

MEASURING MINDFULNESS IN ADOLESCENCE: LITERATURE REVIEW

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Abstract

Mindfulness in adolescents can be measured by many self-report inventories, scales and questionnaires. Our literature review summarizes most of the existing measurements. Search strategy was to use main electronic databases related to this field. Articles had to meet selected criteria e.g. age of target group, text in english language and academic conditions. Final number of the instruments was seventeen included in thirty seven articles. Measures contain from 10 to 39 items, the most time-consuming psychodiagnostic tool takes 15 minutes. Measures can be sorted by the "times cited" condition according to Web of Science. The review uses a superficial approach as the aim was to submit total enumeration of tools including new measures based on older. Existing self-report measures of mindfulness for adolescents can be helpful in evaluating the effectiveness of mindfulness interventions.

Keywords

Mindfulness; Measure; Adolescence; Literature review.

INTRODUCTION

Meditation can be seen as a group of self-regulatory practices focusing on training attention and awareness to bring mental processes under greater self-control (Walsh & Shapiro, 2006). Mindfulness is a form of self-referencing that is generally defined as non-evaluative attention focused on the experience of the present moment (Bishop et al., 2004; Kabat-Zinn, 2003; McCollum, 2015). Generally accepted description of mindfulness is also a non-elaborative, non-judgmental, present-centered awareness, in which thoughts, feelings, and sensations that enter the attention are acknowledged and accepted (Bishop et al. 2004). Mindfulness can be implemented both informally (by creating greater awareness in everyday life) and through formal training (i.e. mindfulness meditation interventions or MMI).

In our case we aimed on adolescence. Shaffer & Kipp (2010) states this

developmental period from 12 to 20 years of age. As characteristic of this stage of development, adolescents have incomplete cognitive and emotional development and less sophisticated reading skills and are still developing capacity for self-reflection (Keating et al. 2004). Many positive effects of mindfulness practice in adolescents were described. There was a reduction in general anxiety following mindfulness intervention measured by the Beck Anxiety Inventory, as well as a reduction in social anxiety measured by the Interaction anxiety scale (Jennings & Jennings, 2013). Mindfulness has also a positive effect on the emotional competencies of adolescents (Mihić, 2019) and reduces their social anxiety and thus contributes to mental health (Singh et al., 2020). Further research indicates that mindfulness leads to self-esteem, self-regulation, and health (Modi et al., 2018). There is growing evidence to suggest that mindfulness may lead to

improvements in general school behavior of adolescents in addition (Sapthiang et al., 2019).

Mindfulness can be measured, but the direct measurement of mindfulness in adolescence is faced with a number of conceptual, methodological, developmental, and cultural challenges (Goodman et al., 2017). This literature review submits existing measure tools of mindfulness for adolescents.

OBJECTIVE

The main objective of the presented study is to provide a comprehensive overview of professional publications in the field of systematic mindfulness practice in adolescents in an international context.

METHODOLOGY

Search strategy

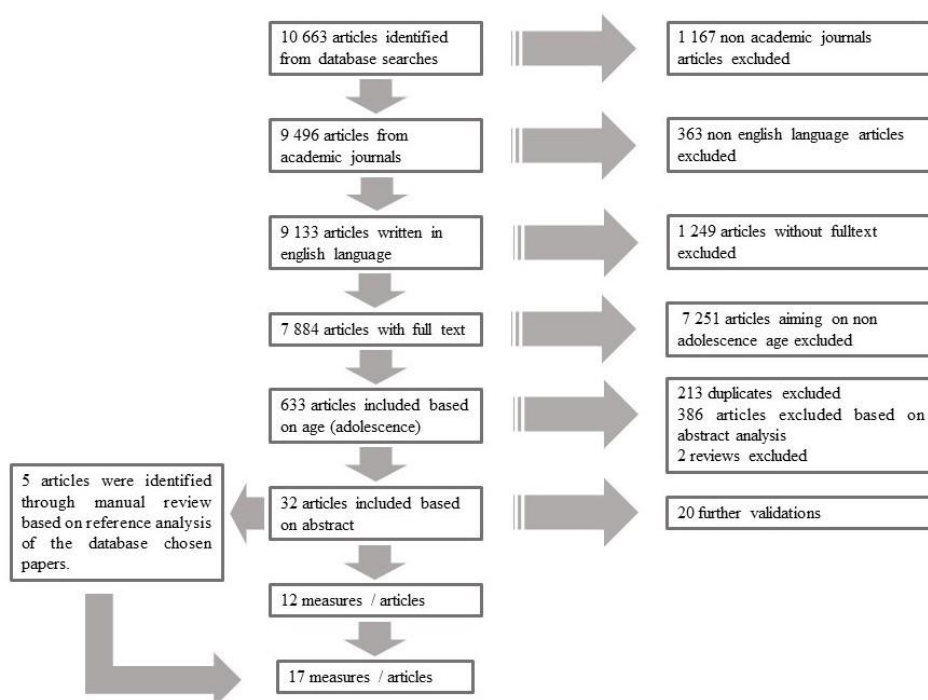
Electronic databases Academic Search Ultimate, APA PsycArticles,

APA PsycInfo, MEDLINE Complete, SPORTDiscus with Full Text were searched up using combinations of the following terms: mindfulness, measurement, scale, tool, instrument. Then the reference lists in relevant articles were manually reviewed.

