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& Developmental Adolescent Health

- Editorials
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Contents

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Editorial

Dear colleagues,

this is the first issue of Volume 2 of the Journal Developmental and Adolescent Health (JDAH), which is introducing a series of submissions focusing on important aspects of adolescent life and development.

A review article concerning information about the «Tripartite Model of Giftedness» is analyzing in depth five common characteristics of intellectual achievements. There is also a review about worries, needs, and attitudes of adolescents with intellectual disabilities, regarding their sexual activities and a review which aims to investigate the relationship between Attention Deficit-Hyperactivity Disorder and Eating Disorders in Adolescents.

An original research article performed on 433 adolescent students in Greece showed that there is a statistical significant decrease in adolescents' life satisfaction from family, friends, school, living environment and self as students were getting older.

This issue offers also two brief reviews, one regarding the quality and friendliness of youth friendly services in Greece and worldwide and another one highlighting the overpareting situation in Greece comparing to European and Worldwide context.

We are very happy that a second volume of JDAH is coming out, including a series of innovating articles and we hope you will enjoy it!

On behalf of the editorial team and content management of JDAH,

Artemis K. Tsitsika MD, PhD
As. Professor in Pediatrics-Adolescent Medicine
Head of the Adolescent Health Unit (A.H.U.)
Chair of "Str. Of Developmental & Adolescent Health" MSc
National and Kapodistrian University of Athens, Greece
President of the Hellenic Society for Adolescent Medicine/Health
Editor in Chief of the Journal of Developmental & Adolescent Health (JDAH)

Review

«Tripartite Model of Giftedness»: Cognitive Achievements According to WECHSLER Assessment Intelligence Scales

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ABSTRACT

The appraisal of intellectual ability in gifted students is an interesting though composite hypothesis. The purpose of this study is to analyze and compare the two main and most reliable methods to measure giftedness: the most worldwide used, the quantitative assessment and the qualitative assessing procedures. The Tripartite Model of Giftedness considers of giftedness as a social construction and not something that is real, which incorporates three distinct but complementary perspectives: Giftedness through the perspective of high intelligence, through the perspective of outstanding accomplishments and through the perspective of potential to excel. The first perspective is based on assessing student's intellectual ability using standardized IQ tests. The second one focuses mainly on student's performance in classroom and on academic tasks. According to the third perspective, students are very likely to substantially increase their cognitive abilities and academic performance when provided with special resources or when they are placed in a special gifted program. The Wechsler Intelligence Scales constitute worldwide the most used and most reliable quantitative assessment method of intellectual abilities mainly of verbal comprehension, visual spatial perception, fluid reasoning, working memory, processing speed. In a pure psychometric level, the dominant view is that the most proper appraisal of general intellectual functionality in high intelligent students, is not mainly the measurement of the Full-Scale Intelligence Quotient (FSIQ), yet the assessment of the most complex and composite intellectual abilities, as it is defined from the General Ability Index (GAI). In the present article five common characteristics of intellectual achievements of gifted students are analyzed in depth.

Key Words: *Giftedness, Wechsler Scales, General Ability Index*

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Introduction

Much has been written about gifted persons assessment, thus anyone working with high intelligent or high ability students should become familiar with the literature. Great ancient philosophers such as Confucius in China and Plato in Greece, have written about «heavenly» (gifted) children, while they provided practical recommendations on the ways society should work on to identify and nurture this special group (1).

In the United States of America, large longitudinal research conducted by Lewis Terman, concluded that children of high Intelligence Quotient (140 or higher IQ) were healthier, better adjusted, and higher achievers than other children. Terman helped science more than any other researcher or scientist, as he defined and conceptualized giftedness as high IQ. Thus, almost one hundred years later, his influence on this field remains prominent. Over the past decades substantial changes have occurred concerning definitions and categories of giftedness, while most states continue to consider that giftedness equates to high Intelligence Quotient (2).

Furthermore, there is a strong belief among many psychologists and educators that giftedness is something real, concrete, analogous to biological or countable factors (height, weight, hair color), or analogous to biomedical conditions such as diabetes and arteriosclerosis. According to Borland, giftedness is not a fact of nature, but, instead, a social construction (3). We used to refer to giftedness as it is something real, something that a child either is or not, however, it is a social construction. It was invented to categorize children in groups and to make easier the assessment of their intelligence, thus we should approach giftedness as an absolutely human's created concept that can be operationally defined and measured (2,3).

Mainly in the past, parents' and teachers' views have been used to detect gifted students, focusing on general or specific abilities and talents. This sometimes was seemed helpful to identify creativity or easy and quick learners. However, this approach has some potential problems, as the lack of scientific rigor in that process is obvious. Thus, reliability and validityof the whole procedure is in dispute (3,5).

Another way to assess giftedness is the portfolio assessment, which is the systematic data collection of students' work that provides information about students' abilities, progress, or accomplishments in specific or general domains. For that purpose, clinicians collect information from classroom and homework assignments, projects, artwork, photographs of creative work, group activities, audiotapes, videotapes of CDs of performances, presentations, interviews, peer interchanges and cooperative learning activities, student journals, logs, or reflection papers (3).

Nowadays a new, representative model developed from Steven Pfeiffer, trying to embrace the already existed thinking for giftedness, but also, to add a clearer way to approach and understand it, while he tried to create a complete model that one can base on it to assess gifted persons. According to Pfeiffer's Tripartite Model of Giftedness, giftedness is not something «real» but a social construction that incorporates three distinct but complementary perspectives through which one can estimate academic giftedness of children with uncommon, advanced, or exceptionally high ability (4).

This model proposes a radical position: gifted assessment should be recurring and open to students who have not been identified as gifted at an earlier time, while students identified as gifted should be evaluated at least every two years to demonstrate continued outstanding performance when facing increasingly challenging academic hurdles. Recurring gifted assessment represents a more valid prediction of a real-world success, out-of-school boundaries. In that way, information about children's strengths and weaknesses it is given, while it is appraised their progress on parts such as creativity, and critical thinking, having as target the modification and improvement of their curriculum (3,4). The tripartite model neither abrogates nor replaces the existing theories concerning gifted assessment; on the contrary, it incorporates them into a new, wider one.

The most worldwide used and standardized in many different countries, including Greece, Intelligence Scales are the Wechsler Intelligence Scales. Matarazzo is referred to Wechsler's great work as it is probably the work of no other psychologists, including Freud and Pavlov that has so directly impinged upon the lives of so many people (5).

The purpose of this study is to analyze and compare the two main and most reliable methods used to measure giftedness. On the one hand, the measurement of the Intelligence Quotient according to the most worldwide used Wechsler Scales, and on the other hand, the assessment of giftedness through a combination of

fqualitative and quantitative procedures, as these defined rom the Tripartite Model of Giftedness.

Material and Method

In this review, qualitative research was conducted based on literature review and analysis of the findings of researchers, trying to identify giftedness and the assessment of gifted persons/children. Mainly, it is participated and analyzed the most accurate model to assess giftedness, the Tripartite Model, and its three distinct but complementary perspectives/principles through which Clinicians can approach and understand giftedness, in order students to be divided in groups (3,5):

-Giftedness through the perspective of high intelligence.

-Giftedness through the perspective of outstanding accomplishments.

-Giftedness through the perspective of potential to excel.

The value and importance of the above principles are referred and analyzed in the present review.

Cognitive achievements of gifted persons are assessed using Wechsler Intelligence Scales which constitute the most frequent used and most reliable measurement of cognitive abilities worldwide. They measure a great number of cognitive abilities in high validity, while they are applied to important areas such as education, health, administration, justice, demonstrating the wide-ranging fields of application as well as the recognition of their importance and credibility. Three of these scales have been weighted to the Greek population: WAIS-IV for adults, WISC-V for children and adolescents and WPPSI-III for kids of preschool age (6,7,8,9). The last editions of these Scales are referred to the assessment of the following cognitive abilities:

- **Verbal Comprehension (Crystallized Intelligence):** This term is referred to the depth and range of the acquired verbal knowledge. It is appeared to the cognitive abilities which have developed in a great extent through education and person's life experiences. The «declarative, static» knowledge as well as the «procedural, dynamic» knowledge are included. The first one, the emphatic, steady knowledge, consists of real information, comprehension, ideas, perception, rules, andformations, mainly when information is verbal on its basis. The second one, the dynamic, is referred to the process of reasoning with previously learned procedures to transform knowledge, along the way.
- **Visual-spatial Perception (Visual Processing):** This term is referred to person's ability to produce, storage, retain, analyze, compose, and think based on visual patterns and stimulus. These abilities can be measured through processes where perception and conversion of visual patterns and forms is required, usually included in schematic or geometric context. A person that is able intellectually to convert and transform objects, seems to have the ability to explain how the objects can be converted, it apprehends and reformat objects' display and formations while it maintains the ability of orientation in particular spatial frames.
- **Fluid Reasoning:** This term is referred to intellectual procedures used to solve an innovative project that cannot be solved automatically. Some representative examples of these procedures are the formation and recognition of an idea, distinction, and comprehension of correlations between different elements, extraction to conclusions, apprehension of impacts, problem solving, and reorganization and/or reformation of information.
- **Working Memory:** This term is referred to the ability of encoding, persistence, and management of information through recalls it. The procedure of recall is limited as one can recall 7 elements of given information (plus/minus 2) in a particular time limit. Short-term working memory is referred both to the ability and extent of primary memory, as well as to the effectiveness of additional control mechanisms that manipulate the information of primary memory.
- **Processing Speed:** The ability of completion simple, recurring cognitive projects rapidly and easily, especially under pressure that might affect attention and concentration.

The analysis of cognitive achievements in special groups, such as people with developmental disorders, psychopathology, intellectual disability, is of great importance for these Scales. Among the population groups analyzed during the American weighting, included people with high intellectual ability.

In order a person to be concluded to this group, he/she should meet requirements:

✓ In measurements of cognitive abilities, one should be ≥ 2 Standard Deviations above average (i.e., FSIQ ≥ 130).

✓One should get special services at school environment or should be a member of MENSA or similar organizations.

An impressive element in American weighting is that, in all age groups, gifted persons' achievements present similar – common characteristics. These achievements present specific fluctuations in cognitive abilities, that are measured through the 4 Index Scores and 15 Subtests of the Wechsler Scales, in a quite identic way in all age groups of gifted examinees (10,11).

Results

First, it should be analyzed each one of the three fundamental principles of the Tripartite Model of Giftedness as well as the way each one may importantly contribute to the categorization and assessment of gifted persons.

The **first perspective,** that of high intelligence, can be identified through the administration of an intelligence test or IQ test, which assess student's mental giftedness based on compelling evidence that the student is advanced intellectually when compared to his or herpeer. The extensively high intelligence quotient constitutes indicator for giftedness (3,5).

Some indicative scales which are administered worldwide are referred below:

- *Wechsler Intelligence Scale for Children (WISC)*

-*Wechsler Preschool & Primary Scale of Intelligence (WPPSI)*

- *Stanford-Binet Intelligence Scales*

- *Woodcock-Johnson IV Tests of Cognitive Abilities*

- *Kaufman Assessment Battery for Children*

- *Reynolds Intellectual Assessment Scales*

Students with exceptionally high intelligence, belonging to the first category of the gifted, typically have IQ scores in the top 2% to 5% when compared to other children of the same age, and obtain IQ scores from 135 to 150 or higher in the early life (2).

The **second perspective** of the gifted tripartite model that of academically gifted learners emphasizes on classroom activities and assignments, as well as on academic achievements, as criteria of great importance and representative for children's gifted assessment. According to this principle, the exceptionally high academic achievements are essential to certify a student as gifted, and to integrate him/her into an educating program adjusted to gifted children (5). Students' creativity is an extremely important index to assess giftedness, according to this principle.

Psychologists and educators who embrace this principle, should rely on direct measurements referring to students' academic achievements to assess giftedness, and not on intelligent tests, which measure of course cognitive abilities, but they don't assess the direct elements that demonstrate the «authentic» students' academic excellence. Students' «creativity» is an important index when we want to assess giftedness according to this second perspective, while it is substantial to assess four additional clearly nonintellectual factors: motivation, drive, persistence, and academic passion (5,12). Beyond doubt, these last four nonintellectual factors affect the learning and talent development of all students, not only those of exceptionally high ability (13).

Before continuing to the third perspective, it is necessary to understand the term «creativity». According to Pfeiffer, the assessment of creativity in students and the way an educational program affect creativity, should be considered as important and laudatory goals. Creativity could be conceptualized through the perspective of talent development of gifted students. It is an essential element but also expression of special knowledge and excellence on fields with distinct cultural value (art, science, athletics) (14).

The assessment of creativity is not a common practice as part of gifted assessment. It is based on the measurement of four different perspectives: 1. the person 2. the process

3. the product 4. the environment. There have been developed multiple models and techniques to measure creativity. In order an idea, product, or performance to be creative, it should satisfy the above criteria:

- *To be original.*
- *To satisfy some usefulness or utility standards, whether scientific or esthetic.*
- *To be surprising (14).*

Creativity should be distinct from talent. Nowadays, great researchers as François Gagne (15,16), Rena Subotnik

(17,18), and Julian Stanley (19) stand in favor of the conceptualization that giftedness concerns natural abilities (talent), that are transformed through learning and training into high-level skills in particular occupational fields. They consider gifts as residing within the child, the result of favorable genetics, prenatal environment, and neurobiological status. Subotnik (17,18), supports, also, that giftedness is a dynamic construct, develops over time, and is not identic to high intelligence quotient. According to her model, talent development is the transformation of biological abilities into competencies, competencies into expertise, and expertise into outstanding performance or seminal ideas (17).

The **third perspective** is that of potential to excel. It refers to students, who, for multiple reasons, did not have enough opportunity or the proper intellectual stimulation to develop their intellectual or academic abilities (children raised in poverty, children with different maternal language than one used in the country they live, children that growing up in dangerous, rural, or overcrowded communities, where intellectual stimulation and educational opportunities are rare or even not given at all) (20,21,5,12).

