Content analysis of elementary school textbooks based on emotion regulation components: a qualitative study in Iran

Payam Marabi[1] , Nadereh Memaryan[2] , Jafar Bolhari[2] , Shahrbanoo Ghahari[3*]

[1] Department of psychology, faculty of behavioral sciences and mental health, Iran university of medical sciences, Tehran, Iran
[2] Spiritual Health Research Center, Iran University of Medical Sciences, Mental Health Department, School of Behavioral Sciences and Mental Health, Tehran, Iran
[3] Department of Mental Health, School of Behavioral Sciences and Mental Health (Tehran Institute of psychiatry). Iran University of Medical Sciences (IUMS), Tehran, Iran

Corresponding author and reprints: Shahrbanoo Ghahari. Department of Mental Health, School of Behavioral Sciences and Mental Health (Tehran Institute of psychiatry). Iran University of Medical Sciences (IUMS), Tehran, Iran.
Email: Ghahhari.sh@iums.ac.ir
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Abstract

Background: A high percentage of people suffering from emotional problems emotional regulation strategies guide people in dealing with life events in addition to preventing problems. The purpose of this study was to analyze the content of elementary school textbooks as an essential educational tool based on emotion regulation components.

Methods: The present study was a content analysis, and its population consisted of all elementary school textbooks. The primary source for determining the components of mental health was the "comprehensive curriculum of health education in schools from pre-school through to the end of high school," which was approved by eight mental health experts.

Results: In elementary school textbooks, the components of emotion recognition and emotion expression had the highest, and stress management had the lowest information load. The most frequent educational axes pertained to knowledge, while the textbooks lacked the skills axis in the field of emotion regulation components.

Conclusion: The results of the analysis showed that each component of emotion regulation is differently addressed. Given that about 35% of children experience stress-related health problems, it appears necessary to address stress coping strategies for children.

Introduction

Emotions are patterns of physiological change associated with behavior or tendency to behavior (1). These patterns are provoked by a subject or event that has an internal or external origin (2). Due to their relationship with a range of cognitive processes such as attention bias, memory bias, judgment, and decision-making (3), emotions not only direct what we see, hear, smell, and taste, but also direct motor strip of the cerebral cortex, the organization of experienced emotions, and at least part of our behavior (3).

Emotions act as basic motives in terms of guiding and the power of activating behaviors and may be associated with motivated behaviors (4). Correct responses to emotions and stressful events will vaccinate people against future catastrophes and become keys to future successful coping (5).

Emotion regulation is a set of cognitive processes that involve increasing or decreasing the intensity of perceived emotions, inhibition or disinhibition of emotional behaviors, changing the shape and cognitive content of emotions and motor activities associated with various emotions. These processes enable the person to respond adaptively to different situations (6). Children learn the represented rules and specific cultural standards of expressing emotions in specific fields and with a certain individual or individuals as they grow. The development of cognitive skills in children will also make them have a better understanding of others' emotions. Children should develop strategies to regulate and control their emotions based on direct and indirect teachings received through family, community and media (7).

In addition to the direct impact on educational success, the achievement of literacy and scientific knowledge of children, the school also influences students' emotions and cognition through hidden educational programs (8). Social emotions and cognition are also strongly influenced by the school (9). Meanwhile, the lessons learned are influenced by mediators such as children's motivation to learn or to avoid learning, their perception of themselves as students, and the concepts they develop to explain success and failure (10). These cognitive and motivational mediators will have indirect effects on the child's individual development even outside the school (11). Among the components of the educational system, textbooks have a crucial influence on the audience, especially in a centralized

educational system such as in Iran (12). Textbooks are a medium used by teachers and students every day, so they are sometimes considered as a teacher's whole curriculum (13). Textbooks are important cultural objects and symbols because they merge textual and visual elements in a single space, that is, book pages. Consequently, textbooks are involved in symbolic cultural interactions (14).

Several studies have so far explored the adequacy or favorability of textbooks in some themes such as physical health or exercise in Iran (15), but no study was found on mental health components. Accordingly, the present study attempted to analyze the content of elementary school textbooks based on the emotion regulation components, which are of the most critical educational axes in mental health, and to examine the extent to which, each concept is presented in the elementary school textbooks in different grades.

Methods

This study was a quantitative and qualitative content analysis study (16). The study population consisted of all elementary school textbooks published by the Ministry of Education for elementary school students in the 2017-2018 school year. These books included 41 volumes with the titles of natural sciences, mathematics, the Persian language, Quran teaching, Heavenly gifts, social studies, thinking and research, and work and technology. We investigated all the pages of these books.