Selection criteria

Self-report instruments were selected when the condition of mindfulness assessing in adolescence (up to twenty years old) was met. Non academic journal articles written in non english language, reviews and meta-analyses articles were excluded. Five articles were identified through manual review based on reference analysis of the database chosen papers. Final number was seventeen measures included in thirty seven articles. The flow chart in Tab. 1 clarify exact procedure of the article selection.

Tab. 1 Flow chart



RESULTS AND DISCUSSION

RESULTS

Included measures contain from 10 to 39 items in the form of questions. Administration time varies from *less than 5 minutes* to *10 – 15 minutes*. These self report questionnaires are sorted by the times cited according to Web of Science.

Most cited article describes development and validation of the measure Kentucky inventory of mindfulness skills (KIMS) (Baer et al., 2004). It was cited 932 times. The KIMS has 39 items, administration time is 10 – 15 minutes.

The Cognitive and Affective Mindfulness Scale – Revised (CAMS-R) (Feldman et al., 2007) was cited 467. CAMS-R contains 12 questions and it takes less than 5 minutes.

The Toronto Mindfulness Scale (TMS) (Lau et al., 2006) is one of five measures that were manually reviewed based on reference analysis of the databases chosen papers. This article was cited 462 times, TMS administration of 15 items takes less than 5 minutes.

Other older measure is the Philadelphia mindfulness scale (PHLMS) (Cardaciotto et al., 2008). Following study of Tejedor et al. (2014) was aimed at evaluating the psychometric properties of the Spanish version of PHLMS. It has 20 items and time to do varies from 5 – 10 minutes. Original article was cited 317 times.

The Child and Adolescent Mindfulness Measure (CAMM) (Greco et al., 2011) represents measure with the most non english validations. Because of short 10 item design it takes less than 5 minutes. Original article was cited 203 times. Chiesi et al. (2017) explored the psychometric properties of the Italian version of the CAMM, but first further validation conducted de Bruin et al. (2014) in Netherlands population. It was

also carried out validation among samples of French (Dion et al., 2018; Roux et al., 2019), Spanish (García-Rubio et al., 2019; Guerra et al., 2019), Catalan speaking Spanish (Viñas et al., 2015) and Italian (Saggino et al., 2017). Validation in racial minority adolescents from low-income environments conducted Prenoveau et al. (2018).

Another short measure of the mindfulness in adolescent is the Mindful Attention Awareness Scale for Adolescents (MAAS-A) (Brown et al., 2011). 14 questions takes less than 5 minutes. Original article was cited 164 times. de Bruin et al. (2011) carried out following version focused on the psychometric properties in a Dutch sample.

The Southampton mindfulness questionnaire (SMQ) (Chadwick et al., 2008) with its 16 items was cited 159 times. It takes 5 – 10 minutes.

Only one measure focuses on an aspect of eating. The Mindful eating questionnaire (MEQ) developed by Framson et al. (2009) takes 10 – 15 minutes, has 28 items and this article was cited 119 times. Abbaspoor et al. (2018) validated Iranian version of MEQ in women who seeking weight reduction.

The State mindfulness scale (SMS) (Tanay & Bernstein, 2013) takes less than 10 minutes. Number of items is 23 and number of further citations of the article is 91.

Other measure with many validations is the Five facet mindfulness questionnaire (FFMQ) (Gill & Hodgkinson, 2007). It is tool with the most items – 39. Despite of this fact it takes 10 – 15 minutes. Original article was cited only 36 times, but Asensio-Martínez et al. (2019) created short form in Spanish general health care services patients sample. Full-fledged validation in Spanish sample conducted Cebolla et al. (2012). It is also available Norway version of FFMQ (Dundas et al., 2013), rasch analyses carried out by

Medvedev et al. (2017, 2018) and Tran et al. (2013) constructed a short form of FFMQ.

Comprehensive Inventory of Mindfulness Experiences (CHIME-A) constructed by Johnson et al. (2017) has basis in the Comprehensive Inventory of Mindfulness Experiences beta (CHIME- β) (Bergomi et al., 2013). CHIME-A has 25 items, it takes less than 10 minutes and Johnsons article was cited 13 times.

Expanded version of SMS is the State Mindfulness Scale for Physical Activity (SMS-PA) (Ullrich-French et al., 2017 (A)). This 12 item questionnaire takes less than 5 minutes. Original article was cited 3 times. Same author Ullrich-French et al. (2017 (B)) conducted validity evidence in Spanish adolescents.

The Relaxation-mindfulness scale for adolescents (EREMIND-A) constructed López-González et al. (2018). Original article was cited 2 times. ERE-MIND-A has 18 items and takes 5 – 10 minutes.

Following articles about scales were cited same once. The Adolescent

and Adult Mindfulness Scale (AAMS) (Droutman et al., 2018) and the Langer mindfulness scale (Pirson et al., 2018) have 24 respectively 14 items and takes less than 10 minutes respectively less than 5 minute. Moafian et al. (2017) carried out validation of the Persian version of the Langer mindfulness scale.