According to this principle, students with high potential to excel are considered as very likely to substantially increase their academic performance and cognitive abilities when provided with specific help or placement in a particular program for gifted children. The assumption underlying this perspective is that an encouraging and stimulating environment, combined with the proper psycho-educational intervention, will bring on the surface their high potential to excel while at the same time it will distinguish them from their peers as gifted (22).

In other words, nurturance, stimulation, and encouragement of these students, will lead to significant increase in their intelligent quotient and their academic performance. For all the above reasons, education program for this category of students should consist of a highly motivating and enriched curriculum that may include compensatory interventions (6).

Persons belong to the first category of this model, that of high intelligence, typically belong to 2 to 5% of persons from the same age. Their intelligence quotient fluctuates between 135 and 150 (5). The intelligence quotient of persons from the second category, that of outstanding accomplishments, fluctuates between 120 and 130 or even higher (5). Finally, the intelligence quotient of persons belonging to the third category, that of potential to excel, fluctuates between 110 and 115 (5).

Common Characteristics on Cognitive Achievements of Gifted Persons through WECHSLER Scales

As it was found, according to Wechsler Intelligence Scales, there are five common elements for all gifted persons concerning their cognitive achievements:

- *1st Common Characteristic:* The achievements on the Verbal Comprehension Index are average the highest in comparison with the rest measurements of intellectual abilities in gifted persons: the mean achievements in that measurement are approximately 2 Standard Deviations above the Mean, while in all the three Scales they are in a higher level from the rest measurements. It is seemed that their Crystallized Verbal Ability is extremely developed, either the verbal apprehension or verbal expression. This ability constitutes the basic measurement of examinees' general culture and cultural background, and it is directly affected from educational level (23,4).
- *2nd Common Characteristic:* The achievements on Processing Speed Index are average the lowest comparing with the rest measurements of intellectual abilities in gifted persons: the achievements on this Index are approximately 1 Standard Deviation above the Mean and fluctuate in a clearly lower level from the rest measurements. Simple repeatedly cognitive projects, must be completed quickly and in a simple way (executant function), present the lowest cognitive achievements in giftedness (23,4).
- *3rd Common Characteristic:* The extremely high achievements in «Vocabulary» Subtest: On average «Vocabulary» is the Subtest that appears the highest achievements in examinees with high intelligence. Abilities such as lingual development, knowledge extent, learning ability, verbal meaning formation, verbal fluency, lingual uptake, and expression ability, is seemed to be extremely developed in high intelligent persons. This Subtest is concluded in Verbal Comprehension Index, which documents the highest achievements in gifted examinees (23,4).

- *4th Common Characteristic:* The comparatively lower achievements in «Cancellation» Subtest: Executant abilities such as speed in taking decision, visual-motor coordination, visual-motor processing, ability in visual detection, are assessed in this Subtest. Even if these abilities are slightly above the Mean, they note down the lowest achievements in comparison with the other measurements to gifted persons. It is, also, noteworthy that this Subtest has the lowest loading in general intelligence, which means that it has the most limited assessment possibility on the Full-Scale Intelligence Quotient comparing with the other Subtests of Wechsler Scales (this low loading is noted in almost all Subtests of the Processing Speed Index, presenting the lowest score on the Subtest «Cancellation») (23,4).
- *5th Common Characteristic:* The consistently higher achievements of General Ability Index (GAI) comparing to these of Cognitive Proficiency Index (CPI): It is supposed that cognitive abilities of more complex projects such as verbal apprehension, visual-spatial process, and fluid reasoning (GAI's measurements), seemed to be in a higher level from other simpler cognitive processes, which mainly constitute executant processes such as working memory and speed processing (CPI's measurements). Namely, the solution of more complex cognitive projects notes down higher achievements in gifted

Discussion

Considering the above, it is important to notice that intellectual's ability assessment in gifted persons is a remarkably interesting as composite procedure. On an entirely psychometric approach, based on the above-mentioned common characteristics of gifted persons in all age groups, dominates the view that the most proper way to assess general intellectual functioning of high intelligent persons, it is not mainly through the Full-Scale Intelligence Quotient measurement (FSIQ), but the assessment of the most complex, complicated and higher-order intellectual abilities, as this is determined from the General Ability Index (GAI). Furthermore, survey has shown that Wechsler Subscales with higher loadings in General Intelligence, such as Vocabulary, Similarities, or Information, tend to appear extremely high scores on gifted persons. According to Weschler, the higher loadings in General Intelligence (G Factor), demonstrate that these measurements investigate mainly essentials abilities of cognitive function. On the other hand, subscales with lower loadings in General Intelligence (G Factor), such as Cancellation, Symbol Search, and Coding, appear significantly lower-order achievements. According to Wechsler, these measurements estimate mainly processing abilities, which don't have the same importance as the primary cognitive abilities. Thus, these measurements demonstrate lower achievements on gifted persons (24,25,26).

A noteworthy element in Greek weighting of the three WECHSLER Scales is that gifted persons' achievements follow similar characteristics. This element is demonstrated from examinees' achievements who have achieved Full Scale Intelligence Quotient over 120, something that one can check at the «Administration and Scoring Manual» of the three Wechsler Scales. For instance, according to the Greek WISC-V standardized edition, the 68,9% of children with FSIQ ≥ 120 demonstrated on Fluid Reasoning Index (FRI) higher-order achievements than the Processing Speed Index (PSI), while only 26,2% from the same group demonstrated higher-order achievements on PSI than FRI (27, p.333). Consequently, the psychometric findings of the American weightings can be generalized to the Greek weightings, too. The age limits for these 3 Scales, referring to gifted examinees, are the following: WAIS-IV 16-64 years old, WISC-V 6-16 years old, WPPSI-III 4-7 years old and 3 months (24,25,26).

This review may contribute to the assessment and measurement of intelligence among all aged groups, as it describes giftedness in a clearly qualitative way and not only with the most common and easy to use method of a quantitative assessment. Giftedness is analyzed and approached through abilities with fundamental and processing characteristics. Additionally, it is of vital importance that, according to this approach, intelligence is not «static», but it might be evolved if the person follows training programs. For that reason, intelligence should be re-assessed every two years.

Unfortunately, there is not a specific and complete package of tests (test battery) to assess giftedness. The importance and value of psychometric tests is indisputable but not panacea. Clinicians, who assess gifted children, ought to create an appropriateand complete test battery with credibility, validity, and diagnostic accuracy. Furthermore, the examinee's age, growing level,

ethnicity, race, maternal language, and lingual fluency should be considered, too.

Finally, any relevant socio-cultural factors should be considered for the selection of the proper assessment tests. The findings of the above review should be taking into consideration to future research. A validate and complete test battery that will reduce limitations on gifted persons assessment, should be developed. The assessment and categorization of gifted students into groups will give Clinicians the opportunity to focus on specific educational programs to improve gifted persons' intelligence, contributing effectively to their progression.

Conclusions

The analysis of the primary cognitive abilities of gifted, comparing to general population, using Wechsler Intelligence Scales and Tripartite Model of Giftedness is mentioned to the above review.

According to review's findings, Pfeiffer's Tripartite Model of Assessment Giftedness does not simply recognize persons or students with extremely high abilities, but it indisputably contributes to the following seven crucially points:

1. Data's collection to incorporate gifted students in special schools or educational programs.
2. The understanding of the unique abilities and weaknesses of extremely intelligent children.
3. The assessment of gifted children in domains such as creativity or critical thinking through modification of their curriculum.
4. Contributes to the detection and assessment of «twice exceptional learners» (children with high intelligence and special learning disability, simultaneously).
5. Detects factors which may lead gifted children to decreased achievement than the one expected or/ and to lack of motivations.
6. Provides information to parents concerning their children's homeschooling.
7. Determines the appropriate ranking assessment and provide help to parents to take decisions concerning the educational acceleration of their children.

Additionally, it was attempted a more qualitative approach on specific cognitive achievements of gifted persons, mainly through the analysis of the most particular measurements of high intelligence.The assessment of general intellectual functioning of high intelligent persons should focus not only on the Full-Scale Intelligence Quotient measurement (FSIQ) or General Ability Index (GAI), but also on the assessment of the most complex and complicated intellectual abilities. General Intelligence (G Factor) measurement, demonstrates that this method of assessment giftedness, investigates mainly essentials/fundamental abilities of cognitive function.

This review constitutes an effort to analyze the primary cognitive abilities of gifted, comparing to general population. It is also attempted a more qualitative approach on specific cognitive achievements of gifted persons, mainly through the analysis of the most particular measurements of high intelligence. Here, it is important to mention that, according to Wechsler, the fluctuation among aliquot achievements on cognitive abilities is similar among all ages. Further empirical research to confirm all above findings should be conducted.

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Review

Adolescents with Intellectual Disability and Sexuality Matters: opinions, experiences and needs

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ABSTRACT

The present review analyzes sexuality activities of adolescents with Intellectual Disability. The term «Intellectual Disability» was introduced in 2013 as part of neurodevelopmental disorders, replacing the term «Mental Retardation». The onset of this situation happens during children's growth. According to the World Health Organization (WHO), sexuality constitutes indefeasible part of human's personality, it is a basic need and constitutes part of human nature, without however differentiate it from the other parts of life. Sexuality is of vital importance on adolescents' life with Intellectual Disability, who are capable to develop parts of sexual behavior according to society's rules while additionally adolescents may desire, append, and maintain interpersonal relationships. Worries and needs of adolescents with Intellectual Disability referring to sexuality activities are not differentiated on their base from these of general population. The history of sexual education for disabled people worldwide, has characterized from disuse, distortion, and tolerance. The analysis of data concerning sexuality and sexual behavior of adolescents with Intellectual Disability, as these are presented in bibliography, indicates the need of sexual education programs to be organized, with parallel information and counseling of their families. This review's findings aspire to constitute stimulus for the scientific and social recognition and elevation of the phenomenon of misprision of sexual awakening of adolescents with Intellectual Disability, as well as of the phenomenon of discrimination and exclusion. It, finally, aims at apprehending people with Intellectual Disability as individuals with sexuality, acceptable from the society.

Key Words: *Intellectual Disability, Adolescent, Sexual Activities or Behaviors*

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Introduction

According to DSM-5, «Intellectual Disability» is a neurodevelopmental disorder, replacing the former term of «Mental Retardation». The background of Intellectual Disability is the existence of impairments in mental ability with an impact on the adaptability of the individual in cognitive, social, and practical level (1,2,3). According to the World Health Organization (WHO), sexuality is an integral part of every individual's personality, as a basic need, and an aspect of human nature, while cannot be separated from other aspects of life (4).

The term «sexuality» is often equated with the term «sexual intercourse», with sexual intercourse to be a substantial part of sexuality, no other way around (5). Sexuality in people with disabilities raised concerns due to uncontrollable childbearing. In the past, the sterilization of «defective» people was mandatory, which included «mentally ill, mentally retarded, epileptic, criminals, syphilitic, alcoholics» (6). There was a belief that motor or mental disability was combined with other disabilities, for instance sexual (7). Sexual evidence was a common habit in families with individuals with intellectual disabilities, keeping their adolescents in infantilism state (8,9).

Adolescence is the age when the body «awakens» and sexuality is expressed more intensely than in any other period of life, as an expression of the hormonal «explosion» that follows the hormonal calm of childhood (10). The physical (puberty), cognitive and psychosocial changes are many and the needs of the adolescent are related to the acceptance and management of these changes (10). Dating, exploring physical sexual activity and spending significant time in a romantic relationship are elements of a developing sexuality during adolescence (11).

According to the social model of disability, it is important to keep in mind that whatever title, characterization, diagnosis, or syndrome has been attributed to a person, who is human being after all. One should not focus solely on meeting the needs arising from a particular diagnosis or classification, such as «intellectual disability», but invest time in listening to the individual, to know and understand the person in general (12). Providing comprehensive support to these individuals means supporting the individual in all aspects of his or her personality.

The present study examines worries, needs, and attitudes referring to sexuality activities of adolescents with intellectual disabilities, not only those of adolescents but also of their parents, siblings, and society.

Material and Method

In this review, qualitative research was conducted based on literature review, data analysis and findings of older studies, concerning individuals' attitudes toward sexuality of adolescents with Intellectual Disabilities. Very little information is available about people with disabilities in general and their own sexual needs. The subject of research is usually the perceptions and opinions of parents, teachers, support staff and not the young people with mental disabilities themselves. Vidalaki and her colleagues posed the following question: «which voices are silenced, and which ones determine the needs of people with a disability?». As physically intact we decide on the lives of our fellow human beings with mental disability, in absentia (13).

According to Dimou's research review in 2008, a total of 35 surveys were identified worldwide that investigated issues of sexuality of people with intellectual disabilities. Regarding their sexuality, the number of surveys identified was limited to 11, of which two took place in Greece (14). Of these surveys, four were conducted since 1973 to 1986, three surveys conducted during the period 1994-1999 and the remaining four conducted after 2000. The results of the above findings are going to referred and analyzed in the present review.

Results

The findings of the studies concerning sexuality issues, could be divided into three main categories. The adolescents' perspectives, the parents' perspectives, and the society's perspectives.

The first four studies conducted since 1973 to 1986 in the USA, surveyed self-perception, sexual ethics, knowledge about sexuality issues in adolescents with intellectual disabilities, as well as the attitudes of their parents, highlighting the lack of information and misinformation on these issues (14).

Concerning the first category, adolescents' perspectives, it is important to be mentioned that in terms of their attitudes on senses such as «love», «marriage», and

and «having family», the knowledge of adolescents was differentiated according to gender stereotypes, while it was strongly influenced by the family's socio-educational level (14).

The three main studies conducted since 1994 to 1999 concerning attitudes of adolescents with intellectual disabilities on sexuality issues, showed that adolescents with Down syndrome have the ability «to develop aspects of sexual behavior in accordance with the community's rules» (14). Additional research on sexuality issues in adolescents with Down syndrome, in comparison with their parents' attitudes, showed limited sexual knowledge of adolescents, conservative attitudes of parents regarding the sexual interactions of people with intellectual disabilities, but receptivity in terms of their children's sexual education (15,14). The presence of sexual experimentation was indicated too.

