduate students, discuss the results reported in the reviewed articles, systematize the outcomes and indicate possible gaps in understanding this phenomenon.

Method

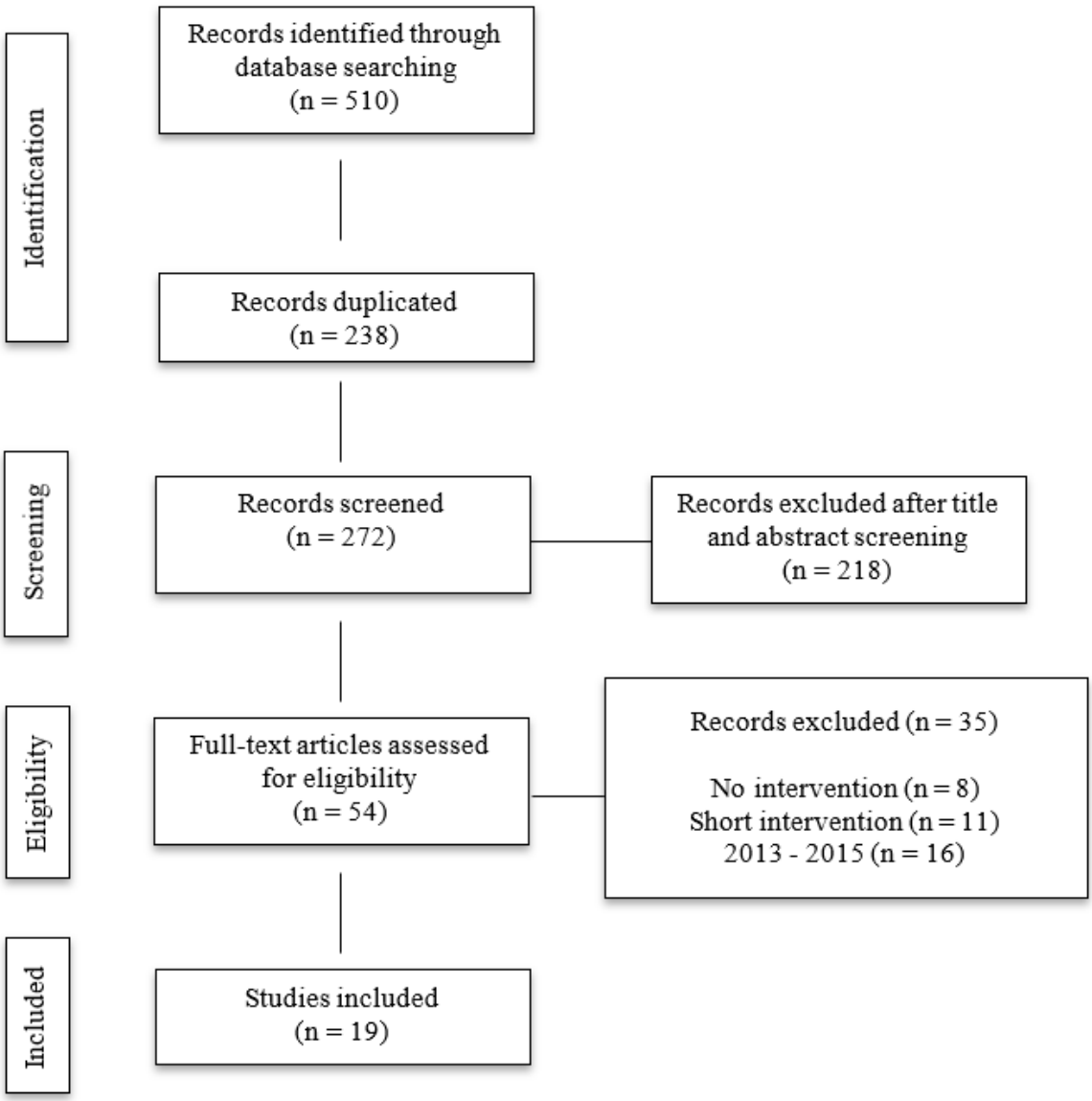
The methodology is based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement (Moher, 2015). In order to collect articles for this systematic review, database search was performed with the descriptors ("mindfulness intervention" AND ("undergraduate" OR "college" OR "students")) in January 2019 in the following databases: PubMed, BVS, EBSCOhost, Cochrane, Web of Science and PsycNet. These were the inclusion criteria: 1) MBI as the main theme; 2) MBI applied to undergraduate students; 3) empirical study; 4) published in the previous five years, from 2013 to 2018; 5) face-to-face interventions; 6) written in English, Spanish or Portuguese. Three of the authors of the present paper alternately selected the articles and subsequently decided whether they met the inclusion/exclusion criteria.

A total of 510 articles were found in the databases. In the first screening, 238 duplicated records were filtered. From the remaining 272 records, 218 were excluded after title and abstract screening because they were not related to the theme. To check eligibility, 54 full-text articles were read completely. Eleven were excluded because they implemented short interventions (interventions with one or two meetings) and eight were excluded because there was no intervention. In order to facilitate data systematization, given the great amount of literature in recent years, a new eligibility criterion was created: the inclusion criteria was modified to analyze studies from the last three years (2016 to 2018), instead of the five years previously established. Due to this alteration, 16 articles were excluded.

Hence, a total of 35 articles were excluded in the eligibility full-text process. After reviewing, it was found that 19 articles fully met the inclusion criteria. A PRISMA flow diagram for this review presents the main sections to incorporate into the publication of a systematic review (see Figure 1).

Figure 1.1

Flow of information from identification to inclusion of studies



Studies designs were separated into three categories: 1) Randomized Control Trial (RCT); 2) Quasi-Experimental (QE); and 3) Pre-Experimental (PE). Basically, the QE design is distinguished from the RCT design by not selecting the participants randomly; and the PE design is distinguished from the QE design because it does not utilize a control group (Shaughnessy, Zechmeister & Zechmeister, 2012).

Limitations of reviewed studies criteria

Considering there are particular traits to each study, basic criteria of limitations were chosen in order to standardize this category. It should be noted that every research study has some limitations. This, by no means, challenges their validity and importance. The following criteria were chosen to define the limitations of the studies: (1) No control group; (2) No active control group; (3) No follow-up measure; (4) Only self-report measures; (5) Effect sizes not referred.

Results

Among the 19 articles, 6 (31.57%) were produced in the United States, three (15.78%) in China, two (10.52%) in the UK, Norway and Australia, one (5.26%) in Iran, Germany, Austria and Brazil. All analyzed articles had been written in English. As regards year of publication, nine (47.36%) articles were published in 2018, and five (26.31%) were published in 2016, as well as 2017.

In total, 2.166 students participated in the systematized studies. The average sample size of the interventions was 114 (SD = 135.65), ranging from 30 to 616 subjects. The average number of female participants was 84 (SD = 88; min. = 21; max. = 388). Two (10.52%) studies indicated only female students as participants (Panahi & Faramarzi, 2016, Walsh, Eisenlohr-Moul & Baer, 2016). Three (15.8%) studies showed ages by ranges; one (5.3%) study did not report participants' average age and one (5.3%) reported it by medians.

A considerable amount of papers assessed general undergraduates' population (n = 7, 36.8%). The remaining papers investigated specific academic student population (i.e. Veterinary undergraduate students, first-year college students, students experiencing difficulties because of perfectionism or high standards).

All articles featured control groups with pre and post-tests; 15 (78.4%) were RCT studies, two (10.5%) were pre-experimental (PE) studies, and two (10.5%) were quasi-experimental (QE) studies. Eight of them (42.1%) did not apply follow-up measure. All types of intervention meeting length, weeks and other specificities are presented in Table 1.1.

Table 1.1

Types of intervention according to length, weeks and other specificities

Intervention Meeting Length	Weeks	Frequency
45-min	3	Weekly
75-min	4	Weekly
90-min	5	Weekly
50-min	5	Weekly
60-min	6	Weekly
80-min (2 weekly for the first 2-weeks and 1 session for each of the remaining 4-weeks)	6	
40-min (first and last meetings: 75-min)	6	Weekly
90-min (2 meetings) + 7-weeks of home-based audio-guided mindfulness practice	7	
90-min + full day of mindfulness practice at week seven	7	Weekly
120-min	8	Weekly
75-90-min	8	Weekly
75-min	8	Weekly
4-meetings	8	Fortnightly; meetings length nr
120-min	10	Weekly
120-min	10	Fortnightly
80-min	15	Twice a week
90-min	20	Weekly

All studies used more than one self-report questionnaire instrument to measure outcomes. Frequencies of the instruments mostly used were: 6 (31.6%) Five Facet Mindfulness Questionnaire (FFMQ); 5 (26.3%) Self-Compassion Scale (SCS); 4 (21%) Depression, Anxiety, and Stress Scale (DASS-21); three (15.8%) Perceived Stress Scale (PSS); three (15.8%) Self-Efficacy Scale (SES); three (15.8%) Pittsburgh Sleep Quality Index (PSQI); three (15.8%) Mindful Attention and Awareness Scale (MAAS) and three (15.8%) Beck Depression Inventory (BDI).

Twelve (63.1%) articles presented effect size when describing their results. Only three studies (15.78%) utilized non-self-report measures: salivary cytokines, Attentional Network Test (ANT) and salivary alpha-amylase test (Walsh, Eisenlohr-Moul & Baer, 2016, Becerra, Dandrade & Harms, 2017, Ko et al., 2018). Out of the 17 studies that utilized control groups, thirteen (68.4%) did not use active control groups and eight studies (42.1%) did not apply follow-up measures. Also, the aspects mostly evaluated by the MBIs are listed in Table 1.2 and all results are in Table 1.3.

Table 1.2

Outcomes evaluated by the articles

Outcomes	%
Mindfulness	18
Anxiety	17
Stress	14
Depression	8
Academic aspects	7
Self-compassion	5
Well-being	5
Loneliness	3
Coping	3
Other aspects	20

Table 1.3

Characteristics of included studies

Author (year) Country	*n* (women%)/ Specific population	Age in years (*SD*)	Design/ Allocation (pre|post)	Instruments	Intervention Type/Length	Evaluated Aspects	Main results	Limitations
Becerra Dandrade and Harms (2017) Australia	46 (77.4) Undergraduate university students	33.9 (12.1)	RCT (pre and post) EG (23) WL (23) *62 participants began the study and 16 dropped out before completing it	DASS-21 ANT	MBI (modelled on the basic Samantha skills) Fortnightly for 8-weeks (4-meetings) Meetings length not referred	Mental health, well-being, depression, anxiety, stress	Significant improvement in orienting and executive control skills following the mindfulness intervention was noted. No changes in alerting attentional skills were detected	No active CG; no follow-up
Chiodelli, Mello, Jesus, and Andretta (2018) Brazil	30 (76.7) Senior students	29.6 (8.4)	PE (pre and post) EG (83|30)	PHLMS DERS-36	MBCT (brief and adapted) 40-min weekly for 6-weeks First and last meetings: 75-min	Emotional regulation and levels of mindfulness	Reduction in total emotional regulation difficulties and increase in the levels of mindfulness in the subtests for both dimensions (Awareness and Acceptance). Positive correlation between the amount of meditative practices with	No CG; no follow-up; only self-report measures

Author (year) Country	*n* (women%)/ Specific population	Age in years (*SD*)	Design/ Allocation (pre|post)	Instruments	Intervention Type/Length	Evaluated Aspects	Main results	Limitations
							Awareness and negative correlation with Difficulties in emotion regulation	
Correia et al. (2017) Australia	70 (90) Veterinary undergraduate students	21.7 (4.3)	PE (pre and post) (70|64)	DASS-21 MHCF-SF	MAS 120-min 5-sessions held every fortnight	Depression, anxiety, stress, social and psychological well-being	Individuals who regularly engaged in mindfulness practice once a week or more throughout the semester reported lower depression and anxiety symptoms than those who practiced less than once a week	No CG; no follow-up; only self-report measures; effect sizes nr
Vibe et al. (2018) Norway	288 (76) Medical and Psychology students	23.8 (5.2)	RCT (pre, post, and 2-4-6-year follow-up) EG (144) CG (144) *Dropout rates for T1, T2, and T4 and T6 were 3%, 19%, 32%, and 61%, respectively	WCCL FFMQ 4-items well-being Class attendance Home-based mindfulness practice questionnaire	Abridged MBSR 90-min weekly for 7-weeks + full day of mindfulness practice at week seven	Well-being, cognitive life satisfaction, positive affect, negative affect, coping, mindfulness, and student compliance	At six-year follow-up, students receiving mindfulness training reported increased well-being. They reported greater increases in the trajectory of dispositional mindfulness and problem-focused	No active CG; only self-report measures; effect sizes nr

Author (year) Country	*n* (women%)/ Specific population	Age in years (*SD*)	Design/ Allocation (pre|post)	Instruments	Intervention Type/Length	Evaluated Aspects	Main results	Limitations
							coping along with greater decreases in the trajectory of avoidance-focused coping	
Dvořáková et al. (2018) USA	109 (66) First-year college students	18.2 (0.4)	RCT (pre and post) EG (55|52) CG (54|53)	PHQ GAD SWL MAAS SCS SCC-R CS PSQI YAAPST LAQ	Learning to BREATHE (L2B) 80-min for 6-weeks (2 weekly for the first 2-weeks and 1 session for each of the remaining 4-weeks)	Depression, anxiety, satisfaction with life, social connectedness, mindfulness, self-compassion, compassion, alcohol use, alcohol consequences, intervention acceptability	Participation in the pilot intervention was associated with significant increase in students' life satisfaction, and significant decrease in depression and anxiety. Marginally significant decrease was found for sleep issues and alcohol consequences	No active CG; no follow-up; only self-report measures
Falsafi (2016) USA	67 (86.4) Undergraduate	22.1 (nr)	RCT (pre, mid, post and follow-up) EG mindfulness (30|21) EG yoga (30|23) CG (30|23)	BDI HAS SLSI SCS CAMS-R	MBI vs. Yoga intervention 75-min weekly for 8-weeks	Depressive, anxiety, stress symptoms, self-compassion, and mindfulness	Depressive, anxiety, and stress symptoms decreased significantly from baseline to follow-up conditions in both the mindfulness and yoga intervention groups. The changes	Only self-report measures

Author (year) Country	*n* (women%)/ Specific population	Age in years (*SD*)	Design/ Allocation (pre|post)	Instruments	Intervention Type/Length	Evaluated Aspects	Main results	Limitations
							in mindfulness scores were also significant in both groups. However, the changes in self-compassion scores were significant only in the mindfulness EG. No significant changes in the CG were demonstrated	
Falsafi (2016) USA	67 (86.4) Undergraduate	22.1 (nr)	RCT (pre, mid, post and follow-up) EG mindfulness (30|21) EG yoga (30|23) CG (30|23)	BDI HAS SLSI SCS CAMS-R	MBI vs. Yoga intervention 75-min weekly for 8-weeks	Depressive, anxiety, stress symptoms, self-compassion, and mindfulness	Depressive, anxiety, and stress symptoms decreased significantly from baseline to follow-up conditions in both the mindfulness and yoga intervention groups. The changes in mindfulness scores were also significant in both groups. However, the changes in self-compassion scores were significant	Only self-report measures

Author (year) Country	*n* (women%)/ Specific population	Age in years (*SD*)	Design/ Allocation (pre|post)	Instruments	Intervention Type/Length	Evaluated Aspects	Main results	Limitations
							only in the mindfulness EG. No significant changes in the CG were demonstrated	
Galante et al. (2018) UK	616 (63) Undergraduate, Taught masters, Research masters and PhD	Average's age was referred by ranges	RCT (pre, 3-month post, 9-month follow-up) EG (309|233) WL mental health provision as usual (307|208)	CORE-OM WMWS	MSS 75-90-min weekly for 8-weeks	Psychological distress, academic performance and resilience to stress	MSS reduced distress scores during the examination period compared with WL support as usual	No active CG; only self-report measures
Gray, Font, Unrau e Dawson (2018) USA	36 (71) College Freshmen with foster care histories	nr	QE (pre, post, and 1-month follow-up) EG (16|14) CG (20|20)	FFMQ PSQI PSS	Koru Mindfulness Program 75-min weekly for 4-weeks	Mindfulness, sleep quality, and stress	Short-term reductions in stress levels and increases in sleep quality. The intervention increases chances for college success in this population	No active CG; only self-report measures; effect sizes nr
Gu, Xu and Zhu (2018) China	56 (44.4) ADHD undergraduate students	EG 20.2 (1.0) WL 20.4 (1.0)	RCT (pre, post and 3-month follow-up) EG (30|28) WL (26)	CAARS-S GPA BAI BDI-2 MAAS ANT	MBCT (brief and adapted) 60-min weekly for 6-weeks	ADHD, anxiety, mindfulness and attentional network's efficiency	EG showed greater treatment response rates, higher levels of mindfulness, improvement on neuropsychological performance, and less anxiety and depression rates	No active CG; only self-report measures

Author (year) Country	*n* (women%)/ Specific population	Age in years (*SD*)	Design/ Allocation (pre|post)	Instruments	Intervention Type/Length	Evaluated Aspects	Main results	Limitations
Hall et al. (2018) China	101 (69.3) Undergraduate and graduate students	22.3 (2.6)	RCT (pre, mid-week4 and post-week7) CG (25|12) EG2 mindfulness only group (27|11) EG3 mindfulness+plain-text reminder group (24|15) EG4 mindfulness+enhanced text reminder with animal-meme group (25|16)	DASS-21 PSQI – Chinese version AQ	Low-intensity MBI 2 meetings of 90-min + 7-weeks of home-based audio-guided mindfulness practice	Depression, anxiety, stress and sleep dysfunction	After the intervention at week 4, compared to controls, completers in group 2, 3 and 4 (n = 42) showed significantly reduced depression, anxiety, and stress, and improved subjective sleep quality, sleep latency, and habitual sleep e efficiency	No follow-up; only self-report measures
Haukaas, Gjerde, Varting, Hallan e Solem (2018) Norway	81 (75.3) Undergraduate and graduate students	22.9 (3.3)	RCT (pre, 1-week post, 6-months follow-up) ATT (40|37) MSC (41|32)	DMQ FFMQ GAD-7 PHQ-91 SCS-SF	ATT and MSC 45-min weekly for 3-weeks	Anxiety, depression, mindfulness, self-compassion, self-esteem, loneliness, and attention flexibility	Participants in both groups showed significant reductions in symptoms of anxiety and depression accompanied by significant increases in mindfulness, self-compassion, and attention flexibility post-intervention. These results were	No CG; only self-report measures

Author (year) Country	*n* (women%)/ Specific population	Age in years (*SD*)	Design/ Allocation (pre|post)	Instruments	Intervention Type/Length	Evaluated Aspects	Main results	Limitations
							maintained at 6-month follow-up. No significant differences between groups	
James and Rimes (2018) UK	65 (81) Students experiencing difficulties because of perfectionism or high standards	Average's age was referred by ranges	RCT (pre, post, and 10-weeks follow-up) MBCT (32|28) Cognitive Behavioral Self-help (33|32)	MINI session attendance and amount of home practice undertaken FMPS CPQ WASAS DASS-21 FFMQ BES SCS Experiences Questionnaire RRQ	MBCT 120-min weekly for 8-weeks Self-Help 50-page self-help booklet based on existing cognitive behavioral approaches to perfectionism	Acceptability and engagement, perfectionism, self-compassion, decentering, rumination, beliefs about emotions, mindfulness, impairment, stress, anxiety and depression	MBCT participants had significantly lower levels of perfectionism and stress than CG. There was significant EG superiority for changes in unhelpful beliefs about emotions, rumination, mindfulness, self-compassion and decentering. At follow-up, effects were maintained in the MBCT group, and analyses showed superior MBCT outcomes for perfectionism and daily impairment caused by perfectionism.	Only self-report measures; effect sizes nr

Author (year) Country	*n* (women%)/ Specific population	Age in years (*SD*)	Design/ Allocation (pre|post)	Instruments	Intervention Type/Length	Evaluated Aspects	Main results	Limitations
							Pre-post changes in self-compassion significantly mediated the group differences in pre-post changes in clinical perfectionism. Greater frequency of mindfulness practice was associated with larger improvements in self-compassion	
Ko et al. (2018) USA	41 (66) College students	19.8 (1.4)	RCT (pre and post) EG (34|18) CG (24|16)	FFMQ SCS CS CES-D STAI PSS Salivary alpha-amylase test	Seminar on Compassion 80-min twice a week for 15-weeks	Anxiety, depression, perceived stress, stress self-compassion, compassion and mindfulness	There were significant changes between the intervention and control group from pre and post in mindfulness, self-compassion, compassion, and salivary alpha-amylase. There were no significant changes in depression, anxiety and perceived stress	No active CG; no follow-up

Author (year) Country	N (women%)/ Specific population	Age in years (SD)	Design/ Allocation (pre|post)	Instruments	Intervention Type/Length	Evaluated Aspects	Main results	Limitations
Kuhlmann, Huss, Bürger, and Hammerle (2016) Ger many	183 (84) Medical or dental students in the 2-8 semester	MediMind 23.3 (2.8) AT 23.7 (5.1) CG 22.9 (3.1)	RCT (pre, post, 1-year follow-up) MediMind (57|31) AT (64|32) CG (43|17)	Brief COPE BSI GSI SSCS TICS	MediMind 90-min weekly for 5-weeks	Distress, coping and psychological morbidity	Chronic stress and coping revealed no significant interaction effects. On the BSI, a significant overall interaction effect became apparent, but post hoc analyses were not significant. Means of the BSI indicated that MediMind may contribute to a decrease in psychological morbidity. A selective drop-out for students who suffered more often from psychological symptoms was detected	Only self-report measures
Panahi and Faramarzi (2016) Iran	60 (100) Undergraduate and graduate women with premenstrual syndrome	Average's age was referred by ranges	RCT (pre and post) EG (30) CG (30)	PAS BDI BAI	MBCT 120-min weekly for 8-weeks	Premenstrual syndrome, anxiety and depression	MBCT improved depression and anxiety symptoms and total Premenstrual Assessment Scale score. This	No active CG; no follow-up; only self-report measures;

Author (year) Country	*n* (women%)/ Specific population	Age in years (*SD*)	Design/ Allocation (pre|post)	Instruments	Intervention Type/Length	Evaluated Aspects	Main results	Limitations
							intervention is acceptable and potentially beneficial in women with PMS symptoms	effect sizes nr
Plummer, Cloyd, Doersam, Dietrich, and Hande (2018) USA	94 (92.6) Graduate nursing students	Average's age was referred by medians	RCT (pre, post, and 3-month follow-up) EG (44|36) CG (61|58)	Holmes and Rahe Stress Indicators Scale PSS CAMS-R WHO-QOL-BREF	MBI 90-min weekly for 20-weeks	Stress, Mindfulness, Quality of life, Stress Self Perception	There were no statistically significant effects on participants' stress levels or quality of life, yet there was a statistically significant increase in overall mindfulness	No active CG; no follow-up; only self-report measures; effect sizes nr
Sampl, Maran, and Furtner (2017) Austria	109 (75.2) Bachelor students	EG 21.4 (3.1) CG 23.1 (5.4)	RCT (pre and post) EG (51) CG (58) *allocation nr	GPA MAAS PAF PSQ-20 RSLQ-D SES	MBSLT 120-min weekly for 10-weeks	Mindfulness, self-leadership, academic achievement, academic performance, academic self-efficacy, strain, and test anxiety	The EG reached significantly better GPA than the CG. The MBSLT over time led to a reduction of test anxiety in the EG compared to the CG. CG showed an increase in stress over time and EG maintained constant stress levels over	No active CG; no follow-up; only self-report measures

							time. The intervention indicated both positive effects on moods and on objective academic performance to develop a healthy self-regulatory way of attaining achievement-related goals and succeeding in high-stress academic environments	
Walsh, Eisenlohr-Moul and Baer (2016) EUA	64 (100) Female students with depressive symptomatology in introductory psychology courses	EG 19.1 (0.2) CG 19.1 (0.2)	RCT (pre, post and 3-month follow-up) EG (31|24) CG (33|32) *Only EG had follow-up	CES-D Salivary cytokine samples SCID-I	MBI 50-min weekly for 5-weeks	Salivary cytokines and depression	Both groups showed similar reductions in depression. MBI (vs. CG) predicted greater reductions in IL-6 and TNF-α; changes in IL-6 were sustained at 3-month follow-up. Higher baseline depressive symptoms predicted greater reductions in inflammation in the mindfulness group	No active CG; effect sizes nr

Author (year) Country	*n* (women%)/ Specific population	Age in years (*SD*)	Design/ Allocation (pre|post)	Instruments	Intervention Type/Length	Evaluated Aspects	Main results	Limitations
Zhang, Fan, Huang, and Rodriguez (2018) China	50 (41.8) Undergraduate and graduate with elevated loneliness	EG 20.4 (2.0) CG 19.2 (1.2)	QE (pre, post and 3-month follow-up) EG (34|29) CG (16|14)	CCSLS FFMQ – Chinese version	MBCT curriculum 120-min weekly for 8-weeks	Mindfulness and loneliness	Preliminary evidence indicated the intervention was feasible and effective at reducing loneliness	No active CG; only self-report measures

Note. ADHD = Attention Deficit Hyperactivity Disorder; ANT = Attentional Network Test; AT = Autogenic Training; ATT = Attention Training Technique; AUDIT = Alcohol Use Disorders Identification Test; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; BDI-2 = Beck Depression Inventory–2nd edition; BES = Beliefs about Emotions Scale; BSI = Brief Symptom Inventory; CAARS-S = Conners' Adult ADHD Self-Rating Scale; CAMS-R = Cognitive and Affective Mindfulness Scale-Revised; CCSLS = Chinese College Student Loneliness Scale; CES-D = Center for Epidemiological Depression Scale; CG = Controlled group; CORE-OM = Clinical Outcomes in Routine Evaluation Outcome Measure; CPQ = Clinical Perfectionism Questionnaire; CS = Compassion Scale; DMQ = Detached Mindfulness Questionnaire; DMQ-R = Drinking Motives Questionnaire-Revised; EG = Experimental group; ERQ = Emotion Regulation Questionnaire; EQ = Experiences Questionnaire; FFMQ = Five Facet Mindfulness Questionnaire; FMPS = Frost Multidimensional Perfectionism Scale; GAD = Generalized Anxiety Disorder Scale; GPA = Grade Point Average; GSI = Global Severity Index; LAQ = L2B acceptability questionnaire; LOS = Life Orientation Scale; MAAS = Mindful Attention and Awareness Scale; MAS = Mindfulness for Academic Success; MBCT = Mindfulness-Based Cognitive Therapy; MBSLT = Mindfulness-Based Self-Leadership Training; Medi Mind = Mindfulness-based stress prevention training for medical students; MHCF-SF = Mental Health Continuum – Short Form; MINI = International Neuropsychiatric Interview; MSC = Mindful Self-Compassion; MSS = Mindfulness Skill for Students; PAF = anxiety questionnaire; PANAS = Positive and Negative Affective Schedule; PAS = Premenstrual Assessment Scale; PE = Pre-experimental (pre and post); PHQ = The Primary Health Questionnaire; PHQ-91 = Patient Health Questionnaire-9; PSQ-20 = Perceived Stress Questionnaire; PSQI = Pittsburgh Sleep Quality Index; PSS = Perceived Stress Scale; RCT = Randomized Controlled Trial; RI = Relaxation Intervention; RRQ = Rumination Responses Questionnaire; RSLQ-D = Revised Self-Leadership Questionnaire-Deutsch; SCC-R = Social Connectedness Scale; SCID-I = Structured Clinical Interview for DSM-IV-TR Axis-I Disorders; SCS = Self-Compassion Scale; SCS-SF = Self-Compassion Scale Short Form; SES = Self-Efficacy Scale; SI = Sociodemographic Information; SMS = State Mindfulness Scale; SPNE = Scale of Positive and Negative Experiences; SSCS = Chronic Stress Screening Scale; STAI = The State-Trait Anxiety Inventory; SWLS = Satisfaction with life scale; TICS = Trier Inventory for the Assessment of Chronic Stress; TMS = Toronto Mindfulness Scale; TMST = Toronto Mindfulness Scale-Trait; UPPS-P = Urgency-premeditation-perseverance-sensation seeking-positive impulsivity scale; WASAS = Work and Social Adjustment Scale; WCCL = Ways of Coping Checklist; WHO-QOL-BREF = World Health Organization Quality of Life-Brief; WL = Wait-list control group; WMWS = Warwick–Edinburgh Mental Wellbeing Scale; YAAPST = Young Adult Alcohol Problems Screening Test.