Data analysis

Content analysis is a process in which raw data is transformed into categories based on accurate and organized interpretation of research. This process uses inductive logic, in which categories and themes are extracted from raw data by the researcher's careful examination and continuous comparison of data (data are moved from component to whole).

This method is used if the objective of the study is to describe a phenomenon; there are limited theories and literature about the phenomenon and the researcher does not intend to predict categories previously (17). The categories and themes are summarized, described, and interpreted by the data and used to determine the dominant and principal themes (18). To this end, the main components of the emotion regulation were first determined and then the elementary school textbooks were examined for the presence or absence of these components. In total, pages were examined as analysis units.

The "comprehensive curriculum of health education in schools from pre-school through to the end of high school" was used as the main source for preparing a checklist of emotion regulation components. Subsequently, selected items were sent to eight mental health professionals who were also university faculty members, and some pediatric mental health professionals. They were asked to comment on both the components and the relevant categories. The subjects who had obtained 80% agreement were used in the final form.

Finally, seven components (emotion recognition, emotion expression, empathy, happiness, stress management, anger management, and acceptance of conditions) were confirmed as emotion regulation components. Based on these components, content analysis checklists were developed in three axes of knowledge, attitude, and skill. Then the content of the books, including texts, images, questions, and activities were analyzed. That is, categories for each analysis unit were identified and counted based on the checklist for each

book in each grade and entered into a Microsoft Excel™ sheet. We also used the Shannon Entropy Method to calculate the information load of each component (15), in which a coefficient of importance is given to each element based on the frequency load.

Data Rigor and Trustworthiness

Data rigor and trustworthiness were examined by Guba and Lincoln (19) metrics: 1- an immersion that was conducted by the long-term involvement of the researcher in all of the research steps. 2- review by the colleague in which, the second author did external check after each step analysis by the primary author. Also, other authors monitored all steps and expressed their opinion. 3- researcher triangulation was done by employing a researcher who collects and analyzes data.

Ethical considerations

This study tried to see honesty in using academic texts to observe such considerations, present and analyze net data precisely and adhere to confidentiality when mentioning the name of references, documents, and experts. Also, ethical code was obtained from Research Deputy of Iran University of Medical Sciences That includes:

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Results

A total of 3088 items were identified as emotion regulation components in elementary school textbooks, among which emotion recognition had the highest frequency of 1789 in elementary school textbooks, followed by emotion expression with a frequency of 893. Acceptance of conditions, empathy,

Table 1. The frequency of emotion regulation components in elementary school textbooks

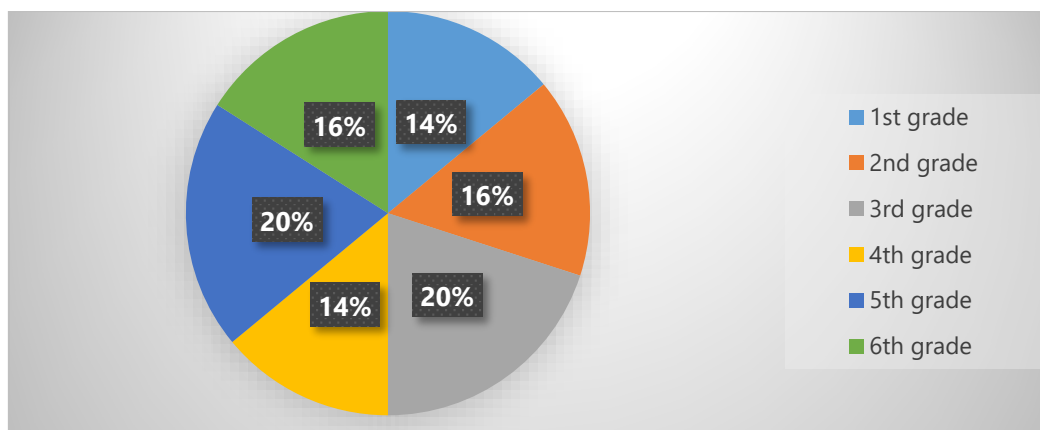|	Emotion recognition	Emotion expression	Empathy	Happiness	Stress management	Anger management	acceptance of conditions	Total
1st grade	177	95	13	28	54	20	45	432
2nd grade	325	141	11	5	2	3	10	497
3rd grade	400	190	13	1	0	0	9	613
4th grade	239	148	20	3	0	3	6	419
5th grade	379	169	45	6	6	4	22	631
6th grade	269	150	23	4	2	12	36	496
Total	1789	893	125	47	64	42	128	3088

Figure 1. The total frequency of emotion regulation components in elementary school textbooks

stress management, happiness, and anger management with frequencies of 128, 125, 64, 47, and 42 cases in the elementary school textbooks were the other components of emotion regulation, respectively. Table 1 shows the frequency of each component by grade. As Figure 1 shows, the distribution of emotion regulation components in different elementary school grades was between 14% and 20%. The fifth and third grades each had 20%, the second and sixth grades each had 16%, and the first and fourth grades each had 14% of the distribution of emotion regulation components.