Comparing adolescents with intellectual disabilities with adolescents from the general population, it is important to mention that people with intellectual disabilities appeared to have the least sexual experience and the least experience in communicating with the opposite sex (16,14).

The experiences of intersexual coexistence of these adolescents are like those of the general population (14). Although their knowledge was incomplete, however, adolescents could absorb the knowledge provided to them about sexuality (17).

People with intellectual disabilities who participated in sexual education programs did not develop negative behaviors (premature sexual stimulation, unwanted pregnancy) as some were feared. On the contrary, positive changes were observed as individuals learned to better express their needs and behave in a more socially acceptable way (18).

According to the above studies, people with intellectual disabilities and/or autism were able to know the place and manner of proper sexual expression, while through sexual education; the incidence of sexual exploitation of these individuals was reduced (19).

Most research showed that adolescents and adults with intellectual disabilities maintained conservative attitudes toward sexuality and that negative emotions about sexuality predominate (20). Specifically, adolescents with intellectual disabilities «perceive sex as dirty and something they should not talk about» (14). Experiences such as «holding hands» with the opposite sex, «caress» and «kissing» were evaluated positively compared to «intercourse» or «touching without clothes» which were not treated with the same positive acceptance (21,22). Likewise, the practice of masturbation was evaluated 63% negatively by adults with intellectual disabilities (21), while in contrast, it was evaluated positively by the majority (22).

The limited knowledge of the mentally disabled regarding the understanding and conceptualization of interpersonal relationships, did not attribute cognitive limitations, but attributed the consequences of social segregation and exclusion, which was continuing to shape their daily lives (14). Furthermore, it has stated a difficulty of adolescents with intellectual disabilities in accessing knowledge about sexuality compared to adolescents in the general population. This difficulty may be due to some differences in adolescents' knowledge of the level of intellectual disability (moderate or mild), as for adolescents with more severe intellectual disabilities the access to knowledge and its understanding presupposes a more methodical process (23).

Concerning the parents' perspectives in terms of sexuality issues, it was found that parents, siblings, or supervisors of adolescents with intellectual disabilities had the belief that the manifestation of sexual behaviors of those persons, even if it was happening with differentiated expressions in relation to the social whole, was of great importance for their emotional growth and balance, while they insisted on the positive effect of sexual intercourse on adolescents' self-perception (24,14). Furthermore, it was found a low level of sexual knowledge, conservative attitudes on the part of adolescents and an «overprotection» tendency by their parents, while parents did not present particularly formed attitudes on the above issues in the majority (14).

The parents of people with intellectual disabilities considered it important to talk to their children about sexuality issues, providing the formation of a more positive attitude towards sexual education, although they considered of this as a difficult process, as some issues, such as self-satisfaction, are still taboo (5,25).

Nowadays parents show a more positive attitude towards the sexual education of their children and have an essential role in their sexual education; however, they stated that they do not know the proper way and time to talk to their children about this issue (26).

The parents of people with intellectual disabilities seemed to realize the importance of sexual education in the way people with disabilities can understand, identify, and attempt to express their sexuality.Also, they have realized that their own role in this direction is equally

helpful and that with the proper education and help from competent services, they would be able to understand even more but also to support their children's effort to discover their sexual behavior (18).

Concerning the third category, society's perspectives and European research has sought to determine whether institutions support or cover the sexual self-identification of people with intellectual disabilities. In Germany, the historical review showed that people with intellectual disabilities have been treated primarily with taboo behaviors. However, in recent years, the acceptance of basic human rights in relation to sexual issues seemed to be shaping up by their support staff (27).

Discussion

Research data showed that the wakening of sexuality of adolescents with intellectual disabilities and the lack of information about sexual issues were associated with a variety of negative and harmful consequences. The concerns and needs of adolescents with intellectual disabilities on sexuality issues were not differentiated fundamentally from those of the general population (28).

As it concerns adolescents with intellectual disabilities, McCabe (23) stated that adolescent boys mostly choose to be educated about sexuality by their friends. This could be explained as a result, perhaps, of the lack of effort from parents or of the absence of school as a source of information in this field. This fact, however, is dangerous for adolescents with intellectual disabilities as they may not be informed properly, as it involves risks of misinformation or transmission of incomplete knowledge.

On the other hand, the isolation, the ignorance, and the lack of sexual education that was imposed on people with disabilities could lead to inappropriate or irresponsible sexual behavior. The reason is that they didn't have the opportunity to learn to behave according to the social rules, with respect to themselves and to their partner. Furthermore, the lack of knowledge may lead individuals with intellectual disabilities to be sexually abused from the others (29).

An additional risk for people with intellectual disabilities was that of sexual harassment and abuse. The rates of these people being sexually abused - often by other people with disabilities - were dramatically high. However, this problem is not solved by complete abstinence from sexual activity, but by proper information and education, adapted to the mental level of each child (30).

Concerning society's responsibilities to protect and support people with intellectual disabilities, sexual education has as its main concern to provide correct and valid information in matters of health education. It aims to cultivate respect, primarily for oneself and consequently for others, to inform on prevention and responsible behavior, to educate in issues of family planning and in general to expand the quality of learners' life. In recent years, apart from sexual education, other terms have also been used such as intersexual relationships, or interpersonal education. This new terminology may wish to broaden the scope of sexual education and to reduce the notion of «sexual» (31).

Sexual education in Greece is not yet included in the curriculum of formal education, therefore there is a lack of valid information of Greek adolescents about basic issues of sexuality (32). Similarly, sexual education is not included in the education of adolescents with special needs (intellectual or other disabilities).

The difficulties in implementing and introducing sexual education programs extend to special education to a greater extent. The history of sexual education for people with intellectual disabilities internationally has been characterized by neglect, distortion, and tolerance (33). Even today, there are perceptions that consider the sexual education of the disabled useless or dangerous and that it can lead this population to intense sexual activity. On the contrary, relevant research showed that valid information had a positive effect on the development of individuals' personality as a whole and on the adoption of responsible behaviors in sexuality issues (34).

In addition, the education on sexual matters was required to enhance the sexual awareness of people with intellectual disabilities on issues such as the prevention of sexual abuse (35), the prevention of sexually transmitted diseases and HIV infection, or pregnancy, as well as to achieve an appropriate sexual behavior in social settings.Education could enable the development of a positive sexual identity (14).

After all, as Paschou very characteristically stated, «the integration processes that society defends and promotes, require a more organized and appropriate preparation of people with intellectual disabilities in areas such as sexuality, interpersonal relationships, or social skills». Society, therefore, shouldn't deny their right to sexuality on the one hand and should fight for their social, school, and professional integration on the other (35).

Adolescents with intellectual disabilities need to be informed about the possibility of pregnancy and contraception, as well as about sexually transmitted diseases and their symptoms. It is important they to learn and distinguish what is legal and what is illegal and those sexual acts take place in private and do not concern everyone. Finally, they need to know that, for any sexual activity, they must give their consent and if they do not want to, they must make it clear to their partner (30).

In recent decades, there has been a significant change in the provision of care services, resulting in the state's efforts to meet the needs of people with intellectual disabilities and to include these people in its services. It has now become clear that cognitive functionality alone is not a criterion for assessing the population. (36,37,38).

Conclusion

The findings of the present study aimed to stimulate the scientific and social recognition and promotion of the phenomenon of silencing the sexual awakening of adolescents with intellectual disabilities, as well as the phenomenon of discrimination and exclusion and to allow people with intellectual disabilities to be understood and accepted by society. The concerns and needs of adolescents with intellectual disabilities on sexuality issues were not differentiated fundamentally from those of the general population (39). Today, the main goal of the policy for people with intellectual disabilities is these people to have a normal lifestyle, like the rest of their fellow citizens. However, despite progress and growing knowledge about the phenomenon of intellectual disability, there are still problems with issues of intersexuality and sexual education, while psychosexual concerns are elevated (40).

In conclusion, there is a need for research to acquire knowledge specifically about the expression of sexuality of these adolescents. The collection of research data will, also, contribute to a better understanding between stakeholders on issues of sexuality and reproduction and will provide the state and the public health services with all the necessary information to design relevant information policies and strategies.

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Review

The investigation of the relationship between Attention Deficit-Hyperactivity Disorder and Eating Disorders in Adolescents.

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ABSTRACT

Since Attention Deficit-Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterized by behavioral problems and learning difficulties, some researchers have suggested that ADHD may be associated with "unhealthy" diets or disturbed feeding patterns and lack of nutrients. In addition, ADHD has also been considered as a disorder of self-regulation, where the inhibition of impulse is limited, a characteristic that also occurs in patients with Eating Disorders (ED). The purpose of this review is to investigate the relationship between ADHD and ED in adolescents, as well as possible associations with specific ED and characteristics of ADHD. According to the results of this review, a correlation between ADHD and ED in adolescents was observed in several studies. In particular, ADHD was largely associated with both Bulimia Nervosa (BN) and Binge Eating Disorder (BED). A key feature of ADHD, which was associated with a disturbed way of feeding, was impulsiveness. The conclusions of this review could be used in treating ADHD and ED in adolescents effectively, specifically in Greek population, describing in detail the possible relationship between them. This information will be an important tool for specialists, who, together with parents and caregivers, will help and improve symptoms in adolescents with ADHD and ED.

Key Words: *ADHD; ED; Adolescents; Impulsiveness; binge eating*

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Introduction

Many studies have investigated the relationship between Attention Deficit-Hyperactivity Disorder (ADHD) and Eating Disorders (ED) in the past (1-4). Considering ADHD as a neurodevelopmental disorder, which characterized by conduct problems and learning difficulties, some researchers suggested that ADHD may linked to unhealthy dieting and nutrients deficiency (5-8). There are multiple reasons behind the ADHD and ED connection, due to ED comorbidity to ADHD, anxiety, depressive symptoms, conduct disorder and drug abuse (9-11).

Adolescents with ADHD are rejected and bullied by their peers (12) and often fight with their parents (13), leading to negative emotions and disturbed body image, which includes inappropriate way of eating (14-15). Furthermore, anxiety symptoms along with depressive symptoms in adolescents with ADHD were linked to bulimic episodes (16). Excessive food consumption in teenagers with ADHD was considered a control factor of the environment, which contained frustration, inattention and lack of organization (16). It is evenly possible that ADHD symptoms lead to disturbed diet, because ADHD is considered as a self-regulated disorder, where the inhibition of impulsiveness is limited (17-19). The same pattern of lack of impulsiveness is evident in patients with Bulimia Nervosa (BN) (20-21).

Following the above, the purpose of this review is to describe in detail the characteristics of ADHD and ED in adolescents, and those behaviors that do not meet the criteria for diagnosis, but causes a decrease in their functionality, while investigating the possible relationship or not, among disorders in adolescents.

Materials and Methods

A detail research of articles was conducted in online databases, with no language restriction and geographical and cultural landmarks. During the research, words such as «Attention Deficit-Hyperactivity Disorder»,«ADHD», «Feeding and Eating Disorders», «Eating Disorders», «ED», «adolescents», «teens» and «teenagers» were used. Through snowballing technique, references were checked for compatibility with the subject.

Concerning the selection process, studies that examined the occurrence of ADHD and ED in adolescents after 2010, were deemed eligible, without any restriction in the study design. The chro-

-nological constraint was placed in order to synchronize the research, including as much data as possible that were close to reality. Furthermore, adolescence is a milestone for ADHD, as a neurodevelopmental disorder, while most ED occur in adolescents. During the research, studies incorporate parent's opinions were examined, due to recognition of changes and behaviors in adolescents.

Results

According to the results, a correlation between ADHD and ED was noted (22 -34). Specifically, adolescents with ADHD were more likely to have ED Restricting type and ED Binge-eating/purging type. On the contrary, those with ADHD related behaviors, but do not meet the criteria for diagnosis (inattention, hyperactivity/impulse), were more likely to develop ED Binge-eating/ purging type rather than ED Restricting type (29). Furthermore, adolescents with ADHD were in risk for Loss of control (LOC) eating, comparing adolescents without ADHD, because they appear to have less impulsive control during evaluations and parents' reports (30). Nevertheless, in some studies, there was no correlation between ADHD and ED, or the correlation was not significant (30, 35-38) (Table 1).

ADHD was correlated with binge-eating behaviors (with LOC eating) and with excessive desire and consumption of food (39-41). Also, was considered risk factor for obesity, due to unhealthy food consumption during binge-eating episodes (42). Adolescents and children who ate more fast food and sodas and less fruits and vegetables, were at risk for ADHD, comparing to adolescents and children, who never ate them (43). Comparing to obese children, those who ADHD had the tendency to eat more in the beginning of the meal, while the obese ate more throughout the meal (44) (Table 1).

Considering girls, they had more often ADHD and ED simultaneously than boys (1.05% vs. 0.20%) and specifically Bulimia Nervosa (BN) (22, 26). Moreover, the likelihood of developing ED Binge-eating/purging type in the future, was correlated with ADHD, but not for ED Restricting type. ED in girls were correlated with socialization problems and in boys with impulse and activity problems (27).