Discussion

This article's purpose was to analyze the effects of MBI practices in the university settings. The number of university students with serious mental illness has risen significantly over the past few years, hence MBIs may be an important tool to tackle this problem as part of academic mental health service policies. In a systematic review, Storrie, Ahern, and Tuckett (2010) researched emotional and or mental health problems of university students worldwide. They showed that the major problems experienced by the students included anxiety, depression and psychotic disorders. In addition, the level of distress was very high: 83% of students were moderately or severely distressed. More than three-quarters of students with significant distress (that is, they required mental health services) did not receive counseling.

The main hypothesis of the present review was confirmed as MBIs were shown to be significantly beneficial to the higher education students population. Most studies adapted the length and number of meetings of their MBIs. This review indicated that regardless of the total number of hours in the interventions, the effects were positive. These findings corroborate those of Carmody and Baer (2009), which, by examining the correlation between mean effect size and number of in-class hours, suggest that adapted interventions with shorter number of sessions and in-class time can be as useful as traditional MBIs for psychological distress. Nevertheless, the authors state the standard MBSR format has collected the most empirical support for its efficacy and more empirical studies analyzing this question is necessary. It is known time circumstances of some groups restrict the implementation of MBIs standard form, offering the possibility of an abbreviated class time. Therefore, studies utilizing brief interventions may opt to increase practice time or apply distinguished mindfulness techniques, e.g., Mindfulness in Motion (Russel, 2015), and these new formats should be better investigated.

The articles' years of publication are indicative of a visible growth in research on this subject in this population. During the review, in order to have a reasonable amount of papers, it was necessary to modify the inclusion criteria, decreasing time span to three years. This finding is consistent with the fact that there has been an exponential increase in the number of journals devoted to this subject, with several studies in clinical and non-clinical populations, and in different social contexts (Germer, Siegel & Fulton, 2016).

When observing analyzed aspects through MBIs, a high diversity of fields is noticed. Although there is a relative predominance of Anxiety, Stress and/or Depression constructs, a wide variety of other aspects were found, such as Academic features, Self-

Compassion, Well-Being, Loneliness, and Coping. Specific conditions were largely examined, comprehending 20% of all the analyzed features (i.e., Premenstrual syndrome, Attention Deficit Hyperactivity Disorder, Sleep dysfunction).

Most of the participants were females, and similar data tend to be found in other studies which can infer that women have greater interest in mindfulness practices than men (Menezes & Dell'Aglio, 2009, Beshai, McAlpine, Weare & Kuyken, 2016, Frank, Reibel, Broderick, Cantrell & Metz, 2015, Gold et al., 2010). We suggest that new studies implement designs that can examine possible differences between sexes in such interventions.

The majority of the studies used large sample sizes, which concede more accuracy to intervention outcomes. The authors took important methodological precautions, as most of them conducted RCTs. In contrast, eight studies did not use follow-up assessments, which may be a considerable limitation, as it does not allow the effects measurement over time. Additionally, just three studies used non-self-report measures. Physiological measures provide more validity to this type of research (Luecken & Gallo, 2008).

Nearly one third of the studies did not present effect sizes, which is considered to be the main finding of an intervention, as it reduces the risk of sample variation being interpreted as a real relation and it increases the report of non-significant results. The "p" value informs whether or not the effect exists; however, it does not reveal the size of it (Espírito-Santo & Daniel, 2018). Reporting and interpreting both effect size and statistical significance (p) are extremely relevant for service provision and health economics reasons, which are very real factors when academic institutions are considering new programs implementation (Sulivan & Feinn, 2012).

Dropout, which is common in these kinds of interventions, was scarcely analyzed. It would be useful to inform them more clearly as well as possible reasons for losses and exclusions. By doing that, studies may provide management ideas in order to improve participant's adherence rates and, therefore, future intervention feasibility. Some guidelines, such as Consolidated Standards of Reporting Trials (CONSORT), provide effective information checklists to include when reporting randomized trials (Schulz, Altman & Moher, 2010).

Conclusion

It should be emphasized that the need to standardize studies in a systematic review means that the uniqueness and richness of each research are often overlooked. Even though the literature has confirmed the benefits and applicability of such practices (MBIs) in the academic environment, studies that have not achieved positive results should also be published for adequate assessment of MBI feasibility (Gregório, 2015, Warnecke, Quinn, Ogden, Towle & Nelson, 2011, Morrison, Goolsarran, Rogers & Jha, 2014). In addition, in order to facilitate more developed reviews, more detailed data on MBIs, such as intervention protocol for replicability and better background identification of who delivered the program should be exposed in studies in a standardized form.

The overall results achieved through these MBIs are beneficial. Robust intervention studies are essential keys to unblock existing bias and clarify the role of MBIs in the higher education settings. We suggest that more randomized and controlled trial studies with follow-up tests and physiological measures should be performed in this context to enable measurement of their effects more accurately and consistently. Additionally, regarding the high amount of online interventions in the academic settings, we recommend a systematic review on online MBIs; hence, a comparison between online and face-to-face interventions outcomes can be made.

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Study 2 – Interculturality and Mindfulness Program: a protocol report of an intervention with university students

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Abstract

Universities' internationalization process has made the academic environment more multicultural. At the same time, a high prevalence of anxiety and depression disorders has been detected in university students. With the intention to both promote integrative acculturation as well as utilize the benefits of mindfulness to support psychological well-being, Interculturality and Mindfulness Program (PIM) was developed. This program was implemented at the University of Algarve, Portugal, facilitating for the students a psychologically balanced adaptation to the academic context. This study's objective is to detail PIM's six sessions protocol through an intervention report, which will support the replication of this program or inspire the development of new ones, benefitting other university students.

Keywords: interculturality, mindfulness, program, university students, protocol

Introduction

The university context, in general, has been experiencing two phenomena related to this current study. Firstly, it has developed and amplified its internationalization system, providing a more multicultural environment (Lumby & Foskett, 2016). Secondly, it has been showing continuous increases in the number of students searching for mental health services, notably due to depression and anxiety (Moeller & Seehuus, 2019). These two events are not necessarily correlated, but certainly challenge academic institutions on how to embrace this reality.

Undergraduate students, while transitioning from high school to university, undergo the process of adapting to new educational and social environments. This is a particularly stressful condition for international students considering their different cultural, language and academic backgrounds (Yan, 2020). It is reported that these individuals experience acculturative stress, which is a stress reaction in response to the experience of adapting to a new culture. Outcomes of acculturative stress range from adaptative to non-adaptative (Berry, 2005). Two internal constructs are fundamental in a

successful cultural integration process: acculturative strategies and intercultural competence.

According to Sam and Berry (2016), acculturative strategies refer to four different ways in which individuals and groups from different cultures live together: 1) integration (when there is an engagement in both cultures); 2) assimilation (when there is an assimilation of the new culture, but the old one is forgotten); 3) separation (when contact with the new culture is avoided); and 4) marginalization (when there is no engagement by either culture). Apart from the strategies utilized in the acculturation process, researchers designed a concept that describes "the ability to communicate effectively in cross-cultural situations and to relate appropriately in a variety of cultural contexts" (Bennett & Bennett, 2004, p. 149): Intercultural competence. A wide range of interventions have been created and implemented to develop this ability – yet robust studies to assess their effects are scarce (Zhang & Zhou, 2019).

However, acculturative stress is not the only stressor undergraduate students have to deal with, as they are facing a variety of new demands. Levels of depression, anxiety and stress have been a serious issue in the university context (Ibrahim, Kelly, Adams & Glazebrook, 2013) and research implies the demand for more investment in academic mental health services (Othman, Ahmad, El Morr & Ritvo, 2019). Mindfulness-based interventions (MBIs) have shown positive results as an option to address this problem. In a systematic review and meta-analysis study, Dawson et al. (2020) examined MBIs effects on university students' mental and physical health in fifty-one randomized controlled trials (RCTs). Even though authors indicated higher qualified research is still needed, results were promising in improving distress, anxiety, depression, well-being, rumination, and mindfulness. Another Systematic Review (Chiodelli et al., 2020) examined 19 MBIs in undergraduate students. These studies included designs other than RCTs (i.e.: Pre- experimental and Quasi experimental) and results were also positive regarding MBIs outcomes.

Mindfulness can be defined as is the ability to be fully aware of what one does, as he/she is doing it. It is a non- reactive and non-judgmental awareness of the present moment. Therefore, it is a calm, compassionate and curious state that can be cultivated (Russell, 2017). Training and learning usually occur through various "mind training" techniques and meditation exercises, allowing the individual to increase awareness of their mental processes and actions. The pioneering MBI, called Mindfulness-Based Stress Reduction (MBSR), was established in 1979, by Professor John Kabat-Zinn. The

beneficial results detected in the participants encouraged the development of new programs, such as Mindfulness-Based Cognitive Therapy (MBCT), originally as a relapse-prevention treatment for individuals with major depressive disorder (Williams, Russell & Russell, 2008). The facts that such interventions utilize groups (and not just one individual), has relatively low cost for participants and has achieved positive results for epidemic symptoms, such as depression (Segal et al., 2010), make such programs a key part for a public health policy strategy (Bristow, 2019).

Traditional MBIs consist of eight 2.5-hour weekly meetings. In addition to the sessions, participants are invited to engage in a daily practice of 45 minutes on average. Based on the principles of presence, acceptance, non-judgement and self-compassion, these programs utilize a combination of mindfulness meditation, body awareness practices and exploration of one's behavior, thinking, feeling and action patterns (Kabat-Zinn, 2013). MBIs have been applied to both clinical and non-clinical populations and have been adapted to different perspectives and contexts, such as: Mindful Parenting (Bögels, Lehtonen & Restifo, 2010), Mindfulness-Based Relapse Prevention for Addictive Behaviors (MBRP) (Bien, 2011), Mindful Eating (Mason et al., 2016), and Body in Mind Training (Russell, 2011).

In order to improve undergraduate's adaptation and integration at the University of Algarve (UAlg), Portugal, the *Programa de Interculturalidade e Mindfulness* (PIM) or the Interculturality and Mindfulness Program was developed and implemented in early 2018. The main purpose of this program is to promote both intercultural competence and the state of mindfulness in university students. Currently, UAlg has the largest rate of international students (23%) in Portugal, ranging from more than 70 nationalities. Moreover, the university has a large percentage of "displaced" students, who are from Portugal but do not come from the city/region in which the university is located (Sul Informação, 2020). The PIM has obtained positive and promising results in the 10 groups conducted until the end of 2020 (Chiodelli et al, 2021). The goal of this study is to report PIM's protocol in a more detailed way so that this intervention can be replicated in future studies or serve as support to the production of similar programs.

Method

Participants

A total of 70 students participated in the face-to-face program, of which 51 (72.9%) were female and 19 (27.1%) were male, aged between 17-49 (M = 26.28; SD =

7.71). Students from 37 courses participated in PIM, with the most frequent being: Management (*n* = 12; 17.1%), Psychology (*n* = 6; 8.6%), Water and Coast Management (*n* = 4; 5.7%), Biomedical Sciences (*n* = 3; 4.3%) and Computer Engineering (*n* = 3; 4.3%). Further descriptive variables are presented in Table 2.1.

Table 2.1

Descriptive variables

Variables	*n*	%
Is this your 1st, 2nd, or 3rd year in the University?	64	100
First	31	48.4
Second	19	29.6
Third	13	20.3
Nationality	70	100
Portuguese	18	25.7
Brazilian	52	74.3
Adaptation Difficulty in the Academic Life?	66	100
Not much	29	41.4
Some	27	38.6
Difficulty	9	12.9
A lot	1	1.4
Who do you live with?	67	100
Alone	5	7.4
Family	10	14.9
Flatmates	52	77.6

Measure

Sociodemographic questionnaire. Developed by the authors. This questionnaire is a brief form that contains questions regarding participant's health and psychological condition, such as: "Are you currently facing any illness that process of physical or mental disease that is necessary to mention? If so, what?" (Appendix 1).

Procedures

Participants were required to complete and sign the free and informed consent form (Appendix 2). Students were invited to participate through the University's institutional e-mail, posters, and social media. The sessions were held in a spacious classroom at the University, with chairs arranged in a circle. Screen projections and the blackboard were used as support for the proposed activities.

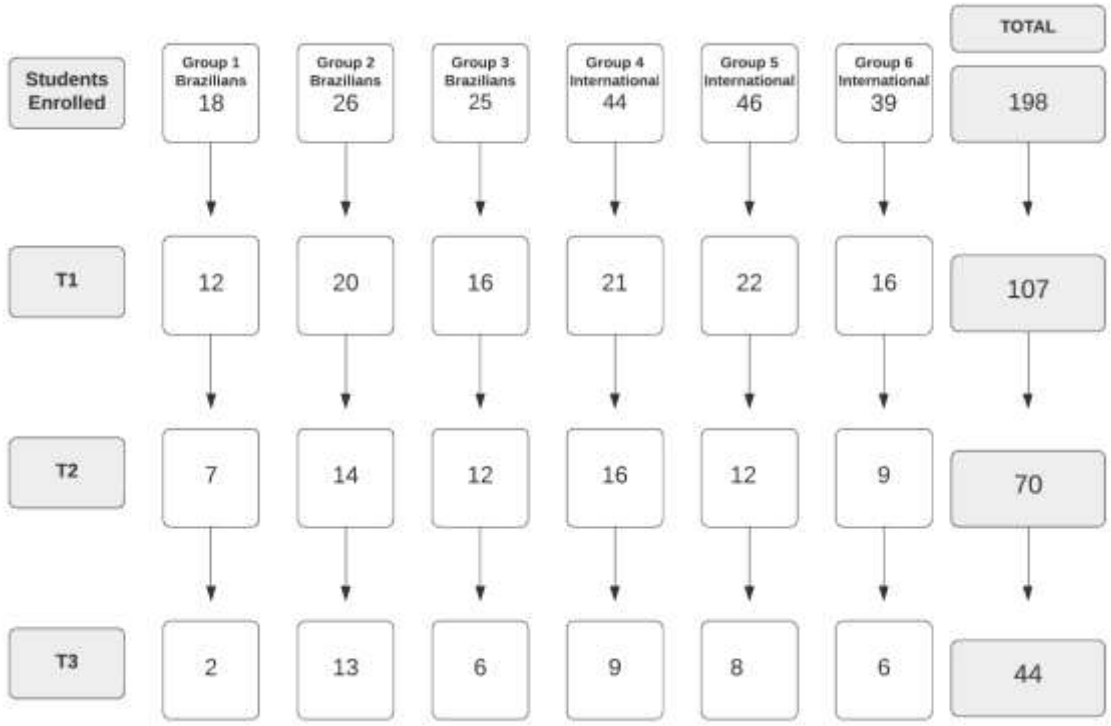
Intervention

The Interculturality and Mindfulness program (PIM) was developed in early 2018 by Roberto Chiodelli and Diana Fernandes Oliveira, both Psychology doctoral students under the supervision of Professor Saúl Neves de Jesus. Roberto Chiodelli is a psychologist, M.S. in Clinical Psychology, and a facilitator of the Mindfulness Protocol Body in Mind Training (Russell, 2015). He is Brazilian and, therefore, has the international student perspective, who is experiencing the acculturation process. Diana Fernandes Oliveira is a psychologist, M.S. in Health and Clinical Psychology, with advanced and specialized training in third-generation therapies. Diana is Portuguese, hence, offers a welcoming cultural standpoint. In the second semester of 2019, Luana T. Nesi de Mello, also a Psychology doctoral student, began to conduct PIM groups with Roberto Chiodelli as well.

The initial intention was to offer an adaptation support program to Brazilian students, as they are the most representative foreign university students at UAlg (10%) (Sul Informação, 2020). Consequently, the first three groups were aimed at students of Brazilian nationality. The first PIM group implemented for students of all nationalities occurred in the first semester of 2019, totaling three by the end of the year. Figure 2.1 shows students' adherence in the six face-to-face groups. Adaptations were made to the content of the Interculturality part, to strengthen the intercultural interaction process, rather than emphasizing aspects of a particular culture.

Figure 2.1

Students' adherence to the six face-to-face PIMs applied in 2018 and 2019



This program consists of six weekly sessions lasting two hours each (see Table 2.2). Two weeks in advance of the first session, facilitators offered a PIM presentation meeting (Session zero). The pre-tests were applied at the beginning of session 1 and the post-tests occurred at the end of session 6, while the follow-up test was applied three months after session 6. At the end of each session, through e-mail, participants received a summary of what was worked on and the audio file for the indicated guided meditation practice. Between each session, participants receive a message of encouragement to do the weekly task practices (mindfulness), which is sent along with a short video, poem, or phrase related to themes worked on in the previous session.

The fundamental principle of this intervention is to establish a welcoming and trusting atmosphere, precisely to reduce participants acculturative stress and to develop group cohesion. Thus, the posture of the facilitators is less formal, and activities are not teacher centered. Theoretical explanations are short, and students are encouraged to state their points of view. The program offers many practical activities, which elicit the topics to be worked on, generating, afterwards, a group discussion. Counting on an average of 12 participants, it is customary to divide the group into pairs or trios to talk about a certain topic for a few minutes, and then establish a discussion with the entire group.

Aside from Sessions 0 and 1, the activities are divided into four parts in the following order: 1) “Sharing” (20 min); 2) “Ice-breaker” and/or “Warm-up” (20 min); 3) Interculturality (35 min) and 4) Mindfulness (35 min). Part 1 (“Sharing”) refers to the first 20 minutes of a meeting, in which students can report how their week was regarding the topics worked in the previous weeks. It is a moment of experiences exchange, in which participants can perceive they have similar difficulties and doubts to those of their colleagues. At this point, the facilitator needs to coordinate each person's speaking time, so everyone can have his/her turn. Concerning part 2, “Ice-Breakers” are performed in order to allow students to get to know each other (make acquaintance); as well as “Warm-ups”, which are fun dynamics that aim to make a transition from external concerns to the session. Parts 3 and 4 are activities related to the specific themes of Interculturality and Mindfulness.

Themes from the perspective of Interculturality are based on the works of Sam and Berry (2016), Deardorff, Heyl and Adams (2012), and Sebben (2013). Some group dynamics were adapted from intercultural competence interventions, as well as playful games of psychodrama. Other activities were developed by the authors. Regarding mindfulness, the program was adapted from the book “Mindfulness: How to Find Peace in a Frantic World” by Williams and Penman (2015). This adaptation had been implemented in a Brazilian academic context and obtained beneficial results (Chiodelli, Mello, Jesus & Andretta, 2018, 2020). In order to facilitate the formal practices of mindfulness, which occur in silence and in a static way, corporal practices are usually executed before them (Russell & Arcuri, 2015). These body activation exercises are based on the movement exercises of the Body in Mind training protocol (Russell, 2015), as well as on the grounding exercise (bow and arch), a central practice of Bioenergetic Psychotherapy (Lowen & Lowen, 1977).

Table 2.2

Interculturality and Mindfulness Program (PIM) overview

Sessions	Activities
0) Program Presentation	Welcoming; "Ice-breaker": ball game; Program presentation; Mindfulness practice
1) Introduction and group integration *"Land in sight: welcome to the University environment!"/ Being present*	Facilitators and program Introduction; "Ice-breakers": planning seats and rotatory interviews; "Culture Shock" activity; Mindfulness presentation and body scan
2) Positive Intercultural Attitude I *"Anchorage"/ Mindfulness in the daily routine*	"Sharing"; "Warm-up": Rá game; "Ice-breaker": Three sentences activity; Difficulties and strategies to acculturation; Informal Mindfulness meditation: Mindful eating practice
3) Positive Intercultural Attitude II *"(Re) Socialization"/ Body and Emotions*	"Sharing"; "Warm-up": Imaginary objects activity; Cultural knowledge: chocolate game; Stages of cultural adaptation; Acceptance; Emotions in the body practice
4) Intercultural Communication I *"Verbal and nonverbal communication"/ Self Compassion*	"Sharing"; "Warm-up": 1, 2, 3 game; Behavioral differences in communication; Self-compassion; Walking Mindfully practice; Loving-Kindness Meditation
5) Intercultural Communication II *"What do we have in common?"/ Observing thoughts and Gratitude*	"Sharing"; Warm-up: "Pim game" and "Hot Potato"; "Proverb's game"; Group bubbles; Observing thoughts; Gratitude
6) Program Completion *"Weaving the Support Network"/ Week 6 is the rest of our lives*	"Sharing"; Warm-up: "Weaving Connections activity"; Social support network; Rhythmic Breath meditation; "Week 6 is the rest of our lives"; Final Celebration

Detailed Description

Session 0 – Program Presentation

1) *Welcoming/Reception (5 min):* Brief presentation of the program and facilitators;

2) *Ice breaker (7 min):* The ball game (developed by the authors): Participants, standing up, pass a ball at random and the individual who has the ball says his name. After everyone has said his/her name they are asked to say their name and the name of another participant they choose to throw the ball. Afterwards, in the same format, they say where they live, the course they study, what they like or dislike;

3) *Program Presentation (25 min):* It is explained, through illustrative slides, PIM's objectives, and structure. The first topic addresses the fact that students are living in a new environment, with different people and cultures. It is used as a metaphor that

when we leave our "homeland", we leave behind our stage, in which we had learned to use certain costumes to be accepted. Thus, being in a new context offers an opportunity to see ourselves from the outer part of the stage and develop better self-awareness. The second topic addresses studies on the challenges of being in a process of acculturation. In the third part, Portugal and the UAlg's multicultural reality is presented in numbers (RTP Notícias, 2018). In the fourth part, the concept of Mindfulness, its emergence, and scientific evidence is presented;

4) *Brief mindfulness practice (20 min):* Grounding exercise (Lowen & Lowen, 1977) and body scan (William & Penman, 2015);

5) Time to clarify queries and final considerations (15 min).

Session 1 – "Land insight: welcome to the University environment!"/ Being present

1) *Welcoming/Reception (5 min):* Brief presentation of the program, researchers, and initial combinations;

2) *Terms of Free and Informed Consent (FIC) and Application of tests (20 min):* Participants are invited to read and sign if they agree to the FIC terms. They also respond to psychometric instruments to assess the program effects (variables and instruments depending on the study purpose);

3) *Ice breakers:* Planning seats (5 min; developed by the authors): Participants are asked to be seated in alphabetical order according to their first name. Afterwards: Check the names and order. Rotatory Interviews (20 min) (Motta, 1995): Participants are asked to sit in two rows of chairs and interview each other for about two minutes. At the end, participants must switch chairs and interview the next participant. After eight minutes, the roles are inverted, as the interviewer becomes the interviewee. In the end, there is whole-class feedback on the activity. Students are encouraged to say what they learned from their colleagues;

4*) "Culture shock" activity (15 min; developed by the authors):* A picture which illustrates people from different cultural backgrounds trying to communicate and understand each other is displayed on the projector. Students have a peer discussion of what that image conveys to them. Subsequently, there is a discussion in the entire group about acculturative stress, as well as experiences lived by the participants;

5) *Introduction to Mindfulness (15 min):* The approach is presented in a similar way to the zero session, but with different material;

6) *Brief Mindfulness practice (20 min):* Body movements practice (Russell, 2015) and body scan (William & Pennman, 2015);

7) *Weekly task and closure (10 min):* Participants are invited to share the experience of practicing mindfulness in the group, eliciting perceptions, doubts, difficulties. Afterwards, the weekly task is assigned: 10 minutes daily of the guided meditation number 1.

Session 2 – "Anchorage"/Mindfulness in the daily routine

1) *Sharing (20min):* This moment occurs until the end of the Program. It is an opportunity for students to share how was their past week regarding intercultural competencies and the proposed mindfulness practice;

2) *Icebreakers (25 min):* "Rá" game (10 min) (Motta, 1995): Game in which participants, standing in a circle, must "pass an energy" around the group using an arm movement action and say "Rá" with intensity. After everyone understands and practices, the "Random" movement is added in which the participants use both arms. This movement reverses the direction of the "Rá". Finally, the "Poft" movement is added, in which this "energy" is passed through looking at a member of the group who is not beside the participant, who is sent by a hand movement (Soares, 2012). Three sentences game (15min): Each participant writes on a piece of paper three sentences about facts of his/her life. One of the sentences must be false. Participants meet in pairs and each member of the pair must find out what the false phrase is. Once both show their fake phrases, they should find a new pair and resume the activity. At the end of 7/10 minutes, curiosities about each member can be shared in the large group;

3) *Acculturation difficulties and strategies (20 min) (Developed by the authors):* The phrase "Difficulties in cultural integration" is written on the board. Members are asked to discuss for 5 minutes, in pairs, the difficulties they encounter when interacting with different groups (university context, culture, etc.). After this initial conversation, each participant receives a slip of paper with an attitude that serves as an acculturation strategy. Subsequently, participants are asked again to discuss, in pairs, the strategy they have chosen. In the end, the whole group talks about the strategies discussed and how they can relate them to their reality.

4) *Informal Mindfulness Practices (25 min):* Facilitators present how mindfulness can be embodied in our daily routine. Grounding exercise (Lowen & Lowen, 1977) and Mindful Eating meditation (Williams & Penman, 2015);

5) *Weekly task and closure (10 min):* After clarifying any questions, the weekly task is assigned: 10 minutes daily of guided meditation number 3; and 5 minutes of informal practice daily (i.e.: eating, washing the dishes, walking).

Session 3 – "(Re) Socialization"/Body, Thoughts, and Emotions

1) Sharing (20 min);

2) *Warm-up:* "Imaginary objects" (7 min) (Soares, 2012): Participants stand in a circle and the facilitator sends an imaginary object to one of the group members. This member is supposed to randomly pass this object to another participant and so on. It is necessary to say the name of the object whenever you send it. Simultaneously, the facilitator sends other imaginary objects to the various participants in the group. In the end, participants must figure out where are the objects to return to the facilitator;

3) *Cultural knowledge:* "Chocolate game" (20 min; developed by the authors): Each participant receives five small chocolate gems, preferably one of each color. The facilitator assigns a category to each color (e.g., Yellow – musicians/bands; Orange – Cities; Green – Gastronomy; Red – Historical facts; Blue – Symbols). In order to eat the gems, participants must say category examples of the country they are in or from other nationalities that are present in the program. For instance, Portuguese students, as they are in Portugal, can choose Brazil. It is not allowed to repeat an example already said. The winner is the one who, by saying the correct information, eats the five chocolate gems first;

4) *Stages of cultural adaptation (20 min) (Berry, 2005):* Brief presentation on the different acculturation strategies (Integration, Assimilation, Separation, and Marginalization). Participants are encouraged to reflect on their experience of acculturation and to say what stage they are in at the present time. A brief presentation on the four types of acculturation strategies adopted by the host culture (Multiculturalism, Melting Pot, Segregationism, and Exclusion). Facilitators raise the following questions: "Which of the models presented best characterize the culture of the host country, according to your experience?" Firstly, students share their points of view in pairs or trios and, afterwards, a whole-group discussion is done;

5) *Body and emotions (10 min):* A study on the perception of emotions in the body in different cultures (Nummenmaa, Glerean, Hari & Hietanen, 2013) is shown. Then, through a video and discussion, there is the presentation of one of the foundational principles of mindfulness: Acceptance;

6) *Observing emotions in the body practice (25 min):* after body movements practice (Russel, 2015), participants watch a short video with divided attention between the video and the body reactions. Such a video has an emotional dose. The intention is to seek to perceive the body's reaction to the video stimulus, without mentally labeling the emotion it is feeling (Russell, 2015);

7) *Weekly task and closure (5 min):* The designed task 10 minutes daily of guided meditation number 5, plus five minutes of daily informal practice of their choice. It is also introduced and recommended the "3-minute breathing space meditation" (Williams & Penman, 2015).

