

## Review Article

# Child and Adolescent Mental Health Care in Iran: Current Status and Future Directions

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## Abstract

**Background:** The need for mental health care among children and adolescents in Iran, as in other low and middle income countries (LAMIC) remains mostly unmet. In this paper, we sought to provide an overview of the extent of unmet need and mental health services in Iran. We also aimed to propose approaches to address this gap.

**Method:** We reviewed the published epidemiologic studies of child and adolescent mental and behavioral health problems in Iran. We also examined the current status of child mental health services and the gaps between current needs and available services based on published literature that included papers published in scientific journals, as well as governmental and other administrative reports. The contextual issues relevant to child mental health care were also explored, as well as the possibilities to introduce new or scale up promising services.

**Results:** Child and adolescent mental and behavioral health problems are highly prevalent in Iran. Different studies have estimated that 16.7% to 36.4% of children and adolescents suffer from one or more mental health problems. However, there is a serious scarcity of resources to meet this need. Available services are delivered by independent public organizations (e.g., Ministry of Health, Welfare Organization, and Ministry of Education) or private sector with inefficient communication and collaboration among them and no mandatory national mental health policy. Available specialized child and adolescent services are mostly confined to small inpatient units and university outpatient facilities in larger cities, and there is a scarce evidence for the effectiveness of the available services.

**Conclusions:** Expansion of primary care's role in timely detection and management of child and adolescent mental health problems, implementation of task-shifting and -sharing initiatives, as well as improved collaboration among responsible governmental and non-governmental sectors are some of the most promising future venues to improve mental health care for the Iranian youth.

**Keywords:** Adolescent, child, Iran, mental health, mental health services

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## Introduction

Child and adolescent mental health problems impose a great social, educational and financial burden to every society and globally youth mental health needs are largely unmet.<sup>1</sup> The treatment gap is even larger in societies with younger populations and fewer resources, such as those in low and middle income countries (LAMIC). Despite the accumulating evidence, many of these problems can be either prevented or at least ameliorated early in their course through low-cost interventions. Evidence-based therapeutic approaches are available to manage chronic childhood mental health problems that can be applied across different settings such as schools, community or clinical services not traditionally thought of as sites for mental health care delivery.<sup>2-4</sup> However, few children and adolescents who could

potentially benefit from these treatments have access to them. Better understanding of the current levels of unmet need and available resources in each setting helps policy makers to design services to meet specific needs of youth with mental health problems in these settings.

Iran is categorized as among the LAMIC, with a population of more than 75 million, of which 31.1% (23.4 million) are younger than 20 years old.<sup>5</sup> Based on the epidemiologic data, child and adolescent mental and behavioral health problems are thought to be common in Iran, as in many other LAMIC, and the needs of these youth are largely unmet. The extent of unmet need for mental health care in children and adolescents is perhaps even larger than in the adult population, as child mental health care services are far less developed than adult services.<sup>6-8</sup> The aim of this paper is to provide an overview of the extent of unmet need for child and adolescent mental health services and the current status of child mental health care in Iran. We also discuss potential approaches to address the existing challenges in meeting the unmet need for child mental health care in this country based on the available resources and services. A particular focus of this contribution is to discuss the potential for scaling up of promising services or introducing new models of care.

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## Methods

First, we provide a brief overview of the epidemiologic evidence regarding the prevalence of child and adolescent mental and behavioral health problems in Iran. Next, we examine the current status of child mental health services and the gaps between mental health care needs and available services, as well as the contextual issues relevant to child mental health care. Finally, we discuss a number of potential approaches to address the problem of unmet need for child and adolescent mental health care in the country. For these purposes, PubMed, Scopus, and Web of Science databases were searched for published research in English and local databases including SID (sid.ir) and MagIran (www.magiran.com) were searched for additional reports either in English or Farsi. To make our search as comprehensive and sensitive as possible, we used a different combination of keywords representing *child or adolescent subjects*, *mental disorders* and *Iran* to identify articles relevant to child and adolescent mental illness and health care services. We also obtained governmental and other administrative reports by using search engines (such as Google), as well as official websites of the responsible organizations. All searches were performed up until December 2015.

In total, we identified 2155 papers/reports from the English language databases/websites and 150 papers/reports in the Persian language databases/websites. Two of us (H. Zarafshan and V. Sharifi) reviewed all papers and selected relevant articles by consensus. We next extracted the information from the selected articles/reports.

## Results

### The epidemiologic evidence

The last two decades have witnessed a surge of research in the field of child and adolescent mental health problems in Iran that includes several epidemiologic studies using translated versions of international instruments that were locally validated. A 2011 national mental health survey (IranMHS)<sup>6,7</sup> indicated that 21.4% of the participants in the 15-19 age group (27% of female and 16% of male adolescents) had one or more psychiatric disorders as ascertained by the Composite International Diagnostic Interview (CIDI). In another study, 9,636 children and adolescents between 6 – 17 years in five provinces were evaluated for psychological problems using the Farsi version of the parent report form of the Strengths and Difficulties Questionnaire (SDQ);<sup>8</sup> the study found that 16.7% of the subjects were screened positive based on the total difficulties score.

An overview of other epidemiologic studies on the prevalence of child and adolescent mental health problems is presented in Appendix Table 1. These summary data show that many mental health problems are highly prevalent, including depression (13% to 43.5%),<sup>9</sup> ADHD (2.8% to 20%),<sup>10</sup> autism (6.26 per 10,000),<sup>11</sup> drug abuse (18.8%),<sup>12,13</sup> suicide (37.3% of 53,100 registered committed)<sup>14</sup> and child abuse (emotional: 64.5%; physical: 43.6%).<sup>15</sup> It should be noted that the reported ranges come from different and not single studies.