Table 1: Correlation of Attention Deficit-Hyperactivity Disorder and Eating Disorders in Adolescents

Author (year)	Country	Study period	Age range	Sample	Outcomes, way/questionnaires they were measured	Main Findings
Biederman et al. (2010) (22)	US	2010	6-18	Girls with ADHD	Structured Clinical Interview for DSM-IV (SCID), Schedule for Affective Disorders and Schizophrenia for School-Age Children Epidemiologic Version (K-SADS-E)	Girls with ADHD were at great risk for ED, especially for BN
Mikami et al. (2010) (23)	US	2010	7-9	Boys and girls with ADHD	Swanson, Nolan, and Pelham Rating Scale, 4th ed. (SNAP)	Youths with ADHD, boys and girls, were at great risk for body image dissatisfaction and BN symptoms in middle adolescence. Youths with ADHD had elevated BMI comparing to those without ADHD
Gau et al. (2010) (35)	Taiwan	2010	11-17	Children and adolescents with ADHD and school-aged children	Kiddie Epidemiologic Version of the Schedule for Affective Disorders and Schizophrenia (Chinese K-SADS-E)	1.6% with ADHD was correlated to ED (n=3)
Malmberg et al. (2011) (55)	Sweden	2011	NR	Adolescents (twins)	Swedish version of Kiddie-SADS Present and Lifetime Version (K-SADS-PL)	ADHD diagnosis was correlated to psychiatric disorders, with NA to be among them
Munsch, Hasenboehler & Meyer (2011) (59)	Switzerland	2011	8-12	Obese children	Strengths and Difficulties Questionnaire	Children with higher scores in inattention consumed more food
Swanson et al. (2011) (53)	US	2011	NR	Adolescents	Composite International Diagnostic Interview (CIDI), Sheehan Disability Scale	ED and disturbed eating was presented more often in adolescents and was correlated to ADHD, psychiatric disorders, dysfunction and suicide
Pauli-Pott et al. (2013) (52)	Germany	2013	8-15	Obese children and adolescents	Questionnaire on Eating and Weight Pattern (QEWP, parent, and adolescent version)	ADHD symptoms were not correlated with disturbed eating
Rastam et al. (2013) (27)	Sweden	2013	9-12	Children and Adolescents	Autism-Tics, ADHD, and other Comorbidities (A-TAC) inventory, Eating problems "(EAT-P)"	To 40 % of children and adolescents with eating problems had ADHD. In girls socialization problems were correlated with eating problems, while in boys with impulse and activity problems
Seitz et al. (2013) (56)	Germany	2013	15-35	Girls	Wender Utah Rating Scale (WURS-K), TAP (Testbatterie zur Aufmerksamkeitsprufung), Eating Disorders Inventory (EDI-II), Structured Interview for Anorexia and Bulimia (SIAB-EX)	There was a correlation of BN and ADHD in patients with BN. Impulsive and inattention symptoms were correlated with more disturbed eating
Kessler et al. (2014) (28)	US	2014	13-17	Children and Adolescents	NR	Boys with ADHD were more likely to have ED than girls (4.9 vs 1.2)
Khalife et al. (2014) (58)	Finland	2014	7-16	Children and Adolescents with ADHD	Obesity Task Force	There was no correlation between ADHD and overeating
Kim et al. (2014) (42)	Korea	2014	5-13	Children and Adolescents	DuPaul ADHD Rating Scale, Korea Youth Risk Behavior Web-based Survey	ADHD had positive effect in eating non healthy food (β = 0.202, P < 0.001) and bulimic episodes (β = 0.31, P < 0.001)
Reinblatt et al. (2014) (37)	US	2014	mean 10.8	Children and Adolescents	C-BEDS scale.	There was statistically significant correlation between ADHD and BED
Steadman & Knouse (2014) (48)	US	2014	18-22	Adolescents and young adults	Barratt Impulsiveness Scale (BIS-11), Barkley Deficits in Executive Functioning, Self-Restraint subscale (BDEFS), the Binge Eating Scale, Barkley Adult ADHD Rating Scale (BAARS-IV)	There was a correlation between ADHD and BED symptoms. Impulse played an important role in the correlation
Pennell et al. (2016) (46)	Canada	2016	9-10	Children	Case series	Two children with ADHD with stimulant use, reported suppression of appetite and avoidance behaviors, leading to growth delay and hospitalization
Egbert et al. (2017) (39)	US	2017	M.O. =10.89	Youths	EDE or child EDE (ChEDE), Child Behavior Checklist/6-18	BED and overeating was correlated with ADHD symptoms
Hilbert et al. (2017) (40)	Switzerland	2017	8-13	Children and Adolescents	Schedule of Affective Disorders and Schizophrenia for School-age Children—Present and Lifetime Version	Children with loss of control (LOC) eating and ADHD had more desire for food
Kurz et al. (2017) (41)	Switzerland	2017	8-13	Children and Adolescents	NR	Children with loss of control (LOC) eating and ADHD had more desire for food, feeling of hunger and enjoying food
Tong, Shi, & Li (2017) (49)	China	2017	NR	Students	Parent-report version of ADHD Rating Scale-IV (ADHDRS-IV), the Child Eating Behaviour Questionnaire (CEBQ) and Children's Eating Attitude Test (ChEAT), The Child Behavior Checklist (CBCL)	ADHD enhanced depression, which enhanced emotional overeating. Occurrence of depression affected disturbed eating, nut not BN symptoms
Yilmaz et al. (2017) (60)	Sweden	2017	8-17	Children and Adolescents	Eating Disorder Inventory-2 Bulimia, Drive for Thinness, and Body Dissatisfaction subscales	Occurrence of Inattention and hyperactivity/ impulse predicted more ED symptoms in late adolescence
Kim et al. (2018) (43)	Korea	2018	M.O= 9.29	Children	Korean version of the ADHD rating scale (K-ARS), food habit questionnaire	Children who ate more, consumed fast food and sodas were at risk of ADHD, while children who ate more fruits and vegetables were not
Bisset, Rinehart, Sciberras (2019) (38)	Australia	2019	14-15	Adolescents	Strengths and Difficulties Questionnaire, Branched Eating Disorders Test.	There was no a difference in occurrence of ED in adolescents with ADHD and without
Bleck, DeBate, & Olivardia (2015) (29)	US	2015	18-27	Adolescents	NR	Those with ADHD presented BED with Binge-eating/purging type. Those with inattention and hyperactivity/impulse more likely to have Binge-eating/purging type behaviors
Gowey et al. (2015) (47)	US	2015	7-12	Obese or overweight children and adolescents	Attention-Deficit/Hyperactivity Disorders (ADHD) Problems scale from the Child Behavior Checklist (CBCL), Children's Eating Attitudes Test (ChEAT), Children's Body Image Scale	Body image dissatisfaction and ADHD symptoms were correlated to disturbed eating. Obese or overweight children and adolescents with ADHD had higher body image dissatisfaction and more behaviors related to food and control of eating
Reinblatt et al. (2015) (30)	US	2015	8-14	Children and Adolescents	Eating Disorder Examination for Children and the Standard Pediatric Eating Episode Interview assessed LOC-ES, DSM-IV Scales of Inattention and/or Hyperactivity, Go/No-Go (GNG) Task and the Behavior Regulation Inventory of Executive Function (BRIEF)	Children with ADHD were more likely to have loss of control (LOC) eating than those without
Rojo-Moreno et al. (2015) (31)	Spain	2015	14-17	Adolescents with ED	Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS)	31.4% of adolescents with ED had ADHD
Sonneville et al. (2015) (57)	UK	2015	NR	Children	Strengths and Difficulties Questionnaire (SDQ)	Early occurrence of ADHD elevated the risk for BED in adolescence. Hyperactivity/inattention in late childhood was correlated with disturbed eating in early adolescence and BED in middle adolescence
Welch, Ghaderi & Swenne (2015) (32)	Sweden	2015	7-16	Children and Adolescents with ED	NR	The occurrence of ADHD was higher in boys with ED, while in girls with ED was celiac disease and diabetes
Gibbs et al. (2016) (45)	US	2016	18-25	Girls with ADHD	Drug Use Item Questionnaire, Eating Disorder Psychopathology	Disturbed eating or overeating, depressive symptoms and stress were correlated with stimulants abuse. Stimulants abuse was correlated to ED
Halevy-Yosef et al. (2019) (54)	Israel	2019	NR	Adolescents and young adults	Adult ADHD Self-Report (ASRS) and ADHD Rating Scale-IV-Home Version (ADHD-RS) questionnaires, The Eating Disorders Examination-Questionnaire version 6.0 (EDE-Q), The 26-item Eating Attitudes Test-26 (EAT-26), Beck Depression Inventory (BDI),	Patients with BED had more difficulties in ADHD inattention scale than those without
Wentz, Björk, & Dahlgren (2019) (33)	Sweden	2019	5-16	Outpatients	Eating Disorder Examination Questionnaire (EDE-Q) and The Eating Disorder Inventory for children (EDI-C).Diagnoses of ADHD (medical records)	11% of participants had ED and 21% had ADHD. Only two girls had ADHD and ED
Mohammadi et al. (2020) (34)	Iran	2019	6-18	Children and Adolescents	Kiddie schedule for affective disorders and schizophrenia-present and lifetime version (K-SADS-PL)	In children and adolescents with ED, 7,5% had also ADHD
Zhang et al. (2020) (50)	Europe	2020	14-19	Adolescents	Biomarkers	Emotional and conduct problems, including ADHD symptoms were developed before the occurrence of disturbed eating and depressive symptoms

**NR=Non-Referred, ADHD= Attention Deficit-Hyperactivity Disorder, ED=Eating Disorders, BN=Bulimia Nervosa, AN=Anorexia Nervosa, BED=Binge-Eating Disorder*

However, two studies reported that boys were more likely to have ADHD and ED, while girls celiac disease and diabetes with ED (28, 32). Furthermore, the suppression of appetite due to medication in children with ADHD, lead to growth retardation and hospitalization for ED (45, 46) (Table 1).

Boys and girls with ADHD, were at risk for BN, body image dissatisfaction in middle adolescents and increases BMI, comparing to adolescents without ADHD. Impulsiveness as a key feature of ADHD and BN, may be a contributory factor in the comorbidity of those disorders (23). Moreover, body image dissatisfaction and ADHD were linked to more disturbed dieting. Specifically, the merrier the dissatisfaction was, the bigger was the risk of unhealthy way of eating in adolescents with ADHD, following the increase of weight, through overeating (47) (Table 1).

Although impulse plays an important role in comorbidity of ADHD and Binge-Eating Disorder, it is imminent that there are other factors too (48). ADHD affects the emotion and more specific depression, which enhances overeating, and not BN symptoms (49, 50). Adolescents with LOC, reported elevated negative emotions and impulse, comparing to adolescents with ADHD (51). Furthermore, the occurrence of depressive and anxiety symptoms were correlated with emotional overeating and not with ADHD (52) (Table 1).

Correlation between Eating Disorders and Attention Deficit-Hyperactivity Disorder

According to studies, 2.3% of adolescents with Anorexia Nervosa (AN) had ADHD and 8% of adolescents with symptoms that did not meet the criteria for AN, but presented symptoms similar to AN had ADHD (53). Respectively, adolescents with AN Restricting type had more ADHD symptoms with inattention (54). Concerning comorbidity of ADHD in girls, depression, mania, panic attacks and AN were included (55) (Table 2).

Referring to Bulimia Nervosa (BN), 20% of adolescents with BN had also ADHD (53), while ADHD was positively correlated with emotional overeating and BN (49). Moreover, children with ADHD, presented more symptoms of BN in middle adolescence, with girls to be pioneers (23). However, the risk of BN occurrence by 22 years was small (22). Adolescents with BN and ADHD, had more symptoms of impulse and inattention than adolescents with BN only, presenting more disturbed dieting (56) (Table 2).

Data referring to Binge-Eating Disorder (BED) showed that early symptoms of ADHD, along with overeating behaviors, contributed to an increased risk of BED in middle adolescence (57). Adolescents with BED presented difficulties in maintaining their attention comparing to those without (54), while boys with ADHD, were more likely to engage in overeating behaviors than boys without ADHD (38). Furthermore, 12.6% of adolescents with BED had ADHD and 19.1% of adolescents with symptoms similar to BED, but did not meet the criteria for diagnosis, had ADHD (53). The Loss of control (LOC) eating was correlated to BED, as a reaction to negative emotion and impulse (51). Although, there was not significant statistical correlation between ADHD and BED in general (37, 39), in one study ADHD in childhood was correlated to lack of physical activity and not overeating (58) (Table 2).

Correlation between characteristics of Attention Deficit-Hyperactivity Disorder and Eating Disorders

Hyperactivity, impulse and inattention were correlated with overeating as well as food control (47). Respectively, impulse and inattention were correlated with elevated risk of disturbed eating behaviors (56). In girls, impulse was predictive factor in occurrence of BN (23) and the main factor for food consumption in adolescents with ADHD, as reported by parents (44). However, in a 2014 study, none of the impulse measurements were significant statistically correlated with ADHD and BED symptoms (48). The severity of ED, could be further analyzed through inattention rather than impulse or hyperactivity (56). In particular, adolescents with inattention consume more food (59) (Table 3).

However, the coexistence of more than one feature of ADHD could provide more results in terms of correlation with ED. Specifically, hyperactivity in combination with inattention in childhood, could be a predictive factor for BED in middle adolescence, though excessive desire for food (57). Furthermore, adolescents with BED reported more hyperactivity/impulse symptoms (54), while those symptoms could predict the elevate risk of ED occurrence in late adolescence (60) (Table 3).