Session 4 – "Verbal and nonverbal communication"/ Self Compassion

1) Sharing (20 min);

2) *Warm-up (7 min):* "1, 2, 3 game" (developed by the authors): Playful activity in which are supposed to count to three in pairs (alternating the counting between them). Firstly, they replace number 1 by saying their name; secondly, they replace number 2 for clapping; and thirdly, they replace number 3 by showing their tongue;

3) *Communication differences (7 min):* A funny video is shown that demonstrates the difficulties of understanding each other when customs are different. Participants are invited to express their perceptions regarding the video;

4) *Intercultural Communication Activity (25 min) (Intercultural Learning, 2018):* Participants remain seated while facilitators hand out a card with the letters A-B-C-D. As each participant receives a card with their letter, they are encouraged to read the instructions in it, silently and without sharing with colleagues what is written. Each letter describes a particular behavior when communicating, such as "no looking at the person while speaking", "having a closer distance to your colleague", "talking loudly" or "counting to seven until answering the question". Each member of Group A will partner with one member of Group B. Members of Group C will partner with members of Group D. Peers will have about five minutes to learn things about themselves based on what is written on their cards. In order to make it easier for students, it is possible to set up groups of four (e.g. two As and two Bs). Afterwards, participants are invited to share their experiences with the large group. A member of Group B should be asked to talk about the characteristics of Group A. Then a member of Group A should read their instructions aloud. Next, one member of Group B should share with the large group the impact that the behavior of Group A participant has had on them. The same will happen to the other

groups (C-D). That said, it will be discussed how not being familiar with different intercultural communication styles can negatively affect message transmission and the adaptation process itself. The group will also be encouraged to relate the knowledge gained from this activity to the real improvements and challenges that exist in contact with each other;

5) *Self-Compassion (12 min):* Presentation of scientific evidence on Self-Compassion, as well as of a video which presents its main components. Then, there is a group discussion about the perception of each one on the topic;

6) Mindful walking and Loving Kindness Meditation practice (25 min) (Williams & Penman, 2015);

7) Weekly task and closure (5 min): Guided meditation (track 6) plus another informal practice of their choice.

Session 5 – "What do we have in common?"/Observing thoughts and Gratitude

1) Sharing (20 min);

2) *Warm-up:* "Pim game" (6 min; developed by the authors): Participants are encouraged to make an increasing numerical count using the ball and passing it alternately. When they have to say a multiple of three, participants should replace the number with the word "pim". "Hot Potato" (7 min): In a circle, participants are encouraged to pass the ball alternately among themselves. Whenever they pass the ball, participants must say a word that belongs to a particular category (e.g. traditional Portuguese foods, Portuguese cities, Portuguese terms, and expressions);

3) *Tic-tac-toe:* "Portuguese Proverb's game" (20 min; developed by the authors): The group is divided into two teams, which must play a tic-tac-toe game on the board against each other. Each square represents a traditional proverb from a specific culture. One of the teammates does not visualize the chosen proverb while the others organize themselves to reproduce the proverb in the form of mime or word associations – they cannot use the same or similar words of the saying. The participant has three minutes to find out. If the team gets it right, it marks the square with the chosen sign and if it misses, the sign used is that of the opposing team;

4) *Group bubbles (20-25 min) (Motta, 1995):* Participants form groups of three or four people, preferably with people they do not know so well. Members of each group should make a poster, first writing their names in bubbles. Then they talk about the

following questions: a) Which groups would I fit in with? b) Which groups do I feel I belong to? c) Which groups are most meaningful to me? These groups should be written on the poster and surrounded so that more and more bubbles appear on the paper and are linked to the name to which they belong. If group members have something in common, they should link this bubble to both names. Results are may vary: family, sports groups, university, a city where they live, country. Then the posters should be presented by the groups. As each group presents its poster, it becomes apparent that the categories "country", "region" and "city" are important, but there is also a panoply of other groups that allow participants to feel connected to others as well. The same goes for culture: it is a factor that shapes us, but there are other things that bind us too. The facilitator will then ask the large group the following questions: "Was it difficult to find common ground?"/"How can this activity help you establish the first meeting with people from other cultures?";

5) *Gratitude (12 min):* Video presentation on the importance of gratitude. Afterwards, there is a group discussion;

6) Observing thoughts practice (Williams & Penman, 2015) and ten fingers of gratitude exercise (Segal, Williams & Teasdale, 2002) (20min). A grounding exercise (Lowen & Lowen, 1977) is performed before these practices;

7) Weekly Task and Closure (10 min): Guided Meditation (track 7) plus another informal practice of their choice. As the next session is the last, we organize a picnic with participants on this day. A list of the foods and drinks that will be offered by each one is made.

Session 6 – "Weaving the Support Network"/ Week 6 is the rest of our lives

1) Sharing (20 min);

2) *Warm-up:* Weaving Connections (30 min) (Soares, 2012): In a circle, the facilitator asks for a volunteer to stand up and choose someone in the group that reminds him/her of a loving relative or friend and explain why - it may be due to the person's appearance or behavior/attitude. As soon as this other participant is chosen, the facilitator wraps both participants with wool yarn. Then, the chosen student is supposed to look for another person in the group that reminds him/her of a loving relative or friend, as the facilitator keeps wrapping them with wool yarn. Participants are set in a mixed position (not side by side). After a few participants take part in the standing and wrapped group; facilitators ask one of them to leave the web created and invite another

participant from that was sitting to fill that position. Afterwards they are asked to move towards the door (for instance) – they must do it all together. In the end, facilitators are supposed to make the following questions: a) How did it feel to be part of the "web group"? b) How did it feel not to be part of it? c) How did it feel when one participant was asked to leave the web group? d) How did it feel to receive a new member in his place? e) What did they notice? (the wool yarn was loose…) f) What other observations can they make of this activity?

3) *Social Support Network (20 min):* Discussion in pairs and then in the whole group about the importance of having people to count on for different situations. In addition, strategies are discussed to strengthen our support network;

4) *Rhythmic breath practice and the mountain meditation (25 min) (Williams & Penman, 2015):* Firstly, a body movement practice (Russell, 2015) is performed. This breathing practice has 12 times: inspiring in 4 and expiring in 8. Breathing can be done only with the right nostril first, then it changes to the left one. In the end, both are used. Afterwards, the facilitator conducts the Mountain Meditation;

5) *"Week 6 is the rest of our lives" (15 min) (Williams & Penman, 2015):* A brief conversation on how to cultivate mindfulness. Students receive a sheet with suggestions on keeping mindful habits;

5) Tests application (20 min);

6) Closing celebration and shared picnic.

Discussion

The integrative acculturation process requires the ability to understand others, but it is also extremely important to be aware of our thoughts and emotions. PIM's purpose is to work with these two types of relationships: interpersonal (Interculturality) and intrapersonal (Mindfulness). In addition to the achieved results (Study 3 citation), the feedback received from students has been positive. It is important to mention that the facilitators of this program must have professional qualifications. The basic requirements are a Degree in Psychology or Pedagogy, as well as training in a Mindfulness-based-Intervention.

PIM's activities seek to cover essential aspects for integrative acculturation: attitude (e.g., "Difficulties and strategies to acculturation", "Stages of cultural adaptation"), communication (e.g., "Behavioral differences in communication", "Group bubbles"), information (e.g., "Chocolate cultural knowledge game", "Proverb's game")

and social support (e.g., “Weaving Connections” and “Social support network”). Above all, the space provided for exchanging impressions of different cultures seems to be the pivotal point. Through discussions in a safe environment, students can express their views and reassess preconceived ideas (Deardorff & Deardorff, 2019).

As for PIM’s part dedicated to mindfulness, there are differences when comparing to traditional programs. Firstly, the average time reserved for mindfulness is less PIM consists of six sessions and provides around 1 hour per session on mindfulness, while traditional MBIs have eight meetings lasting 2.5 hours. Likewise, both the group practices and those recommended as a task are shorter. In the present program, the duration of the practices varies between 10 to 20 minutes. Traditional programs work with formal 45-minute practices (Segal, Williams & Teasdale, 2002). The mindfulness approach in PIM is body-oriented, through movement or grounding exercises conducted before formal practices. Still, PIM’s content covers mindfulness fundamental assumptions, such as awareness, acceptance, non-judgment, self-compassion, as well as its traditional practices (Kabat-Zinn, 2013).

The activities presented in this study are planned for a face-to-face format course. Due to Covid-19, this program was also adapted to the online format (via video conference) at the beginning of 2020. Since then, four online groups have been applied, which are not described in this article. Although many activities need to be adapted or even substituted from this PIM’s protocol, the principle of the approach has remained the same. Although the results found in the online program were different, they were as good as in the face-to-face intervention (Chiodelli et al., 2021).

There are advantages in offering this program to only one nationality, as we can focus on the unique problems of a particular group. However, when we realized that the process of acculturation not only occurs to international students but among all the cultures involved (Berry, 2005), groups comprehending all nationalities were conceived. It is verified there were only participants from Brazil and Portugal in this study. However, in the online format, we had students from other countries, such as Cape Verde, Venezuela, Spain, and New Zealand.

PIM seeks to deal with current challenges in the academic context and, as such intervention has shown promising results, we consider it is relevant to conduct this protocol report. We hope this study can contribute as support material for college counselors and professionals in the area, as well as for possible replications of this model.

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Study 3 – Loneliness and Positive Solitude Scale (LPSS): How does it feel to be alone with yourself? A Portuguese scale validation

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Abstract

We are a social species, but spending time alone is inevitable, as well as important. This study sought to validate the Loneliness and Positive Solitude Scale (LPSS) for Portugal, which analyses how often an individual perceives being on his/her own as negative, unsatisfactory, and distressful (loneliness dimension); as well as the frequency someone interprets his/her solitary moment as something positive, valuable, and pleasing (positive solitude dimension). The collected sample for this research was composed by 724 university students, aged between 17 and 62 years old, with a mean age of 24.28 (*SD* = 7.34), and demonstrated adequate psychometric indicators. Younger participants showed a higher frequency of the loneliness dimension. Emotion regulation difficulties, depression, anxiety, and stress were positively correlated to loneliness and negatively correlated to positive solitude. The lack of a concurrent instrument for assessing similar constructs is a limitation of the present study. Solitude is an increasingly relevant theme, and we expect this instrument will allow a deeper exploration of such a subjective and self-reflexive topic.

Keywords: loneliness, positive solitude, psychometric scale, aloneness perception, solitary time

Introduction

Assumably, we are a social species that depends on cooperation to subsist and thrive (The Cooperative Human, 2018). Nonetheless, spending time alone is inevitable and necessary. Research has indicated that human adults spend approximately 29% of their waking time alone (Larson, Csikszentmihalyi& Graef, 1982). A recent study stated Americans aged 60 and older are alone for more than half of their daily measured time (Livingston, 2019). How are we relating to ourselves during this expressive part of our lifetime? Do we know how to spend time with ourselves in a way that promotes growth and life-long learning? It seems doing anything is preferable to being alone with our

thoughts. Wilson et al. (2014) conducted 11 studies to examine how people react by spending six to 15 minutes by themselves with nothing to do. One of the experiments showed that many participants preferred to administer themselves an electric shock rather than remaining silent for 15 minutes. Before the experiment, the same participants had said they would have paid to avoid the electric shock. This study concluded that most people seem to prefer doing something rather than nothing, even if it is a negative action.

Several everyday distractions serve the same function as the electric shock in Wilson's study. Current technology provides an ample opportunity to distract from feeling lonely and most of the social media apps are about connection. Paradoxically, these tools often leave us feeling lonelier. An experiment conducted at the University of Pennsylvania randomly assigned 143 undergraduates to either limit Facebook, Instagram, and Snapchat use to 10 minutes per platform, per day, or to use social media as usual for three weeks. Compared to the control group, the limited use group presented significant reductions in loneliness and depression over three weeks (Hunt, Marx, Lipson & Young, 2018).

The United Kingdom (UK) government has identified loneliness as a significant public health issue (Jeste, Lee& Cacioppo, 2020) and it has been described as an epidemic (Killeen, 1998). In 2018, a Minister for Loneliness was nominated in the UK to deal with this issue (John, 2018). A survey conducted one year prior detected the prevalence of loneliness in nine million Britons, which is equivalent to 14% of the population. The BBC Loneliness Experiment examined differences in the experience of loneliness across cultures, ages, and gender. It analyzed the frequency of loneliness reported by more than 45.000 participants aged 16-99 years old, living across 237 countries. Findings showed loneliness increased with individualism, decreased with age, and was greater in men than in women. The most vulnerable to loneliness were younger men living in individualistic cultures (Barreto et al., 2021).

Even though the present study was conducted before the COVID-19 pandemic, it is noteworthy to mention the social isolation imposed by the pandemic has brought higher relevancy in the subject of facing time by oneself. Groake et al. (2020) conducted a cross-sectional online survey to understand the prevalence and predictors of loneliness during the beginning of social isolation with 1964 citizens in the UK. Loneliness prevalence was 27% and risk factors for loneliness were: younger age group (18-24), being separated or divorced, clinical criteria for depression, higher emotion regulation difficulties, and poor-

quality sleep due to the COVID-19. Protective factors were greater levels of social support, being married/co-habiting, and living with a higher number of adults.

Loneliness is a subjective matter, since we can be surrounded by people, even good friends, and still feel lonely. On the other hand, we can be away from others and experience genuine, embodied contentment. Loneliness can be described as a negative situation occurring due to insufficient quality and quantity of social relationship networks (Cacioppo & Patrick, 2008). The word solitude, however, may be positive or negative, depending on specific factors. In a comprehensive study, Long, Seburn, Averill, and More (2003) analyzed nine types of solitude from prior research (anonymity, creativity, diversion, inner peace, intimacy, loneliness, problem-solving, self-discovery, and spirituality). Factor analysis from undergraduate participants data identified three dimensions of solitude, which two are positive and one is negative: inner-directed solitude (self-discovery, inner peace, anonymity, creativity, and problem solving), outer-directed (intimacy, spirituality, and creativity), and loneliness (loneliness, diversion, and intimacy). In order to facilitate understanding, some researchers use the term positive solitude, which may be described as a beneficial solitary time determined by the individual that enables emotional self-regulation and introspection (Mor, Palgi & Segel-Karpas, 2020).

As there are different definitions of being alone, it is necessary to clarify the constructs used in this study for these inter-related concepts. Loneliness is an involuntary, negative state in which the individual perceives dissatisfaction with basic interpersonal and social relationships. It is related to painful emotions and often arrives with sadness and boredom. Aloneness is a neutral state, in which there is communicative isolation. This means that you might be surrounded by people, but not interacting with them. Aloneness, though, carries no emotion. Positive solitude is a type of chosen aloneness, during which personality development and creativity may arise. In this state, the individual is not avoiding social interaction due to social anxiety or preference. He/she enjoys the experience of spending aloneness time and can use it to explore himself/herself (Galanaki, 2004, Storr, 1988).

In the psychoanalyst Winnicott (1958, p. 416) influential article “The Capacity to be Alone” it was emphasized, “the emotional potential of solitary experience as defining the capacity to be alone as one of the most important signs of maturity in emotional development”. He theorized that the fully mature adult can use solitude to overcome anxiety and is able to use the time alone to re-establish emotional homeostasis. Larson

and Lee (1996) investigated the capacity for solitude in 500 North American adults. Participants who reported greater comfort in being with themselves were found to be significantly less depressed and more satisfied with their lives. This relationship was found to be autonomous of a feeling of control over events, suggesting that solitary comfort may have a unique relationship to mental health, which is not just a function of a general trait. The association also appeared to be independent of social support, indicating that solitary comfort and social support are additive sources of well-being. Moreover, the association was unrelated to the amount of time spent alone, age, gender, and educational level.

Individuals who experience loneliness are more prone to sense a range of negative mental health issues, including incremented symptoms of depression and anxiety (Cacioppo, Grippo, London, Goossens & Cacioppo, 2015). Baseline data from a cross-sequential study testing college student's mental health was used to examine social skills, loneliness, depression, and anxiety of more than 2000 students from two colleges in the United States. Six mediation models were estimated, separately analysing whether loneliness mediated the relationship between anxiety, depression, social expressiveness, sensitivity, and control. Results showed that all the relationships were mediated by loneliness. These models accounted for 37–38% of the variability in scores of depression and 17-20% of the variability in scores of anxiety (Moeller & Seehuus, 2019), implying an important role of depression and anxiety in students experience of loneliness.

On the other hand, feelings of loneliness have demonstrated to be negatively associated with emotion regulation, which may be defined as involving six aspects when one is experiencing a strong emotion: 1) awareness; 2) clarity; 3) acceptance; 4) ability to control impulsive behaviours; 5) ability to behave according to desired goals; and 6) ability to use appropriate strategies to meet situational demands (Gratz & Groemer, 2004). In a study conducted in the United States, individuals with a social anxiety disorder and a control group were examined and hierarchical multiple regressions indicated that emotion regulation variables moderated the relationship between social anxiety and loneliness (O'Day, Morrison, Goldin, Gross& Heimberg, 2019), indicating the higher the emotion regulation, the lower the social anxiety and loneliness. Another experiment, held in Ireland, assessed 116 participants by completing loneliness and emotion regulation measures. The findings suggest that variability in emotion regulation strategies is relevant to loneliness, and associations were only moderately diminished by the inclusion of social support (Kearns & Creaven, 2017).

Apart from self-report instruments assessing loneliness levels, as the UCLA Loneliness Scale (Russell, Peplau & Ferguson, 1978), there are psychometric scales measuring solitude in a more particular form. The Preference for Solitude Scale (Burger, 1995) seeks whether someone prefers or not being solitary. The Capacity to Be Alone Scale observes one's coping level with aloneness, as well as his/her comfort with being solitary (Larson & Lee, 1996). The Solitude Scale (Leung, 2018) aims to identify different types of solitude experiences. Thomas and Azmitia's (2019) Motivation for Solitude Scale verified if the individual motives for solitude are self-determined or not. The Brief Scale of Fear of Loneliness (BSFL) focuses on measuring an attitude of avoidance accompanied by worrying thoughts and feelings of abandonment that the individual experiences when she/he is alone (Ventura-León, Sánchez-Villena, Caycho-Rodríguez, Barboza-Palomino & Rubio, 2020). The Loneliness and Positive Solitude Scale (LPSS), in its turn, was developed to investigate one's perspective of being solitary, as it observes how often the respondent thinks or feels negatively (loneliness) and positively (positive solitude) when he/she is spending time alone.

Based on the topic pertinence and with an intention to better understand how people deal with aloneness, the goal of this study was to validate the Loneliness and Positive Solitude Scale. This psychometric questionnaire seeks to analyse the frequency someone has an aversion to the fact of being alone (loneliness), as well as how often being with oneself is seen as a valuable circumstance (positive solitude). It is a short, accessible scale that allows to examine the issue of loneliness as something that occurs not only due to the lack of social support, but also to "how" the individual perceives himself/herself when he/she is alone. In addition, it analyses the positive solitude dimension, which is a construct that requires a more consistent investigation. Results from this instrument may serve as a support to the implementation of intervention strategies.

Method

Participants

This study's sample was composed by 724 (542 females, 75.1%) academic students from the University of Algarve (UAlg), Portugal. The average age of the participants is 24.28 years old (*SD* = 7.34), with a minimum age of 17 years and a maximum of 62 years old. Sixteen different nationalities were represented in this study,

most of the respondents were Portuguese (576, 79.5%), followed by Brazilians (122, 16.8%). Table 3.1 presents further information.

Table 3.1

Students' sociodemographic and academic data

Variables	Sample (n = 724)[A]	
	n	%
Enrollment Year		
1st year	221	31.1
2nd year	226	31.8
3rd year	218	30.7
4th year	37	5.2
5th year	9	1.3
Gender		
Male	179	24.8
Female	542	75.1
Age	24.3 ± 7.3 (17 – 62)	
Age range		
17 to 24	508	70.2
25 to 34	142	19.6
35 or more	74	10.2
Academic Level		
Undergraduation	542	75.5
Postgraduation	176	25.5
Employed		
Yes	191	26.4
No	533	73.6
Nationality		
Portuguese	576	79.5
Brazilian	122	16.8
Bissau-Guinean	4	.5
Others	22	3.0

Note. A: Percentages obtained based on the total sample. B: Missing data – Enrollment year = 13 (1.8%); Gender = 2 (.3%); Age = 6 (.8%).

Measures

Loneliness and Positive Solitude Scale (LPSS)

Developed by this study's authors. It is a bi-dimensional, 10-item, self-report measure created to assess how often spending time with oneself generates negative or positive thoughts and sensations. The questions were based on Galanaki (2004), Long and Averill (2003), Larson (1999), and Storr (1988) definitions of loneliness and positive solitude (see Table 3.2). Five items (1, 4, 6, 7, 9) correspond to the loneliness dimension,

whereas five items (2, 3, 5, 8, 10) examine the positive solitude dimension. The higher the scores in the loneliness dimension, the higher one's aversion to being alone; and the greater the score in the positive solitude dimension the greater one's perspective of being alone as something important and necessary. Example of a loneliness dimension item (4): *Spending time with myself is unsatisfactory because I would like to be with other people*. Example of a positive solitude item (10): *Spending time with myself helps me to look at my projects more creatively*. Cronbach's alpha was .79 for loneliness and .85 for positive solitude.

Table 3.2

Loneliness and Positive Solitude Scale (LPSS) variables definitions

Dimensions	Description
Loneliness	One's aversion to facing aloneness.
	One's perception of being with oneself as a negative situation.
Positive Solitude	One's appreciation/ satisfaction with the solitary experience.
	One's perspective of being alone as a positive, valuable circumstance.

Sociodemographic Questionnaire

A sociodemographic questionnaire was designed for this study and aimed at collecting data about the participants' age, gender, academic background, nationality, and employment.

Difficulties in Emotion Regulation Scale (DERS)

Developed by Gratz and Roemer (2004) and translated and adapted to European Portuguese by Coutinho, Ribeiro, Ferreirinha, and Dias (2010). It assesses emotional deregulation in six domains, quoted with their respective Cronbach alphas: "Non-acceptance" – nonacceptance of emotional responses (.86), "Goals"- difficulties engaging in a goal-directed behaviour (.85), "Impulse" - impulse control difficulties (.80), "Awareness"- lack of emotional awareness (.74), "Strategies"- limited access to emotion regulation strategies (.88), and "Clarity"- lack of emotional clarity (.75). It contains 36 items on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always). The scale indicated high values of internal consistency (.93) in the study of Coutinho, Ribeiro, Ferreirinha, and Dias (2010). In the present study, total DERS presented a Cronbach's alpha value of .92, the reliability values for the subscales were: Non-Acceptance (.85), Goals (.76), Impulse (.86), Awareness (.76), Strategies (.87), and Clarity (.71).

Depression, Anxiety and Stress Scale (DASS-21)

Developed by Lovibond and Lovibond (1995) and translated and adapted to European Portuguese by Apóstolo, Mendes & Azeredo (2006). DASS-21 contains a set of three Likert-type subscales, with four points ranging from 0 ("did not apply to me at all") to 3 ("applied to me very much or most of the time"). Each subscale consists of seven items that assess the emotional states of depression, anxiety, and stress, with a maximum score of 42. Each dimension has cut-off points according to severity ratings: normal, mild, moderate, severe, and extremely severe. Cronbach's alpha was .92 for depression, .90 for stress, and .86 for anxiety. The analysis and distribution of factors among the subscales indicated that the structure of the three distinct factors was adequate. In the present study, the Cronbach's alpha values were .90 for depression, .88 for anxiety, and .85 for stress.

Procedure

Data collection was conducted online – through Google Forms with students from the University of Algarve (UAlg) in a pre-test of the Soft Skills for Life Program. This assessment was applied in four distinct moments: February, September, and October, 2020; and January, 2021. In each of the mentioned months, participants had one week to answer the measures. Before filling the form, students were informed on the ethical aspects, as well as General Data Protection Regulation (Appendix 3). All participants answered the instruments in their entirety, which is a prerequisite for the inclusion of data in the study. As literature indicates positive solitude is negatively correlated with depression, anxiety, stress, and difficulties in emotion regulation, and loneliness is positively correlated with the mentioned variables, DERS and DASS-21 measures were utilized to analyze the criteria validity with the LPSS dimensions.

Data Analysis

To measure the LPSS suitability to the uni- and bi-factor models, confirmatory factor analysis was performed through structural equation modeling using the AMOS module of the statistical program Statistical Package for Social Sciences version 25.0 (SPSS, 2018) for Windows. The t-Student test was used to verify the LPSS scores comparison to two independent groups, while Analysis of Variance (One Way) - Post Hoc Tukey was applied to the comparison between three or more independent groups.

The instrument suitability to the uni- and bi-factor structures was investigated by confirmatory analysis, through the maximum likelihood estimation method, considering the following fit indices: absolute, incremental, and parsimonious fit. The absolute fit indices used in the study were: Chi-squared (χ^2), Goodness-of-Fit Index (GFI), Standardized Root Mean Squared Residual (SRMR), Root-Mean square Residual (RMR), and Root-Mean Square Errors of Approximation (RMSEA). As for the incremental adjustment indices, the following were considered: Tucker-Lewis Index (TLI), Normalized Fit Index (NFI), and Adjusted Goodness-of- Fit Index (AGFI). As for the parsimonious indices, the Normalized Chi-Squared (χ^2/df) and the Expected Cross-Validation Index (ECVI) models were utilized. According to the fit quality analysis of the factor models, the model must present at least three fit indexes with values higher than the minimum required for a good fit. Regarding the comparison between models, the one with the highest number of fit indices with adequate values was defined as the most appropriate (Hair, Black, Babin, Anderson& Tatham, 2009).

The concurrent and discriminant validity of the loneliness and positive solitude factors were tested with the DASS-21 and DERS scales by means of correlational evidence. Moreover, the LPSS means were compared to the DASS-21 classification for the discriminant validity. While the linearity relationship between the scales was investigated by Pearson's correlation coefficient, the coefficients were classified as negligible correlation ($r < .20$), weak correlation ($.20 < | r | < .40$), moderate correlation ($.40 < | r | < .60$), strong correlation ($.60 < | r | < .80$), and very strong correlation ($r > .80$) (Cohen, 1988).

Results

The absence of a statistically significant difference ($p > .05$) examined by the Chi-squared test indicated good adequacy of both models (see Table 3.3). This result can be observed by the ratio between χ^2 and degrees of freedom, where this estimate proved to be acceptable for the bi-factor model [χ^2 (34) = 92.511, p = .256; χ2 / df. = 2.711], as well as for the uni-factor model [χ^2 (34) = 154.663, p = .189; χ2 / df. = 4.549]. Considering the results for the absolute fit indices, the bi-factor model (GFI =.876; RMR =.092; ECVI =.734) showed evidence of better adequacy when compared to the uni-factor model (GFI = .852; RMR = .096; ECVI =.855). As for the incremental adjustment measures, estimates were also favourable to the bi-factor model: TLI (uni-factor = .857 vs. bi-factor: .907) and AGFI (uni-factor: .867 vs. bi-factor: .926). Regarding the NFI standardized

adjustment index, only the bi-factorial model (.901) reached the necessary adequacy estimate. The same occurred in the parsimonious adjustment CFI measure, in which only the bi- factorial model presented an estimate within the acceptable values (uni-factor: .889, bi-factor: .907). These findings show that the bi-factor model concentrated a higher compliance criterion for a robust model. The RMSEA index was the only one that presented unsatisfactory results for both models (bi-factor = .136; uni-factor = .147), where the estimates were above .100. It is noteworthy that this result does not prevent the robustness of the estimated models, since all the other parameters presented adequate values.