Taken together, these studies found a high prevalence of common mental disorders among the youth; with as many as 16.7 to 36.4% of children and adolescents suffering from one or more mental health problems according to different studies (Table 1). Substance abuse among older youth<sup>12,13</sup> and child abuse were

also common.<sup>15</sup> With the exception of a single investigation on autism,<sup>11</sup> studies did not examine mental health problems among infants and toddlers or specifically among parents of young children. To conclude, psychiatric illnesses are common among Iranian children and adolescents that is in line with studies from many other LAMIC<sup>1</sup> and even some high income countries.<sup>16,17</sup>

### Child and adolescent mental health services

#### Primary care services

Health care in Iran is provided by both the public and the private sectors. Public services include an established infrastructure and well-developed system of primary health care (PHC) that is financed by governmental funds, as well as public and private insurance systems. There are indications that following the implementation of the PHC system across the country in 1980s, the health status of the population markedly improved as evidenced by improved access to services, increased life expectancy, and reductions in infant and maternal mortality rates.<sup>18</sup> These changes have corresponded with a marked shift in health care focus from communicable towards non-communicable diseases, including cardiovascular and psychiatric conditions.<sup>19</sup>

There have been efforts by the government to integrate mental health care into the PHC system. In 1988, the Ministry of Health embarked on an integration program to enhance detection and treatment of common and severe mental disorders across all age groups in rural and urban PHC networks. This national program of integration of mental health care in primary care services was reportedly successful in achieving enhanced coverage of service delivery, especially in rural areas and for adults.<sup>20</sup> Nevertheless, detection rates of mental and behavioral disorders remain low and the referral system is far from optimal, especially in urban areas where PHC networks are not as efficient as in rural areas and a strong competing private sector exists where patients can freely access specialists and subspecialists.<sup>21</sup> Furthermore, public specialized services are confined to larger cities with long waiting lists, while private services are expensive and not reimbursed by insurance programs, therefore not affordable for the majority of the population in need. Moreover, there is no specific plan for the integration of child and adolescent mental health care in the primary health care system and it is uncertain whether appropriate child mental health care is provided in the system.

There is a paucity of studies of mental health care delivered to children and adolescents in primary care settings in Iran. In one study, Ghanizadeh and colleagues<sup>22</sup> queried general practitioners in an urban area about their beliefs regarding the care of children with ADHD. Less than half of these providers believed that they had adequate knowledge about this disorder and they often preferred not to assess and manage children with this disorder on their own, preferring to refer them to mental health specialists. In the 2011 IranMHS,<sup>6,7</sup> 15% of 15 – 19 years old patients with any CIDI mental disorder reported consulting a general practitioner for a mental health complaint in the past 12 months, which constituted more than half of all outpatient consultations for mental health problems.

In sum, PHC has worked well in rural areas; however, it is not well developed in cities, which nowadays are home to the majority of the country's population. Moreover, it is uncertain whether appropriate child mental health care is provided in the existing system. Recently, the Ministry of Health and Medical Education (MoHME) has embarked upon reforms to improve

access to health care in urban areas, among which is the screening for mental disorders among all age groups and introduction of psychological services in primary care; however most of the latter services are provided to the adult population. It is too soon to assess the outcome of this reform.