Table 2: Correlation between Eating Disorders and Attention Deficit-Hyperactivity Disorder

Author (year)	Anorexia Nervosa	Bulimia Nervosa	Binge-Eating Disorder
Biederman et al. (2010) (22)	NR	Girls with ADHD had greater risk for BN	NR
Mikami et al. (2010) (23)	NR	Youths with ADHD had greater risk for BN symptoms in middle adolescence, especially girls	NR
Malmberg et al. (2011) (55)	ADHD diagnosis was correlated with psychiatric disorders, among them was AN in girls	NR	NR
Swanson et al. (2011) (53)	2.3% of adolescents with AN had ADHD και 8% of adolescents with sub-clinical AN had ADHD	20% of adolescents with BN had ADHD	12.6% of adolescents with BED had ADHD, while 19.1% of adolescents with sub-clinical BED had ADHD
Hartmann, Rief & Hilbert (2013) (51)	NR	Higher levels of negative emotions and impulse were occurred in loss of control eating of BN	NR
Seitz et al. (2013) (56)	NR	Patients with BN and ADHD were more impulsive and inattentive than those with BN only. They also presented more disturbed eating than those without ADHD	NR
Reinblatt et al. (2014) (37)	NR	NR	The correlation between ADHD and BED was statistically significant (OR 16.1, p<.001)
Egbert et al. (2017) (39)	NR	NR	ADHD symptoms were statistically significant correlated with BED (χ^2= 16.61, p < 0.001)
Tong, Shi & Li. (2017) (49)	NR	ADHD had positive effect in emotional overeating and BN symptoms	NR
Bisset, Rinehart, Sciberras (2019) (38)	NR	NR	Boys with ADHD were more likely to have BED than boys without (OR: 9.4; 95% CI: 1.7–52.8; p = .01).
Halevy-Yosef et al. (2019) (54)	Patients with AN (Binge-eating/purging type) had more ADHD symptoms and inattention	NR	Patients with BED had more ADHD symptoms than those without

**NR=Non-Referred, ADHD= Attention Deficit-Hyperactivity Disorder, ED=Eating Disorders, BN=Bulimia Nervosa, AN=Anorexia Nervosa, BED=Binge-Eating Disorder*

Table 3: Correlation between characteristics of Attention Deficit-Hyperactivity Disorder and Eating Disorders

Author (year)	ADHD-Hyperactivity	ADHD-Impulse	ADHD-Inattention	Hyperactivity/Inattention	Hyperactivity/Impulse
Mikami et al. (2010) (19)	NR	Impulse in childhood could predict the occurrence of BN symptoms in girls	NR	NR	NR
Munsch, Hasenboehler & Meyer (2011) (59)	NR	NR	Children with higher scores in inattention consumed more food	NR	NR
Wilhelm et al. (2011) (44)	NR	Desire for fast food was described through impulse in children with ADHD	NR	NR	NR
Seitz et al. (2013) (56)	NR	NR	The severity of disturbed eating could be described through inattention	NR	NR
Steadman, & Knouse (2014) (48)	NR	Impulse played a significant role in correlation between ADHD and BED	NR	NR	NR
Gowey et al. (2015) (47)	NR	NR	NR	Hyperactivity/Inattention was correlated with food preoccupation and eating control	Hyperactivity/Impulse was correlated with food preoccupation and eating control
Sonneville et al. (2015) (57)	NR	NR	NR	Hyperactivity/Inattention I late childhood was correlated with disturbed eating in early adolescence and BED in middle adolescence	NR
Halevy-Yosef et al. (2019) (54)	NR	NR	NR	NR	Patients with overeating presented more Hyperactivity/ Impulse symptoms

**NR=Non-Referred, ADHD= Attention Deficit-Hyperactivity Disorder, ED=Eating Disorders, BN=Bulimia Nervosa, AN=Anorexia Nervosa, BED=Binge-Eating Disorder*

Discussion

According to the results, in many studies a correlation between ADHD and ED in adolescents was noted (22-34), following the current view concerning ADHD and ED (3, 4). Only few were the studies that did not present any correlation, due to mainly small sample (33, 35-38). Concerning ED, ADHD was correlated with BN and BED (29, 30, 37, 39, 49, 53, 57). Most of the studies indicated a stronger association of BED with ADHD (37, 39). Adolescents with BED had more often inattention than those without BED (54), while boys with ADHD were more likely to have Binge-eating/purging type episodes (29, 38). Due to lack of controlling impulse, adolescents with ADHD, presented loss of control (LOC) eating more often, which was correlated to BED (30, 51). Data from other studies, indicate that people with ED and ADHD, had lower self-esteem and impulse, simultaneously with Binge-eating/purging type (61, 62).

A significant percentage of adolescents with BN had also ADHD (49, 53), presenting more impulsive and inattention symptoms from adolescents with BN only, and more disturbed dieting (56). Since ADHD was considered a self-regulated disorder, with reduced ability of controlling impulse, it is consequent that BN, which has the same feature, to appear (19-21, 63). There are not many data, which correlate ADHD with AN, mostly when people with AN had Binge-eating/purging type behaviors (54). More specifically, adolescents with AN Binge-eating/purging type indicated more ADHD symptoms, with elevated inattention (54), and girls to present ADHD, AN, depression, mania and panic attacks simultaneously (55).

One of the main characteristics of ADHD, which was correlated to disturbed food consumption, was impulse (23, 56). However, data has also connected overeating with inattention, especially in adolescents (47, 59). Furthermore, the characteristics of ADHD did not occur alone, and the coexistence of more than one could provide more information about the correlation with ED. Inattention/ impulsive symptoms presented more often in adolescents with BED (54), while those symptoms could predict the emergence of ED in late adolescence (60). Moreover, the combination of hyperactivity and inattention in childhood increased the risk of elevated food desire and BED in middle adolescence (57).

Although ADHD is more often in boys (8, 64), girls had more often ADHD and ED, mostly BN (22, 26). The main explanation is that girls were at greater risk for ED, especially in adolescence (from 12 years old) (1, 53, 65, 66). Respectively, girls with socialization problems and boys with impulsiveness and activity problems had ADHD more often (27). One of contributory factor of delinquent behavior was impulse, with most adolescents with ADHD to engage in high risk behaviors, including disturbed eating (67).

ADHD and ED affect and are affected by emotion, leading to depressive symptoms especially in adolescents. Negative emotions were linked to disturbed dieting, emotional overeating and body image dissatisfaction (14, 15, 16, 47, 49, 50). Overeating in adolescents with ADHD, was considered a way of controlling the environment, which was characterized by frustration, inattention and lack of organization (16). Exercise was a protective factor, enhancing mentally, physically and emotionally the adolescents, and limiting their negative emotions (68, 69). On the contrary, adolescents who did not work out or spent many hours in front of screens (TV, laptop, smartphones etc.) had more inattention symptoms (69). Family plays a significant role in ADHD and ED, mostly by removing high-calorie foods from home, reinforcing the family table and supporting the treatment, through education (70, 71).

Moving away from the Mediterranean diet and adopting a western diet was associated with an increased risk of developing ADHD, where children and adolescents ate more fast food and sodas than vegetables and fruits (43, 72, 73). The lack of meal preparation, along with impulse and inattention, were correlated with disturbed eating in the past, which could lead to elevated weight and disorders related to food (61, 62). Furthermore, the Loss of control (LOC) eating, through impulse and binge-eating, set children and adolescents in greater risk of obesity in childhood (7, 39, 40, 56). In the past, higher sugar consumption was considered the main factor of hyperactivity and inattention, however the data confirm that connection were limited (74, 75). Moreover, the medication in children with ADHD, suppressed their appetite, leading to a possible occurrence of ED or hospitalization (45, 46).

Although this review presented significant data concerning the correlation between ADHD and ED in adolescents, there were some limitations. Firstly, these disorders are affected from the environment that adolescents live, not only in their occurrence but also in enhancement, influence or improvement. The

psychotherapeutic adaption, which will target not only the person involved but also their family, friends, school etc. could provide positive results through time.

Moreover, due to developmental background of adolescence, some disorders are not fully expressed and adolescents exhibit behaviors that are similar to them but do not meet the diagnostic criteria. In that way, some behaviors were not considered disturbed and may go unnoticed. It is important to be fully established in order to alert both family and scientific environment, although these behaviors cause dysfunction and reduced socialization in adolescents. As a results, in some studies, adolescents are in risk of exhibit some behaviors concerning ADHD and ED, and to be considered as normal. Nevertheless, proper information and awareness, both of parents / carers and scientific and school environment about the disorders and the relationship they develop between them, gives a sense of hope for the prevention and treatment of both ADHD, as well as ED in adolescents more effectively.

Conclusions

The conclusions of the review could be used to enhance more effective treatments for ADHD and ED in adolescents and more specifically in the Greek population, describing in detail the possible relationship between them. Those information could play a significant role in strengthen adolescents with ADHD and ED, in corporation with parents and carriers. Finally, the establishment of preventive and treatment programs for both ADHD and ED could be an inhibitor of occurrence of those disorders or other risk factors related to those in adult life. Although, data provided by this review are important, more detailed research should be implemented in the future.

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Review

Are health services adolescent friendly in Greece and worldwide? A brief report

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ABSTRACT

Purpose: Adolescent health services are important for adolescent health. The present article aims to highlight disadvantages and advantages of those services that will be a precursor for more extensive studies and the improvement of all health services in Greece and in other countries, worldwide.

Method: We collected and analyzed a total of 15 surveys, including 1 meta-ethnography, 3 systematic reviews, 3 clinical randomized trials, 5 cross-sectional studies and 3 reviews, which were performed in countries of 5 continents (Asia, America, Africa, Europe and Oceania). During the analysis of the studies on the friendliness of health services, conclusions were drawn on the accessibility and utilization of these services.

Results: Greece seems to have few specialized services for adolescents, most of them being insufficient to meet the WHO criteria. In Europe, several countries have adopted friendly policies, but on a practical level there is a need for more complete compliance with the criteria. Finally, in Asian and African countries, there are many health services for adolescents, but there is a need to enhance the quality of reproductive and sexual services for the treatment and prevention of adolescents of all genders and sexual orientations.

Conclusion: Further research on the provision of friendly services for adolescents, mainly in European countries is needed, as well as upgrading the quality of services provided in low-income countries. Also, there is a great need for a standardized tool to be developed, which will be able to assess the friendliness of health services.

Key Words: *youth-friendly, adolescent friendly, health services, worldwide, Greece, WHO*

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INTRODUCTION

Adolescents make up 1/6 of the world's population (1). According to WHO, adolescence is the period between 11-19 years, but APA defines adolescence as the period of life from 11 to 21 years. This is a transitional period that lies between childhood and adulthood (2). At the same time, adolescents face diseases and accidents at a rate of 6%. In 2015, about 1.2 million adolescents between the ages of 10 and 19 lost their lives, most of them from low-income countries (1).

For the Constitution of the World Health Organization, the highest possible level of health is considered a fundamental right of every human being (3). Every adolescent has the right to the provision of health services, with the aim of fulfilling a complete physical, mental and social well-being. Adolescents around the world may face many health problems, that need specialization and care (5).

Health services are defined as the services provided by health providers (e.g. doctors, psychologists, etc) to a patient, with the aim of preventing, diagnosing and treating their health problems (4).

The World Health Organization has established some very specific criteria that contribute to the friendly way of operation of health care services for adolescents all over the world. So, youth friendly are called the health services, which are: accessible, acceptable, equitable, appropriate and effective (6).

METHODS

A research algorithm was created in order to extract data on the quality of friendly services in Greece and worldwide. For the search three scientific databases (PubMED, Google Scholar and Scopus) were used. The main inclusion criteria were: a) age group: adolescence, b) geographical factor: Greece and worldwide, c) type of study: cross-sectional, evaluations, randomized clinical trials, systematic reviews and meta-analyses and d) language: Greek and English. In the end the authors collected and analyzed a total of 15 surveys, of which 1 meta-ethnography, 3 systematic reviews, 3 clinical randomized trials, 5 cross-sectional studies and 3 reviews, which were implemented in countries of 5 continents (Asia, America, Africa, Europe and Oceania). During the analysis of the studies on the friendliness of health services, conclusions were drawn on the accessibility and utilization of these services.

RESULTS

Greece

Many recent studies have focused on the friendliness of adolescent youth health services (Table 1). While there has been much research on how youth services can be friendly, few researchers have taken into consideration on how to make them more friendly and accessible.

Greek data on adolescent friendly services are very limited. After some research in the literature, a few studies were found on how some services for adolescents in Greece work and whether they follow the standards of adolescent friendliness. So, in the first study, Zoitaki et al., conducted a cross-sectional study in 358 late adolescents and young adults (7). The study investigated if the public and private services followed the WHO guidelines of friendliness and if they checked the goals of the Sustainable Development Agenda for 2030. There were high satisfaction rates for medical consultations in both sectors. However, counseling on contraceptive methods, information on the prevention of sexually transmitted infections, and counseling on other aspects of sexual and reproductive health are not satisfactory. Finally, the participants demand in the future more consultation by the health care providers and more attention to personal issues (8).