Table 3.3

Quality of fit indexes of the uni and bi-factorial models for the LPSS

Suitability parameters	Confirmatory Factorial Models	
	Uni-factor	Bi-factor
Global fit		
Parsiomonious adjustment index		
χ^2/d.f. (< 5.0)	4.549	2.711
ECVI	.855 (.752 - .968)	.734 (.640 – .838)
Absolute adjustment index		
SRMR	.08	.05
RMR	.096	.092
RMSEA	.147 (.136 – .157)	.136 (.125 – .147)
GFI	.852	.876
Incremental adjustment index		
TLI	.857	.907
NFI	.883	.901
AGFI	.867	.926
CFI	.889	.907
Cronbach's alpha		
Loneliness	.899	.796
Positive Solitude		.854

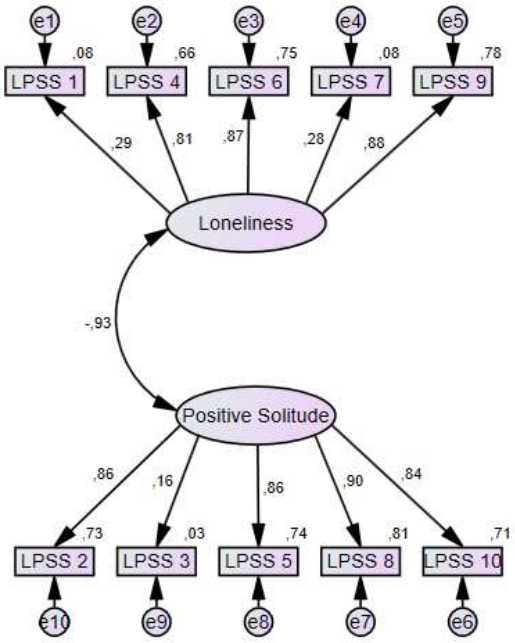
Note. Global fit indices and its parameters: $\chi^2$2/d.f.: values up to 5 indicate an adequate fit. SRMR and RMR: more adequate values are closer to zero. CFI and TLI: scores greater than .90 indicate the better adjustment. GFI and AGFI: values greater than or equal to .80 represent a satisfactory adjustment. RMSEA: lower values indicate an adjusted model. It is assumed the ideal RMSEA is between .05 and .08, with values of up to .10 being

accepted. ECVI: Lower values express the model with the best fit. NFI: values greater than or equal to .90 are acceptable.

Considering the proposed model, the factor loadings showed values from moderate (.300 - .599) to high (.600 - .799), pointing to an effective contribution of each item in its referred factor (see Figure 3.1). The items with the least predictive power were LPSS 1 (λ = .29) and LPSS 7 (λ = .28), in the loneliness factor; as well as the item LPSS 3 (λ = .16) in the positive solitude factor. However, the reliability analysis (Cronbach's alpha) did not indicate a representative improvement in this coefficient in both dimensions by excluding any item from the scale. Thus, all items were maintained in the estimated factor structure. Regarding the estimates of standardized errors (e), which represent the amount of variation of each scale item on its respective factor loading, all values were smaller than one standard deviation, suggesting a satisfactory precision of the factor loadings obtained. The variability was precisely less expressive in the items with the lowest factor loadings (1, 3, and 7). In addition, the model's diagram shows that the covariance estimates between the latent variables (loneliness and positive solitude) are negatively correlated with each other (r = - .93; p > .010).

Figure 3.1

LPSS Standardized coefficients, intercorrelations between factors and errors associated with each item in the bi-factorial model



It was found a significant result related to age when comparing the LPSS with the socio-demographic variables (see Table 3.4). Age groups were built based on emerging adulthood framework theory (Arnett, 2000). A correlation of weak magnitude was detected, being negative with loneliness (r_p = -.146; p < .001) and positive with positive solitude (r_p = .098; p < .010). Therefore, the participants with higher ages indicated lower scores in loneliness and, in contrast, higher scores in positive solitude. To detail the relationship between LPSS and age, scores were compared between age groups and the results showed more robust differences, presenting more clearly the dependency relationship between age and LPSS. The group aged 35 years or more showed a significantly lower mean (9.6 ± 4.1) of the loneliness factor when compared to the 17 to 24 group (12.3 ± 4.3) and the 25 to 34 group (12.4 ± 4.4; p < .001). Regarding the positive solitude means, there was a significant difference between groups (p = .001), detecting a higher mean in the age group of 35 years or more (19.1 ± 4.6) when compared to the 17 to 24 group (17.1 ± 4. 6) and the 25 to 34 group (16.8 ± 5.1).

Table 3.4

Sample profile's means, standard deviations for the LPSS

Variables		Estimates					
		n	*M*	*SD*	95% Confidence Interval for mean		*p*
					Inferior limit	Upper Limit	
Gender							
Loneliness	Male	179	12.6	4.3	12	13.3	.133[1]
	Female	542	11.9	4.4	11.5	12.2	
Positive Solitude	Male	179	16.8	4.6	16.2	17.5	.152[1]
	Female	542	17.3	4.8	16.9	17.8	
Academic Level							
Loneliness	Graduation	542	12.2	4.4	11.8	12.6	.371[1]
	Postgraduation	176	11.8	4.4	11.2	12.5	
Positive Solitude	Graduation	542	17.16	4.721	16.76	17.56	.607[1]
	Postgraduation	176	17.38	4.881	16.65	18.10	
Age	Loneliness	724	r_p = - .146; p < .001[2]				
	Positive Solitude		r_p = .098; p = .008[2]				

Variables		Estimates					
		n	*M*	*SD*	95% Confidence Interval for mean		*p*
					Inferior limit	Upper Limit	
Age range							
Loneliness	17 to 24	508	12.3[a]	4.3	12.0	12.7	< .001[3]
	25 to 34	142	12.4[a]	4.4	11.7	13.2	
	35 or more	74	9.6[b]	4.1	8.7	10.6	
Positive Solitude	17 to 24	508	17.1[b]	4.6	16.7	17.5	.001[3]
	25 to 34	142	16.8[b]	5.1	16.0	17.7	
	35 or more	74	19.1[a]	4.6	18.0	20.2	

Note. [1] Mann Whitney test U. [2] Pearson's correlation coefficient. [3] Analysis of Variance (One Way) Welch Correction – Post Hoc Scheffé, where means followed by the same letters do not differ at a significance of 5%.

When associated with DERS (see Table 3.5), significant and positive correlations were detected with solitude, indicating evidence of convergent validity. Loneliness was strongly correlated with the total scale (r = .635; p < .001), as well as the impulses dimension (r = .631; p < .001). Regarding other dimensions of the DERS, the evidence of convergent validity was of moderate magnitude (Non-acceptance: r =.499, p < .001; Consciousness: r = .446, p < .001; Strategies: r = .553, p < .001, and Clarity: r = .539, p < .001). DERS divergent validity was evidenced in relation to positive solitude, where the correlation estimates were significant and negative. Results showed evidence of moderate validity with the total sample (r = -.483; p < .001), as well as with most of the dimensions of this scale, except for objectives, where the correlation was not significant (see Table 3.5).

Table 3.5

Spearman's correlation coefficient of the LPSS compared to DERS and DASS-21

Scales	Subscales	LPSS	
		Loneliness	Positive Solitude
DERS			
	Non-acceptance	.499**	-.367**
	Goals	.197**	0.004
	Impulse	.631**	-.517**
	Awareness	.446**	-.549**
	Strategies	.553**	-.378**
	Clarity	.539**	-.458**
	Total	.635**	-.483**
DASS-21			
	Anxiety	.373**	-.229**
	Depression	.316**	-.116*
	Stress	.304**	-.114*

Note. ** Significant correlations at 1% ($p < .001$); * Significant correlations at 5% ($p < .05$); Classification: $r < .20$, negligible correlation; $.20 < r < .40$, weak correlation; $.40 < r < .60$, moderate correlation; $.60 < r < .80$, strong correlation; and $r > .80$, very strong correlation.

The correlation analysis between LPSS and DASS-21 showed significant positive correlations of weak magnitude (anxiety: $r = .373$, $p < .001$; depression: $r = .316$, $p < .001$; and stress: $r = .304$, $p < .001$) between the loneliness dimension and DASS-21 dimensions. On the other hand, negative correlations were detected between positive solitude and DASS-21, with the highest coefficient in the anxiety dimension ($r = -.229$; $p < .001$), followed by depression ($r = -.116$; $p < .010$ and stress ($r = -.114$; $p > .010$). Due to the low magnitude of the correlation estimates between LPSS and DASS-21, evidence of convergent (loneliness) and divergent (loneliness) validities is compromised. However, when the LPSS average scores were compared to the DASS-21 scale cut-off points (normal, mild, moderate, severe, and extremely severe), significant differences were shown to be robust, indicating evidence that the DASS-21 can differ the expected variations between the two scales (see Table 3.6).

Table 3.6

LPSS means and standard deviations according to DASS-21 cut-off points (95% CI)

DASS-21		Loneliness and positive solitude estimate					
		n	*M*	*SD*	95% CI for mean		p^1
					Inferior Limit	Superior Limit	
Anxiety							
Loneliness	Normal	350	10.6[c]	4.1	10.2	11.0	<.001
	Mild	48	12.5[b]	4.8	11.1	13.9	
	Moderate	134	13.0[ab]	3.9	12.3	13.7	
	Severe	48	13.9[a]	4.0	12.7	15.0	
	Extremaly Severe	144	14.1[a]	4.2	13.4	14.8	
Positive Solitude	Normal	350	18.3[a]	4.7	17.8	18.7	<.001
	Mild	48	17.3[a]	5.0	15.8	18.7	
	Moderate	134	15.9[b]	5.1	15.0	16.8	
	Severe	48	16.1[b]	4.6	14.7	17.4	
	Extremaly Severe	144	16.3[ab]	4.0	15.6	16.9	
Depression							
Loneliness	Normal	402	10.9[b]	4.3	10.5	11.4	<.001
	Mild	92	12.6[ab]	4.0	11.7	13.4	
	Moderate	121	13.4[ab]	4.3	12.6	14.2	
	Severe	49	14.6[a]	4.0	13.5	15.8	
	Extremaly Severe	60	14.2[a]	3.9	13.2	15.2	
Positive Solitude	Normal	402	17.6	5.1	17.1	18.1	.064
	Mild	92	17.4	4.4	16.5	18.3	
	Moderate	121	16.6	4.5	15.7	17.4	
	Severe	49	16.1	4.4	14.8	17.3	
	Extremaly Severe	60	16.6	3.7	15.7	17.6	
Stress							
Loneliness	Normal	488	11.4[c]	4.3	11.0	11.7	<.001
	Mild	89	13.1[b]	4.1	12.2	14.0	
	Moderate	81	12.7[bc]	4.5	11.7	13.7	
	Severe	49	15.2[a]	3.6	14.2	16.3	
	Extremaly Severe	17	15.5[a]	2.7	14.1	16.9	
Positive Solitude	Normal	488	17.4[a]	5.0	17.0	17.9	.020
	Mild	89	16.7[ab]	4.1	15.8	17.5	
	Moderate	81	17.9[a]	4.1	17.0	18.8	
	Severe	49	15.8[ab]	4.0	14.6	16.9	

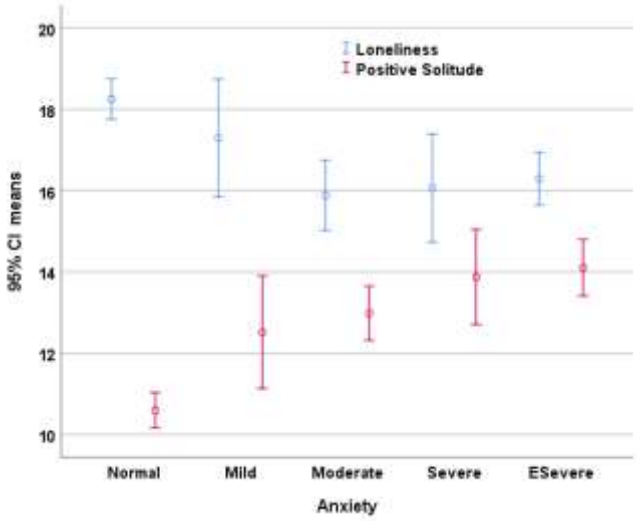
DASS-21	Loneliness and positive solitude estimate					
	n	*M*	*SD*	95% CI for mean		p^1
				Inferior Limit	Superior Limit	
Extremaly Severe	17	15.1[b]	4.0	13.1	17.2	

Note. [1]Analysis of variance (One Way) Post Hoc Bonferroni, where means followed by equal letters ([abc]) do not differ at 5% significance.

Considering the anxiety cut-off points, a statistically significant difference was identified when compared to the loneliness means ($p < .001$). It was found that the loneliness means were significantly higher in the extremely severe (14.1 ± 4.1) and severe (13.9 ± 4.0) classifications when compared to the mild (12.5 ± 4.8) and normal (10.6 ± 4.1) classification. Regarding the positive solitude mean scores comparison, the results also indicated significant differences ($p < .01$), so that the normal (18.3 ± 4.7) and mild (17.3 ± 5.0) classifications were significantly higher than the moderate (15.9 ± 5.1) and severe (16.1 ± 4.6) classifications mean scores (see Figure 3.2).

Figure 3.2

Mean scores and 95% CI for LPSS according to the cut-off points of the Anxiety dimension (DASS-21)

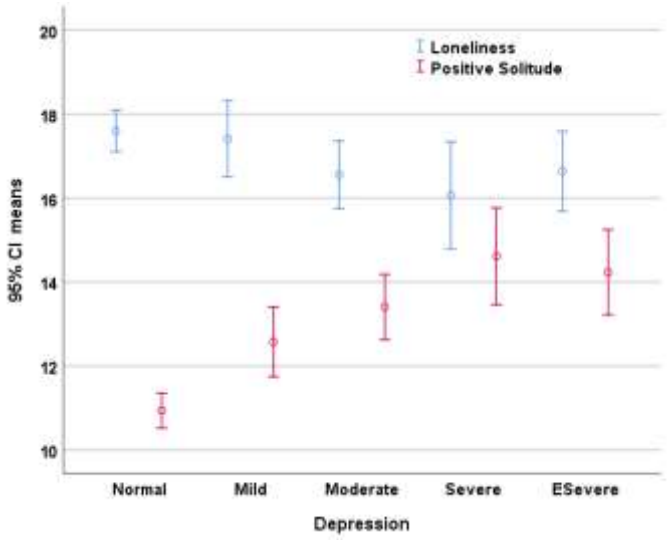


Concerning the depression cut-off points, there was a significant difference in the loneliness means ($p < .001$), with higher scores in the extremely severe (14.2 ± 3.9) and severe (14.6 ± 4.0) classifications when compared to the normal (10.9 ± 4.3)

classification. The differences were not representative (p = .064) when compared to the positive solitude means (see Figure 3.3).

Figure 3.3

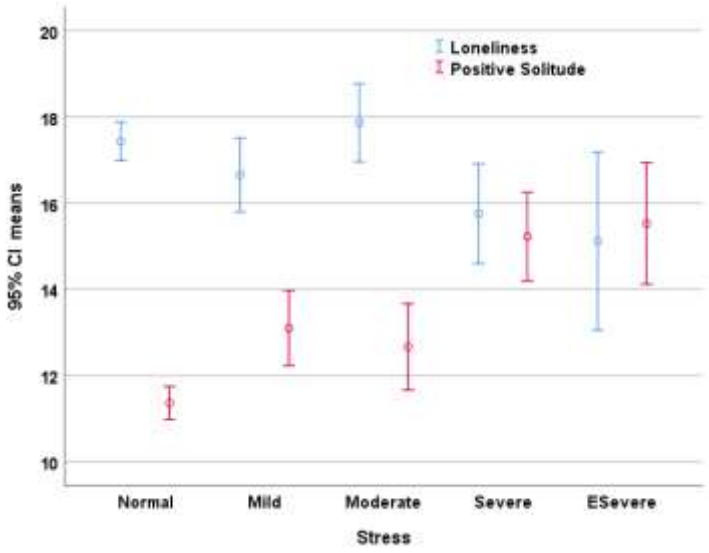
Mean Scores and 95% CI for LPSS according to the cut-off points of the Depression dimension (DASS-21)



Considering the stress cut-off points, it was found a significant difference (p < .001) on loneliness, with higher means in the extremely severe (15.5 ± 2.7) and severe (15.2 ± 3.6) classifications when compared to the group with normal classification (11.4 ± 4.3) and mild (13.1 ± 4.1). It was also found a significant difference (p = .020) for the positive solitude means, with a higher mean in the normal (17.4 ± 5.0) and moderate (17.9 ± 4.1) classifications than the severe (15.8 ± 4.0) classification (see Figure 3.4).

Figure 3.4

Mean scores and 95% CI for LPSS according to the cut-off points of the Stress dimension (DASS-21)



Discussion

This study analyzed the frequency of loneliness and positive solitude perception in 724 academic students aged 17-62 years and demonstrated positive psychometric indicators for the validation of the Loneliness and Positive Solitude scale (LPSS). The methodological procedures adopted ensure the quality of this instrument, from its conception, application, and data analysis. In addition, the associations between the proposed variables with emotion regulation, depression, anxiety, and stress corroborate with the literature findings (Cacioppo, Grippo, London, Goossens & Cacioppo, 2015, Moeller & Seehuus, 2019, O'Day, Morrison, Goldin, Gross & Heimberg, 2019, Kearns & Creaven, 2017).

Although the dimensions of solitude and positive solitude seem diametrically opposed, the statistical analysis indicated a bi-dimensional scale, instead of uni-dimensional. The reason for this greater statistical suitability of the two-factor model raises questions. One hypothesis is that spending time alone may be seen as something neutral (instead of positive and negative), generating a third possibility for one's perception (aloneness). In any case, a two-factor model offers a more thoroughly interpretation since the instrument evaluates the same situation (being alone) under two prisms (aversion and affinity).

As found in the BBC Loneliness Experiment (Barreto et al., 2021), this study's findings present a greater negative perception of being alone frequency (loneliness) for younger individuals. Conversely, the older the participants the greater their frequency of being alone in a positive way (positive solitude). This age pattern is also consistent with the Office for National Statistics (ONS, 2018) report, which analyzed a representative sample in the UK and found younger adults aged 16 to 24 years old reported feeling lonely more often than those in older age groups. One of the hypotheses to be raised regarding these data is that younger academic students, who are transitioning to the University, may experience decreasing levels of social support (DeWit, Karioja, Rye & Shain, 2011). Nevertheless, these findings add to the evidence that loneliness is not only an older people's concern.

When analyzing the correlations of the LPSS with the DASS-21 and the DERS, we noticed the loneliness variable tends to have stronger correlations than the positive solitude variable. These results indicate that the aversion of aloneness tends to be stronger than the affinity/appreciation of being solitary for some time. This "fear of loneliness" might be explained by the fact that we naturally like the feeling of belonging and, ever since the early ages, living in bands meant survival (Over, 2016, Harari, 2015).

Difficulties of emotion regulation has indicated a strong positive correlation with the loneliness dimension, which implies the greater one's difficulties to deal with stronger and/or unpleasant experiences, the greater their aversion to spending some time alone. Except for the goals subscale, all the others have shown moderate correlations with loneliness. It is noteworthy to indicate the definitions of such variables, as non-acceptance being the tendency to have a negative secondary or non-accepting reaction to one's own distress; impulse means difficulty to remain in control of one's behavior when experiencing negative emotions; awareness reflects inattention to emotional responses; strategies illustrates the belief that there is little one can do to regulate oneself once upset; and clarity, that refers to the extent to which an individual knows and is clear about his or her emotions (LA County, 2020). On the other hand, as expected, emotion regulation difficulties have shown a moderate negative correlation with the positive solitude dimension. These correlational data confirm the questions conceptual validity of both LPSS dimensions so that loneliness reflects difficulties in face of the fact being alone, while the positive solitude refers to a circumstance in which the individual manages to spend the solitary situation in a healthy way.

Likewise, the loneliness dimension was positively associated with depression, anxiety, and stress, while positive solitude showed negative correlations. Although the correlations between LPSS and DASS-21 scores were weak, this relationship became more evident when the DASS-21 cut-off points means were analyzed. The differences between the classifications mean scores endorse the idea which one's interpretation of being alone might be an important aspect for his/her mental health.

Interestingly, when examining the depression variable, the extremely severe classification indicated lower values of loneliness than the severe classification, despite not presenting statistically different means. Similarly, this occurred in reverse with the positive solitude relationship with anxiety and depression variables. It can be inferred, as a justification for these data, the hypothesis that people with higher levels of depression and anxiety tend to rationalize the desire to be alone, namely, they persuade themselves that being solitary is more beneficial, because they prefer avoiding social contact (Fernández-Theoduloz et al., 2019).

This study's main limitation is there was no concurrent scale to evaluate more similar constructs to those presented by the LPSS. When this scale was developed and applied, the Brief Scale of Fear of Loneliness (BSFL) (Ventura-León, Sánchez-Villena, Caycho-Rodríguez, Barboza-Palomino & Rubio, 2020) and Positive Solitude Scale (Palgi et al., 2021) studies, which analyzed analogous constructs to the loneliness and positive solitude dimensions, had not yet been published. However, we could have used a loneliness scale. Another limitation refers to the sample, which, although large, is limited to academic students. Thus, it is recommended that future studies investigate this scale validation with a more varied sample profile and use instruments with more similar constructs to the proposed dimensions.

This study filled a gap in the field of solitude scales since it analyzes the perception of being alone under the prism of two dimensions: loneliness and positive solitude. It also highlights the positive solitude, which is an important construct that needs further scientific exploration. This instrument allows health professionals to develop more sustained intervention plans, as well as to assess the effects of the intervention itself. Likewise, it is possible to examine associations between loneliness and positive solitude with other constructs.

This scale offers a provocative and contemplative question to the respondent: "how do I relate to myself while I am alone"? The themes of the Loneliness and Positive

Solitude Scale (LPSS) are increasingly relevant, and we expect this instrument allows a deeper understanding of such a subjective and not much explored topic.

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Study 4 – Effects of the Interculturality and Mindfulness Program (PIM) in university students: a quasi-experimental study

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Abstract

Rates of mental health issues have been increasing among university students. Literature has evinced the role of social and emotional skills in promoting psychological well-being. This study investigates the effects of the Interculturality and Mindfulness Program (PIM) on academic students on mindfulness, emotional regulation, depression, anxiety, stress, life satisfaction, optimism, positive solitude, and loneliness. A quasi-experimental research was conducted, with pre and post-test comparative measurements in three groups: in-person (IG), synchronous online (OG), and passive control (CG). A diverse group of students (n = 150; Mean age=25.4 ± 8.31) participated from two universities in Portugal. When compared to the CG, both active groups (IG and OG) have shown a beneficial interaction effect in acceptance, positive solitude, optimism, and mindfulness. The IG demonstrated a positive interaction effect in awareness and satisfaction with life, whereas the OG indicated a favorable interaction effect in impulse. When analyzing the intra-group effects, both active groups presented a significant improvement in stress, emotion regulation, mindfulness, positive solitude, and optimism. The OG demonstrated an improvement in the awareness to emotional responses and loneliness. Reductions in anxiety and depression were non-significative in all groups. This research main limitations are students were not randomly assigned and groups were heterogeneous in nationality, education level and sex. Nonetheless, PIM has indicated beneficial results in both IG and OG and is a promising intervention for the prevention of mental health issues (e.g., stress, difficulties in emotional regulation, and loneliness), as well as for the promotion of well-being (e.g., positive solitude, mindfulness, life satisfaction, and optimism).

Keywords: interculturality, mindfulness, intervention, university students, in-person group, online group

Introduction

University students psychological stress is increasing in terms of severity and prevalence and has become a public health concern due to negative effects on personal development and academic performance (Hohenshil, Amundson & Niles, 2013). The World Mental Health International College Student project (Auerbach et al., 2018), coordinated by the World Health Organization (WHO), surveyed 13.984 students from 19 universities in eight countries (spanning four continents) investigating mental disorders among first-year college students. Around one third of the participants presented at least one DSM–IV anxiety, mood, or substance disorder (Auerbach et al., 2018).

Mental issues, if not receiving the necessary attention, besides affecting student's performance can lead to academic dropout. Respondek, Seufert, Stupnisky & Nett (2017) analyzed predictors of academic success and dropout intention through a cross-sectional survey administered to 883 undergraduate students across all disciplines of a German university. The prediction of dropout intention by perceived academic control was fully mediated via anxiety, demonstrating the importance of students learning strategies to deal with this experience. Lipson and Eisenberg (2018) investigated the relationship between mental health and academic performance by examining data from 3.556 students at four *campi* in the United States. Through multivariable models, it was found that mental health problems were a significant predictor of academic dissatisfaction and dropout intentions, while positive mental health was a significant predictor of satisfaction and persistence. In Portugal, the dropout rate of undergraduate students has increased and is currently 29% (DGEEC & DSEE, 2018).

One of the factors that tend to increase anxiety in university students is the adaptation to the new context. Undergraduates encounter a social challenge as they enter into a new environment and interact with a greater diversity of cultures. The university of Algarve (UAlg, Portugal), for instance, receives students from 86 different nationalities, making 25% of the student population comprising foreign students (Público, 2019, Rodrigues, 2019). Besides international scholars, there is a consistent number of students from the same country coming from different regions. Approximately 28% of Portuguese university students enter a higher education institution located outside the region of their household residence (DGEEC & DSEE, 2018). Still, other cultural varieties are found in an academic population (e.g., ethnicity, language, religion, behaviours). Therefore, students invariably undergo a process of acculturation, which occurs when an individual

seeks adjustment in a new cultural context (Jacob, 2020). Poorly managed acculturative stress can cause feelings of marginality and alienation (Berry, Kim, Minde & Mok, 1987).

In order to promote social integration, interventions based on Cross-Cultural Psychology may be valuable. Cross-Cultural Psychology is "the study of similarities and differences in individual psychological functioning in various cultural and ethnocultural groups" (Berry, Poortinga, Segall, Dasen, 2002, p. 3). By acquiring a better knowledge of other cultures, as well as experiencing different paradigms, students may improve their intercultural competence, which is the capacity to interact adequately in cross-cultural situations, as well as in a variety of cultural contexts (Bennett & Bennett, 2004). A wide array of interventions has been implemented to foster intercultural competence, but robust studies to assess their effects are limited (Zhang & Zhou, 2019).

In contrast, many studies with Mindfulness-based interventions (MBIs) have been published as an alternative to promoting mental health, such as well-being and emotion regulation, among university students and have found promising outcomes (Chiodelli et al., 2020, Dawson et al., 2020). Mindfulness can be defined as a moment-to-moment, non-judgmental awareness, cultivated by paying attention deliberately (Kabat-Zinn, 2015). MBIs have been applied since the late 70's, when Jon Kabat-Zinn designed the Mindfulness-based Stress Reduction program (MBSR), an 8-week course. Throughout the years, the positive results of this secular, evidence-based intervention has encouraged the development of other mindfulness-based programs with different goals for either clinical, or non-clinical populations (Chiodelli et al., 2018, Chiodelli, Mello, Jesus & Andreatta, 2020, Williams, Russell & Russell, 2008, Cusens, Duggan, Thorne & Burch, 2010, Russell, 2011).

As the implementation of group interventions seems to be a suitable initiative to promote mental health in the university setting, the Interculturality and Mindfulness Program (PIM) was developed in 2018 (Chiodelli et al., 2021a). This program was designed to improve both interpersonal (relational) and intrapersonal (emotional) skills in academic students. Thus, the aim of this study is to examine the effects of PIM on university students in three distinct groups (in-person, online, and passive control) on the following variables: mindfulness, emotional regulation, depression, anxiety, stress, life satisfaction, optimism, positive solitude, and loneliness.

Method

Design

The present study used a quasi-experimental design, with pre- and post-test comparative measurements in three groups: in-person (IG), online (OG) and control (CG) (Creswell & Creswell, 2018).