Then based on the analysis of content, the information load that represents the importance of the information obtained is presented in Table 2.

The highest information load in all elementary school textbooks was that of emotion recognition and emotion expression, and the lowest information load belonged to stress management and anger management components.

To better understand the presentation of emotion regulation components in the elementary school textbooks, their presentation axes were examined. Accordingly, each topic can be expressed in

three axes of knowledge, attitude, and skill (this category was selected based on the health education curriculum in schools (preschool-precollege grades) to prepare educational goals in these three scopes).

Table 3 shows the frequency of emotion regulation components in these three axes. As Table 3 shows, knowledge is the most expressed axis. Attitude is also moderately expressed. The skill axis had no items, though.

The category of format was used to evaluate the frequency of the aforementioned components. In the category of format, the format of mental health subjects was examined in three categories of text, image, and activity. These templates are a formal format of presenting topics in books as the authors of such books use such formats to meet their educational goals.

Describing the format of the presentation of components, Table 4 shows that themes were mostly addressed in the form of text, followed by image and activity, respectively. The low number of activities in the presentation of each component was noteworthy especially in the strategic and important component of "stress management."

Table 2. The information load of research components in the reviewed textbooks

Component distribution	Emotion recognition	Emotion expression	Empathy	Happiness	Stress management	Anger management	acceptance of conditions
Information load (EJ)	0.9801	0.9887	0.9248	0.7126	0.3248	0.7324	**0.8685**

Table 3. The frequency of emotion regulation components of elementary school textbooks based on the presentation axis

Components	Axis		
	Kknowledge	Attitude	Skill
Emotion recognition	1751	38	0
Emotion expression	879	14	0
Empathy	116	9	0
Happiness	32	15	0
Stress management	22	42	0
Anger management	18	24	0
Acceptance of conditions	122	6	0

Table 4. The frequency of emotion regulation components of elementary school textbooks based on the presentation format

Components	Format		
	Text	Image	Activity
Emotion recognition	1312	285	192
Emotion expression	608	240	45
Empathy	66	44	15
Happiness	20	22	5
Stress management	30	33	1
Anger management	15	15	12
Acceptance of conditions	78	29	21

The table below was designed to understand the content of components in lesson books. Three examples have been presented in this table randomly from each component. (of three-axis of knowledge, attitude, and skill, the skill was removed from the qualitative analysis due to lack of frequency).

Discussion
The results of the current study showed that a total of 3088 units in the form of sentences or images in elementary textbooks referred to some emotion regulation. The component of emotion recognition was the most frequent, followed by emotion expression, acceptance of conditions, empathy, stress management, happiness and anger management, respectively.
The distribution of these components in different grades of the elementary school textbooks was between 14% and 20% (with the lowest in first and fourth grades, and the highest in third and fifth grades). The analysis showed that each component of emotion regulation is addressed differently.

Although no studies were found to examine the components of emotion regulation in elementary school books like the present study, the results of Izadi et al. showed the difference in the presentation of educational components in elementary school textbooks (20). In a study by Azimi et al., which explored textbooks of the sixth elementary school grade in Iran, although mental health had a significant frequency among the health items studied, emotion regulation was not one of the examined components, making the results not comparable with the present study (21).
The present study also showed that the highest amount of information load was in two components of emotion recognition and emotion expression, and the least amount of information load was in the stress management component. Stress management can also be considered as part of emotional management, where one has first to have a better understanding of emotion and how to express it to be successful. However, since about 35% of children experience stress-related health

Table 5. Examples of emotion regulation component in primary school textbooks based on the presentation axis