Ksekalaki (2020) conducted a cross sectional study of the needs and experiences of 15 years old adolescents in Greece about health care services (9). In the study 2342 students of the first grade of High School, from big cities all over Greece participated. The results showed a big gap between sexes on the reason of the visit to health services (certifications vs follow ups and vaccinations), while 80% of girls were accompanied by a parent, when the boys didn't. At the appointments, more than half of the students said that the doctor paid attention, gave them the appropriate time and respected them ($p<0,001$).In general, in the most cities, the services operated in a youth friendly way (9). The common area with the previous study is the need for more information and counseling on critical matters (8,9). To support Greece in achieving universal health coverage (UHC), WHO has been evaluating the country's sexual, reproductive, maternal, newborn, child and adolescent health (SRMNCAH) services. Preliminary findings of the assessment point to large variations between the public

Table 1:Descriptive study table

Author	Date	Title	Countries	Type of study	Purpose	Results
Zoitaki et al.	2021	The utilization of sexual and reproductive health services among young people: a cross-sectional study in Greece	Greece	Cross-sectional study	To assess the needs of adolescents 16 and 18-20 years old regarding the provision of health services and to evaluate the operation of these services	High satisfaction rates for medical appointments advice on contraceptive methods -Information on the prevention of sexually transmitted infections and advice on other aspects of sexual and reproductive health are not satisfactory -Participants in the future ask for more information from health care providers and more attention to personal issues
Ksekalaki A.	2020	Health and adolescents in big cities of Greece: Assessment of experiences and needs in primary health care	Greece	Cross-sectional study	To assess the needs of adolescents 16 and 18-20 years old regarding the provision of health services and to evaluate the operation of these services	-Friendly services are provided in most cities there was a gender gap (80% of girls are accompanied by parents) -More information on critical issues was requested here as well
Malm et al.	2017	Validation of a questionnaire to measure youth-friendliness of Swedish youth clinics	Sweden	Cross-sectional study	Examined the friendliness of health services to adolescents based on the 5 criteria of friendliness of the World Health Organization.	-22 of the 300 adolescent clinics fully met their friendly mode of operation according to the five basic WHO criteria 80% of the participants were women -There was great satisfaction and all the criteria of friendly operation of the services for teenagers were met, while the quality of the services was maintained very high.
Michaud	2020	Do European Union countries adequately address the healthcare needs of adolescents in the area of sexual reproductive health and rights?	Countries of EU	Evaluation	Investigating the extent to which EU countries adequately address the health care needs of adolescents in the field of sexual reproductive health and rights	-The majority of countries have specialized / friendly centers, -Only 5/26 countries have trained staff and promote confidentiality. -Only about half of the countries have adopted policies or recommendations aimed at promoting good access and care in the field of SRHR for adolescents. -Greece was deemed insufficient in almost all factors of friendliness
Carai & Chandra Mouli	2015	Assessing youth-friendly-health-services and supporting planning in the Republic of Moldova	Moldova	Evaluation	Examined the friendliness of health services to adolescents based on the 5 criteria of the World Health Organization	-There was an improvement in health services, but it was not enough -Most of the services were lacking in staff, training and poor quality and low budget -It also appeared that there is no alignment with world standards for teen-friendly guidelines
OCHA	2020	Regional Report: Assessment of Adolescents and Youth-Friendly Health Service Delivery: East and Southern Africa	Africa	Evaluation	Humanitarian Affairs (OCHA) published in 2020 the evaluation of health services that are teen-friendly	-Of the 23 countries, almost all had the policy and the legal framework according to the 5 criteria of the WHO. -The important finding was that each country met only some of the 5 criteria. -There are guidelines and maybe infrastructure, but the quality of services in Africa is low.
Henderson et al.	2017	Integrated collaborative care teams to enhance service delivery to youth with mental health and substance use challenges: protocol for a pragmatic randomised controlled trial	Canada	Control Randomized Trial	Examined the effectiveness of the collaborative model in mental health services for adolescents	-The collaborative model has proven to be effective for adolescents' mental health. -It is an innovative application in the context of adolescent mental health. -It seems to be a very promising model that will improve and upgrade the mental health services of adolescents.
Talbott et al	2020	A Team-Based Collaborative Care Model for Youth With Attention-Deficit Hyperactivity Disorder in Education and Health Care Settings	USA	Control Randomized Trial	Examined the effectiveness of the collaborative model in health services in collaboration with the educational environment for adolescents with ADHD	-The collaborative model seems to have a positive effect on the school progress of students with ADHD -At the same time it seems to effectively support the mental health of the adolescent with ADHD. -The cooperation of health services for adolescents with the educational environment proves to be beneficial for the school progress of adolescents with ADHD.
Songtaweesin et al.	2020	Youth-friendly services and a mobile phone application to promote adherence to pre-exposure prophylaxis among adolescent men who have sex with men and transgender women at-risk for HIV in Thailand: a randomized control trial.	Tailand	Control Trial	Considered the combined provision of friendly services with a mobile application "The Rain Coat" aimed at the prevention and treatment of HIV through proper prophylaxis for gay men and transgender women.	-There was a statistically significant increase in the rate of condom use in gay men and transgender women (3rd month: p-value = 0.0002) -In addition, with regard to the "The Rain Coat" application, it was found that there was no correlation with the additional efficiency of health services. -The possible ineffectiveness of the application is due to the inability to access a mobile phone or the internet.
Banke-Thomas et al.	2017	Factors influencing utilisation of maternal health services by adolescent mothers in Low-and middle-income countries: a systematic review	Countries from all continents	Systematic Review	To highlight the correlation of socio-economic factors with the visit of adolescent mothers to mental health services.	-There is a statistically significant correlation between the use of mental health services by adolescent mothers and the level of education of the mother, the level of education of the husband, the financial situation, the region, the marital status and the barriers to women (p≤0.01) -In India there is a statistically significant correlation between religion and home visits by health professionals. -There is no statistically significant correlation with the professional status of the mother
Chandra-Mouli et al.	2018	A systematic review of the use of adolescent mystery clients in assessing the adolescent friendliness of health services in high, middle, and low-income countries	Countries from all continents	Systematic Review	Examine the friendliness of health services for adolescnets using the method "mystery client"	-Some of the participants stated a lack of privacy and confidentiality -Other participants reported experiencing sexual harassment and criticism. -The girls were more comfortable reporting unwanted experiences -This method was found to be useful in assessing the behaviors of health professionals when providing services to adolescents
Mazur et al.	2018	Assessing youth-friendly sexual and reproductive health services: a systematic review.	Low and high income countries	Systematic Review	Examined the friendliness of sexual and reproductive health services to adolescents based on the 5 criteria of the WHO from 2000-2015 worldwide	-Each study used a different tool to measure service friendliness. -There was a great need for a clear hierarchy between the measurements of the teen-friendly indicators -It turned out that health service friendliness needs to be further investigated in relation to adolescents belonging to the LGTBQ + community
Williams et al.	2017	Scaling a waterfall: a meta-ethnography of adolescent progression through the stages of HIV care in sub-Saharan Africa.	Sub-Saharan Africa	Meta-ethnography	To highlight the service-friendliness of adolescents with and without HIV	Countries with adolescent friendly hours tended to be more accessible to adolescents for HIV prevention and treatment.

Globally

Although things in Europe run differently and there are plenty of services, it is not quite sure if they hit the quality standards. In the study of Malm et al., 22 out of almost 300 youth clinics of Sweden were assessed and it was checked if they are youth friendly (10). Those clinics fulfilled their friendly way of operation according to the six main criteria of WHO (10). This bright example of Sweden doesn't represent lower income countries as Moldova. There, researchers in 2015 found that there was a scale up on the services, but isn't enough because most of the services luck of personnel, training and have poor quality and low budget, and generally there isn't an alignment with the global standards of youth friendly guidelines (11). A big study in Europe investigated if the Countries of the European Union adequately address the healthcare needs of adolescents in the area of sexual reproductive health and rights (12). The majority of countries has specialized /friendly centers, but only 5/28 have trained personnel and promote confidentiality. Only around half of the MOCHA countries have adopted policies or recommendations that aim to promote good access and care in the area of adolescent SRHR. In that study, Greece lucked in almost all the factors of friendliness (12).

Analyzing studies in low-, middle-, and high-income countries, it appears that governments in most countries are working to create the conditions for adolescent-friendly services (13). Their data were published in a systematic review that studied the compliance rate to the five health services quality criteria of WHO which showed that accessibility and acceptability was in a part satisfying but equity and appropriateness needed to be upgraded (13).

On another perspective, a systematic review showed that adolescents in high, middle and low-income countries experienced unwanted and unfriendly behaviors, such as limited attention to their face or even the perception of their problem as something that does not need to be taken seriously and judgmental behavior. In addition, the girls in relation to the boys seemed to express to a greater extent the undesirable experiences they had (14). Some other surveys showed that there was a different attitude based on gender of clients (men seemed to have a better experience than women) (14).

Meanwhile, a worldwide systematic review focused its study on the friendliness of sexual and reproductive health services for adolescents. This study measured the 5 criteria of friendly services (acceptance, accessibility, equality, appropriateness and effectiveness) as well as 7 additional, such as the environment, confidentiality and participation of the adolescent in the process. It was also observed that each study used different tools to measure the data, which demonstrates the need for standardization and structured measure of health service friendliness. The results of the research also showed that to a very small extent it is obvious which feature should be emphasized, while also there seemed to be a need for further study on issues of correlation of the LGBTQI community and health services to adolescents (15).

On the same time, another systematic review that focused on adolescent mothers showed that education of adolescent mothers, education of their husbands, financial situation, parity, region, family structure, women's' barriers, seemed to have a statistically significant influence ($p \leq 0.01$) on the use of services mental health by adolescent mothers. It is also important to mention the statistically significant correlation between religion and home health providers visits in India, while no correlation was found with the mother's employment status. The review also showed that older mothers use mental health services more than adolescent mothers (13).

On the other hand, the Humanitarian Affairs (OCHA) published in 2020 the Assessment of Adolescent and Youth-Friendly Health Services in the East and Southern Africa Region (2015-2017) (16). From the 23 countries of the East and Southern Africa (ESA) region, almost all of them had the policy and legislative framework according to the 5 criteria of WHO. The significant finding was that every country checked only partially the criteria and didn't have all the 5. This finding is confirmed by another study (17) and the result is that there are guidelines and maybe infrastructure, but the quality of the services in Africa is low. Furthermore, according to a meta-ethnography conducted in East and West Africa with the aim of revealing the correlation of the quality of services provided to adolescents for the prevention or treatment of HIV. The results showed that teen-friendly services were more accessible, so that adolescents could have HIVscreeningtests as well as pre-ART therapy and ART in HIV-positive ones (18).

Another essential point is to figure out how to enhance health services in order to become more adolescent friendly. According to that, we found two randomized trials. The first one took place in Thailand, where an attempt was made to demonstrate whether a mobile application named

"The Rain Coat" in combination with the provision of adolescent-friendly services could improve the rate of proper prophylaxis use in adolescents and more specifically in men who have sex with men and transgender girls who are at risk for HIV(21). According to the data, the use of health services seemed to be correlated with the increase in the rate of use of prophylaxis in all sexual acts (3rd month: p-value = 0.0002). In addition, regarding the application "The Rain Coat" it turned out that there was no correlation with the additional efficiency of health services (19).

The other one was held in Canada, where the effectiveness of the integrated collaborative care team model on youth mental health services proved that it was very innovative and very promising for the adolescents' mental health services (20). The approach of collaborative team model has potential characteristics, because it integrates education and health care providers in a teamwork (20). Additionally, the Collaborative Care Model is effective and efficient on controlling the costs, making services accessible and increasing patient's satisfaction (20). More recent evidence highlights that adolescents with Attention- Deficit- Hyperactivity- Disorder and their mental health have positive progression because of Team Based Collaborative Care Team Model (TBCCM) (21) (Table 2).

Table 2. Youth-friendly criteria fulfilled by the countries of the study

CRITERIA	ACCESSIBLE	ACCEPTABLE	APPROPRIATE	EFFECTIVE	EQUITABLE
Greece	(+)	-	-	-	-
Sweden	+	+	+	+	+
Moldova	(+)	-	-	(+)	-
E.U. Countries	+	(+)	(+)	(+)	(+)
MOCHA countries	+	-	+	(+)	-
High-income countries	+	+	-	-	(+)
Low-middle income coutries	-	-	(+)	(+)	-
(ESA) region	(+)	-	-	-	-

(+): in some cases

Conclusions-Discussion

According to the present study, major shortcomings and inadequacies exist in the field of health services, regarding their level of friendliness. In Greece there are friendly services for adolescents mainly in large urban centers, but they are not considered sufficient in many sectors. Based on a large European evaluation, Greece comes last in the field of sexual and reproductive health services. Exactly like Greece, many countries worldwide seem to have many shortcomings, especially middle and low income countries, while high income countries seem to excel according to WHO criteria, starring the Nordic countries.

While there is no worldwide structure or standards for youth policy, there is a developing international consensus on youth policy principles. All effective national youth policies should aim to be: democratic and participatory, cross-sectional, coherent, evidence-based, fairly budgeted, professional, monitored and evaluated, open and freely accessible (22).

Also, World Health Organization developed 8 Global standards to improve quality of health-care services for adolescents, which every country should try to implement (Adolescents' health literacy ,Community support, Appropriate package of services, Providers' competencies, Facility characteristics, Equity and non-discrimination, Data and quality improvement, Adolescents' participation) (23). Moreover, in 2015 was created the 2030 Agenda, which is a global roadmap for sustainable and inclusive development. It has universal character and most of its aims focus on the application of the highest attainable standard of health for all women, children and adolescents (24).

As a closing suggestion and based on the fact that there is limited data about youth friendly services worldwide, the research interest should be oriented more on this issue and more specifically on the accessibility of LGBTQ+ adolescents, while at the same time it is proposed to strengthen the evaluation of health services for adolescents worldwide, including Greece. Finally, it is recommended to create a stable and reliable tool for measuring service friendliness (1-24).

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Brief Review

Overparenting: The current situation in Greece comparing to European and Worldwide context.

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ABSTRACT

Overparenting is a parental style that seems to be popular in all over the world. Specific parental characteristics and multi-cultural differences seemed to play an important role in this parental style to appear. Therefore, the purpose of this review is to identify the factors shaping overparenting and the impact in children, adolescents and young adults in Greece, comparing to European and Worldwide context. A literature review was conducted using online databases and words such as «overparenting», «helicopter parents», «intrusive parenting», «parental interference», and «parental control». Overparenting seems to be related to negative effects in children's psychosocial and mental health. It was associated with lack of autonomy, low levels of self-regulation and mastery, which affected social adjustment skills and higher levels of anxiety, depressive symptoms, poor self-regulation and low levels of life satisfaction in children. In Greece, overparenting was related to poor school adjustment, obesity, internet addiction and post-traumatic stress from bullying. Overparenting is becoming more and more popular, so more research is becoming a necessity. It is important for every state to support and consult parents, from pregnancy to school, with specialized programs and teachers' training with the collaboration of social scientists. Further research of the phenomenon, in Greece and cross-culturally, is however needed.

Key Words: *overparenting, children, parental style*

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Introduction

In 1969, Dr Haim Ginnott, teacher, school psychologist and psychotherapist, described the term "helicopter parenting", in his book "Between Parent and Teenager" (1). The term is referred to the parents who control their children's life, by restricting their independence and undertaking all their responsibilities (1). Numerous studies have been conducted concerning this matter, including the parents' characteristics, which affect the psychosocial development of their children (2) and the connection between overparenting and poor health conditions in adulthood (3). Furthermore, some of them included the teachers' opinions in overparenting, since they are the first to encounter with this matter (4).