Participants

University students regularly enrolled in different courses at UAlg, located in the south of Portugal, participated in the in-person and online programs, whereas students from Universidade de Beja joined the control group. In total, the three groups consisted of 150 participants, with a mean age of 25.4 (SD = 8.31, minimum of 17 years old and maximum of 64 years old). Considering the participants who completed the pre and post-test, 70 (74.3% female) belonged to the IG, 44 (90% female) were from the OG, and 36 (69.4% female) students were from the CG. Participants' courses totalled 39, and the most frequent were: Management (24; 16%), Psychology (14; 9.3%), Water and Coast Management (10; 6.6%), Biomedical Sciences (8; 5.3%) and Computer Engineering (6; 4%). Table 4.1 presents data on gender, age, and nationality. As inclusion criteria, participants should attend at least four intervention sessions (66.66% attendance), being regularly enrolled in the university, and have responded to the pre-test (T1) and post-test (T2) instruments.

Table 4.1

General sample characterization

Variables	Groups				*p*
	Total (*n* = 150)	In-Person (IG) (*n* = 70)	Online (OG) (*n* = 44)	Control (CG) (*n* = 36)	
	n (%)				
Sex					.041[2]
Male	33 (22)	18 (25.7)	4 (9.1)	11 (30.6)	
Female	117 (78)	52 (74.3)	40 (90.9)	25 (69.4)	
Age[1]	25.5 ± 8.3	26.3 ± 7.7	24.1 ± 6.2	25.6 ± 11.2	.269[3]
Nationality					<.001[4]
Brazilian	65 (43.3)	52 (74.3)	11 (25.0)	2 (5.6)	
Portuguese	81 (54)	18 (25.7)	33 (75.0)	30 (83.3)	
Cape Verdean & Mozambican	4 (2.7)	-	-	4 (11.2)	
Education					.033

Variables	Groups				
	Total (n = 150)	In-Person (IG) (n = 70)	Online (OG) (n = 44)	Control (CG) (n = 36)	p
	n (%)				
Higher Professional Technical Courses	3 (2)	1 (1.4)	-	2 (5.5)	
Undergraduate	108 (72)	47 (67.1)	30 (68.1)	31 (86.1)	
Master	27 (18)	13 (18.5)	11 (25)	3 (8.3)	
Doctorate	12 (8)	9 (12.8)	3 (6.8)	-	

Note. [1] Missing Data (n = 8; 5.3%); [2] Pearson's Chi-square test; [3] One-way ANOVA; [4] Fisher's exact test.

Participants' socio demographic data demonstrates homogeneity in age in the three groups, but has shown heterogeneity in gender, education level, and nationality. The CG had significantly fewer women (69.4%) than the IG (74.3%) and OG (90.9%); whereas the IG had fewer Portuguese students (25.7%) compared to the OG (75%) and CG (83.3%). Even though most participants were undergraduates in the three groups, IG had significatively more doctorates than OG and CG, whereas OG showed a higher percentage of master students than IG and CG.

Measures

The measures applied in the present study are shown below.

Sociodemographic questionnaire

Developed by the authors. This is a brief form containing questions regarding participant's sociodemographic data, as well as health and psychological conditions, in order to certify if the program is suitable for him/her (Appendix 1).

Difficulties in Emotion Regulation Scale (DERS)

Developed by Gratz and Roemer (2004) and translated and adapted to European Portuguese by Coutinho, Ribeiro, Ferreirinha, and Dias (2010). It assesses emotional deregulation in six domains, quoted with their respective Cronbach alphas: "Non-acceptance" - nonacceptance of emotional responses (.86), "Goals"- difficulties engaging in a goal-directed behaviour (.85), "Impulse" - impulse control difficulties (.80), "Awareness"- lack of emotional awareness (.74), "Strategies"- limited access to emotion

regulation strategies (.88), and "Clarity"- lack of emotional clarity (.75). It contains 36 items on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always). The scale indicated high values of internal consistency (.93) in the study of Coutinho, Ribeiro, Ferreirinha, and Dias (2010). In the present study, total DERS Cronbach's alpha ranged from .93 to .95. Reliability values for the subscales in this investigation were: Non-Acceptance (.89 to .92), Goals (.84 to .90), Impulse (.82 to .90), Awareness (.82 to .86), Strategies (.87 to .91), and Clarity (.78 to .86) (Appendix 4).

Depression, Anxiety and Stress Scale (DASS-21)

Developed by Lovibond and Lovibond (1995) and translated and adapted to European Portuguese by Apóstolo, Mendes, and Azeredo (2006). DASS-21 contains a set of three Likert-type subscales, with four points ranging from 0 ("did not apply to me at all") to 3 ("applied to me very much or most of the time"). Each subscale consists of seven items that assess the emotional states of depression, anxiety, and stress, with a maximum score of 42. Cronbach's alpha was .92 for depression, .90 for stress, and .86 for anxiety. The analysis and distribution of factors among the subscales indicated that the structure of the three distinct factors was adequate. In the present study, Cronbach's alpha values ranged from .82 to .90 for depression; from .77 to .92 for anxiety; and from .77 to .92 for stress (Appendix 5).

Loneliness and Positive Solitude Scale (LPSS)

Developed by Chiodelli et al. (2021c), this scale is a bi-dimensional, 10-item, self-report measure created to assess how often spending time with oneself generates negative or positive thoughts and sensations. The higher the scores in the loneliness dimension, the higher one's aversion to being alone; and the greater the score in the positive solitude dimension the greater one's perspective of being alone as something important and necessary. Cronbach's alpha was .79 for loneliness and .85 for positive solitude. In the current study, Cronbach's alpha values ranged from .75 to .90 for loneliness and from .83 to .88 for positive solitude (Appendix 3).

Philadelphia Mindfulness Scale (PHLMS)

Developed by Cardaciotto, Herbert, Forman, Moitra, and Farrow (2008), validated and adapted to the European Portuguese by Teixeira, Ferreira, and Pereira (2017). It consists of a 5-point Likert scale and 20 items, divided in two dimensions:

"Acceptance" and "Awareness." Both dimensions presented internal consistency of .85 and .77, respectively. In the present study, Cronbach's alpha ranged from .76 to .86 for acceptance and from .76 to .90 for awareness *(Appendix 7).*

Freiburg Mindfulness Inventory (FMI)

Short Version by Walach, Buchheld, Buttenmuller, Kleinknecht, and Schmidt (2006) was translated and adapted by Hirayama, Milani, Rodrigues, Barros & Alexandre (2014). This instrument measures mindfulness as a general construct with several interrelated facets, namely, a cognitive component, a procedural component, an experience acceptance component, and a non-acceptance component. This instrument consists of 14 items and the response format is Likert type, with responses between 1 ("rarely") and 4 ("almost always"). In this study, Cronbach's alpha values ranged from .80 to .89 (Appendix 8).

Satisfaction with Life Scale (SWLS)

Developed by Diener, Emmons, Larsen, and Griffin (1985), to assess the subjective judgment that each individual makes about the quality of their own life. It is a one-dimensional 5-item instrument, and the answer format is Likert type, with answers between 1 ("strongly disagree") and 5 ("strongly agree"), thus obtaining a minimum score of 5 (lowest satisfaction) and a maximum of 35 (highest satisfaction). It was adapted and validated in Portugal by Neto, Barros, and Barros (1990) and the authors found an internal consistency of .78. In this study, Cronbach's alpha values ranged from .77 to .87 (Appendix 9).

Optimism Scale

Developed by Oliveira (1998) to the Portuguese population. This scale includes four items that constitute a dimension. The answer is given on an ordinal scale of 5 positions, the answer format is Likert type, with answers between 1 ("totally disagree") and 5 ("totally agree"). Its internal consistency is .80. In this study, Cronbach's alpha values ranged from .81 to .88 (Appendix 10).

Procedures

Students were invited to participate through the University's institutional e-mail, posters, and social media. Two weeks in advance of the first session, facilitators offered

a PIM presentation workshop (session zero). In session 1, participants were required to complete and sign the free and informed consent form (Appendix 2).

In the IG, sessions were held in a spacious classroom at the University, with chairs arranged in a circle. Screen projections and a whiteboard were used as a support for the proposed activities. The OG was synchronous, conducted through *Zoom* video conference platform, and had the same duration as the IG. Activities which involved more physical interactions had to be adapted when transposing from IG to OG. However, the activities' main intentions were not modified. The CG was a wait-list group for the Soft Skills for Life Program (Mello, 2021) from University of Beja, also located in the south of Portugal.

Six PIMs' editions were applied in the face-to face format (IG) between April 2018 to December 2019; whereas four were held via videoconference (OG) and occurred between April and December 2020. The CG was conducted between February and March 2021. Students' adherence from both intervention formats are shown in Figures 4.1 and 4.2.

Figure 4.1

Students' adherence in the In-person groups (IG)

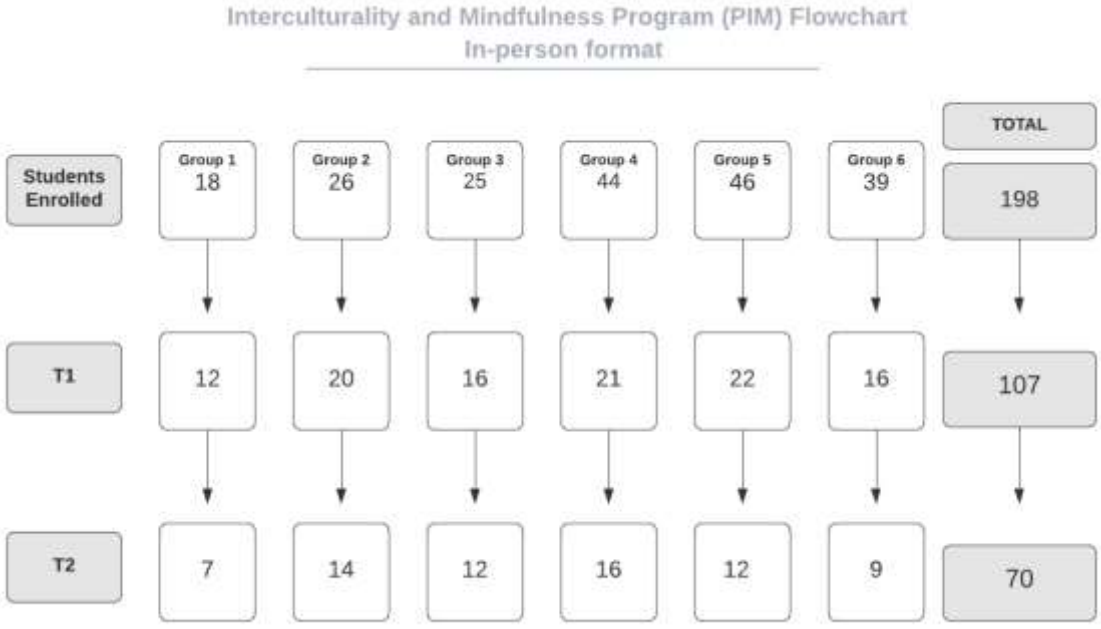
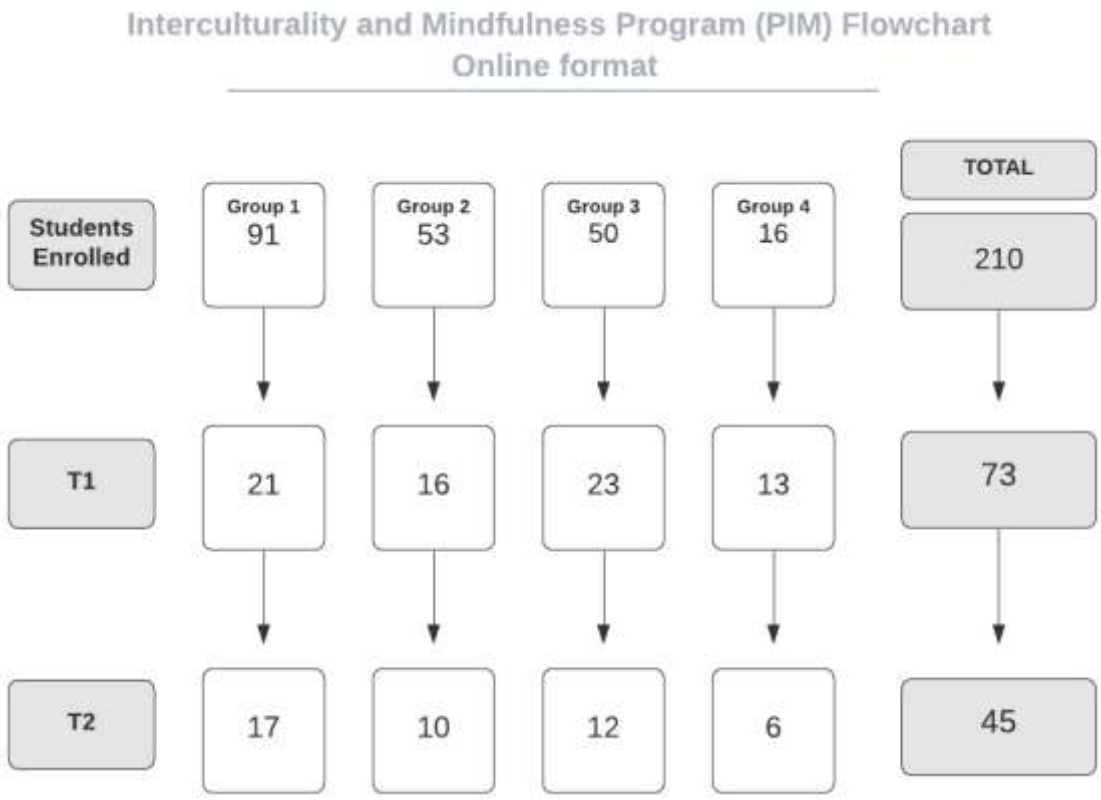


Figure 4.2

Students' adherence in the online groups (OG)



Data Collection

Psychometric tests were applied in the first and in the last (sixth) session. Whereas these instruments were answered via paper and pen in the IG, the psychometric tests, informed consent form, as well as the data protection term were completed via Google Forms in the OG. Students from CG filled the survey via Google Forms, too.

Intervention

The Interculturality and Mindfulness program (PIM) was developed and facilitated by Roberto Chiodelli, Diana Fernandes Oliveira, and Luana T. Nesi de Mello, all Psychology doctoral students under the supervision of Professor Saúl Neves de Jesus. Roberto Chiodelli is a psychologist, M.S. in Clinical Psychology, and a facilitator of the Mindfulness Protocol Body in Mind Training (Russell, 2015). Diana Fernandes Oliveira is a psychologist, M.S. in Health and Clinical Psychology, with advanced and specialized training in third-generation therapies. Luana T. Nesi de Mello is a psychologist and the head facilitator of the "Soft Skills for Life" program, and in graduate and postgraduate

courses. Most interventions were conducted in pairs, except for one, that had a single facilitator.

PIM consists of six weekly sessions lasting two hours each (see Table 4.2). At the end of each meeting, through e-mail and *WhatsApp* (social media), participants received a brief summary of what was worked on, as well as the audio file for the guided meditation practices. Between each session, participants received a message of encouragement to do the weekly task practices (mindfulness), which was sent along with a short video, poem, or phrase associated to themes from the previous session.

Table 4.2

Interculturality and Mindfulness Program (PIM) overview

Sessions	Activities
0) Program Presentation	Welcoming; "Ice-breaker": ball game; Program presentation; Mindfulness practice
1) Introduction and group integration "Land in sight: welcome to the University environment!"/ Being present	Facilitators and program Introduction; "Ice-breakers": planning seats and rotatory interviews; "Culture Shock" activity; Mindfulness presentation and body scan
2) Positive Intercultural Attitude I "Anchorage"/ Mindfulness in the daily routine	"Sharing"; "Warm-up": "Rá" game; "Ice-breaker": Three sentences activity; Difficulties and strategies to acculturation; Informal Mindfulness meditation: Mindful eating practice
3) Positive Intercultural Attitude II "(Re) Socialization"/ Body and Emotions	"Sharing"; "Warm-up": Imaginary objects activity; Cultural knowledge: chocolate game; Stages of cultural adaptation; Acceptance; Emotions in the body practice
4) Intercultural Communication I "Verbal and nonverbal communication"/ Self Compassion	"Sharing"; "Warm-up": 1, 2, 3 game; Behavioral differences in communication; Self-compassion; Walking Mindfully practice; Loving-Kindness Meditation
5) Intercultural Communication II "What do we have in common?"/ Observing thoughts and Gratitude	"Sharing"; Warm-up: "Pim game" and "Hot Potato"; "Proverb's game"; Group bubbles; Observing thoughts; Gratitude
6) Program Completion "Weaving the Support Network"/ Week 6 is the rest of our lives	"Sharing"; Warm-up: "Weaving Connections activity"; Social support network; Rhythmic Breath meditation; "Week 6 is the rest of our lives"; Final Celebration

Activities and content from the perspective of interculturality are based on the works of Sam and Berry (2016), Deardorff, Wit, Heyl and Adams (2012), and Sebben (2013). Most group dynamics were adapted from intercultural competence interventions, as well as playful games of psychodrama. Other activities were developed by the authors. Regarding mindfulness, the program was adapted from the book "Mindfulness: How to Find Peace in a Frantic World" by Williams and Penman (2015). Corporal practices are usually executed before formal practices of mindfulness, which occur in silence and in a static way. These body activation exercises are based on the movement exercises of the Body in Mind training protocol (Russell, 2015), as well as on the grounding exercise (bow and arch), a central practice of Bioenergetic Psychotherapy (Lowen & Lowen, 1977). Further details on PIM can be found on the protocol report (Chiodelli et al., 2021a).

Data Analysis

The statistical data treatment was performed with the aid of the software *Statistical Package for Social Sciences* version 25.0 (SPSS Inc., Chicago, IL, USA, 2019) for *Windows*, with a 5% significance level. Results were presented using descriptive statistics through absolute and relative distributions (*n* - %), as well as through mean and standard deviation, with study of symmetry using the Kolmogorov-Smirnov test.

Effect analysis on the groups was performed using Generalized Estimating Equation models, linear model, followed by Bonferroni's multiple comparisons test. Impact identification in each group was investigated by estimating Cohen's *d* effect size.

Analysis involving the intra-group variables comparison, the Generalized Estimating Equations (GEE) – Post hoc Bonferroni was utilized. In the comparison of continuous variables between groups, the *One-way variance analysis* – Post Hoc *Sheffé* was used. The Student *t*-test was applied when comparing two independent groups.

Regarding the categorical variable comparisons between groups, Pearson's chi-square test was used, as well as Fisher's exact test (Monte Carlo simulation). The Cochran Q test was utilized when this analysis occurred intra-group (dependent data).

Results

Generalized estimating equation (GEE) models' data of each variable over the three groups pre and post intervention are found on Table 4.3. Three significant differences in baseline means between groups were detected. The awareness (PHMLS)

baseline mean for the IG was significantly lower than the estimates of OG and CG (p = .017). In addition, goals (DERS) dimension was significantly lower in T1 for the CG when compared to IG and OG (p = .016). Lastly, the awareness (DERS) baseline mean was higher in CG when associated with the two other groups (p = <.001). Figure 4.3 presents the evolution of each dimension in the three groups.

Table 4.3

Generalized estimating equation (GEE) models for evaluating the PIM effect over time

Evaluations in time	Groups						Between groups B	Interaction Effects (GEE) C
	In-person (IG) (n = 70)		Online (OG) (n = 44)		Control (CG) (n = 36)			
	M	*SD*	*M*	*SD*	*M*	*SD*		
T1_Awareness (PHMLS)	23.3[b]	6.1	26.5[a]	5.8	25.8[a]	6.3	.017	.002
T2_Awareness (PHMLS)	26.7	6.3	26.9	4.1	26.4	5.8	.906	
Intra-group A	.002		.168		.502			
T2 – T1	Δ=3.4; d=.548		Δ=.4; d=.081		Δ=.6; d=.099			
T1_Acceptance (PHMLS)	15.8	7.5	16.0	6.6	18.6	6.9	.113	<.001
T2_Acceptance (PHMLS)	19.2	6.4	19.8	5.3	18.3	6.7	.537	
Intra-group A	<.001		.002		.859			
T2 – T1	Δ=3.4; d=.489		Δ=3.7; d=.622		Δ=-.3; d=-.044			
T1_Non-accept. (DERS)	14.0	6.1	14.1	5.6	12.6	6.2	.491	.158
T2_Non-accept. (DERS)	11.5	6.3	12.1	5.7	12.0	5.4	.849	
Intra-group A	.001		.029		.456			
T2 – T1	Δ=-2.5; d=-.403		Δ=-2.0; d=-.354		Δ=-.6; d=-.103			
T1_Goals (DERS)	16.3[a]	4.5	17.6[a]	4.8	14.7[b]	3.8	.016	.190
T2_Goals (DERS)	15.5	4.5[a]	15.5[a]	4.1	13.4[b]	3.8	.045	
Intra-group A	.143		.001		.039			

Evaluations in time	Groups						Between groups B	Interaction Effects (GEE) C
	In-person (IG) (*n* = 70)		Online (OG) (*n* = 44)		Control (CG) (*n* = 36)			
	M	*SD*	*M*	*SD*	*M*	*SD*		
T2 – T1	Δ=-.7; d=-.156		Δ=-2.1; d=-.472		Δ=-1.3; d=-.342			
T1_ Impulse (DERS)	12.6	5.0	13.9	4.8	12.4	3.9	.295	.025
T2_ Impulse (DERS)	11.9	4.9	11.8	3.8	12.6	4.7	.655	
Intra-group A	.209		.002		.710			
T2 – T1	Δ=-.7; d=-.141		Δ=-2.1; d=-.488		Δ=.2; d=.051			
T1_Awareness (DERS)	15.4[b]	5.1	15.2[b]	4.7	21.8[a]	5.1	<.001	.892
T2_ Awareness (DERS)	14.2[b]	5.1	13.6[b]	4.7	20.7[a]	4.8	<.001	
Intra-group A	.051		.040		.068			
T2 – T1	Δ=-1.3; d=-.255		Δ=-1.6; d=-.340		Δ=-1.1; d=-.222			
T1_Strategy (DERS)	18.7	7.1	18.6	6.3	18.2	6.5	.939	.254
T2_Strategy (DERS)	16.0	7.1	16.2	6.4	17.2	4.8	.602	
Intra-group A	<.001		.026		.263			
T2 – T1	Δ=-2.7; d=-.380		Δ=-2.4; d=-.338		Δ=-1.0; d=-.177			
T1_Clarity (DERS)	11.6	4.0	11.1	3.1	12.9	1.7	.057	.064
T2_Clarity (DERS)	10.2[b]	4.0	9.8[b]	3.3	12.8[a]	1.5	<.001	
Intra-group A	.001		.042		.679			
T2 – T1	Δ=-1.4; d=-.350		Δ=-1.2; d=-.375		Δ=-.1; d=-.063			
T1_DERS total	88.5	22.8	90.3	21.3	92.7	18.4	.658	.131
T2_DERS total	79.4[b]	23.6	78.9[b]	19.7	88.7[a]	16.6	.044	

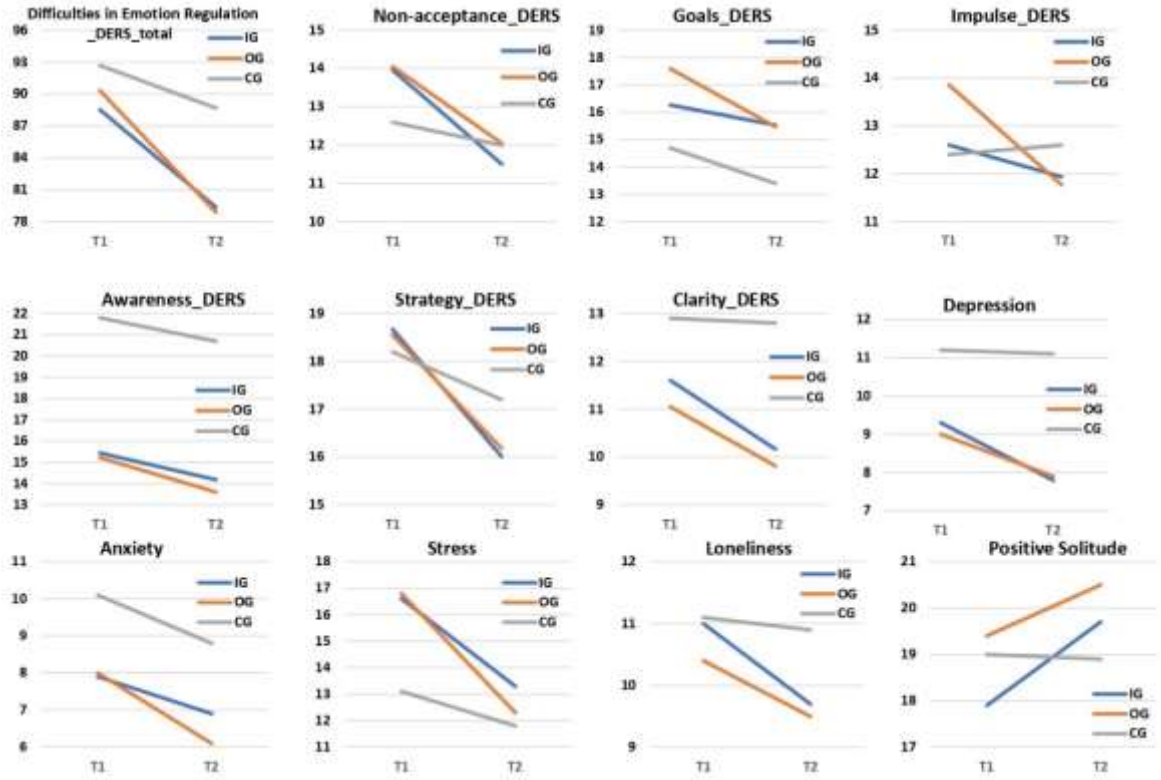
Evaluations in time	Groups						Between groups B	Interaction Effects (GEE) [C]
	In-person (IG) (n = 70)		Online (OG) (n = 44)		Control (CG) (n = 36)			
	M	*SD*	*M*	*SD*	*M*	*SD*		
Intra-group [A]	<.001		.002		.118			
T2 – T1	Δ=-9.2; d=-.397		Δ=-11.4; d=-.566		Δ=-4.0; d=-.229			
T1_Loneliness	11.0	3.8	10.4	3.5	11.1	4.2	.705	.393
T2_Loneliness	9.7	3.2	9.5	3.4	10.9	3.9	.215	
Intra-group [A]	.060		.041		.724			
T2 – T1	Δ=-1.3; d=-.371		Δ=-.9; d=-.261		Δ=-.2; d=-.049			
T1_P. Solitude	17.9	4.6	19.4	3.6	19.0	3.9	.353	.013
T2_P. Solitude	19.7	3.7	20.5	3.5	18.9	3.3	.126	
Intra-group [A]	.039		.001		.873			
T2 – T1	Δ=1.8; d=.434		Δ=1.1; d=.310		Δ=-.1; d=-.028			
T1_SWLS	17.7	4.0	18.5	4.1	18.5	4.1	.441	.017
T2_SWLS	19.4	3.9	18.9	3,8	18.7	4.2	.665	
Intra-group [A]	<.001		.278		.737			
T2 – T1	Δ=1.7; d=.430		Δ=.4; d=.101		Δ=.2; d=.048			
T1_Optimism	16.6	3.5	16.2	3.2	16.3	2.6	.784	.019
T2_Optimism	17.3	2.8	17.1	2.6	16.1	2.3	.062	
Intra-group [A]	.010		.012		.502			
T2 – T1	Δ=.78; d=.222		Δ=.98; d=.310		Δ=-.2; d=-.081			
T1_Mindfulness	35.8	8.3	35.9	7.1	36.7	7.6	.855	<.001
T2_Mindfulness	40.2[a]	6.8	39.7[a]	5.9	36.1[b]	7.1	.008	
Intra-group [A]	<.001		.005		.469			
T2 – T1	Δ=4.4; d=.582		Δ=3.8; d=.584		Δ=-.6; d=-.154			
T1_Depression	9.3	7.9	9.0	9.2	11.2	9.7	.481	.739
T2_Depression	7.8	7.0	7.9	6.8	11.1	10.2	.097	
Intra-group [A]	.144		.393		.972			
T2 – T1	Δ=-1.5; d=-.201		Δ=-1.1; d=-.137		Δ=-.1; d=-.483			
T1_Anxiety	7.9	7.9	8.0	8.2	10.1	9.5	.414	.850
T2_Anxiety	6.9	6.8	6.1	6.8	8.8	9.3	.256	

Evaluations in time	Groups						Between groups B	Interaction Effects (GEE) C
	In-person (IG) (*n* = 70)		Online (OG) (*n* = 44)		Control (CG) (*n* = 36)			
	M	*SD*	*M*	*SD*	*M*	*SD*		
Intra-group A	.238		.133		.447			
T2 – T1	Δ=-1.0; d=-.136		Δ=-1.9; d=-.253		Δ=-1.3; d=-.484			
T1_Stress	16.6	9.0	16.8	11.2	13.1	8.8	.147	.193
T2_Stress	13.3	7.4	12.3	7.4	11.8	8.8	.791	
Intra-group A	.004		.002		.349			
T2 – T1	Δ=-3.3; d=-.402		Δ=-4.5; d=.484		Δ=-1.3; d=-.484			

Note. A: Intra-group mean comparison – EEG between times – Post Hoc Bonferroni; B: Mean comparison between groups – ANOVA (One Way) – Post Hoc Bonferroni where means followed by equal lowercase letters (^{abc}) do not differ at a significance of 5%; C: EEG - Linear model for effects of time, group, and interaction - Post Hoc Bonferroni Δ: variation between mean scores; d: Cohen's d effect size.