It was not stated number of citation times at The Freiburg Mindfulness Inventory (FMI) (Buchheld et al., 2001) and the Srithanya sati scale (Silpakit & Sipakit, 2014). In the overview Tab. (Tab 2) is stated “not available“ (N/A) for this reason. Number of items is 38 respectively 17. Administration time is 10 – 15 minutes respectively less than 5 minutes.

Following overview Tab. summarizes mentioned information. It is measure, original author, number of items, administration time, “times cited“ information according to Web of Science and following validation author. Informations in Tab 2 are actual to date June 21, 2020.

Tab. 2 Overview Tab.

No.	Measure	Original author	Number of items	Administration time	Times cited (WoS)	Following validation author
1	Kentucky inventory of mindfulness skills (KIMS)	Baer et al., 2004	39	10 – 15 minutes	932	
2	Cognitive and Affective Mindfulness Scale- Revised (CAMS-R)	Feldman et al., 2007	12	Less than 5 minutes	467	
3	Toronto Mindfulness Scale (TMS)	Lau et al., 2006	15	Less than 5 minutes	462	
4	Philadelphia mindfulness scale (PHLMS)	Cardaciotto et al., 2008	20	5 – 10 minutes	317	Tejedor et al., 2014
5	Child and Adolescent Mindfulness Measure (CAMM)	Greco et al., 2011	10	Less than 5 minutes	203	Chiesi et al., 2017; de Bruin et al., 2014; Dion et al., 2018; García-Rubio et al., 2019; Guerra et al., 2019; Prenoveau et al., 2018; Roux et al., 2019; Saggino et al., 2017; Viñas et al., 2015
6	Mindful Attention Awareness Scale for Adolescents (MAAS-A)	Brown et al., 2011	14	Less than 5 minutes	164	de Bruin et al., 2011
7	Southampton mindfulness questionnaire (SMQ)	Chadwick et al., 2008	16	5 – 10 minutes	159	
8	Mindful eating questionnaire	Framson et al., 2009	28	10 – 15 minutes	119	Abbaspoor et al., 2018
9	State mindfulness scale (SMS)	Tanay & Bernstein, 2013	23	Less than 10 minutes	91	

Tab. 2 Overview Tab.

No.	Measure	Original author	Number of items	Administration time	Times cited (WoS)	Following validation author
10	Five facet mindfulness questionnaire (FFMQ)	Gill & Hodgkinson, 2007	39	10 – 15 minutes	36	Asensio-Martínez et al., 2019; Cebolla et al., 2012; Dundas et al., 2013; Medvedev et al., 2017, 2018; Tran et al., 2013
11	Comprehensive Inventory of Mindfulness Experiences (CHIME-A)	Johnson et al., 2017	25	Less than 10 minutes	13	
12	State Mindfulness Scale for Physical Activity (SMS-PA)	Ullrich-French et al., 2017 (A)	12	Less than 5 minutes	3	Ullrich-French et al., 2017 (B)
13	Relaxation-mindfulness scale for adolescents EREMIND-A	López-González et al., 2018	18	5 – 10 minutes	2	
14	Adolescent and Adult Mindfulness Scale (AAMS)	Droutman et al., 2018	24	Less than 10 minutes	1	
15	Langer mindfulness scale	Pirson et al., 2018	14	Less than 5 minutes	1	Moafian et al., 2017
16	Freiburg Mindfulness Inventory (FMI)	Buchheld et al., 2001	38	10 – 15 minutes	N/A	
17	Srithanya sati scale	Silpakit & Silpakit, 2014	14	Less than 5 minutes	N/A	

DISCUSSION

Literature review is defined as an overview of existing knowledge about the selected topic for a certain period of time. It is based on research studies sought at given topic, about the analysis and generalization of their results (Ridley, 2012). This literature review identifies measures of mindfulness in adolescence. Goodman et al. (2017) and Palozzi et al. (2017) conducted systematic reviews of this theme. They submit extensive information about the most used measurements of mindfulness in youth or adolescence. Our review include bigger amount of tools, but we submit only basic informations.

All included measures are time undemanding. They should be managed the longest within 15 minutes. Citation rate of the original articles varies from 1 to 932. 2 articles lacked information about citation rate. The reason is probably zero occurrence of following citations. This information can be used for quality assessment but we have to consider the year of publication.

Limitation of the review is a superficial approach. We identify enumeration of the measures so follow-up review could select appropriate tools to research. Other limit of this review can be selection of literature sources. Main databases do not contain some conference proceedings or unpublished scales and questionnaires. In fact new tools occurs and actual review is valuable.

CONCLUSIONS

Existing self-report measures of mindfulness for adolescents can be helpful in evaluating the effectiveness of mindfulness interventions. Many positive effects of a systematic mindfulness practice in adolescents were described. However, there is still a number of conceptual, methodological, developmental, and cultural challenges. Possible way is to revise and adapt functional original

measures to new conditions against creating new psychodiagnostic tools.

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