**Secondary and tertiary services**

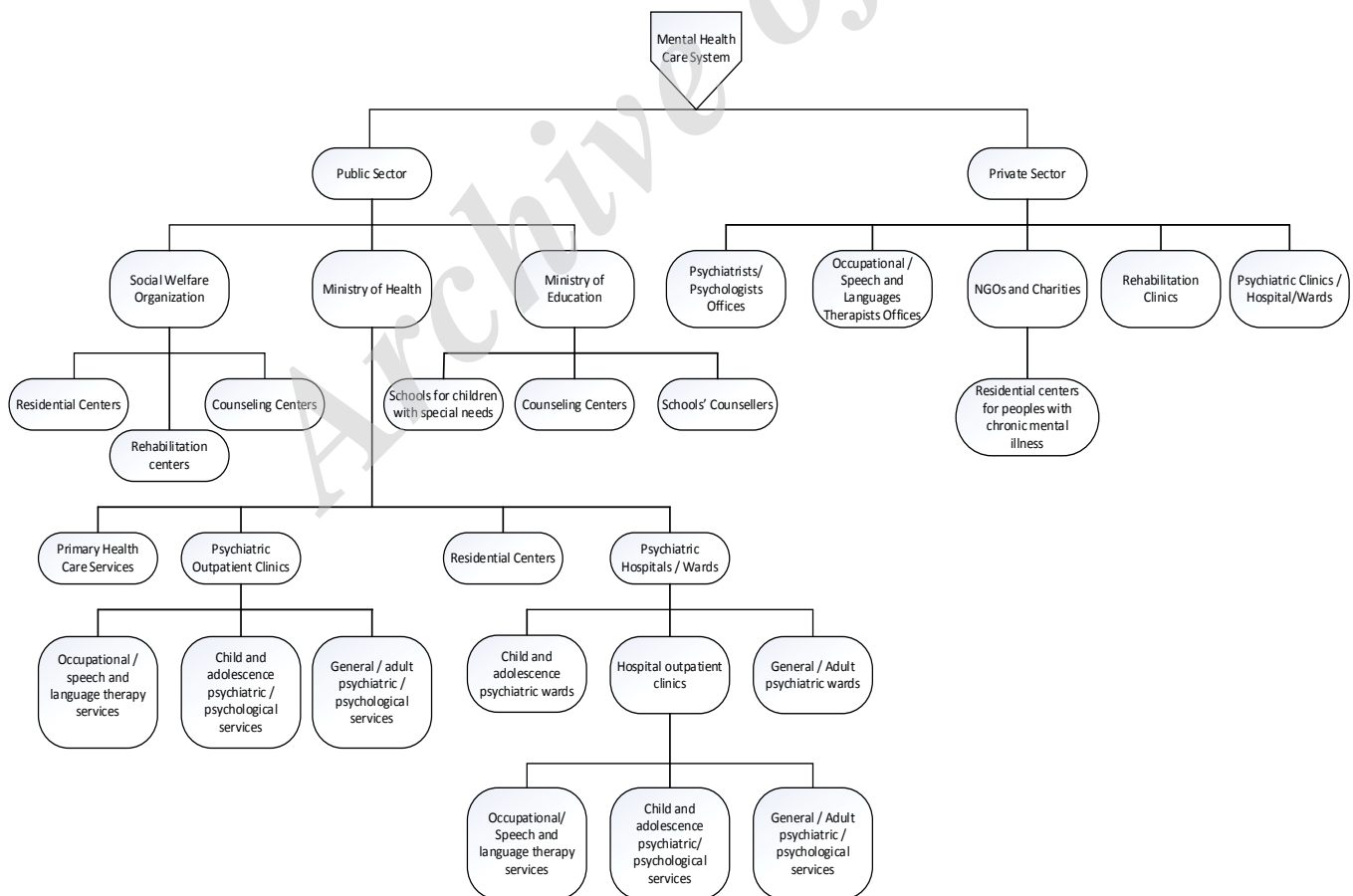
In Iran, child mental health care is provided by various professionals, including general practitioners inside or outside the PHC system, general and child psychiatrists, neurologists, psychologists/counselors, and pediatricians (Figure 1). Patients and their families can freely access mental health professionals and other specialists. Also, general practitioners do not play a gate-keeping role in the system. Specialized inpatient child mental health care is limited to psychiatric hospitals; to the best of our knowledge, all child and adolescent psychiatric inpatient units are affiliated with universities and are located in larger cities.

By 2014, there were 80 child and adolescent psychiatrists in the country (approximately 1 child and adolescent psychiatrists per 300,000 people under 19 years old). Almost all of these psychiatrists practice in Tehran or other large cities and most of their caseloads are comprised of referrals from other providers. In 8 of the 31 provinces of Iran, there is not a single child psychiatrist. This rate is lower than many other countries in the region and other parts of the world. For example, in 2012, there were approximately 400 child and adolescent psychiatrists in Turkey (1 child and adolescent psychiatrists per 60,000 individuals under age 18).<sup>23</sup> In the United States, there is 1 child and adolescent

psychiatrist per 1,000 people under 20 years of age.<sup>24</sup> There are no official data on the number of child psychologists and their distribution in Iran. However, the Iranian Association of Clinical Child and Adolescent Psychology, a voluntary organization, reports having 131 members working in the field of child and adolescent psychology.<sup>25</sup> Their qualifications and professional status are not reported.

An official 2006 report by the WHO and the Iranian Ministry of Health indicated that out of 855 outpatient mental health facilities, only 40 were specialized for children and adolescents and most of the youth treated each year were cared in adult outpatient services.<sup>26</sup> This report also pointed out that only approximately 3% of the 1,366 beds in the community-based inpatient units were reserved for children and adolescents with over 4,000 children or adolescents admitted each year. Additionally, there were 5,350 beds in 33 mental hospitals, of which 3.4% were reserved for children and adolescents.<sup>26</sup>

The mental health care of children with various disabilities and children who belong to vulnerable and high risk groups (e.g., street or orphan children) are mainly relegated to the Iranian State Welfare Organization that provides some limited rehabilitative services.<sup>27</sup> Another governmental organization involved in the delivery of mental health care to children with special needs is the Special Education Organization affiliated with the Ministry of Education. Children with intellectual or physical disabilities, those with visual or hearing impairment, and children with autism receive care in specialized settings overseen by this organization. Children who cannot continue their study in special schools



**Figure 1.** Mental health care system in Iran

are referred to rehabilitation centers affiliated with the State Welfare Organization. However, there is a poor inter-sectorial communication or collaboration between these organizations and other public health services.<sup>28</sup> Furthermore, shortage of skilled staff limits the ability of these agencies to provide adequate care for the disabled youth, especially in small cities and rural areas.

In summary, specialized and rehabilitative services for children and adolescents are delivered in the offices, clinics and hospitals in a fractured system of public and private providers. In addition, mental health services are often more scarce for children than for adults. Even in the large city university-based child psychiatry services, a rather strict medical model dominates that uses either outpatient short visits or long stay inpatient hospitalization as the preferred modes of treatment; and social or rehabilitative programs are either lacking or inefficiently used.

#### Preventive services

Universal, selective and indicated preventive interventions are among the essential components of child mental health care in any setting, with growing evidence supporting their benefits.<sup>29</sup> However, there is no comprehensive early screening program in Iran's primary health care system for mental health and developmental problems in children and adolescents. The health screening programs in early childhood are limited to eyesight and hearing assessments and no developmental screening is conducted until school entry. Thus, opportunities for early detection and intervention are often lost. No routine screening program for developmental delays is available after school entry.