Figure 4.3

PIM's pre and post-test progression of each variable means



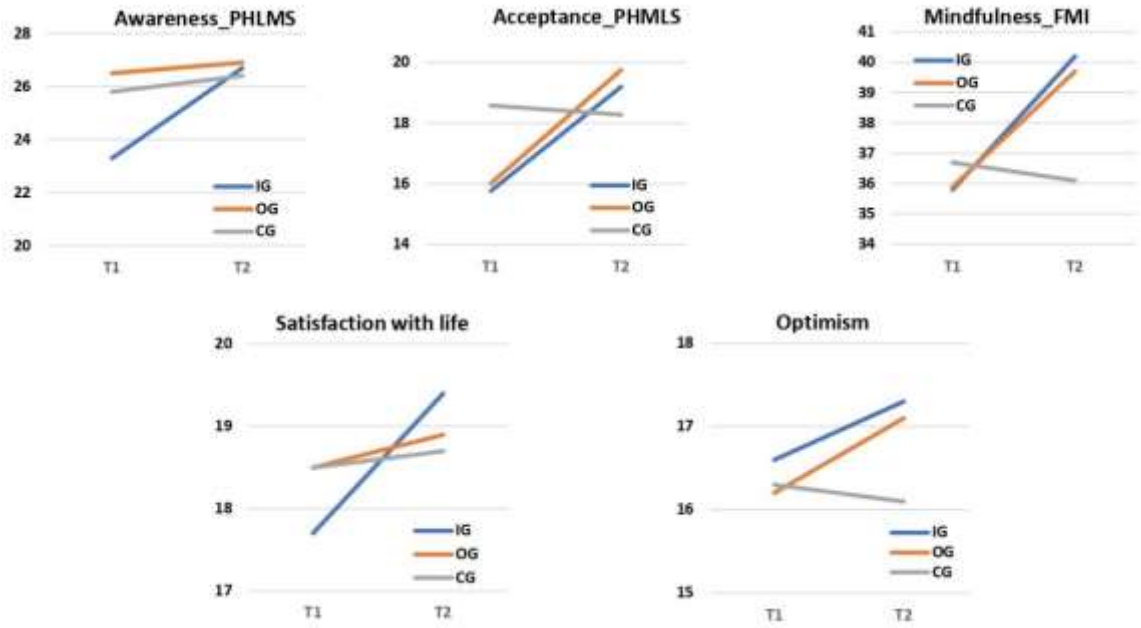


Table 4.4 presents variables that demonstrated a significant difference in interaction effect, indicating the groups mean scores, along the pre and post-test, had distinct behaviors. An interaction effect was detected in the awareness dimension (Chi square Wald = 12.996; p = .002), where IG (p = .002; d = .548) which showed a significant growth over time, whereas OG (p = .168) and CG (p = .502) maintained their means unchanged. All interaction effects were in a positive direction.

Table 4.4

Variables with significant interaction effects in each group

Interaction Effect		T1 - T2	
		X^2_{Wald}	p
IG x OG and CG	Awareness (PHLMS)	12.996	.002
	Satisfaction with life (SWLS)	7.996	.017
OG x IG and CG	Impulse (DERS)	7.403	.025
	Acceptance (PHLMS)	17.573	<.001
	P. Solitude (LPSS)	8.640	.13
IG and OG x CG	Optimism	7.935	.019
	Mindfulness (FMI)	22.315	<.001

Note. Groups in bold are the ones that showed significant interaction effect. $X^2_{Wald:}$ Chi square Wald. p: significance minimum level.

Table 4.4 demonstrates the variables that showed significant intra-group differences between PIM's pre and post-test. Once more, all differences found were

beneficial to the participant. The IG has exclusively shown improvements in two variables: Awareness (PHMLS) and Satisfaction with life (SWLS), whereas the OG presented exclusive outcomes on three: Impulse (DERS), Awareness (DERS), and Loneliness (LPSS).

Table 4.5

Variables with difference between PIM's pre and post-test divided by groups

Significant difference Intra-groups (T1-T2)	
	Variables (*d*)
In-Person group (IG)	**Awareness (PHLMS) (.54)**, Acceptance (PHLMS) (.48), Non-acceptance (DERS) (.40), Strategy (DERS) (.38), Clarity (DERS) (.35), DERS total (.39), P. Solitude (.43), **Satisfaction with life (SWLS) (.43)**, Optimism (.22), Mindfulness (FMI) (.58), Stress (DASS-21) (.40)
Online group (OG)	Acceptance (PHLMS) (.62), **Impulse (DERS) (.48)**, Non-acceptance (DERS) (.35), Goals (DERS) (.47), **Awareness (DERS) (.34)**, Strategy (DERS) (.33), Clarity (DERS) (.37), DERS total (.56), P. Solitude (LPSS) (.31), **Loneliness (LPSS) (.26)**, Optimism (.31), Mindfulness (FMI) (.58), Stress (DASS-21) (.48)
Control group (CG)	Goals (DERS) (.34)

Note. d = Cohen's d effect size. Variables in bold: variables were significative different in one exclusive group.

Discussion

These findings demonstrate that, compared to the passive control group, both in-person (IG) and online (OG) PIM had a positive impact on most variables analyzed. In general, IG and OG were equivalent in terms of their effects. IG presented 2 specific

dimensions of interaction effect [Awareness (PHMLS) and Satisfaction with Life (SWLS)] versus 1 for the OG [Impulse (DERS)]. On the other hand, OG had 3 specific intra-group beneficial effects [Impulse (DERS), Awareness (DERS), and Loneliness (LPSS)] versus 2 of the IG [Awareness (PHMLS) and Satisfaction with Life (SWLS)]. A more detailed comparative analysis between the IG and OG was performed in the study Chiodelli et al. (2021b), which examines PIM effects in three different times (pre-test, post-test, and follow-up test).

Anxiety (DASS-21) and depression (DASS-21) are the variables that did not demonstrate significant effects in any group. Although some research with MBIs among university students demonstrates significant reductions in depression and anxiety (Haukaas, Gjerde, Varting, Hallan & Solem, 2018, Panahi & Faramarzi, 2016), other studies have found non-significant reductions in these dimensions (Ko et al., 2018), similar to this study. The fact that the current research sample is a non-clinical population may reduce the intervention's impact on depression and anxiety, as significant reductions tend to occur in populations that already confer high levels of depression and anxiety. Controlled studies indicate MBCT may be effective in reducing depressive symptoms among individuals with acute depression and meta-analyses indicate MBIs significantly reduce anxiety among populations with anxiety disorder (Strauss, Cavanagh, Oliver & Pettman, 2014). Considering this program has a shorter duration (6 weeks) compared to traditional MBIs (8 weeks), it is suggested an analysis of PIM follow-up outcomes (within 3 months after the end of intervention) in the study Chiodelli et al. (2021b).

As found in other studies (e.g., Vibe et al., 2018, Gu, Xu & Zhu, 2018), there was an increase in Mindfulness skills after the interventions. Both in the IG and in the OG, there was a higher Mindfulness dimension score (FMI), which means present moment observation without judging and openness to negative experience (Walach, Buchheld, Grossman & Schmidt, 2006), as well as with the Acceptance variable (PHMLS), which is an attitude of openness, free from defenses, beliefs, and interpretations of one's own internal or external experience (Cardaciotto, Herbert, Forman, Moitra & Farrow, 2008). However, only the IG showed an increase in the Awareness dimension (PHMLS), which refers to monitoring the internal or external experience as it occurs. A hypothesis for such a result may be that the IG enables more bodily dynamics than the OG, since the body is the most accessible way to develop awareness (Russell, 2011).

Mindfulness skill has a direct relationship with emotion regulation (Hill & Updegraff, 2012), which is a very broad concept. Gratz and Roemer (2004) argue that

emotion regulation involves (a) acceptance, awareness and understanding of emotions, (b) ability to control impulsive behaviors and to behave in accordance with desired goals when negative emotions are experienced, and (c) ability to use appropriate emotional adjustment strategies to meet individual goals and situational demands. This research outcomes reveal a significant decrease in emotion regulation difficulties in both intervention groups, confirming other reported findings in the literature. Shahidi, Akbari, and Zargar (2017) assessed fifty students randomly divided into experimental (MBSR) and control groups. Their results showed the MBSR program has had steady favorable effects on emotion regulation.

When analyzing the intra-group results of both PIM formats, all DERS subscales presented a significant reduction in at least one of the groups. Impulse had a significant interaction effect for the OG, which denotes the online intervention more sharply reduced the difficulty of remaining in control of participant's behavior when experiencing negative emotions, when compared to the other groups. The OG also showed an intra-group reduction in awareness (DERS), which has a more specific meaning than the PHMLS variable of the same name. It refers to a lack of awareness or attention to emotional responses, whereas the PHMLS dimension involves external awareness, thoughts, bodily sensation, as well as emotions. The variables Strategy (belief that there is little one can do to regulate oneself once upset), Clarity (the extent to which an individual is unclear about his or her emotions), Non-acceptance (tendency to have a negative secondary or non-accepting reaction to one's own distress) decreased in both OG and IG. At last, the goals dimension, which means difficulty in concentrating and/or accomplishing tasks when experiencing negative emotions, showed a reduction in the OG and, interestingly, in the CG, being the only variable with a significant change in the passive group.

An interaction effect for Positive Solitude was found in both active groups. This construct can be defined as a voluntary aloneness, during which personality development and creativity may emerge. In this state, the individual enjoys the experience of spending solitary time and can use it to explore himself/herself. He/she is not avoiding social interaction due to social anxiety or preference (Galanaki, 2004, Storr, 1988). Basically, through solitary practices with an intention to observe one’s emotions and thoughts with acceptance and self-compassion, mindfulness may have influenced students to feel more comfortable in being by themselves (Leavitt, Butzer, Clarke & Dvorakova, 2021). The study also identified a significant reduction in the dimension of loneliness (aversion to being alone) in the OG. Loneliness is a public health issue and has become more critical

with the need for social isolation imposed by Covid-19 (Killgore, Cloonan, Taylor & Dailey, 2020) – specifically the period when OGs were implemented.

Stress reduction in both active groups is relevant, but expected when examining MBIs literature. Lovibond and Lovibond (1995) define stress as relaxation difficulty, nervous excitement, impatience, irritation, and reactivity. Consistent with this finding, a growing number of RCTs show that MBIs positively impact stress-related aspects of physical health, ranging from chronic pain, immune system functioning, specific diseases symptoms and healthy behaviors (Creswell, 2017).

Optimism also showed a significant interaction effect in the 2 active groups when compared to the passive one. This dimension can be defined as an emotional and cognitive predisposition to think and react to others and events in a favorable way, instead of expecting harmful outcomes (Mehrabian, 1998). Numerous studies demonstrate that positive ideas about the future predicts coping. Vizoso, Arias-Gundín, and Rodríguez (2019) examined the relationship between coping strategies, dispositional optimism, academic burnout, and academic performance of 532 Spanish undergraduate students. Emotional exhaustion was significantly and negatively predicted by optimism.

Satisfaction with life, another positive dimension, had a significant interaction effect in IG. This variable refers to the cognitive component of subjective well-being, in which individuals globally assess the quality of their lives based on their own criteria (Diener, Emmons, Larsen & Griffin, 1985). By the end of the programs as well as in the follow-up test meetings, students have expressed the skills learned in PIM improved the way they dealt with difficulties. Existing research reveals that self-esteem, depression, positive and negative affects, family structure, happiness, physical, psychological, and social health are considered predictors of general life satisfaction (Marques, 2011).

In addition to mindfulness, Intercultural-based dynamics had an important impact on the participants' journey along PIM. These activities fostered a sharing of experiences among students based on the topic of cultural diversity, to provide greater group cohesion, which is a key component for all groups (Marmarosh & Sproul, 2021). Participants used to comment on the importance of listening to the other and being able to express themselves, which allowed a greater integration in the university context. Recommendations for future studies with the PIM include the analysis of group cohesion and intercultural competence.

Some limitations are detected in this study and should be considered. Although groups were homogeneous in age, they were heterogeneous in terms of gender, education

level, and nationality. The nationality difference was due to the fact that the first IGs were more publicized to international students. Moreover, group application occurred at different times. Certainly Covid-19 effect affected everyone and should be taken into consideration, as well. Another limitation is participants were not randomly allocated to the three groups – which would offer greater reliability to the results. Finally, the applied measures were self-reported. The use of biological or behavioral measures would offer more robust evidence.

This study provides evidence that confirms results of similar interventions and reinforces the importance of programs to be implemented in the academic environment. PIM has proved to be relevant and very promising both for the prevention of mental health problems (stress, difficulties in emotional regulation, loneliness) and for the promotion of well-being (positive solitude, mindfulness, life satisfaction, optimism). Such benefits tend to promote a higher engagement of the student in the university context and, consequently, reduce academic dropout. We hope PIM can be replicated in future studies.

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Study 5 – A Comparison between an in-person and a synchronous online mindfulness-based intervention: a quasi-experimental study

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Abstract

Online mindfulness-based interventions (MBIs) have become more common in the past years and, with the COVID-19 pandemic surge, the use of health care interventions through the internet is a necessity. This main goal of this research is to compare the efficacy of the face-to-face versus the synchronous online delivery of an Interculturality and Mindfulness Program (PIM). A total of 114 university students from Portugal with a mean age of 25.4 (± 7.1) participated in this investigation. This is a quasi-experimental study, with pre-, post-, and 3-month follow-up comparative measurements in two groups: in-person group (IG; n = 70) and online group (OG; n = 44)). The following MBI outcomes were analyzed: mindfulness, emotional regulation, life satisfaction, optimism, positive solitude, loneliness, depression, anxiety, and stress. Both intervention formats resulted positive outcomes for participants. The interaction effects demonstrated three outcomes that favored OG and two outcomes favoring IG. PIM's IG showed an advantage over the OG in the pre- and post-test analysis (with five exclusive variables with significant improvements against three from the OG), but the OG presented a predominant superiority over the IG in the follow-up results (with eight exclusive variables of improvement against two from the IG). In addition, throughout the three times, the OG has indicated nine exclusive dimensions with medium or large effect sizes against one from the IG. It is presumed that the in-person format offers slightly better outcomes in the period of the program, while the online format tends to offer more consistent positive effects post intervention. It is suggested that future research utilizes a randomized sample, as well as a more varied format of measurements.

Keywords: mindfulness-based intervention, face-to-face intervention, in-person intervention, online intervention, synchronous web-based intervention

Introduction

The trend towards TeleHealth – healthcare access through technology – has been a reality in the past years (Chadi, Weisbaum, Vo& Kohut, 2020). However, the pandemic outbreak in early 2020 transformed this possibility into a necessity, which has revealed promising results (Si et al., 2021). Likewise, Mindfulness-based interventions (MBIs) are more and more being facilitated online and synchronously (real-time, via video conferencing platforms).

Mindfulness can be defined as an attitude of openness and acceptance towards one's present experience (Quaglia, Brown, Lindsay, Creswell& Goodman, 2015). This awareness is contrasted with mind wandering, automatic pilot and unwanted experiences suppression (Kang, Gruber& Gray, 2013). Developed in the late 70s, by Jon Kabat-Zinn (2003), MBIs have become very prominent as they have been demonstrating positive results in a wide range of aspects: physical, cognitive, affective and interpersonal (Creswell, 2017). A traditional MBI consists of eight 2.5-hour weekly meetings, in which participants are invited to practice techniques (e.g., body-scan meditation) to increase attention span. Each session has a theme that is connected to the foundational attitudes of mindfulness (Kabat-Zinn, 2003), such as kindness, acceptance, and patience with the mind.

Recent studies have detected relevant gains for online MBIs participants. Spijkerman, Pots, and Bohlmeijer (2016) selected 15 randomized online MBIs controlled trials in a meta-analysis to verify mental health improvement effectiveness. Results indicated that online MBIs have a significant favourable impact on stress (moderate effect size), depression, anxiety, well-being, and mindfulness (small effect size). This study analysed different formats of online MBIs, whether with therapist guidance or not, and through virtual classroom, website, or smartphone application. Exploratory subgroup analysis demonstrated that in stress and mindfulness, significantly larger effect sizes were found for online MBIs with therapist guidance when compared to online MBIs without therapist guidance. These outcomes confirm the hypothesis that having a direct contact with the facilitator increases chances of better effects.

Face-to-face interventions tend to offer a more natural interaction between participants and facilitators. Besides that, dynamics with bodily movements tend to be more difficult to be accomplished by video conferencing. However, synchronous online interventions have some advantages over face-to-face interventions: (1) save traveling

time; (2) save transportation expenses; (3) can be accessed from any location with internet connection (Spijkerman, Pots & Bohlmeijer, 2016).

Not many studies have compared online and in-person equivalent interventions outcomes. Considering patients with cancer experience barriers to participating in face-to-face interventions, Compen et al. (2009) compared Mindfulness-based cognitive therapy (MBCT) and internet-based MBCT (eMBCT) with treatment as usual (TAU) for psychological distress in patients with cancer. Participants were randomly allocated to MBCT (n = 77), eMBCT (n = 90), or TAU (n = 78). Both MBCT and eMBCT have shown to be more effective than TAU in reducing psychological distress in patients with cancer. Still, comparisons between face-to-face and real-time online MBIs outcomes remain scarce.

Based on the gap in the literature, as well as the increasing use of TeleHealth, this study aims to compare the effects of the same mindfulness-based program between face-to-face and synchronous online formats. We intend to examine the effects of the Interculturality and Mindfulness Program (PIM) on the following variables: mindfulness, emotional regulation, life satisfaction, optimism, positive solitude, loneliness, depression, anxiety, and stress.

Method

Design

This study used a quasi-experimental design, with pre-, post-, and 3-month follow-up comparative measurements in two groups: in-person (IG) and online (OG). (Creswell and Creswell, 2018).

Participants

University students regularly enrolled in Universidade do Algarve (UAlg), Portugal, participated in the interventions. The two groups consisted of 114 students, with a mean age of 25.4 (SD = 7.1, minimum of 17 years old, and maximum of 49 years old). Considering the participants who completed the pre and post-tests, 70 (74.3% female) belonged to the IG, and 44 (90.9% female) were from the OG. Participants' courses totalled 36, and the most frequent were: Psychology (14; 12.2%), Management (13; 11.4%), Marine Biology (8; 7.0%), and Biomedical Sciences (8; 7.0%). Table 5.1 presents data on gender, age, nationality, and education level. As inclusion criteria,

participants should attend at least four intervention sessions (66.6% attendance), being enrolled in the university, and have responded to the pre and post-tests.

Table 5.1

General sample characterization

Variables	Total (n = 114)	In-Person (IG) (n = 70)	Online (OG) (n = 44)	p
		n (%)		
Sex				.029[1]
Male	22 (19.3)	18 (25.7)	4 (9.1)	
Female	92 (80.7)	52 (74.3)	40 (90.9)	
Age	25.4± 7.1	26.3 ± 7.7	24.1 ± 6.2	.158[2]
Nationality				<.001[3]
Brazilian	63 (55.3)	52 (74.3)	11 (25.0)	
Portuguese	51 (44.7)	18 (25.7)	33 (75.0)	
Education				.603[3]
Higher Professional Technical courses	1 (.8)	1 (1.4)	-	
Undergraduate	77(67.5)	47 (67.1)	30 (68.1)	
Master	24 (21.0)	13 (18.5)	11 (25.0)	
Doctorate	12 (10.5)	9 (12.8)	3 (6.8)	

Note. [1] Pearson's Chi-square test; [2] One-way ANOVA; [3] Fisher's exact test.

When comparing groups, participants' socio demographic data demonstrates homogeneity in age and education level but has shown heterogeneity in gender and nationality. The IG had significantly more male students (25.7%) than the OG (9.1%); and the IG had more Brazilian students (74.3%) whereas most students were Portuguese in the OG (75.0%).

Measures

The measures applied in the present study are shown below.

Sociodemographic questionnaire

Developed by the authors, this form contains questions regarding participant's sociodemographic (e.g., gender, age, course), and habits.

(Appendix 1).

Difficulties in Emotion Regulation Scale (DERS)

Developed by Gratz and Roemer (2004) and translated and adapted to European Portuguese by Coutinho, Ribeiro, Ferreirinha, and Dias (2010). It contains 36 items on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always). The scale assesses emotional deregulation in six domains, quoted with their respective Cronbach alphas: "Non-acceptance" - nonacceptance of emotional responses, "Goals"- difficulties engaging in a goal-directed behaviour, "Impulse" - impulse control difficulties, "Awareness"- lack of emotional awareness, "Strategies"- limited access to emotion regulation strategies, and "Clarity"- lack of emotional clarity. The scale indicated high values of internal consistency (.93) in the study of Coutinho, Ribeiro, Ferreirinha, and Dias (2010). In the present study, total DERS Cronbach's alpha ranged from .89 to .94. Reliability values for the subscales were: Non-Acceptance (.86 to .91), Goals (.82 to .89), Impulse (.79 to .89), Awareness (.81 to .86), Strategies (.77 to .91), and Clarity (.78 to .85) (Appendix 4).

Depression, Anxiety and Stress Scale (DASS-21)

Developed by Lovibond and Lovibond (1995) and translated and adapted to Portuguese by Apóstolo, Mendes, and Azeredo (2006). DASS-21 contains a set of three Likert-type subscales, with four points ranging from (0) did not apply to me at all to (3) applied to me very much or most of the time. Each subscale consists of seven items that assess the emotional states of depression, anxiety, and stress, with a maximum score of 42. Each dimension has cut-off points according to severity ratings: normal, mild, moderate, severe, and extremely severe. Cronbach's alpha was .92 for depression, .90 for stress, and .86 for anxiety. The analysis and distribution of factors among the subscales indicated that the structure of the three distinct factors was adequate. In this study, Cronbach's alpha values ranged from .82 to .93 for depression; from .70 to .89 for anxiety; and from .77 to .92 for stress (Appendix 5).

Loneliness and Positive Solitude Scale (LPSS)

Developed by Chiodelli et al. (2021b). It is a bi-dimensional, 10-item, and self-report measure. This scale assesses how often spending time with oneself generates negative or positive thoughts and sensations. The higher the scores in the loneliness dimension, the higher one's aversion to being alone; and the greater the score in the positive solitude dimension the greater one's perspective of being alone as something

important and necessary. Cronbach's alpha was .79 for loneliness and .85 for positive solitude. In the current study, Cronbach's alpha values ranged from .71 to .92 for loneliness and from .84 to .89 for positive solitude (Appendix 3).

Philadelphia Mindfulness Scale (PHLMS)

Developed by Cardaciotto, Herbert, Forman, Moitra & Farrow (2008), validated and adapted to the European Portuguese by Teixeira, Ferreira, and Pereira (2017). It consists of a 5-point Likert scale and 20 items, divided in two dimensions: (1) Acceptance and (2) Awareness. Both dimensions presented internal consistency of .85 and .77, respectively. In the present study, Cronbach's alpha ranged from .76 to .86 for acceptance and from .76 to .87 for awareness (Appendix 7).

Freiburg Mindfulness Inventory (FMI)

The short version by Walach, Buchheld, Buttenmuller, Kleinknecht, and Schmidt (2006) was translated and adapted by Hirayama, Milani, Rodrigues, Barros & Alexandre (2014). The FMI measures mindfulness as a general construct with several interrelated facets, namely, a cognitive component, a procedural component, an experience acceptance component and a non-acceptance component. It consists of 14 items and the response format is Likert type, with responses between (1) rarely and (4) almost always. In this study, Cronbach's alpha values ranged from .80 to .89 (Appendix 8).

Satisfaction with Life Scale (SWLS)

Developed by Diener, Emmons, Larsen, and Griffin (1985), adapted and validated in Portugal by Neto et al. (1990). The SWLS assesses the subjective judgment that each individual makes about the quality of their own life. It is a one-dimensional 5-item instrument, and the answer format is Likert type, with answers between (1) strongly disagree and (5) strongly agree, thus obtaining a minimum score of 5 (lowest satisfaction) and a maximum of 35 (highest satisfaction). It was adapted and validated in Portugal by Neto et al. (1990) and the authors found an internal consistency of .78. In this study, Cronbach's alpha values ranged from .77 to .83 (Appendix 9).

Optimism Scale

Developed by Oliveira (1998) to the Portuguese population. It includes four items that constitute one dimension. The answer is given on an ordinal scale of 5 positions, the

answer format is Likert type, with answers between (1) totally disagree and (5) totally agree. Its internal consistency is .80. In this study, Cronbach's alpha values ranged from .82 to .88 (Appendix 10).

Procedures

All students were invited to participate through the university's institutional e-mail, posters, and social media. Two weeks in advance of the first session, facilitators offered a PIM presentation workshop (session zero). In session 1, participants were required to read and, in case they agreed with, signed the free and informed consent form (Appendix 2).

In the IG, sessions were held in a spacious classroom at the University, with chairs arranged in a circle. Screen projections and a whiteboard were used as a support for the proposed activities, and sessions lasted 2 hours. The OG was synchronous, conducted through the *Zoom* video conference platform, and sessions had the same duration as the IG (2 hours). Activities which involved more physical interactions had to be adapted when transposing from IG to OG. However, the activities' main purposes were not altered.

Six PIMs were applied in the face-to face format (IG) between April 2018 to December 2019; whereas four were held via video conference (OG) and occurred between April and December 2020. Participant's drop-out rates in each format are indicated in Table 5.2.