Parental Characteristics and multi-cultural differences

Overparenting has been linked in many cases with negative parental characteristics, such as guilt and anxiety (2, 5-7). Specifically, those parents who experienced anxiety during parenthood consider their children as more vulnerable, compared to other parents, leading to overparenting behavior (7). Furthermore, parents with an anxious/ambivalent bond, do not behave in a stable way to their children or in case of overparenting, they over-involve in their lives, limiting their independence (8, 9). Thus, overparenting parents seems to create a more anxious attachment style with their children(10). Some researchers suggest that overparenting parents criticize in a more extreme way than usual (11),

Oveparenting is more common in parents with children with chronic diseases, such as type 1 diabetes, because controlling their children, helps them deal with their fear and anxiety, concerning their health (12, 13). Controlling is appeared to be stricter, introducing the use of a smartphone and enhancing the culture of safety-ism (14). More and more children and adolescents have smartphones, making in it easier for parents to know the exact location of their children anytime, through tracking apps (15).

It is interesting though, that overparenting is negatively associated to parents who had children with in vitro fertilization (IVF), due to high children acquisition awareness (16, 17).

On the other hand, multi-cultural differences are present in overparenting, for instance in eastern societies, such as the Chinese. Parenting style is based on collectivism and family dependence; while in western societies the children's independence is promoted (18). In fact, in China, overparenting characteristics were identified, as follows (19): close monitoring, intrusion and manipulation in children's life, excessive importance in children's performance, frequent comparing with other children's accomplishments, enhanced daily program for children, solving problems for children, excessive emotional response and excessive care (19).

Another factor that affects overparenting is parent's gender, within social context. In an Israeli study, mothers were more likely to follow an overparenting style, rather their male counterparts (10), while on the contrary, in an American study, there was no difference between the two genders (20), indicating that there are gender differences due to the social dimension of the genders.

Furthermore, an association between the generation that parents were raised, compared to their children's, was noted, with baby boomers (born between 1946 and 1962), to be involved in their children's lives more than past generations (21). Changes in born rates, technology, lifestyles, financial state and in development of new parental tactics played a significant role (22). The purpose of this review is to identify the factors shaping overparenting and the impact in children, adolescents and young adults in Greece, comparing to European and Worldwide context.

Materials and Methods

A research of published papers was conducted, using online databases (Pubmed, Scholar, Scopus). Key-words such as «overparenting», «helicopter parents», «intrusive parenting», «parental interference», and «parental control» were used. There were no geographical and cultural landmark restrictions. However, the assessment of this parenting style was difficult, due to different definition used by researchers. In some studies, there is no reference in overparenting, but parental control or parental interference is used instead (23) or different parental styles are being studied (20).

Results

Concerning the impact of overparenting in children, adolescents and young adults, Padilla-Walker and Nelson (2012) conducted a study with contradictory results (5). Overparenting was positively correlated with parental involvement and other positive aspects to parent-child relationship, while was negatively associated with the lack

of autonomy and school obligations, preventing children from developing important life skills, such as empathy and prosocial behavior (5). According to McGinley, children who experience overparenting had less positive outcomes in those skills (24).

Other highly important skills are social adjustment and self-regulation, where high levels of overparenting seemed to negatively affect self-regulation and mastery, while through those skills other social adjustment skills are affected, such as social convenience, pre-social behavior, depression, substance use, criminality etc. (25). It is important to notice that practices that parents apply to their children from an early age are related to the adjustment they will have as adolescents as well as the skills, such as self-regulation, that they will acquire (26). Consequently, low self-regulation leads to more psychological and school related problems, as stated by children and reduced social skills and school performance, as reported by teachers (27). Furthermore, overparenting delays the development of self-control and is associated with students' burn out, because of high parents' expectations (mostly father's) in school performance (27).

Similar findings presented by Hong and Cui (2019), where low levels of self-regulation act as a mediator between overparenting and maladjustment of adolescents (28). Respectively, children's place of residence seemed to affect the way children, adolescents and young adults, accept or not overparenting, with young college students, who live with their parents to present higher levels of adjustment comparing to those who live away from home (28).

Maladjustment and self-regulation, with lack of social skills could affect the psychological state of individuals. Many studies reported that overparenting was associated with higher levels of anxiety, depressive symptoms, poor self-regulation and low levels of life satisfaction (29-34). In some cases, overparenting was linked to narcissistic characteristics in young adults (2, 35). In addition, individuals who experienced overparenting were more likely to use medication for anxiety disorders or depression, and more often recreational consumption of pain pills (29). Also, overparenting was associated with higher alcohol consumption in younger females, while alcohol consumption was combined with low levels of life satisfaction and self-regulation (32). On the contrary, a high functioning bond was associated with low desire for gaming, pornography, online shopping and gambling (36). Furthermore, according to Odenweller et al. (2014), millennials experiencing overparenting, tented to present more neuroticism, interpersonal dependency, low coping efficacy (37).

The impact of overparenting does not only appear in social skills, as stated above, but also in well-being of individuals. (29-34). In fact, mother's overparenting was associated with obesity in children (38). In addition, in a study related to Greek, Dutch, Polish, Swiss adolescents' well-being, it was found that the autonomy provided by both mother and father was positively related to the well-being of adolescents (39).

Overparenting in Greece

Greece is no exception in the popularity of overparenting as a parenting style. Even though, overparenting as definition is not common in Greek language, overprotection of parents, especially mothers, seems to be a unique feature of Greek families (40). In Greek literature, some studies associate overparenting with poor school adjustment (41), obesity (42), internet addiction (36) and post-traumatic stress from bullying (43). However, those studies included small samples, so further research should be conducted, in order to draw secure conclusions.

According to Greek literature, the most popular parenting styles are: authoritative, permissive, authoritarian and democratic (44). Authoritative parents want to have constant control and do not support their children, while democratic parents provide safety and set boundaries to their children (45). On the contrary, permissive parents can support their children, but not set boundaries (45). Authoritarian parents are a mixed style incorporating authoritative and democratic, they use techniques of Authoritative parents (criticism, detention, bawling), without explaining to their children why they were punished and they are not trying to improve their behavior (44). Taking into consideration the overparenting style, some similarities with other parenting styles were identified. Overparenting parents limit their children, without punishing them as authoritative. They are trying to provide security, as democratic, but over-react. They over-involve in their children's affairs (e.g. in school matters) and they fail to set boundaries. They could be identified as Authoritarians, because they criticize. Overall, overparenting is the parenting style of contradictions: the intentions of the parents are good, but the result (as well as the parental bond that is created) is ambivalent.

Discussion

Parental style can affect children, who face pressure and restriction, especially if parents' actions are exaggerated and over-emphasized. On the other hand, children who experience overparenting present lower social skills, maladjustment and psychological and school related problems. Winnicott in his book "The Game and the Reality" was referred to the "good enough mother" (46). A good enough mother (not necessarily biological mother, but also carer) is the one adopting to her baby's needs and helping them to be independent. However, in overparenting, the parent cannot let the child take responsibilities; thus, creating a dependent adult. In that case, negative results affect not only children but also their parents.For instance, not only children's psychological state and adjustment is affected, but also their close environment. In that way, school related problems appear regarding teachers and stuff, and later in life work-related problems, making difficult the relationship between employers and other colleagues. It is obvious that this phenomenon is of high importance and more research is needed.

Some questions were aroused during the research concerning overparenting, including: "In which parental style, children who experienced overparenting, will be evolved, if they decide to have children?" "As millennials, children who experienced overparenting, started to create a family, which parental style they adopt?" and "How the surrounding of the child, especially teachers should manage overparenting?" Furthermore, it would be interested to clarify the impact of overparenting in those parents who practice it, not only the impact in their children.

Conclusions

Overparenting is a parental style that is gaining ground in everyday life. Thus, more research is considered necessary. It is important for every state to support and consult parents, from pregnancy to school, with specialized programs and teachers training with the collaboration of social scientists. Therefore, due to the multifaceted nature of the issue, overparenting is a phenomenon that should be investigated holistically: psychologically, socially, educationally, and even psychoanalytically.

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Original Article

Decreasing trends in adolescent life satisfaction: the role of developmental and demographic factors.

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ABSTRACT

The aim of the present study was to investigate demographic and developmental factors that contribute to the prediction of life satisfaction in Greek adolescents. Life satisfaction is an important aspect of the subjective well-being and functionality of adolescents. The sample included 433 students (171 males) aged 11 to 16 years from medium and upper socioeconomic status, attending private schools in Greece. The research was conducted at the school environment after permission from the Schools' Supervisor of Counseling Services and the Schools' Principals. The Multidimensional Students' Life Satisfaction Scale was administered to students in order to assess the subjective well-being of adolescents along with a questionnaire for demographic information. Results showed a statistical significant decrease in adolescents' life satisfaction from family, friends, school, living environment and self as students move from the developmental stage of early to middle adolescence. A regression analysis revealed that each domain of life satisfaction was predicted by specific demographic and developmental factors. Results also indicated that gender was associated with several dimensions of life satisfaction. Girls in particular reported greater life satisfaction in total and were more satisfied with friends and school compared to boys. Decreased life satisfaction in adolescence may be a developmental phenomenon which should be studied further through longitudinal studies.

Key Words: *life satisfaction, developmental factors, demographic indicators, age, gender, adolescence*

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Introduction

Life satisfaction refers to the subjective assessment people make about the positive aspects of their life, as well as specific domains of it such as health, material well-being, safety, community, interpersonal relationships, intimacy, emotional well-being and productivity [1]. However, these domains are not necessarily of the same importance for adolescents as well. As Park and Huebner [2] point out, investigations of life satisfaction among adults cannot be automatically generalized to adolescents, because each group has its own salient interests, needs, and concerns in life which change with age. For instance, the effect of income, working hours, job satisfaction or marriage is not applicable to adolescents [3]. For adolescents, life satisfaction is affected more by personal factors as well as family and peer relationships [4].

A number of studies have shown that life satisfaction in adolescence is related to family experiences [5], relationships with friends [6] and participation in leisure activities [7]. As the main source of support, family plays a fundamental role in children's and adolescents' well-being and a harmonious family environment is crucial to their development. Other aspects, such as their relationships with friends and school environment, are also very important for their psychological development [8].

Life satisfaction has been studied extensively in adults but to a lesser extent in adolescents and children, even though it is a meaningful variable for them as well [9-11]. Adolescence is a developmental stage characterized as a period of "storm and stress" [12] because it is associated with significant physical and psychosocial changes [13], which can affect notably life satisfaction. Therefore, research in this area can inform our knowledge about periods of development with lower life satisfaction that are critical in relation to life satisfaction with the ultimate aim of implementing prevention measures that would improve childrens' and adolescent's life satisfaction.

Life Satisfaction and Sociodemographic factors

Few researchers have addressed the question of the impact of sociodemographic factors (age, gender, parental educational level and academic achievement) in relation to domain-specific life satisfaction during adolescence. The relationship between age and life satisfaction has produced contradictory results, with some studies reporting a decrease in life satisfaction from childhood to adolescence, whereas others demonstrating a positive trend. In a study conducted by Bisegger et al. [14] in seven European countries, findings showed that after 12 years of age there was a decrease in quality of life in the majority of aspects and this decrease was stronger for females than for males, especially in relation to physical and psychological dimensions. Decreasing life satisfaction across nearly all life domains was also reported in a study with German [15], English [16], Spanish [11] and Australian [17] adolescents between 11 and 16 years. According to Aymerich et al. [17] and González-Carrasco et al. [18] the levels of life satisfaction were significantly higher in childhood than in pre-adolescence and adolescence and specified a significant decrease towards the age of 11. However, there are also studies that do not confirm this decrease in life satisfaction in adolescence [9, 19, 20].

In terms of gender, lower life satisfaction was found in girls than in boys [14, 18]. Some researchers point out that the decreasing-with-age well-being trend is much faster and intensive among girls than among boys [18, 21]. Overall, there are some contradictory results in literature regarding life satisfaction and gender. For instance, Steinmayr et al. [19] and Huebner et al. [9] did not observe any association between gender and life satisfaction in a longitudinal study with German adolescents. Another study conducted by Salmela-Aro and Tuominen-Soini [20] found that life satisfaction increased among 15 to 17-year-old girls, a finding which they attributed to their better fit with their school environment. A recent study by Kekkonen et al. [22] found that loneliness and low frequency of meeting friends in adolescence was associated with lower life satisfaction in young adulthood, particularly in males while in females lower life satisfaction was associated more with not participating in recreational sports.

Parental education has been the most commonly used Socio-Economic Status component [23]. Seligson et al. [24] reported that adolescents' with lower Socio-Economic Status had lower life satisfaction levels. However, according to the empirical findings of Huang et al. [25], higher parental educational level was not significantly related to higher adolescent life satisfaction. According to Yucel and Yuan [26] the influence of siblings upon adolescents' life satisfaction is relatively unexplored. The results of their study showed that the impact of siblings on life satisfaction among early adolescents was only modest. Previous studies on

domain-specific life satisfaction have found a positive relationship between academic achievement and life satisfaction in adolescents [27-28]. Nevertheless, research regarding the relationship of life satisfaction and sociodemographic factors such as parental educational level, number of siblings and academic achievement in adolescence tended to focus on global measures and not on domain-specific life satisfaction.

Developmental Dimension of School Transitions

Adolescence is a period that coincides with changes in school and in many countries the transition from primary to secondary education. School transitions are associated with "normal life crises" and are associated with an increased likelihood for experiencing psychological difficulties [29]. Through a developmental perspective, these difficulties can appear either as adaptation difficulties or as predisposing factors for the emergence of psychopathology [30].

During their transition from primary to secondary education, adolescents face many changes, such as different teachers, new school procedures, new didactic approaches, different way of being assessed, decrease in parental involvement, heavier workload and a stricter curriculum, decrease in their spare time and changes in their friendship networks [31].

Present Study

The aim of the present study was to investigate demographic and developmental factors that contribute to the prediction of life satisfaction in Greek adolescents aged 11 to 16 years and explore whether there are any changes in adolescent's life satisfaction as they are progressing from primary to junior and then to senior high school.