The 2006 report by the WHO and the Iranian Ministry of Health indicated that only about one out of ten primary or secondary schools in the country had either a part-time or a full-time counselor and only about a quarter of primary and secondary schools had school-based activities to promote mental health and prevent mental disorders.<sup>26</sup>

Despite these shortcomings, a number of initiatives, although scattered, have been undertaken in the field of prevention and community child mental health. Parent and life skills training programs are amongst the most successful of such prevention programs.<sup>30,31</sup> A life skills training program has been included in the schools' national curriculum by the Ministry of Education.<sup>32</sup> This program has achieved some success in enhancing problem solving, anger management, self-esteem, as well as decreasing depression, shyness and interpersonal problems.<sup>33,34</sup> There is also some evidences supporting the success of parent training programs in Iran. These programs have been shown to significantly decrease behavioral and emotional problems in children and to enhance appropriate parenting style and parental satisfaction among Iranian parents of young children.<sup>35,36</sup> However, these programs are usually experimental, limited to academic settings and rarely broadly disseminated.

#### Barriers to use of services

The gap between the need for and the use of mental health services is significant among the Iranian children and adolescents. Based on a national study of the 15 – 64 year old Iranian population, adolescents had the lowest proportion of mental health service utilization and minimally adequate treatments compared with all other age groups.<sup>7</sup> Based on our observation, it is noteworthy that despite the coverage of mental health services by insurance programs, out-of-pocket payments are still considerable, especially

for specialized psychiatric services in the private sector.

In the context of shortage of specialized child mental health services, traditional healers continue to play a significant role, although considerably less than earlier times.<sup>37</sup> Many of patients with mental illnesses, even serious mental illnesses such as psychotic conditions, still consult a traditional healer or an alternative medicine practitioner for their mental health problems.<sup>38</sup> According to the 2011 IranMHS,<sup>6,39</sup> 21.1% of the 15 – 19 years age group with a psychiatric disorder had sought care from a traditional healer or an alternative medicine practitioner in the 12 month period preceding the interview compared to 23.8% who had received care from formal outpatient specialty mental health services and 10.1% who had consulted a general practitioner in the same period. In recent years, traditional medicine courses are formally taught in several medical universities that may lead to a rise in utilization of such services. We have to wait and see if this strategy has resulted in reduction or increase of the barriers to evidence-based effective care.

Many youth with more severe forms of mental disorders (such e.g., bipolar disorder) may remain untreated for years and in many cases, their first contact with formal mental health service is in the form of a psychiatric hospitalization. A registry based study of the young patients admitted to a tertiary care child and adolescent psychiatric unit in Tehran,<sup>40</sup> showed that the first contact for 75.3% of children and adolescent patients was to the specialized psychiatric services, and the duration of illnesses in almost half of these cases (46.9%) was more than 2 years at the time of first admission. In another study of parents of children with ADHD, delays in receiving proper care were substantial and the most common reason for these delays was not knowing from whom to seek help.<sup>41</sup>

Taken together, a major gap exists between the need for and the use of mental health services. Some barriers are determined by local studies and others remain to be identified. In this regard, Iran is not unusual and the problem of unmet need for care and delays in treatment seeking are common in all LAMICs, as well as high-income countries. For example, results of a recent survey in the United States showed that almost two-third of adolescents (63.8%) with a need for mental health services did not receive any care.<sup>42</sup>

#### Cultural and contextual issues

Family has deep roots in both Iranian national culture and in the religious beliefs of most Iranians.<sup>43</sup> For many, it is considered the most important and basic social unit and one in which children play a central role.<sup>44</sup> The traditional structure of families in Iran is one of patriarchy, putting the father in charge of earning a living and the mother in charge of raising the children. This structure, however, has been greatly modified as a result of the improved educational and employment opportunities for women, especially in larger cities.<sup>44</sup> In Iran, as in many Middle-Eastern countries, family affairs are considered private. Many interpersonal and psychological problems, including children's mental health problems, are expected to be dealt with at home and by the family members. Seeking help from individuals outside of the family is still rare.<sup>44</sup>

Furthermore, traditional health beliefs and stigma, particularly regarding the causes of mental health problems, impact help seeking to a great extent. For example, in a community based study of 12 – 17 years old Iranian adolescents,<sup>45</sup> about half

were able to correctly recognize depression. However, many of these adolescents, particularly the older ones, believed the most appropriate approach to deal with depression was to ignore it and to keep busy. Younger adolescents were more likely to believe that depression was caused by God's will or a physical illness, whereas older adolescents tended to consider depression as resulting from the way in which people were raised, and from the normal ups and downs of life. Popular beliefs about sensitive issues such as child abuse are not adequately studied in Iran. In a qualitative study of beliefs about child abuse among people in a midsized city in central Iran,<sup>44</sup> the respondents agreed extensively on what constituted sexual and emotional abuse in a number of scenarios, but there was less consensus regarding the abusive nature of corporal punishment performed for the purpose of disciplining the child.

To our knowledge, there are no published studies investigating the popular beliefs about other childhood mental health problems. Our personal observations on years of clinical experiences in this setting, suggest that shy and anxious children, especially girls, are appreciated and valued more than assertive children and some parents assume hyperactive behavior of their children with ADHD as an indication of a "bright" and energetic child. Regarding more severe illnesses such as autism, there is less recognition and more denial of the problem among the parents and this is not limited to the families in lower socio-economic classes. Low mental health literacy among some parents leads to the use of traditional remedies with no scientific basis and delayed detection of behavioral problems.