Table 5.2

Participant's drop-out rates in each PIM format

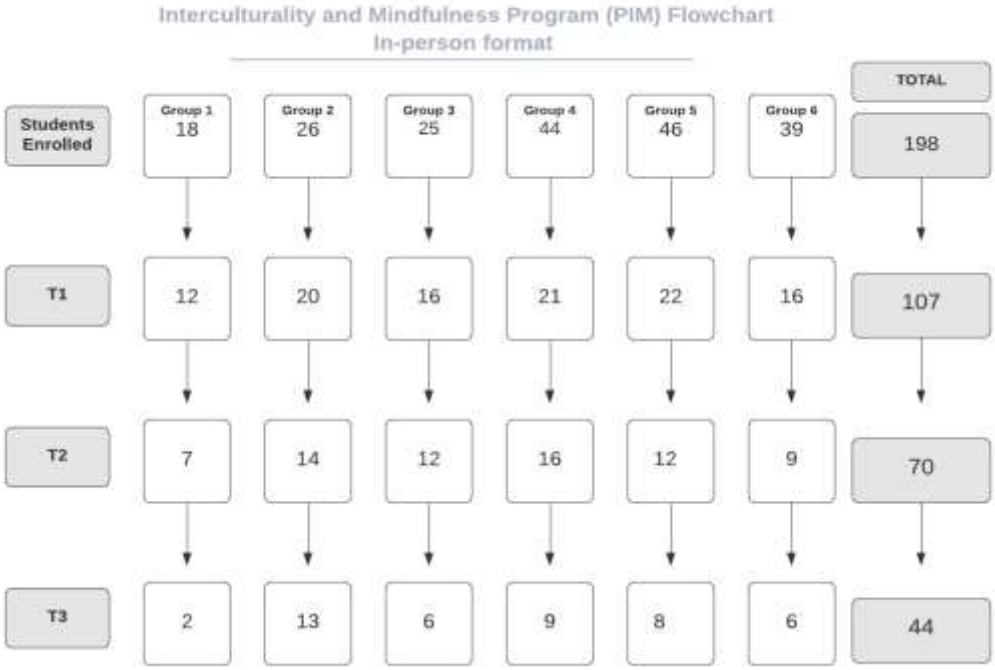
	Dropout Rates		
Groups	T0-T1	T1-T2	T2-T3
IG	45,5%	34,5%	37,1%
OG	65,2%	38,3%	13,6%

Note. T0 is enrollment; T1 is the pre-test; T2 is the post-test, and T3 is the 3-mont follow-up.

Students' adherence from both intervention formats are show in Figures 5.1 and 5.2.

Figure 5.1

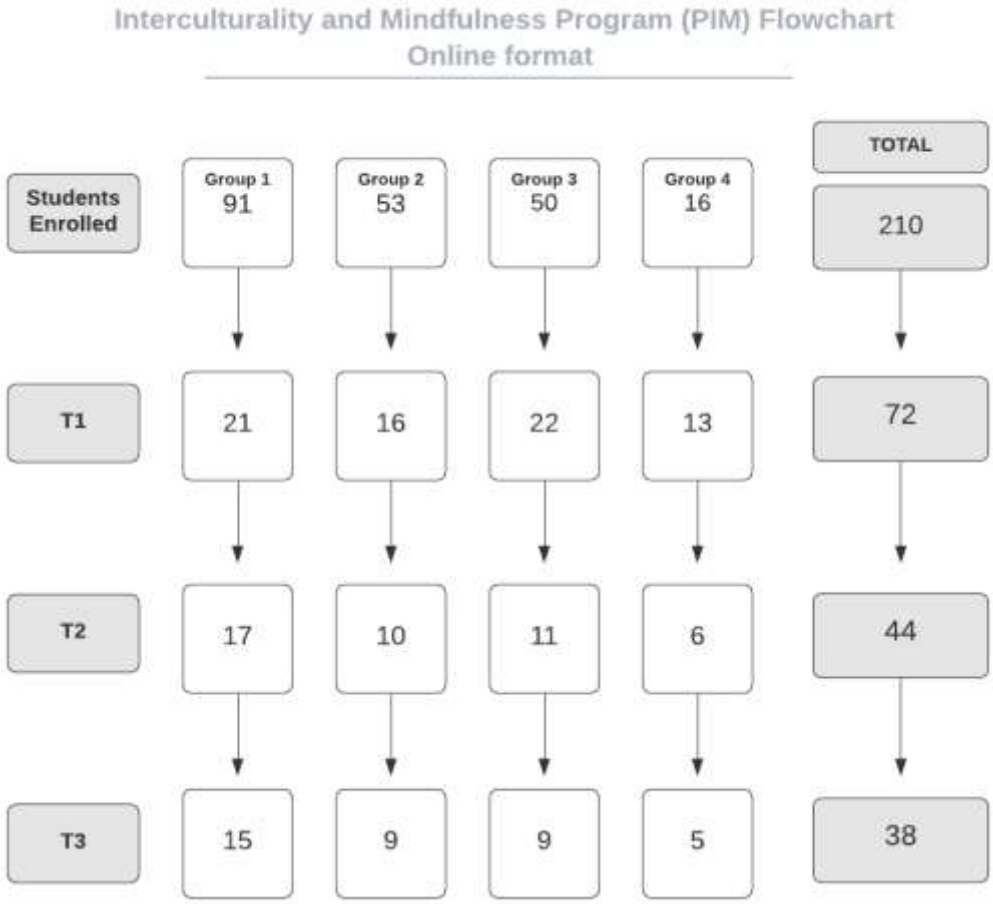
Students' adherence in the in-person groups (IG)



Note. T1 is the pre-test; T2 is the post-test and T3 is the 3-mont follow-up.

Figure 5.2

Students' adherence in the online groups (OG)



Note. T1 is the pre-test; T2 is the post-test and T3 is the 3-mont follow-up.

Data Collection

Instruments were applied at beginning of the first session (T1), and at the end of the last (sixth) session (T2), and three months after the last session (T3). The psychometric measures were answered via paper and pen in the IG and through Google-Forms in the OG.

Intervention

The Interculturality and Mindfulness Program (PIM) was implemented and facilitated by psychology doctoral students Roberto Chiodelli, Diana Fernandes Oliveira, and Luana T. Nesi de Mello, under the supervision of Professor Saúl Neves de Jesus. Roberto Chiodelli is a psychologist, M.S. in Clinical Psychology, and a certified mindfulness teacher of the Body in Mind Training Mindfulness Protocol (Russell, 2015). Diana Fernandes Oliveira is a psychologist, M.S. in Health and Clinical Psychology, with

advanced and specialized training in third-generation therapies. Luana T. Nesi de Mello is a psychologist and the head facilitator of the soft skills program "Skills for Life" in graduate and postgraduate courses. Most interventions were conducted in pairs.

PIM consists of six weekly meetings lasting two hours each (see Table 5.3). At the end of each session, via e-mail and *WhatsApp* (social media), participants received a summary of what had been done, as well as the guided meditation audio file. Between each session, participants received a message of encouragement to do the weekly practices (mindfulness).

Interculturality activities and content are based on the works of Sam and Berry (2016), Deardorff, Wit, Heyl and Adams (2012), and Sebben (2013). Most dynamics are adapted from intercultural competence programs, as well as from psychodrama games. Regarding mindfulness, the program was adapted from the book "Mindfulness: How to Find Peace in a Frantic World" (Williams & Penman, 2015). Corporal practices are usually executed before formal practices of mindfulness. These body activation exercises are based on the movement exercises of the Body in Mind training protocol (Russell, 2015), as well as on the grounding exercise (bow and arch), a central practice of Bioenergetic Psychotherapy (Lowen & Lowen, 1977). Further details on PIM can be found on the protocol report (Chiodelli et al., 2021a).

Table 5.3

Interculturality and Mindfulness Program (PIM) overview

Sessions	Activities
0) Program Presentation	Welcoming; "Ice-breaker": ball game; Program presentation; Mindfulness practice
1) Introduction and group integration *"Land in sight: welcome to the University environment!"/ Being present*	Facilitators and program Introduction; "Ice-breakers": planning seats and rotatory interviews; "Culture Shock" activity; Mindfulness presentation and body scan
2) Positive Intercultural Attitude I *"Anchorage"/ Mindfulness in the daily routine*	"Sharing"; "Warm-up": "Rá" game; "Ice-breaker": Three sentences activity; Difficulties and strategies to acculturation; Informal Mindfulness meditation: Mindful eating practice
3) Positive Intercultural Attitude II *"(Re) Socialization"/ Body and Emotions*	"Sharing"; "Warm-up": Imaginary objects activity; Cultural knowledge: chocolate game; Stages of cultural adaptation; Acceptance; Emotions in the body practice
4) Intercultural Communication I *"Verbal and nonverbal communication"/ Self Compassion*	"Sharing"; "Warm-up": 1, 2, 3 game; Behavioral differences in communication; Self-compassion; Walking Mindfully practice; Loving-Kindness Meditation
5) Intercultural Communication II *"What do we have in common?"/ Observing thoughts and Gratitude*	"Sharing"; Warm-up: "Pim game" and "Hot Potato"; "Proverb's game"; Group bubbles; Observing thoughts; Gratitude
6) Program Completion *"Weaving the Support Network"/ Week 6 is the rest of our lives*	"Sharing"; Warm-up: "Weaving Connections activity"; Social support network; Rhythmic Breath meditation; "Week 6 is the rest of our lives"; Final Celebration

Data analysis

Data statistical treatment was performed through the software Statistical Package for Social Sciences, version 25.0 for Windows. A 5% significance level was adopted for statistical decision criteria. Descriptive statistics are presented in absolute and relative distributions (*n*; %), as well as means and standard deviations by the Kolmogorov-Smirnov test symmetry study. Regarding the comparison of categorical variables between groups, Pearson's chi-square test was used, as well as Fisher's exact test (Monte Carlo simulation).

The intervention impact in each group was investigated by Cohen's d effect size. Cut-off points suggested by Cohen (1988) are classified as: negligible ($d < .20$); small ($d \geq .20$ and $< .50$); medium ($d \geq .50$ and $< .80$) and large ($d \geq .80$).

In analyses that compared intra-group continuous variables (time effect), the Generalized Estimating Equations (GEE) – Post Hoc Bonferroni were used. Student t-test was utilized to compare the two independent groups.

Results

Generalized estimating equation (GEE) models' data of each variable over the two groups pre, post, and follow-up test intervention are found on Table 5.4. The awareness (PHMLS) baseline mean for the IG was significantly lower than the estimates of OG ($p = .011$). Figure 5.3 presents the evolution of each dimension during time in each group.

Table 5.4

Generalized estimating equation (GEE) models for evaluating the PIM over time

Evaluations in time	Groups						Between groups [B]	GEE Interaction Effects[C]
	In-person (IG)			Online (OG)				
	n	*M*	*SD*	*n*	*M*	*SD*		
T1_Awareness (PHMLS)	70	23.3b	6.1	44	26.5a	5.8	.011	.008
T2_Awareness (PHMLS)	70	26.7	6.3	44	26.9	4.1	.877	
T3_Awareness (PHMLS)	44	25.9	5.9	38	28.5	5.8	.052	
Intra-group [A]		.002			.201			
T2 – T1		Δ=3.4*; d= .548			Δ= .4; d= .081			
T3 – T2		Δ= -.8; d= -.131			Δ=1.6; d= .323			
T3 – T1		Δ=2.6*; d= .433			Δ=2.0; d= .435			
T1_Acceptance (PHMLS)	70	15.8	7.5	44	16.0	6.6	.452	.687
T2_Acceptance (PHMLS)	70	19.2	6.4	44	19.8	5.3	.786	
T3_Acceptance (PHMLS)	44	20.8	5.6	38	20.2	5.1	.688	
Intra-group [A]		<.001			.002			
T2 – T1		Δ=3.4*; d= .489			Δ=3.7*; d= .622			
T3 – T2		Δ=1.6; d= .267			Δ= .5; d= .096			
T3 – T1		Δ=5.1*; d= .779			Δ=4.3*; d= .735			

Evaluations in time	Groups						Between groups [B]	GEE Interaction Effects[C]
	In-person (IG)			Online (OG)				
	n	*M*	*SD*	*n*	*M*	*SD*		
T1_Non-accept. (DERS)	70	14.0	6.1	44	14.1	5.6	.859	.861
T2_Non-accept. (DERS)	70	11.5	6.3	44	12.1	5.7	.356	
T3_Non-accept. (DERS)	44	10.8	6.2	38	10.8	5.5	.987	
Intra-group [A]	.005			.023				
T2 – T1	Δ=-2.5*; d= -.403			Δ=-2.0; d= -.354				
T3 – T2	Δ= -.7; d= -.112			Δ=-1.3; d= -.232				
T3 – T1	Δ=-3.2*; d= -.520			Δ=-3.3*; d= -.595				
T1_Goals (DERS)	70	16.3	4.5	44	17.6	4.8	.106	.023
T2_Goals (DERS)	70	15.5	4.5	44	15.5	4.1	.864	
T3_Goals (DERS)	44	14.3	4.8	38	13.2	4.9	.190	
Intra-group [A]	.083			<.001				
T2 – T1	Δ= -.7; d= -.156			Δ=-2.1*; d= -.472				
T3 – T2	Δ=-1.2; d= -.275			Δ=-2.3; d= -.511				
T3 – T1	Δ=-2.1; d= -.447			Δ=-4.5*; d= -.923				
T1_Impulse (DERS)	70	12.6	5.0	44	13.9	4.8	.185	.100
T2_Impulse (DERS)	70	11.9	4.9	44	11.8	3.8	.832	
T3_Impulse (DERS)	44	11.7	4.8	38	11.1	5.7	.525	
Intra-group [A]	.562			.005				
T2 – T1	Δ= -.7; d= -.141			Δ=-2.1*; d= -.488				
T3 – T2	Δ= -.3; d= -.062			Δ= -.7; d= -.147				
T3 – T1	Δ= -.9; d= -.184			Δ=-2.8*; d= -.533				
T1_Awareness (DERS)	70	15.4	5.1	44	15.2	4.7	.902	.429
T2_Awareness (DERS)	70	14.2	5.1	44	13.6	4.7	.257	
T3_Awareness (DERS)	44	14.3	5.1	38	12.8	4.8	.123	
Intra-group [A]	.266			.050				
T2 – T1	Δ=-1.3; d= -.255			Δ=-1.6; d= -.340				
T3 – T2	Δ= .2; d= .039			Δ= -.8; d= -.168				
T3 – T1	Δ=-1.1; d= -.216			Δ=-2.4*; d= -.505				

Evaluations in time	Groups						Between groups [B]	GEE Interaction Effects[C]
	In-person (IG)			Online (OG)				
	n	*M*	*SD*	*n*	*M*	*SD*		
T1_Strategy (DERS)	70	18.7	7.1	44	18.6	6.3	.939	.966
T2_Strategy (DERS)	70	16.0	7.1	44	16.2	6.4	.602	
T3_Strategy (DERS)	44	14.9	7.7	38	14.8	6.4	.986	
Intra-group [A]	.006			.020				
T2 – T1	Δ=-2.7*; d= -.380			Δ=-2.4; d= -338				
T3 – T2	Δ=-1.2; d= -.162			Δ=-1.3; d= -.203				
T3 – T1	Δ=-3.8*; d= -.514			Δ=-3.7*; d= -.583				
T1_Clarity (DERS)	70	11.6	4.0	44	11.1	3.1	.755	.481
T2_Clarity (DERS)	70	10.2	4.0	44	9.8	3.3	.111	
T3_Clarity (DERS)	44	9.9	4.0	38	8.9	3.8	.126	
Intra-group [A]	.016			.014				
T2 – T1	Δ=-1.4*; d= -0.350			Δ=-1.2; d= -.375				
T3 – T2	Δ=-0.3; d= -.075			Δ=-1.0; d= -.282				
T3 – T1	Δ=-1.7*; d= -.425			Δ=-2.2*; d= -.638				
T1_DERS total	70	88.5	22.8	44	90.3	21.3	.417	.385
T2_DERS total	70	79.4	23.6	44	78.9	19.7	.189	
T3_DERS total	44	75.9	25.3	38	71.5	23.2	.273	
Intra-group [A]	.004			<.001				
T2 – T1	Δ=-9.2*; d= -.397			Δ=-11.4*; d= -.566				
T3 – T2	Δ=-3.5; d= -.143			Δ=-7.4; d= -.345				
T3 – T1	Δ=-12.7*; d= -.528			Δ=-18.8*; d= -.845				
T1_Loneliness	21	11.0	3.8	44	10.4	3.5	.540	.757
T2_Loneliness	21	9.7	3.2	44	9.5	3.4	.849	
T3_Loneliness	14	9.6	2.6	38	8.9	3.5	.550	
Intra-group [A]	.322			.157				
T2 – T1	Δ=-1.3; d= -.371			Δ= -.9; d= -.261				
T3 – T2	Δ= -.1; d= -.034			Δ= -.6; d= -.174				
T3 – T1	Δ=-1.4; d= -.438			Δ=-1.5; d= -.429				

Evaluations in time	Groups						Between groups [B]	GEE Interaction Effects[C]
	In-person (IG)			Online (OG)				
	n	*M*	*SD*	*n*	*M*	*SD*		
T1_P. Solitude	21	17.9	4.6	44	19.4	3.6	.154	.700
T2_P. Solitude	21	19.7	3.7	44	20.5	3.5	.381	
T3_P. Solitude	14	20.6	3.7	38	21.3	3.2	.478	
Intra-group [A]		.122			.041			
T2 – T1	Δ=1.8; d= .434			Δ=1.1; d= .310				
T3 – T2	Δ= .9; d= .243			Δ= .8; d= .239				
T3 – T1	Δ=2.7; d= .651			Δ=1.9*; d= .559				
T1_SWLS	70	17.7	4.0	44	18.5	4.1	.564	.021
T2_SWLS	70	19.4	3.9	44	18.9	3.8	.413	
T3_SWLS	44	19.5	3.9	38	19.9	3.6	.641	
Intra-group [A]		.014			.273			
T2 – T1	Δ=1.7*; d= .430			Δ= .4; d=.101				
T3 – T2	Δ= .1; d= .025			Δ=1.0; d=.270				
T3 – T1	Δ=1.8*; d= .456			Δ=1.4; d=.364				
T1_Optimism	70	16.6	3.5	44	16.2	3.2	.877	.928
T2_Optimism	70	17.3	2.8	44	17.1	2.6	.906	
T3_Optimism	44	17.8	2.9	38	17.6	2.6	.748	
Intra-group [A]		.132			.049			
T2 – T1	Δ= .7; d=.222			Δ= .9; d= .310				
T3 – T2	Δ= .5; d= .175			Δ= .5; d= .192				
T3 – T1	Δ=1.2; d=.375			Δ=1.4*; d= .482				
T1_Mindfulness	70	35.8	8.3	44	35.9	7.1	.898	.331
T2_Mindfulness	70	40.2	6.8	44	39.7	5.9	.257	
T3_Mindfulness	44	39.7	7.7	38	41.2	5.9	.316	
Intra-group [A]		.001			.001			
T2 – T1	Δ=4.4*; d=.582			Δ=3.8*; d=.584				
T3 – T2	Δ= -.5; d=-.068			Δ=1.5; d=.254				
T3 – T1	Δ=3.9*; d=.487			Δ=5.3*; d=.815				
T1_Depression	70			9.3			7.9	
T2_Depression	70			7.8			7.0	
T3_Depression	44			7.1			9.3	
Intra-group [A]				.310				
T2 – T1	Δ=-1.5; d=-.201			Δ=-1.1; d=-.137				
T3 – T2	Δ= -.7; d=-.086			Δ=-3.1*; d=-.459				
T3 – T1	Δ=-2.2; d=.255			Δ=-4.2*; d=.528				
T1_Anxiety	70			7.9			7.9	
T2_Anxiety	70			6.9			6.8	
T3_Anxiety	44			6.8			8.8	
Intra-group [A]				.668				

Evaluations in time	Groups						Between groups [B]	GEE Interaction Effects[C]
	In-person (IG)			In-person (IG)				
	n	*M*	*SD*	*n*	*M*	*SD*		
T2 – T1	Δ=-1.0; d=-.136			Δ=-1.9; d=-.253				
T3 – T2	Δ= -.1; d=-.012			Δ=-1.7; d=-.295				
T3 – T1	Δ=-1.1; d=-.132			Δ=-3.6; d=-.558				
T1_Stress	70	16.6	9.0	44	16.8	11.2	.599	.017
T2_Stress	70	13.3	7.4	44	12.3	7.4	.661	
T3_Stress	44	14.9	9.9	38	10.5	6.7	.022	
Intra-group [A]		.074			.003			
T2 – T1	Δ=-3.3; d=-.402			Δ=-4.5*; d=.484				
T3 – T2	Δ=1.6; d=-.184			Δ=-1.8; d=.255				
T3 – T1	Δ=-1.7; d=-.179			Δ=-6.3*; d=-.704				

Note. A: Intra-group mean comparison – EEG between times – Post Hoc Bonferroni; B: Mean comparison between groups – ANOVA (One Way) – Post Hoc Bonferroni where means followed by equal lowercase letters (^{abc}) do not differ at a significance of 5%; C: EEG - Linear model for effects of time, group, and interaction - Post Hoc Bonferroni Δ: variation between mean scores; *d*: Cohen's d effect size. *significant difference in variation between times.

Figure 5.3

PIM's pre, post-test, and follow-up means progression by group

Table 5.5 presents variables that demonstrated a significant difference in interaction effect, indicating the group's mean scores, along the three times, had distinct behaviors. For example, a significant interaction effect was detected in satisfaction with life dimension (Chi square Wald = 7.707; p = .021), where IG (p = .014) showed a significant growth over time, whereas OG (p = .273) maintained its mean unchanged. All interaction effects were beneficial.

Table 5.5

Variables with significant interaction effect in each group

Variables		Interaction effect T1 - T2 - T3	
		X^2_{Wald}	p
Pro IG	Awareness (PHMLS)	9.680	.008
	Satisfaction with life (SWLS)	7.707	.021
Pro OG	Goals (DERS)	7.529	.023
	Anxiety	7.513	.022
	Stress	8.326	.017

Note. Chi square Wald; significance.

Table 5.6 indicates the variables that showed significant intra-group differences between PIM's pre, post, and follow-up tests. Again, all differences found were favorable to the participants. Moreover, Table 5.7 shows variables that presented medium or large effect size in each group through the three times.

Table 5.6

Variables with significative difference between PIM's pre, post, and follow-up tests divided by groups

	Intra-group significative differences		
	T1-T2 (d)	T2-T3 (d)	T1-T3 (d)
In-Person group (IG)	**Awareness (PHLMS) (.54)**, Acceptance (PHLMS) (.48), **Non-acceptance (DERS) (.40)**, **Strategy (DERS) (.38)**, **Clarity (DERS) (.35)**, DERS total (.39), P.Solitude (.43), **Satisfaction with life (SWLS) (.43)**, Mindfulness (FMI) (.58)		**Awareness (PHMLS) (.43)**, Acceptance (PHLMS) (.77), Non-acceptance (DERS) (.52), Strategy (DERS) (.51), Clarity (DERS) (.42), DERS total (.52), **Satisfaction with life** (**SWLS) (.45)**, Mindfulness (FMI) (.48)

	Intra-group significative differences		
	T1-T2 (*d*)	T2-T3 (*d*)	T1-T3 (*d*)
Online group (OG)	Acceptance (PHLMS) (.62), **Goals (DERS) (.47)**, **Impulse (DERS) (.48)**, Strategy (DERS) (.33), DERS total (.56), Mindfulness (FMI) (.58), **Stress (.48)**	**Depression (.45)**	Acceptance (PHLMS) (.73), Non-acceptance (DERS) (.59), **Goals (DERS) (.92)**, **Impulse (DERS) (.53)**, **Awareness (DERS) (.50)**, Strategy (DERS) (.58), Clarity (DERS) (.63), DERS total (.84), **P.Solitude (.55)**, **Optimism (.48)**, Mindfulness (FMI) (.81), **Depression (.52)**, **Stress (.70)**

Note. *d* = Cohen's d effect size. Variables in bold: variables were significative different in one exclusive group.

Table 5.7

Variables with medium or large effect size

	Size effect (Cohen's *d*) ≥ .5 (medium)		
	T1-T2	T2-T3	T1-T3
In-person (IG)	**Awareness (PHLMS) (.54)**, Mindfulness (FMI) (.58)		Acceptance (PHLMS) (.77), Non-acceptance (DERS) (.52), Strategy (DERS) (.51), DERS total (.52), P. Solitude (.65)
Online (OG)	**Acceptance (PHLMS) (.62), DERS total (.56)**, Mindfulness (FMI) (.58)		Acceptance (PHLMS) (.73), Non-acceptance (DERS) (.59), **Goals (DERS) (.92)**, **Impulse (DERS) (.53)**, **Awareness (DERS) (.50)**, Strategy (DERS) (.58), **Clarity (DERS) (.63)**, DERS total (.84), P.Solitude (.55), **Mindfulness (FMI) (.81)**, **Depression (.52)**, **Stress (.70)**, **Anxiety (.55)**

Note. *d* = Cohen's d effect size. Variables in bold: variables were significative different in one exclusive group.

Discussion

Both intervention formats proved to be beneficial to the participants, confirming the findings of previous research (Spijkerman, Pots & Bohlmeijer, 2016, Creswell, 2017). When analyzing this study's main goal, which was to compare the in-person and online formats, the OG superiority in relation to the IG at follow-up was unexpected. While the IG showed a slight advantage in the pre and post-test ratio (with five exclusive variables with significant improvements against three from the OG), the OG demonstrated a strong dominance in the pre and follow-up test ratio (with seven unique variables of improvement against two from the IG). Furthermore, the OG results indicated a significant reduction in depression between the post and follow-up test. The medium or large effect sizes variables examination throughout the three times confirmed the advantage of the OG, with nine exclusive dimensions of this nature against only one of the IG. Finally, the interaction effects findings presented three dimensions in favor of the OG versus two from the IG, were also defined due to the follow-up analysis.

Consequently, these results suggest that PIM's in-person format has a slight advantage over the online format in the pre- and post-test analysis, but the online format has a great advantage over the in-person configuration post-intervention. As a hypothesis for these data, we suggest that the IG has some impact on participants because they are present in the same space during the program, reinforcing a sense of belonging. However, after the end of the intervention, as there is no longer the commitment to be present with the group, students tend to have less motivation for the practices. On the other hand, although participants are encouraged to share their experiences individually (using Zoom's simultaneous rooms in all sessions), as well as to the whole group in the OG, the sense of group belonging tends to be smaller. Clearly, interactions are much more controlled in the OG than in the IG. Paradoxically, a stronger "group sense" absence may demand more self-efficacy and autonomy from the participant, avoiding the "group belonging" dependency factor. OG participants develop more self-responsibility to keep with the homework mindfulness tasks.

Wagner, Horn, and Maercker (2014), who compared an Internet-based versus face-to-face cognitive-behavioral intervention for depression found similar results. Sixty-two participants suffering from depression were randomly assigned to the internet-based group (n=32) and to the face-to-face intervention (n=30). Both interventions offered the same treatment modules and timeframe. No significant differences between groups were found for any of the pre- to post-treatment measurements. However, a contrast between

groups was found in the 3-month follow-up outcomes, which remained stable in the online group, but showed significant worse depressive symptoms in the face-to-face group.

The results magnitude (effect size) analysis allowed us to detect interesting outcomes. It is worth highlighting the effect size of depression, anxiety and stress found three months after the end of the intervention in the OG. These symptoms are the basis of the mental health crisis we are experiencing worldwide (Jadoo, 2020). Such dimensions are not as directly linked to the mindfulness skills as emotional regulation, which demonstrates an evolution right after the MBIs test in non-clinical samples (Chiodelli et al., 2018). These data indicate that a period longer than 6 weeks of mindfulness practices may be necessary to have representative effects on depression, anxiety, and stress.

Drop-out rates were different between the two intervention formats. They were higher in the OG between enrollment and pre-test (session 1). Since enrollments in the online groups were disseminated more widely over the internet, it became more accessible and, consequently, easier to be "forgotten". Conversely, in the post- and follow-up test ratio, the IG had a higher drop-out rate than the OG. It probably happened due to the greater difficulty for students to be present at the follow-up in-person meetings than the online ones.

This investigation has some limitations that should be addressed. Firstly, it was a convenience sample. Therefore, the students who signed up for the programs knew what format they would experience. Due to different reasons, some people are more prone to online than face-to-face interventions, while others are just the opposite. The online format may be less anxiogenic for the introspective participant, for instance. Secondly, the IG and OG groups were applied in different social contexts. The IGs were conducted before the COVID-19 pandemic, while the OGs occurred after the pandemic emerged. Even though there was only one difference between groups in the baseline data [Awareness (PHMLS)], the behaviors between these two moments were different due to the imposed social restrictions. Thirdly, the heterogeneity detected between the two groups in relation to gender and nationality can lead to an imbalance in the findings. Lastly, in order to increase data reliability in future research, we suggest the use of different assessment measures, such as cortisol analysis or participants' impressions of the intervention.