Components	Axis	Grade	Book	Format	Example
Emotion recognition	Knowledge	6th	social studies	Text	Suddenly, a terrible sound frightened everyone
		2nd	the Persian language	Text	The lion woke up and took the rat with anger
		4th	Heavenly gifts	Text	Everyone was afraid, and there was a hunch between them
	Attitude	5th	the Persian language	Activity	3. Complete it. Page 55
		1st	natural sciences	Image	Page 92
		5th	the Persian language	Text	Setareh looked excitedly into her mouth
Emotion expression	Knowledge	5th	the Persian language	Text	A look with love
		1st	the Persian language	Activity	What animals do when they are afraid?
		6th	the Persian language	Text	He looked down, cried and became very sad
	Attitude	1st	the Persian language	Activity	Show how you go to the party and new year visit
		1st	the Persian language	Image	Page 24
		1st	natural sciences	Image	Page 23
Empathy	Knowledge	5th	social studies	Text	Empathy means that one can understand feelings, behaviors, and conditions of other
		5th	social studies	Activity	Explain some examples of your empathy with a family member, classmates, and others in the class
		3nd	the Persian language	Text	We can have a great Iran with collaboration and empathy
	Attitude	4th	social studies	Text	Iranian people have shared their grieves and happiness
		3nd	the Persian language	Text	Let's shake hand with kindness
		3nd	Heavenly gifts	Text	I imagined myself as the older man for a moment
Happiness	Knowledge	1st	the Persian language	Text	I am pleased that I can read sweet stories and informative books
		1st	Quranic teaching	Text	I do not say anything except for happiness and smile
		5th	Heavenly gifts	Text	Happiness can be seen on the face of children

	Attitude	6th	thinking and research	Activity	In your opinion, what are life and life satisfaction?
		6th	thinking and research	Activity	I am proud of myself for many reasons
		1st	natural sciences	Image	Page 92
Stress management	Knowledge	5th	social studies	Text	We should pray and ask God to overcome our grief
		1st	natural sciences	Text	We should teach our children to plan
		1st	the Persian language	Text	Happiness with exercise and ability with knowledge
	Attitude	1st	natural sciences	Image	Page 23
		1st	the Persian language	Image	Page 115
		1st	the Persian language	Image	Page 78
Anger management	Knowledge	6th	thinking and research	Text	I control my emotions such as anger, hatred and so on when talking with others
		5th	Heavenly gifts	Text	Good people control their anger and forgive others
		2nd	the Persian language	Text	Patience and calmness would remove your Anger
	Attitude	1st	Natural sciences	Text	Sometimes play and exercise with children
		1st	The Persian language	Image	Page 57
		1st	The Persian language	Text	Be kind with each other
Acceptance of conditions	Knowledge	6th	Social studies	Text	We should not be under the influence of mental pressures of friend
		6th	Thinking and research	Text	When I am talking with others, try not to struggle with them
		5th	Social studies	Text	What solutions can be used to deal with sadness?
	Attitude	3nd	Social studies	Activity	What do you do if you are lost and do not know where you are?
		1st	Natural sciences	Activity	Which way is more comfortable going and going back?
		2nd	The Persian language	Activity	Exercise 4- Page 51

problems (22) and these experiences expose them to subsequent physical, psychological, and social issues (23), it appears necessary to address stress coping strategies for children. To better understand the presentation manner of emotion regulation components in the elementary school textbooks, their presentation axes were examined, too. Accordingly, each topic can be expressed in three axes of knowledge, attitude, and skill.

Axes were selected based on the "comprehensive curriculum of health education in schools from pre-school through to the end of high school" that has provided educational goals in the three axes. As the results showed, the knowledge axis received the highest attention, while the skill axis had no presentation. That is, while textbooks are essential sources of teaching behavioral skills and empowerment (24).

The results also showed that text and activity were the most and least frequently used formats to present the content, respectively. Afzal Khani et al. showed that texts and illustrations and stories are inactive and do not provide the ground for thinking, they leave no place for interpretations and conclusions; the messages in the books are conveyed directly and therefore has less impact on the audience (25). Therefore, the best way for transferring concepts is the activities that students perform individually or in a group to practice and consolidate the concept during them.

Attitudes and habits that develop in childhood play a significant role in subsequent decisions; hence, elementary school education is the basis of higher educational levels and student experiences. Therefore, it is better to start teaching different concepts and skills, including emotion regulation, in childhood. In this regard, textbooks must meet such needs. Suggestions for presenting the content, while focusing on the axis and format, are directed toward responsive educational programs. The audience of the programs that the textbooks are based on is also involved in the decision making and planning process (26). Given the special importance of emotion regulation in mental health, it is also recommended that content analysis be performed in other grades. Since teachers and other educators are the main and influential factors in the education process, it is recommended that further research be conducted on the necessity of

familiarizing them with the components of emotion regulation.

Conflict of interest
Authors declare no conflict of interests.

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