To conclude, contextual and cultural issues play a pivotal role in the care of the youth with mental health problems, including the traditional role of the family as the strongest support system, popular beliefs about mental illness, and stigma towards the youth with mental disorders. Any programs aimed at improving access and use of child mental health services need to take into account these important factors.

## Discussion

Taken together, we found a large gap between the mental health care needs of the Iranian youth and the services that they actually receive. Scaling up of mental health care efforts is a global priority in low resource countries, including Iran,<sup>46</sup> where novel initiatives are needed to remove barriers and increase access to effective mental health services. A recent evidence shows that task-shifting to non-specialist community health workers is a practical and effective strategy for delivery of evidence-based mental health treatments in low-resource settings.<sup>46,47</sup> Also, efforts to integrate child mental health into the primary care are increasingly viewed as viable strategies to improve access, enhance outcomes and reduce the stigma associated with mental health problems.<sup>48</sup> A significant proportion of the young patients seen by primary care providers have mental health problems, but many are not recognized or adequately treated.<sup>49</sup> While research in adults has shown that integration of mental health care into primary care settings and collaborative efforts between these services reduce the burden of mental illnesses,<sup>50</sup> there have been relatively few studies in the youth,<sup>51</sup> and almost none in low and middle-income countries. Due to the scarcity of specialty pediatric mental health care providers in these settings,<sup>1</sup> primary care providers are often the only mental health care resource for many of these individuals.

The integration of mental health care program into PHC in Iran in 1980s was a significant achievement; however, the initiative did not include a specific child mental health component. In addition, the integrative efforts have faced challenges in recent years, as the changing burden of disease and shifting health demands have rendered the existing PHC system no longer adequate for meeting the current and emergent needs of the population.<sup>52</sup> This is especially true for those living in cities and a focus in promoting mental health in both urban settings and the expanding city slums is considered to be a priority.<sup>28</sup>

One of us (V.S.) has been involved in developing an innovative collaborative care program to enhance detection and treatment of depressive and anxiety disorders in both public and private primary care settings in urban areas in Iran.<sup>53,54</sup> There is no specific child mental health component in the model, but the general practitioners involved in the program are briefly trained in diagnosing common child and adolescent problems such as ADHD and anxiety disorders and are supported in referring children or adolescents with a mental health problem to a psychiatrist. In a 3 year period, 31 general practitioners working in this adult collaborative care program have identified 192 patients 15 years old or younger as having a mental health problem, all of whom were referred to a psychiatrist (unpublished manuscript). We are in the process of expanding the collaborative care model to provide direct care for common child and adolescent mental health problems by leveraging the existing infrastructure and resources and by adding training and support for diagnosis and management of child and adolescent mental health problems in this setting. Task-shifting initiatives such as this may prove an important venue for expanding youth mental health care in Iran as in other LAMIC.

Public information campaigns may be another important venue for enhancing problem recognition and service use. Improving awareness about child mental health problems, available resources, and information on how to access them could benefit both families and health care providers.<sup>55</sup> Combating the prevalent stigma of mental illness and treatment seeking for mental illness would be a major component of such campaign. Those of us who practice in this setting have noticed a decline in such stigma in recent years, likely a result of increasing media exposure regarding mental health issues, with a concomitant increase demand in services.

At a national level, improved youth mental health care for the most vulnerable children may ultimately depend on improved coordination among various governmental sectors, including the Ministries of Health, Education, and Welfare. Preventive interventions and school mental health initiatives in Iran are in their infancy and further efforts are needed to develop evidence-based prevention and promotion interventions, especially for vulnerable groups of children who are at increased risk of future adverse mental health outcomes. Parent training programs are especially promising in this regard as they can be beneficial both as universal preventive interventions as well as therapeutic interventions for children with existing mental health problems. Early screening programs are also promising as cost-effective means of early detection and treatment of many emotional, behavioral and developmental problems in the preschool years. Moreover, UNICEF has a publication on school readiness.<sup>56</sup>

Increasing utilization of internet and mobile phone based technologies provides new venues and opportunities for detecting and managing mental health problems among children and

adolescents.<sup>57,58</sup> In Iran, both mobile and internet are easily accessible and may be used for screening and intervention in children and adolescents who are among the most active users of these novel technologies. Other proposals may include setting up a child mental health workgroup that spans agencies within the government; reinforcing mandatory mental health and developmental screening in primary care as delivered in the recent health system reform, conducting periodical surveys on the prevalence and incidence of mental disorders use and the utilization of services among the youth, as well as initiatives to scale up effective mental health promotion and prevention interventions in schools.

In conclusion, there is an increasing need to develop evidence-based programs to fill the gap between the need for youth mental health care and the use of such care at the population level. The gap is rooted in both the under-detection of mental health problems and low access to care and availability of services, when the problems are detected. Expansion and improvement of the primary care's role in detection and management of these problems, task-shifting programs, public campaigns aimed at improving public and professional child mental health literacy and improved collaboration among responsible governmental sectors are among the most promising venues to improve mental health care of Iranian youth. Closing the current gap between need for child and adolescent mental health care and receipt of such care may well depend on our success in implementing these initiatives.