This study findings are very relevant given the trend of increasing use of TeleHealth. Results show that this face-to-face MBI has a slight advantage over the online

MBI in the pre- and post-test analysis. On the other hand, this online MBI has a greater advantage over the in-person format in the 3-month post-intervention analysis. It is important to emphasize that both formats presented beneficial effects. The comparison between formats aims to reflect on how we can improve both and not indicate which format is better. Probably the answer to this question depends on each individual characteristics and circumstances. We hope that future studies can shed more light on this topic.

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Conclusões

Os cinco estudos que compõem esta tese contemplaram os objetivos propostos. Nesta sessão, serão destacados os principais achados e abordados pontos que ainda não foram mencionados e valem maior reflexão.

Durante a execução do estudo um, no qual realizou-se uma revisão sistemática sobre as IBMs em contextos universitários (Chiodelli, Mello, Jesus, Beneton, et al., 2020), foi necessário alterar os critérios de elegibilidade dos artigos a fim de evitar um número demasiado grande de estudos para análise. Desta forma, somente estudos publicados nos últimos três anos (2016-2018), ao invés dos cinco anos previamente estabelecidos, foram aceitos. Com esta medida, o número de artigos reduziu de 35 para 19, o que facilitou um exame mais cuidadoso de cada artigo. Esta circunstância reflete o aumento exponencial do número de publicações científicas relacionadas a *mindfulness* (Germer et al., 2016).

A revisão sistemática detectou resultados favoráveis em IBMs adaptadas com uma duração mais curta. Tal resultado demonstra que existe uma flexibilidade no formato de uma IBM sem, necessariamente, alterar seus benefícios. Logicamente, que um envolvimento mais duradouro do participante com a prática tende a ser mais eficaz (Carmody & Baer, 2008). Porém, existem outros fatores além do tempo que podem ser cruciais e podem ser melhor estudados, como a importância do grupo, do facilitador e da motivação do participante.

Dentre as limitações das IBMs identificadas na revisão sistemática, destaca-se o número reduzido de estudos que aplicaram o teste de *follow-up*, assim como a não utilização de medidas fisiológicas. Na presente investigação, pôde-se perceber a importância de se avaliar os resultados após o término da intervenção. Ao buscarmos comparar os efeitos dos grupos presencial e online síncrono no estudo quatro, as diferenças são pouco representativas. Já ao acessarmos o impacto dos dois formatos no estudo cinco, o contraste é notável. O intuito de uma IBM é justamente proporcionar ferramentas para que o participante possa cultivar um melhor relacionamento com seus pensamentos e emoções após o término do programa. Baseado no MBCT, no encontro 6 do PIM, entrega-se um material ao aluno intitulado “A semana 6 é o resto das suas vidas”, que contém recomendações de como manter uma prática de *mindfulness* consistente após o programa. Em relação ao uso de medidas fisiológicas, assim como ter uma amostra randomizada, seria a investigação ideal. Entretanto, com raras exceções, somente estudos que possuem um investimento financeiro de suporte conseguem alcançar este nível.

O estudo dois descreve mais detalhadamente o PIM e, a partir disto, é possível fazermos algumas comparações desta intervenção junto aos programas tradicionais. Os programas clássicos de *mindfulness* (MBSR; MBCT) possuem oito sessões com uma frequência semanal e duração de duas horas e 30 minutos cada. Além destes encontros, oferece-se um dia de retiro de silêncio (Goldberg et al., 2021). Todavia, nem todos os contextos podem aplicar tal logística e devem se adaptar. O PIM, por sua vez, não oferece o retiro de silêncio e possui 6 sessões com duração de duas horas e em uma frequência semanal. O tempo das práticas de meditação propostas também tem uma duração mais curta no PIM (10 minutos em média), enquanto as práticas dos programas tradicionais possuem uma duração média de 45 minutos. Ao contrário do que acontece na maioria das IBMs, o PIM não ofereceu um manual aos alunos para que tenham um material de referência e possam fazer as anotações das suas experiências com *mindfulness*. Este material, inclusive, foi desenvolvido e incluído nos programas somente após o término das 10 intervenções analisadas e segue no seguinte link de acesso: https://bit.ly/36Z7z2U. Outra diferença fundamental é a inclusão de um tema paralelo ao *mindfulness* e relevante para os universitários: a interculturalidade.

Explorar a questão da interculturalidade também veio "a calhar", sendo dois facilitadores de nacionalidade brasileira aplicando um programa de habilidades emocionais e sociais em Portugal. Vale destacar que a maioria dos participantes foram brasileiros ou portugueses e que esta interação se mostrou muito benéfica. Por exemplo, de modo geral, os brasileiros demonstraram-se mais comunicativos que os portugueses. Contudo, pôde-se perceber que os alunos portugueses ficavam mais confortáveis para se expressar à medida que as dinâmicas ocorriam. Já os brasileiros aprenderam bastante sobre os costumes e aspectos culturais de Portugal. O fato de também haver uma facilitadora portuguesa contribuiu para haver uma troca profícua entre as culturas de ambos os países e facilitar uma aculturação integrativa. Segundo Sam & Berry (2016), uma aculturação integrativa ocorre numa relação quando ambas as partes são transformadas.

O estudo três, que propõe a validação da escala de solidão e solitude positiva (ESSP), obteve achados de critérios divergentes que foram ao encontro da literatura, à medida que as variáveis de dificuldade de regulação emocional, depressão, ansiedade e stress indicaram uma associação positiva com solitude positiva e negativa com solidão. A análise estatística evidenciou que, na maioria das variáveis, as correlações foram mais fortes com a dimensão solidão do que com a de solitude positiva. Ou seja, a aversão de

ficar a sós dos respondentes é mais intensa do que a apreciação de estar consigo mesmo. Estes dados podem ter relação com nosso próprio instinto à medida que, na pré-história, ser afastado do grupo, significava estar à mercê de muitos perigos, aumentando o risco de morte (Harari, 2018).

Os achados do estudo três também apontam a uma maior aversão a ficar a sós por participantes mais novos. Embora investigações com solidão tendem a relacionar este construto com pessoas mais velhas, tal associação não é tão direta (Heylen, 2010). Os resultados da presente validação corroboram os dados de estudos recentes, que reportam um sentimento de solidão maior em populações mais jovens (Barreto et al., 2021; *Office for National Statistics* [ONS], 2018).

Recomenda-se que futuros estudos realizem uma análise com escalas concorrentes, a fim de certificar-se da fidedignidade dos constructos avaliados. De fato, durante a investigação houve muita dificuldade em encontrar escalas que avaliassem a solitude positiva da forma pretendida. Por esta razão, a ESSP foi desenvolvida. Todavia, foi publicado recentemente um artigo que valida um instrumento exatamente com este construto (Palgi et al, 2021) e surge como um forte candidato à escala concorrente. Quanto às medidas de solidão, existem inúmeras, sendo a *UCLA Loneliness Scale* a mais tradicional (Russell, Peplau & Cutrona, 1980). Cabe apontar que os primeiros grupos do PIM ainda não tinham este instrumento. Devido a esta razão, percebe-se o número de amostra reduzido de respondentes da LPSS no grupo presencial.

Quanto ao estudo quatro, o qual avaliou os efeitos do PIM, há de se sublinhar o impacto positivo desta intervenção. Tanto o grupo presencial como o grupo online demonstraram uma superioridade inquestionável frente ao grupo controle. Assim como no estudo cinco, muitas variáveis foram analisadas. Com o intuito de publicação, ambas as investigações podem ser divididas a fim de podermos nos debruçar melhor sobre os resultados. Ressalta-se, novamente, a importância de intervenções deste tipo em instituições acadêmicas, visto o alto índice de transtornos mentais entre universitários (Auerbach et al., 2018).

A comparação entre os efeitos das intervenções presencial e online, realizada no estudo 5, indicou informações muito relevantes, visto a visível superioridade do formato online síncrono a partir do momento em que o teste de *follow-up* (aplicado três meses após a intervenção) foi examinado. Verificou-se que, no grupo online, a depressão e ansiedade demonstraram melhores mais representativas com o exame do terceiro tempo. Percebe-se que os participantes do grupo online tiveram um maior autocuidado do que os

alunos dos grupos presenciais após a intervenção e a hipótese apresentada é que devido ao fator "grupo" ser menos presente nos programas online, os participantes desenvolveram uma maior autoeficácia e, consequentemente, menor dependência de estar com outros para fazer as práticas. Ao mesmo tempo, o aluno do programa online acostumou-se a fazer as práticas meditativas em casa – não há, portanto, uma mudança brusca após o término do programa. O fato de a amostra não ser randomizada, assim como o efeito Covid-19 (contexto presente somente para os grupos *online*), são fatores limitantes desta comparação. Todavia, são resultados observados de forma pareada e possuem precedentes (Wagner et al., 2014), os quais devem ser levados em conta para futuras investigações.

Por fim, vale destacar a relevância e contemporaneidade dos temas abordados nesta tese. Dentre eles, dois tópicos ainda pouco explorados no campo científico e merecedores de aprofundamento: o construto de solitude e a comparação entre intervenções presencias e online síncronas. Também é celebrado o fato de este trabalho ter gerado duas criações autorais: a escala de solidão e solitude positiva; e o PIM. Espera-se que estes estudos colaborem para a ciência e, consequentemente para a população em geral.

Considerações Finais

É com muita satisfação e orgulho que entrego este trabalho abrangente, empírico e com temas tão relevantes e contemporâneos. Acima de tudo, foi um processo gratificante, pois me identifico imensamente com os temas e os mesmos estão conectados com meu percurso profissional e dia-dia. Esta identificação ajuda a superar as barreiras de um processo de doutoramento.

Logicamente, realizar esta tese foi um processo longo e exigente. Além da pesquisa teórica intensa, o projeto exigiu muita prática. Conduzi todos os PIMs (na sua maioria, em conjunto com as colegas Diana Oliveira ou Luana T. Nesi de Mello), abrangendo um total de 140 horas de aplicação do programa (visto que os sempre PIMs tiveram as sessões introdutórias, além das seis sessões). Isto sem calcular as horas de preparação, divulgação, organização logística, e-mails e mensagens texto para os participantes, passagem dos dados, análises estatísticas... Portanto, é um momento de se valorizar e celebrar o trabalho realizado. Agradeço, novamente, ao Prof. Saúl Neves de Jesus pela confiança e por oferecer um suporte com muita prontidão durante todo este tempo. Sem uma equipa tão competente, estes estudos não seriam possíveis.

Esta tese teve produções diretas e indiretas (pessoais) que valem a pena serem destacadas. Diretamente, foi desenvolvida a escala de solidão e solitude positiva, assim como o PIM. Inclusive, reitero o convite para acesso ao belo manual do programa construído em conjunto com a colega Luana T. Nesi de Mello: https://bit.ly/36Z7z2U. De forma indireta, devido a ser facilitador do PIM, fui convidado a ativar a associação de estudantes brasileiros da UAlg. Assim, com a ajuda de outros alunos, criamos a BRAAUAlg (Núcleo de estudantes brasileiros da associação acadêmica da universidade do Algarve), a qual presidi durante dois anos com muito gosto e segue bastante ativa e atuante. Por conseguinte, o PIM foi uma porta de entrada para outras iniciativas, às quais também destaco a participação no desenvolvimento e implementação no programa online de *soft skills*, chamado "Competências para a vida", o qual é o tema principal da tese de doutoramento da colega Luana T. Nesi de Mello.

Espero que todos estes estudos possam ser publicados e popularizados com a finalidade de produzir mais conhecimentos e boas práticas na psicologia.

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Apêndice 1 – Questionário Sociodemográfico

Questionário Sócio-Demográfico

Dados pessoais Data de Preenchimento: ___/___/_____

Nome: _____ Sexo: F ( ) M ( ) Idade:_____

Curso em que está matriculado(a): _____

Ano: _____

Atualmente está empregado? ( ) sim ( ) não

Jornada semanal de trabalho: _____ (em horas)

Com quem mora atualmente? (ex. pais, amigos, colegas, marido, namorada, sozinho, etc.)
_____

Enfrenta no momento alguma doença ou processo de adoecimento físico e/ou mental que acredite ser necessário mencionar? ( ) sim ( ) não
Qual? _____

Usa alguma medicação controlada? ( ) sim ( ) não

Qual o medicamento? _____

Já foi atendido alguma vez por um psicólogo ou psiquiatra?
( ) está em atendimento atualmente ( ) sim, anteriormente ( ) nunca

Qual o motivo?_____

Está a ter dificuldades de adaptação (integração) na vida social na UAlg?

Pouca dificuldade | 1 | 2 | 3 | 4 | Muita dificuldade

Está a ter dificuldades de adaptação (integração) na vida académica/escolar na UAlg?

Pouca dificuldade | 1 | 2 | 3 | 4 | Muita dificuldade

Coloca a hipótese de abandonar os estudos na UAlg? ( ) Não ( ) Sim

Apêndice 2 – Termo de Consentimento Livre e Esclarecido (TCLE)

TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO - TCLE

Você está sendo convidado(a) a participar de uma investigação científica, realizada pelos doutorandos em Psicologia, Roberto Chiodelli e Diana Oliveira, da Univesidade do Algarve - UAlg, sob orientação do Professor Doutor Saul Neves de Jesus. Este estudo tem por objetivo investigar os efeitos causados por um programa de Interculturalidade e *Mindfulness* em estudantes universitários.

A intervenção terá a duração de 6 semanas (um encontro de 1 hora e 30 minutos por semana). Além da participação nos encontros, você será solicitado a fazer curtas práticas meditativas diárias entre um encontro e outro. Você também deverá responder a alguns questionários relacionados com a sua vida e o seu comportamento recente.

A sua participação é voluntária, o que significa que é livre para decidir sobre fazer parte ou não do estudo e poderá se retirar a qualquer momento, sem haver prejuízo. Mais se acrescenta que a sua participação não está associada a nenhum tipo de avaliação profissional ou de desempenho.

Na publicação dos dados da pesquisa serão omitidas todas as informações que permitam identificar a sua identidade.

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Roberto Chiodelli	Local e Data
Pesquisador Responsável	
----------	----------
Diana Oliveira	Local e Data
Pesquisadora Responsável	
----------	----------
Participante	Local e Data

Apêndice 3 – Escala de Solidão e Solitude Positiva (ESSP)

Escala de Solidão e Solitude Positiva (Chiodelli et al., 2021)

Por favor, assinale com que frequência o fato de ficar um tempo consigo mesmo lhe gera as seguintes sensações/ pensamentos:

Ficar um tempo comigo mesmo....	Nunca	Raramente	Às vezes	Muitas vezes	Sempre
1. ... é tedioso.	1	2	3	4	5
2. ... é bom, pois posso aprender mais sobre mim.	1	2	3	4	5
3. ... é uma escolha minha.	1	2	3	4	5
4. ... não é satisfatório, pois eu gostaria de estar com outras pessoas.	1	2	3	4	5
5. ... é satisfatório, pois consigo relaxar.	1	2	3	4	5
6. ... não é bom e logo procuro algo para me distrair.	1	2	3	4	5
7. ... provoca-me emoções desagradáveis, como tristeza.	1	2	3	4	5
8. ... é importante.	1	2	3	4	5
9. ... é insatisfatório, pois sinto-me excluído.	1	2	3	4	5
10. ... ajuda-me a olhar para os meus projetos de forma mais criativa.	1	2	3	4	5

Apêndice 4 – Escala de Dificuldades na Regulação Emocional (EDRE)

UAlg — *Programa Doutoramento em Psicologia*

Escala de Dificuldades na Regulação emocional (EDRE)

Difficulties in Emotion Regulation Scale (DERS)
Kim L. Gratz & Lizabeth Roemer, 2004
Department of Psychology
University of Massachusetts

Tradução e Adaptação da Versão Portuguesa
Eugénia Fernandes, Joana Coutinho, Raquel Ferreirinha, 2007
Departamento de Psicologia
Universidade do Minho

INSTRUÇÕES: Por favor, indique com que frequência as afirmações se aplicam a você, colocando o número apropriado da escala abaixo indicada, relacionado a cada item.

1	2	3	4	5
quase nunca (0 - 10%)	algumas vezes (11 - 35%)	metade das vezes (36- 65%)	a maioria das vezes (66 - 90%)	quase sempre (91 - 100%)

1. Percebo com clareza os meus sentimentos. _____
2. Presto atenção a como me sinto. _____
3. Vivo as minha emoções como avassaladoras e fora do controlo. _____
4. Não tenho nenhuma ideia de como me sinto. _____
5. Tenho dificuldade em atribuir um sentido aos meus sentimentos. _____
6. Estou atento aos meus sentimentos. _____
7. Sei exactamente como me estou a sentir. _____
8. Interesso-me com aquilo que estou a sentir. _____
9. Estou confuso sobre como me sinto. _____
10. Quando estou em baixo, apercebo-me das minhas emoções. _____
11. Quando estou em baixo, fico zangado comigo próprio por me sentir assim. _____
12. Quando estou em baixo, fico embaraçado por me sentir assim. _____
13. Quando estou em baixo, tenho dificuldade em realizar tarefas. _____
14. Quando estou em baixo, fico fora de controlo. _____
15. Quando estou em baixo, penso que vou-me me sentir assim por muito tempo. _____
16. Quando estou em baixo, penso que vou acabar por me sentir muito deprimido. _____
17. Quando estou em baixo, acredito que os meus sentimentos são válidos e importantes. _____

Apêndice 5 – Escalas de Ansiedade, Depressão e Stresse (EADS-21)

DASS-21 (Apóstolo, Mendes & Azeredo, 2006).

Por favor leia as seguintes afirmações e assinale com um círculo o número (0, 1, 2, 3) que indica quanto cada afirmação se aplica a si *durante os últimos dias*. Não há respostas correctas ou incorrectas. Não demore demasiado tempo em cada resposta.

A escala de classificação é a seguinte:

0	**Não se aplicou a mim.**
1	**Aplicou-se a mim um pouco, ou durante parte do tempo.**
2	**Aplicou-se bastante a mim, ou durante uma boa parte do tempo.**
3	**Aplicou-se muito a mim, ou a maior parte do tempo.**

Nos últimos dias:

1.	Tive dificuldade em me acalmar/descomprimir	0	1	2	3
2.	Dei-me conta que tinha a boca seca	0	1	2	3
3.	Não consegui ter nenhum sentimento positivo	0	1	2	3
4.	Senti dificuldade em respirar (por exemplo, respiração excessivamente rápida ou falta de respiração na ausência de esforço físico)	0	1	2	3
5.	Foi-me difícil tomar iniciativa para fazer coisas	0	1	2	3
6.	Tive tendência para reagir exageradamente em certas situações	0	1	2	3
7.	Senti tremores (por exemplo, das mãos ou das pernas)	0	1	2	3
8.	Senti-me muito nervoso	0	1	2	3
9.	Preocupei-me com situações em que poderia vir a sentir pânico e fazer um papel ridículo	0	1	2	3
10.	Senti que não havia nada que me fizesse andar para a frente (ter expectativas positivas)	0	1	2	3
11.	Senti que estava agitado	0	1	2	3
12.	Senti dificuldades em relaxar	0	1	2	3
13.	Senti-me triste e deprimido	0	1	2	3
14.	Fui intolerante quando qualquer coisa me impedia de realizar o que estava a fazer	0	1	2	3
15.	Estive perto de entrar em pânico	0	1	2	3
16.	Não me consegui entusiasmar com nada	0	1	2	3
17.	Senti que não valia muito como pessoa	0	1	2	3
18.	Senti que andava muito irritável	0	1	2	3
19.	Senti o bater do meu coração mesmo quando não fazia esforço físico (Ex: sensação de aumento do bater do coração ou falhas no bater do coração)	0	1	2	3
20.	Tive medo sem uma boa razão para isso	0	1	2	3
21.	Senti que a vida não tinha nenhum sentido	0	1	2	3

Apêndice 6 – Proteção de Dados

Inscrição no Programa online de Interculturalidade e Mindfulness para estudantes da UAlg

O Gabinete de Apoio a Inovação Pedagógica (GAIP) e o Gabinete de Psicologia dos Serviços de Ação Social (SAS) da Universidade do Algarve (UAlg), em colaboração com a AAUAlg, estão a organizar o curso "Interculturalidade e Mindfulness para estudantes da UAlg" (PIM), que se irá realizar na Universidade do Algarve nos meses de abril, maio e junho de 2021.

O principal objetivo é promover a adaptação, fomentar a atitude intercultural positiva, estimular as competências de Atenção Plena, desenvolver competências de comunicação e facilitar a expansão da rede de suporte social. A participação do aluno é gratuita.

O PIM iniciará no dia 29/04 e as sessões ocorrem durante seis semanas, com uma duração de 2h cada. Os encontros serão às quintas-feiras das 18h às 20h.

Para participar neste curso é necessário proceder ao preenchimento do Formulário de Inscrição seguinte, estando assinalados os campos de preenchimento obrigatório.

Todos os dados são recolhidos apenas para efeitos de registo e gestão das inscrições no curso, bem como para comunicação de iniciativas da UAlg, estando garantida a confidencialidade do seu tratamento e a exclusiva utilização pela UAlg, sendo o seu tratamento realizado nos termos e condições da Política de Proteção de Dados que se encontra acessível em www.ualg.pt.

Se necessitar de algum esclarecimento adicional em relação à participação ou ao preenchimento do formulário, é favor contactar pelo email competenciasparavida@ualg.pt

*Obrigatório

1. Eu aceito os termos e as condições acima descritos. Da mesma forma, como titular de dados, aceito as condições gerais e os termos das Políticas de Proteção de Dados do Google Forms. *

Marcar apenas uma oval.

- ◯ Sim
- ◯ Não

Inscrições | Programa online de Interculturalidade e Mindfulness

5. Há alguma dúvida ou observação que gostavas de fazer?

6. Consentimento para Tratamento de Dados *

Autorizo expressamente o tratamento dos meus dados pessoais para efeitos de contato, divulgação e comunicação das atividades, cursos e serviços da UALG, de acordo com as condições da Política de Proteção de Dados que se encontram disponíveis em www.ualg.pt. Estou informado dos termos de tratamento dos meus dados pessoais e tenho consciência de que posso retirar o meu consentimento a qualquer momento ou exercer os meus direitos de proteção de dados, nomeadamente os direitos de informação, acesso, consulta, retificação, oposição ao tratamento ou apagamento, dentro do horário normal de funcionamento, através de contacto com o Gabinete da Proteção de Dados da UALG, pelo correio eletrónico rgpd@ualg.pt

Marcar apenas uma oval.

- ◯ Sim
- ◯ Não

Apêndice 7 – Escala Filadélfia de *Mindfulness* (EFM)

Escala Filadélfia de Mindfulness (Teixeira, Ferreira & Pereira, 2017)

Por favor seleccione o número que corresponde à frequência com que vivenciou cada uma das afirmações seguintes na passada semana.

	Nunca	Rara-mente	Algumas vezes	Muitas vezes	Quase sempre
1. Estou consciente dos pensamentos que me passam na mente.					
2. Tento distrair-me quando sinto emoções desagradáveis.					
3. Quando falo com outras pessoas, estou consciente das suas expressões faciais e emocionais.					
4. Há aspetos sobre mim que prefiro não pensar.					
5. Quando tomo banho de chuveiro, tenho consciência de como a água vai correndo pelo meu corpo.					
6. Tento estar ocupado para desviar a minha mente de pensamentos e sentimentos.					
7. Quando estou sobressaltado, reparo nas reações interiores do meu corpo.					
8. Quem me dera poder controlar as minhas emoções mais facilmente.					
9. Quando caminho ao ar livre, estou consciente dos cheiros ou do movimento do ar na minha cara.					
10. Eu digo a mim mesmo que não devia ter certos pensamentos.					
11. Quando alguém me pergunta como me sinto, consigo identificar facilmente as minhas emoções.					
12. Há coisas em que tento não pensar.					
13. Tenho consciência dos pensamentos que estou a ter quando o meu humor muda.					
14. Digo a mim mesmo que não devia sentir-me triste.					
15. Reparo nas mudanças no interior do meu corpo, como o meu coração a bater mais rápido ou os meus músculos a ficarem tensos.					
16. Se existe algo em que não quero pensar, tento várias coisas para retirar isso da minha mente.					
17. Quando as minhas emoções mudam, tenho consciência delas imediatamente.					
18. Tento não pensar nos meus problemas.					
19. Quando converso com outras pessoas, estou consciente das emoções que estou a sentir.					
20. Quando tenho uma má recordação, tento distrair-me para ela desaparecer.					

Apêndice 8 – Freiburg Mindfulness Inventory (FMI)

Freiburg Mindfulness Inventory (Hirayama, 2014)

Na resposta às questões abaixo, por favor considere os últimos 30 dias como o período de tempo a ter como referência para cada item.

	Raramente	Ocasionalmente	Frequentemente	Quase Sempre
1. Estou receptivo(a) à experiência do momento presente.	1	2	3	4
2. Estou consciente do meu corpo enquanto como, cozinho, limpo ou falo.	1	2	3	4
3. Quando noto que a minha mente vagueia, retorno suavemente à experiência do aqui e agora.	1	2	3	4
4. Sou capaz de gostar de mim próprio(a).	1	2	3	4
5. Presto atenção ao que está por detrás das minhas acções.	1	2	3	4
6. Observo os meus erros e dificuldades sem os julgar.	1	2	3	4
7. Sinto-me ligado à minha experiência do aqui e do agora.	1	2	3	4
8. Aceito experiências desagradáveis.	1	2	3	4
9. Quando as coisas correm mal sou compreensivo comigo mesmo(a).	1	2	3	4
10. Observo os meus sentimentos sem me "perder" neles.	1	2	3	4
11. Em situações difíceis consigo parar e não reagir imediatamente.	1	2	3	4
12. Experimento momentos de paz interior e de calma, mesmo quando as coisas se tornam agitadas/confusas.	1	2	3	4
13. Sou impaciente comigo próprio(a) e com os outros.	1	2	3	4
14. Consigo sorrir quando percebo como, algumas vezes, torno a vida difícil.	1	2	3	4

Apêndice 9 – Escala de Satisfação com a Vida (SWLS)

Escala de Satisfação com a Vida (Neto, Barros & Barros, 1990)

Indique o grau em que concorda ou discorda de cada uma das seguintes afirmações.

Discordo totalmente DT	Discordo um pouco D	Não discordo nem concordo ND/NC	Concordo moderadamente C	Concordo totalmente CT
1	2	3	4	5

	DT	D	ND NC	C	CT
1. A minha vida parece-se em quase tudo com o que eu desejaria que ela fosse	1	2	3	4	5
2. As minhas condições de vida são muito boas	1	2	3	4	5
3. Estou satisfeito com a minha vida	1	2	3	4	5
4. Até agora tenho conseguido as coisas importantes da vida que eu desejaria	1	2	3	4	5
5. Se pudesse recomeçar a minha vida, não mudaria quase nada	1	2	3	4	5

Apêndice 10 – Escala de Otimismo

Escala de Optimismo (Barros, 1998)

Indique o grau em que concorda ou discorda de cada uma das seguintes afirmações.

Discordo totalmente DT	Discordo um pouco D	Não discordo nem concordo ND/NC	Concordo moderadamente C	Concordo totalmente CT
1	2	3	4	5

	DT	D	ND/ NC	C	CT
1. Encaro o futuro com optimismo.	1	2	3	4	5
2. Tenho esperanças de conseguir o que realmente desejo.	1	2	3	4	5
3. Faço projectos para o futuro e penso que os realizarei.	1	2	3	4	5
4. Em geral considero-me uma pessoa optimista.	1	2	3	4	5