Instead of a global approach, the present study adopts a multidimensional approach to life satisfaction by domains [1] and aims to draw useful conclusions about the strategies and behavioral styles that adolescents employ in particular contexts, such as their family, school and peer relationships.

Taking into account the importance of life satisfaction as one of the most significant indicators of psychological development and adjustment during adolescence, the present research tried to examine the effect of age (current class) in relation to certain demographic factors that contribute to the prediction of life satisfaction in adolescents aged 11 to 16 years. To our knowledge, this is the first study in Greece that used advanced psychometric methods (Confirmatory Factor Analysis) to investigate the psychometric properties of the MSLSS.

Our main research hypothesis is that life satisfaction will be significantly predicted by age (current class). In particular, we expect a declining trend in both life satisfaction and its indicators during adolescence. Regarding gender, we expect that there will be a difference in the dimensions of life satisfaction between boys and girls; however, we cannot make any further assumption since the existing body of literature has not produced coherent findings in relation to gender. Parental education and number of siblings is expected to have modest correlation with adolescents' life satisfaction. Finally, we expect that school performance will predict adolescent's school satisfaction.

Material and Method

Participants

The original convenience sample was composed of 465 adolescents. After controlling for outliers with anomaly detection techniques, 32 participants were excluded and the final sample consisted of 4Measurements

The Multidimensional Students' Life Satisfaction Scale [32] was administered to students in order to assess the subjective well-being of adolescents. The questionnaire examines five life-domains: family, friends, school, living environment, self, and also includes a total life satisfaction indicator (subjective wellbeing). It is a 6-point Likert-type response scale, ranging from completely disagree to completely agree. As reported above, internal consistency indices of the five domains in the current study were satisfactory. Other studies have shown satisfactory coefficients of internal consistency (alpha) which range from 0.85 to 0.92 [33].

In addition, a questionnaire for demographic information was administered to all participants. This questionnaire included information about the student's gender, date of birth, siblings, birth order, parental educational level, and average performance during the previous school year.

Procedure

The research took place in private schools in Athens and Patras. The research procedure was initially submitted for approval to the School's Supervisor of Counseling Services and then to the School's Principals at the beginning of the school year. Afterwards, the signed consent of the parent and the assent of the adolescent were requested. It was highlighted to all students that they had the right to stop at any time and could skip some questions if they felt emotionally stressed. Students were informed about the

research aim, the identity of the researcher and were reassured about the anonymity of their responses. In addition, they received detailed explanations and were reassured that there was no right or wrong answers. The time to complete the questionnaires did not exceed the 45 minutes, which is the typical instruction time. Questionnaires were administered between the third and fifth instruction hour of the daily school program.

Results

Confirmatory Factor Analysis

A Confirmatory Factor Analysis was conducted in the Multidimensional Students' Life Satisfaction Scale to ensure the statistical appropriateness of the measurement model and determine the factor structure of our hypothesized subscales. The analysis showed acceptable goodness of fit indices in the determination of the underlying structure of the scales ($\chi 2$ = 1196.40, df = 683, $p < .001$, $\chi 2/df$ = 1.75, TLI = .91, CFI = .92, RMSEA = .04 [Low = .04 - High = .05], SRMR = .07.

Descriptive statistics

As it is depicted in Table 2, participants reported higher levels of satisfaction from friends (M = 5.09, SD = 0.71), followed by family (M = 4.80, SD = 0.89), satisfaction from self (M = 4.74, SD = 0.72), total life satisfaction (M = 4.66, SD = 0.57), satisfaction from living environment (M = 5.54, SD = 0.88) and satisfaction from school (M = 4.10, SD = 1.02).

Table 1. Sociodemographics of adolescent participants (N = 433)

	N	*%*
Class		
Primary school (6th grade)	145	33.5%
Junior high school (8th grade)	145	33.5%
Senior high school (10th grade)	143	33%
Gender		
Male	171	39.5%
Female	262	60.5%
Number of siblings		
0	75	17.4%
1	255	58.9%
2	55	12.8%
3 and more	46	10.7%
Father's educational level		
High school	26	6%
University	407	94%
Mother's educational level		
High school	39	9%
University	394	91%
Last year's performance at school		
	M	***SD***
5th grade school performance	19.7	1.01
7th grade school performance	18.05	1.51
9th grade school performance	17.58	1.66

Note: Previous year school performance scores' range was 0 to 20
Note: Previous year school performance scores' range was 0 to 20

Table 2. Number of items, Means (*M*), Standard Deviations (*SD*) and Cronbach's α of the factors of MSLSS

	Items	*M*	*SD*	*Cronbach's α*
Satisfaction from friends	9	5.09	0.71	0.82
Satisfaction from family	7	4.80	0.89	0.85
Satisfaction from self	7	4.74	0.72	0.79
Satisfaction from living environment	9	4.54	0.88	0.77
Satisfaction from school	8	4.10	1.02	0.84
Total life satisfaction	40	4.66	0.57	0.89

Note: Score range is 1 to 6.

Predictors of Life Satisfaction

Stepwise regression analysis was conducted to determine which factors predict life satisfaction in total and in specific domains. The Stepwise regression included the following predictor variables: age (current class), gender, number of siblings, previous school year grade and parental educational level (paternal and maternal). There were no missing data in the data set. Analyses were carried out using SPSS version 25.

As it is depicted in Table 3, family satisfaction was predicted by previous school year's grade (β = 0.14, p = .009, ΔR2 = 0.01) and age (current class) (β = -0.31, p < .001, ΔR2 = 0.14). Satisfaction from friends was predicted by age (current class) (β = -0.12, p = .014, ΔR2 = 0.02) and gender (β = 0.11, p = .018, ΔR2 = 0.01) with girls having systematically higher scores than boys. School satisfaction was predicted by age (current class) (β = -0.34, p < .001, ΔR2 = 0.17), gender (β = 0.17, p < .001, ΔR2 = 0.03), with girls having higher scores, previous school year grade (β = 0.12, p = .022, ΔR2 = 0.01) and number of siblings (β = –0.09, p = .033, ΔR2 = 0.01). Living environment satisfaction was predicted by age (current class) (β = -0.26, p < .001, ΔR2 = 0.07) and father's educational level (β = 0.11, p = .025, ΔR2 = 0.01). Satisfaction from self was predicted by age (current class) (β = -0.22, p < .001, ΔR2 = 0.04) and gender (β = -0.10, p = .042, ΔR2 = 0.01), with boys having higher scores than girls. Total life satisfaction was predicted by age (current class) (β = -0.42, p < .001, ΔR2 = 0.18) and gender (β = 0.11, p = .016, ΔR2 = 0.01), with girls having systematically higher scores.

Table 3. Multiple Regression Analysis (Method Stepwise) Predicting Life Satisfaction from Gender, Number of Siblings, Previous School Year Grade, Parental Educational Level and Age/current Class

	Family		Friends		School		Living Environment		Self		Total life satisfaction	
Predictor	Step (ΔR^2)	β	Step (ΔR^2)	β	Step (ΔR^2)	β	Step (ΔR^2)	β	Step (ΔR^2)	β	Step (ΔR^2)	β
Gender			2(0.01)	**0.11***	2(0.03)	**0.17*****			2(0.01)	**–0.10***	2(0.01)	**0.11***
Number of siblings					4(0.01)	**–0.09***						
Previous school year grade	2(0.01)	**0.14****			3(0.01)	**0.12***						
Father's educational level							2(0.01)	**0.11***				
Mother's educational level												
Age/Current class	1(0.14)	**–0.31*****	1(0.02)	**–0.12***	1(0.17)	**–0.34*****	1(0.07)	**–0.26*****	1(0.04)	**–0.22*****	1(0.18)	**–0.42*****
R^2	0.16		0.03		0.22		0.08		0.05		0.20	

Note: *p<0.05, **p<0.01, ***p<0.001; ΔR^2 is the incremental increase in the model R^2 resulting from one step to another; gender was coded with 0 = male students and 1 = female students

Discussion

The current study investigated life satisfaction from a developmental perspective in a sample of Greek adolescents aged between 11 and 16 years. The main goal was to examine demographic effects on life satisfaction in total and in its particular domains. Previous research has shown that the relationship between demographic variables and life satisfaction is weak, contributing only modestly to the prediction of adolescents' life satisfaction [34]. However, the results of the present study showed that there were significant age and gender effects in total and specific domains of life satisfaction.

Comparisons between different life domains showed that adolescents were more satisfied by their friends and family compared to other dimensions of life satisfaction, such as their living environment and school. These results are similar to those presented by Goldbeck et al. [15] who also reported a persistently high contribution of friends to the adolescents' general life satisfaction. This finding is in line with developmental theories supporting that during adolescence people show particular interest in their relationships with friends rather than family [35].

The results obtained in the present study support the decreasing-with-age trend previously depicted in other cross-sectional [14-17] and longitudinal studies [10, 18, 21]. As students progress from primary school to junior and then to senior high school, life satisfaction (in total) as well as satisfaction from family, friends, living environment, self and school decreases. Adolescents' age seemed to be a powerful predictor of life satisfaction and its dimensions. It is noteworthy that this statistically significant reduction in life satisfaction with age is observed in most studies irrespective of the instrument used [18].

According to Goldbeck et al. [15], this decrease constitutes a "normal developmental phenomenon" which can be explained by the challenges adolescents face during their transition to adulthood and the changes they experience in many domains of their lives. For instance, the transition from primary to secondary education is one of the most stressful events in adolescents' lives [36] which can have a negative impact on their emotional well-being and academic achievement. For Steinberg [37] these developmental challenges may be factors of vulnerability for some adolescents and therefore careful attention should be given to this sensitive developmental phase.

With regard to vulnerability factors, low life satisfaction posits a threat to development and is associated with mental health problems and suicide risk [38]. Therefore, subsequent studies could further explore the concept of life satisfaction taking into account risk factors and psychopathological variables as well. However, a more complete understanding of the developmental dimension of life satisfaction in adolescence will be achieved through longitudinal research designs.

It should be noted that this decrease is not found in studies with samples of older adolescents [19]. This highlights the importance of conducting research with younger adolescents and children in order to be able to enhance our understanding about the age at which this tendency starts and when it stabilizes.

Regarding the effect of gender on life satisfaction during adolescence, results indicate that gender was associated with several dimensions of life satisfaction. Girls in particular reported greater life satisfaction in total and were more satisfied with friends and school compared to boys. On the contrary, boys appeared to be more satisfied with themselves. These results contradict the findings of other studies [14, 18, 39] according to which boys had higher life satisfaction than girls. It comes in accordance, though, with the study of Salmela-Aro and Tuominen-Soini [20] who reported that life satisfaction increased among 15 to 17-year-old girls.

A possible interpretation of these differences might lie in social role theory, which supports that the behavior of boys and girls differs because they have been attributed different roles in society [40]. Adolescence as a life stage depends on the number and types of roles adolescents are expected to play, the changing demands associated with these roles, and patterns of role gain and role loss.

Our results regarding the modest correlation of parental educational level, academic performance and number of siblings with life satisfaction are consistent with previous findings [25-28]. One of the contributions of the present study is that it confirmed these patterns in domain-specific life satisfaction during adolescence.

Finally, school satisfaction was predicted by most demographic indicators. In particular, gender, number of siblings, previous school year performance and age (current class) appeared to predict school satisfaction. In particular, girls, adolescents with fewer siblings, higher grades and younger children who attended primary school reported higher school satisfaction. Previous school year performance was positively correlated with satisfaction not only from the school but also from the family. The present finding can be related to the high expectations and importance that the Greek family posits to school performance. In the research conducted by Soares et al. [39] the main effect of school performance on life satisfaction was not significant. In relation to age, their findings showed a significant negative correlation between life satisfaction and age, suggesting that the lower the age, the greater the life satisfaction.

Limitations and Future Research

There are limitations in this study that should be kept in mind when considering the results. It should be noted that the selection of participants in the present study does not meet the criteria of random sampling. The sample was convenient, coming mostly from middle and upper socio-economic classes of the population, limiting the possibility of generalization. Further, because only private schools were sampled, the results may not necessarily generalize to public school students in Greece. In addition, data were collected through self-report questionnaires, with all the limitations that this methodology entails. The research design of the study does not allow conclusions to be drawn regarding causal relationships, but only the recording of correlations. It is evident that predicting adolescents' life satisfaction is a multifactorial process and inevitably

extends the number of variables that can be studied in any empirical research study. Therefore, results suggest the importance of longitudinal and experimental studies to explore further the relationship between broader developmental parameters and life satisfaction from infancy to late adolescence.

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The present study highlights the transition from early to middle adolescence as a vulnerable developmental period. Overall, the results obtained in the present study support the decreasing-with-age trend. However, there were substantial individual differences around this normative trend. Girls reported greater life satisfaction in total and were more satisfied with friends and school, while boys appeared to be more satisfied with themselves. Last year's school grade was a significant predictor of school and family satisfaction. The level of parental education did not have a significant effect on the prediction of life satisfaction and its dimensions (except for living environment satisfaction). The results of the present study highlight the importance of providing psychological/emotional care to early adolescents, especially during periods of transitions, such as the transition from primary to secondary school. For this reason, specific school-based intervention programs should be implemented that will address issues related to life-satisfaction enhancement (positive emotions, empathy, gratitude, engagement,) as well as prevention programs that will facilitate the transition process from primary to secondary education by considering the child characteristics (i.e. gender, age), the family characteristics (i.e. parental education, socioeconomic status) the characteristics of primary school (class teachers, didactic approach) and the characteristics of secondary schools (specialist teachers, exams). The results of the present study and the specific variables that are found to affect life satisfaction in boys and girls can guide the educational practices we can employ in order to prevent the decreasing with age trend of life satisfaction that seems to characterize the period of adolescence. Therefore, the family, social, demographic and contextual factors found by the present study to act as important contributors to life satisfaction among Greek adolescents should be exploited for designing intervention programs. Finally, it would be important for future studies to identify the risk and protective factors that predict changes in life satisfaction among Greek youth during the multiple transitions encountered in adolescence.

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