## References

- Kieling C, Baker-Henningham H, Belfer M, Conti G, Ertem I, Omigbodun O, et al. Child and adolescent mental health worldwide: Evidence for action. *Lancet*. 2011; 378(9801): 1515 – 1525.
- Pfefferle SG, Spitznagel EL. Children's mental health service use and maternal mental health: A path analytic model. *Children and Youth Services Review*. 2009; 31(3): 378 – 382.
- Leathers SJ, McMeel LS, Prabhugate A, Atkins MS. Trends in child welfare's focus on children's mental health and services from 1980–2004. *Children and Youth Services Review*. 2009; 31(4): 445 – 450.
- Sourander A, Santalahti P, Haavisto A, Piha J, IkÄHeimo K, Helenius H. Have There Been Changes in Children's Psychiatric Symptoms and Mental Health Service Use? A 10-Year Comparison From Finland. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2004; 43(9): 1134 – 1145.
- Statistical Center of Iran. Selected findings of the 2011 national population and housing census. 2012 19 Dec 2012. Available from: URL: <http://www.amar.org.ir/Portals/1/Iran/census-2.pdf>. (Accessed Date: May 2016).
- Sharifi V, Amin-Esmaili M, Hajebi A, Motevalian A, Radgoodarzi R, Hefazi M, et al. Twelve-month prevalence and correlates of psychiatric disorders in Iran: The Iranian mental health survey, 2011. *Arch Iran Med*. 2015; 18(2): 76 – 84.
- Rahimi-Movaghar A, Amin-Esmaili M, Sharifi V, Hajebi A, Radgoodarzi R, Hefazi M, et al. Iranian Mental Health Survey: Design and Field Procedures. *Iran J Psychiatry*. 2014; 9(2): 96 – 109.
- Mohammadi MR, Salமான M, Ghanizadeh A, Alavi A, Malek A, Fathzadeh H, et al. Psychological problems of Iranian children and adolescents: parent report form of strengths and difficulties questionnaire. *J Ment Health*. 2014; 23(6): 287 – 291.
- Sajjadi H, Mohaqeqi Kamal SH, Rafiey H, Vameghi M, Forouzan AS, Rezaei M. A systematic review of the prevalence and risk factors of depression among Iranian adolescents. *Global Journal of Health Science*. 2013; 5(3): 16 – 27.
- Shooshtary MH, Chimeh N, Najafi M, Mohamadi MR, Yousefi-Nourae R, Rahimi-Mvagher A. The prevalence of Attention Deficit Hyperactivity Disorder in Iran: A systematic review. *Iran J Psychiatry*. 2010; 5(3): 88 – 92.
- Samadi SA, Mahmoodizadeh A, McConkey R. A national study of the prevalence of autism among five-year-old children in Iran. *Autism*. 2012; 16(1): 5 – 14.
- Khooshabi K, Ameneh-Forouzan S, Ghassabian A, Assari S. Is there a gender difference in associates of adolescents' lifetime illicit drug use in Tehran, Iran? *Arch Med Sci*. 2010; 6(3): 399 – 406.
- Mohammadkhani S. Prevalence of Cigarette Smoking, Alcohol Drinking and Illegal Drugs Use among Iranian Adolescents. *Journal of Kerman University of Medical Sciences*. 2012; 19(1): 32 – 48.
- Saberi-Zafaghani MB, Hajebi A, Eskandarieh S, Ahmadzad-Asl M. Epidemiology of suicide and attempted suicide derived from the health system database in the Islamic Republic of Iran: 2001–2007. *East Mediterr Health J*. 2012; 18(8): 836 – 841.
- Mohammadi MR, Zarafshan H, Khaleghi A. Child Abuse in Iran: A systematic review and meta-analysis. *Iran J Psychiatry*. 2014; 9(3): 118 – 124.
- Merikangas KR, He JP, Burstein M, Swanson SA, Avenevoli S, Cui L, et al. Lifetime Prevalence of Mental Disorders in U.S. Adolescents: Results from the National Comorbidity Survey Replication-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry*. 2010; 49(10): 980 – 989.
- Polanczyk GV, Salum GA, Sugaya LS, Caye A, Rohde LA. Annual Research Review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Child Psychology and Psychiatry*. 2015; 56(3): 345 – 365.
- World Health Organization. Global Health Observatory (GHO), Islamic Republic of Iran: General health statistical profile. 2011 2013–06–25. Available from: URL: <http://www.who.int/gho/countries/ir.pdf>. (Accessed Date: May 2016).
- Asadi-Lari M, Sayyari AA, Akbari ME, Gray D. Public health improvement in Iran—lessons from the last 20 years. *Public Health*. 2004; 118(6): 395 – 402.
- Khadiji R, Shakeri M, Ghobadi S. The efficiency of mental health integration in primary health care: A ten-year study. *Int J Prev Med*. 2012; 3(Suppl 1): S139 – S145.
- Yasamy MT, Shahmohammadi D, Bagheri Yazdi SA, Layeghi H, Bolhari J, Razzaghi EM, et al. Mental health in the Islamic Republic of Iran: achievements and areas of need. *East Mediterr Health J*. 2001; 7(3): 381 – 391.
- Ghanizadeh A, Zarei N. Are GPs adequately equipped with the knowledge for educating and counseling of families with ADHD children? *BMC Fam Pract*. 2010; 11: 5.
- Cetin FC. Child and adolescent psychiatry in Turkey and the Turkish Association for CA European child & adolescent psychiatry. *European Child & Adolescent Psychiatry*. 2012; 21(12): 715.
- Pedrini L, Colasurdo G, Costa S, Fabiani M, Ferraresi L, Franzoni E, et al. The characteristics and activities of child and adolescent mental health services in Italy: a regional survey. *BMC Psychiatry*. 2012; 12(1): 7.
- Samadi SA, McConkey R. The impact on Iranian mothers and fathers who have children with an autism spectrum disorder. *J Intellect Disabil Res*. 2014; 58(3): 243 – 254.
- Organization WH. WHO-AIMS report on mental health system in the Islamic Republic of Iran. Tehran, Iran: World Health Organization-Assessment Instrument for Mental Health Systems, 2006.
- Features and capabilities of the organization. Available from: URL: <http://behzisti.ir/modules/ShowFramework.aspx?FrameworkPageType=SEC&RelFacilityId=156&contentid=103>. (Accessed Date: May 2014).
- Hajebi A, Damari B, Moghaddam AV, Nasehi A, Nikfarjam A, Bolhari J. What to do to promote mental health of the society. *Iranian Journal of Public Health*. 2013; 42(Suppl1): 105 – 112.
- Beardslee WR, Chien L, Bell CC. Prevention of mental disorders, substance abuse, and problem behaviors: a developmental perspective. *Psychiatric Services*. 2011; 62(3): 247 – 254.
- Reid MJ, Webster-Stratton C, Hammond M. Follow-up of children who received the Incredible Years intervention for oppositional-defiant disorder: Maintenance and prediction of 2-year outcome. *Behavior Therapy*. 2003; 34(4): 471 – 491.
- Thomas R, Zimmer-Gembeck MJ. Behavioral outcomes of parent-child interaction therapy and Triple P—Positive Parenting Program: A review and meta-analysis. *Journal of Abnormal Child Psychology*. 2007; 35(3): 475 – 495.
- Esmaelzade A, Motalebifard A, Soltani M, Dasta M. Life skills program in Iran, America, Canada, Vietnam, Australia, Malaysia, and India: A comparative study. *Journal of Curriculum Studies*. 2014; 8(31): 125 – 154.
- Mohammadi Chemerdani, H. Assessment of Effectiveness of the

- Book Life Skills from Girl Students' Point of View (Grade 1 & 2, Guidance School, Bandar Abbas General Education Administration, District 2). *Cultural Research Letter of Hormozgan*. 2011; 8(5 – 6): 98 – 106.
34. Nourozadeh R, Farajollahi M, Mansournia R. The impact of life skills education on students' self-esteem in nishapur school year 1389–1390. *Journal of Research in Educational Systems*. 2013; 7(21): 85 – 100.
  35. Belali R, Aghayousefi AR. Effects of parental training program on the reduction of behavioral problems of children. *Journal of Applied Psychology*. 2012; 5(4): 59 – 73.
  36. Khodabakhsh R, Jafari M. Exploring the efficacy of parental training with Adlerian approach on coping styles of mothers of children with oppositional defiant disorder & on reduction of ODD symptoms. *Quarterly Journal of Psychological Studies*. 2014; 10(1): 7 – 30.
  37. Mossadegh M, Naghibi F. Islamic Republic of Iran, in WHO Global Atlas of Traditional, Complementary and Alternative Medicine, G. Bodeker, et al. Editors. 2005, *World Health Organization Centre for Health Development*, Kobe, Japan: Kobe. 159 – 164.
  38. Sharifi V, Kermani-Ranjbar T, Amini H, Alaghband-rad J, Salesian N, Seddigh A. Duration of untreated psychosis and pathways to care in patients with first-episode psychosis in Iran. *Early Interv Psychiatry*. 2009; 3(2): 131 – 136.
  39. Rahimi-Movaghar A, Sharifi V, Motevalian A, Amin-Esmaeili M, Hajebi A, Radgoodarzi R, et al. Iranian Mental Health Survey, 2011. 2015; Tehran: Mehrsa.
  40. Shahrivar Z. Evaluation of clinical symptoms and diagnoses of the patients admitted to the child and adolescent psychiatric ward of Roozbeh Hospital and their relation with demographic characteristics. 2011, Tehran University of Medical Sciences: Tehran.
  41. Ghanizadeh A. Educating and counseling of parents of children with attention-deficit hyperactivity disorder. *Patient Educ Couns*. 2007; 68(1): 23 – 28.
  42. Merikangas KR, He JP, Burstein M, Swendsen J, Avenevoli S, Case B, et al. Service Utilization for Lifetime Mental Disorders in U.S. Adolescents: Results of the National Comorbidity Survey-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry*. 2011; 50(1): 32 – 45.
  43. Parvizy S, Ahmadi F. A qualitative study on adolescence, health and family. *Ment Health Fam Med*. 2009; 6(3): 163 – 172.
  44. Garrusi B, Garousi S, Safizadeh H. Identifying the Norms of General Population Regarding Child Maltreatment, Kerman, Iran. *Journal of Basic and Applied Science Research*. 2013; 3(3): 36 – 42.
  45. Essau CA, Olaya B, Pasha G, Pauli R, Bray D. Iranian adolescents' ability to recognize depression and beliefs about preventative strategies, treatments and causes of depression. *Journal of Affective Disorders*. 2013; 149(1 – 3): 152 – 159.
  46. Bolhari J, Ahmadkhaniha H, Hajebi A, Bagheri Yazdi SA, Naserbakht M, Karimi-Kisomi I, et al. Evaluation of Mental Health Program Integration into the Primary Health Care System of Iran. *Iranian Journal of Psychiatry and Clinical Psychology*. 2012; 17(4): 271 – 278.
  47. Bai Y, Wells R, Hillemeier MM. Coordination between child welfare agencies and mental health service providers, children's service use, and outcomes. *Child Abuse & Neglect*. 2009; 33(6): 372 – 381.
  48. Wissow LS, Gadomski A, Roter D, Larson S, Brown J, Zachary C, et al. Improving child and parent mental health in primary care: a cluster-randomized trial of communication skills training. *Pediatrics*. 2008; 121(2): 266 – 275.
  49. World Health Organization, Mental health gap action programme: Scaling up care for mental, neurological, and substance use disorders. 2008, Geneva: World Health Organization Press.
  50. Archer J, Bower P, Gilbody S, Lovell K, Richards D, Gask L, et al. Collaborative care for depression and anxiety problems. *Cochrane Database Syst Rev*. 2012; 10: CD006525.
  51. Richardson L, McCauley E, Katon W. Collaborative care for adolescent depression: A pilot study. *Gen Hosp Psychiatry*. 2009; 31(1): 36 – 45.
  52. Moghadam MN, Sadeghi V, Parva S. Weaknesses and challenges of primary healthcare system in Iran: a review. *The International Journal of Health Planning and Management*. 2012. 27(2): e121 – e131.
  53. Sharifi V. Community Mental Health Center. 2011. Available from: URL: <http://cmhc.tums.ac.ir/page.aspx?id=945>. (Accessed Date: May 2013).
  54. Sharifi V, Abolhassani F, Farhoudian A, Amin-Esmaeili M. Community mental health centers in Iran: an evidence-based service planning. *Iranian Journal of Psychiatry and Clinical Psychology*. In press.
  55. Park JM, Metraux S, Culhane DP, Mandell DS. Homelessness and children's use of mental health services: A population – based study. *Children and Youth Services Review*. 2012; 34(1): 261 – 265.
  56. UNICEF. School Readiness: a conceptual framework. 2012; UNICEF.
  57. Kauer SD, Mangan C, Sancil L. Do Online Mental Health Services Improve Help-Seeking for Young People? A Systematic Review. *Journal of Medical Internet Research*. 2014. 16(3): e66.
  58. Hailey D, Roine R, Ohinmaa A. The effectiveness of telemental health applications: A review. *The Canadian Journal of Psychiatry/La Revue Canadienne de Psychiatrie*. 2008; 53(11): 769 – 778.
  59. Basirmia A, Sharifi V, Mansouri N, Mesgarpour B, Mohammadi MR, Amini H, et al. Prevalence of Mental Disorders among High-School Students in Iran: A Systematic Review. *Iranian Journal of Psychiatry*. 2009; 4: 1 – 6.

**Appendix Table 1.** Summary of epidemiologic studies on child and adolescent mental disorders in Iran

Reference	Study design	Target population	Condition (s)	Instrument (s)	Prevalence estimate (s)
Sharifi, et al. <sup>6</sup>	Survey	15–19 years old of the Iranian population	Any 12-month psychiatric disorders	CIDI (version 2.1)	Female: 26%; Male: 17%; Total: 21.4%
Mohammadi, et al. <sup>8</sup>	Survey	6–17 years old of the Iranian population	Any psychological problem (total difficulties)	SDQ (parent report form)	16.7%
Basirnia, et al. <sup>9</sup>	Systematic review	High-school students	Any mental or behavioral problem	GHQ; SCL-90; Diagnostic interview	Median: 34.4%
Sajjadi, et al. <sup>9</sup>	Systematic review	School-age children	Any probable depression	BDI; SCL-90; CDI	Pooled estimate: 43.5% in studies using the BDI, 15.8% in those using the SCL-90, and 13% in those using the CDI
Shooshary, et al. <sup>10</sup>	Systematic review	Preschool and primary school children	ADHD and its subtypes	Conners; Rutter; CSI-4, and clinical interview	Mixed type of ADHD: 2.8% to 20%
Samadi, et al. <sup>11</sup>	Two stage survey: screening and diagnosis	5 years old	Typical Autism	SCQ and ADI-R	6.26 per 10,000
Khooshabi, et al. <sup>12</sup>	Survey	Adolescents	Any lifetime illicit drug use	Researcher made checklist	Female: 6.4%; Male: 10.1%
Mohammadkhani <sup>13</sup>	Survey	Adolescents	Any lifetime illicit drug abuse	A researcher made checklist	Any illicit drug: 18.8% (7.5% of girls and 29.8% of boys); alcohol: 9.8%; other illicit drugs: 2.5%
Saberi-Zafarghandi, et al. <sup>14</sup>	Registry based study: 2001–2007	Under 20 years	Committed and attempted suicide	Registry data	Out of 53,100 registered committed and attempted suicides, 37.3% were under 20. And 30% of all committed suicides (N = 3883) were in the youth under 20
Mohammadi, et al. <sup>15</sup>	Systematic review	Children and Adolescents	Child abuse	Researcher made questionnaires	Pooled prevalence: emotional abuse: 64.5%; physical abuse: 43.6%

CDI: Composite International Diagnosis Interview; SDQ: Strengths and Difficulties Questionnaire; BDI: Beck Depression Inventory; SCL-90: Symptoms Checklist-90; CDI: Children Depression Inventory; SCQ: Social Communication Questionnaire; ADI-R: Autism Diagnostic Interview-Revised