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Implementing of mental health training programs for promotion of health affected teenage girls to premenstrual syndrome: A community-based study

Maliheh Abootalebi, Mansoureh Dehghani¹, Marzieh Akbarzadeh²

Abstract:

BACKGROUND: Mental health is one of the major determinants of a person's health which has a significant impact on the quality of life. Implementing of mental health training programs for promotion of health affected teenage girls to premenstrual syndrome (PMS) in Shiraz, southern Iran: a community-based study.

MATERIALS AND METHODS: This study is randomized controlled trial done on 100 teenage girls affected to PMS in Shiraz-Iran (selected from 400 girls). Multistage cluster sampling method was used for sampling. In the intervention group, six training sessions were held twice a week for 2 h. For data collection, Standard Goldberg Mental Health Questionnaire-28 and Premenstrual Symptoms Screening Tool were used. For data analysis, independent *t*-test and Chi-square statistics were used at significant level of 0.05.

RESULTS: The average age was (16.56 ± 0.92) and (16.24 ± 1.45) in the intervention and control groups, respectively. The average intensity of physical complaints, level of anxiety and sleep disorder, level of social functions disorders and depression were significantly lower in the group of training classes than control group (*P* < 0.001).

CONCLUSION: Appropriate training-care programs are effective in reducing stress and improving mental health, prevention and treatment of mental disorders, emotional growth, and development of communication skills among female students with premenstrual syndrome.

Keywords:

Training-care programs, mental health, premenstrual syndrome

Introduction

Mental health is one of the important issues in psychology and psychiatry and mental illness is rising dangerously.^[1] Worldwide research indicates that the prevalence of mental and emotional disorders and behavior in adolescents, especially girls, has been increased significantly in the recent years while emotional disorders have been more in girls than boys, which may be due to

the high level of limitations arising from gender roles.^[2] Available statistics estimated the prevalence of mental health problems, especially depression among young people, ranging from 16% to 30%.^[3] Furthermore, in Iran, 22.3% of students are suffering from behavioral-emotional problems and there is a higher prevalence in female students compared to male students (29.8% compared to 14.9%).^[4]

Premenstrual syndrome is a common disorder among girls and young women

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Departments of
Community Health Nursing
and ¹Midwifery, School of
Nursing and Midwifery,
Shiraz University of
Medical Sciences,
²Department of Midwifery,
Maternal-Fetal Medicine
Research Center, School
of Nursing and Midwifery,
Shiraz University of
Medical Sciences,
Shiraz, Iran

Address for correspondence:

Mrs. Marzieh Akbarzadeh,
Department of Midwifery,
Maternal-Fetal Medicine
Research Center, School
of Nursing and Midwifery,
Shiraz University of
Medical Sciences,
Shiraz, Iran.
E-mail: akbarzadm@sums.ac.ir

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occurred constantly during the luteal phase of menstrual cycle associated with disorders of mood, such as anger, anxiety, and irritability leading to a disruption in social and family activities.^[5] Premenstrual syndromes are in high and growing prevalence so that the frequency of these symptoms in most Western studies reported between 20% and 50% while in Iran, according to the latest findings reported from 6% to 78.4%.^[6]

The onset of depression events may be observed during premenstrual syndromes. Almost 65% of women with unipolar depression have experienced to premenstrual syndrome (PMS). Women with PMS are more frequently diagnosed with a postpartum depression. In addition, girls suffering from headaches are more likely to suffer from recurrent headaches during PMS.^[7] Important behavioral problems (such as depression, aggression, and irritability) occur during PMS which weaken occupational and social function of the girls. However, different exact symptoms of this disorder and its prevalence are obtained in different studies.^[8] Schulte-Körne also found that mental health problems in adolescents are associated with their academic failure.^[9]

Askari *et al.* found it effective to use stress reducing strategies in improving the symptoms of PMS.^[10] Conducted studies show that some psychotherapy approaches such as cognitive therapy, behavioral therapy, emotional care, and training methods of life quality could be effective to reduce PMS symptoms.^[11] Moreover, Tsai in one study found that yoga exercise reduced mood symptoms of premenstrual syndrome.^[12]

Studies indicate that premenstrual syndrome not only affect the individual but also has a significant on her family and the disease in severe cases can cause changes in the personal and behavioral characteristics of the girls. The result of this change in behavior may affect the interactions between adolescents and other family members, classmates and peers. Since women play a key role in the family, then the incidence of this syndrome can have a significant impact on family function.^[13] However, in our society, due to cultural issues, related authorities and researchers paid little attention to mental health problems caused by PMS. In this regard, there is no comprehensive study or decisive solution. Therefore, due to the need for interventions to change unhealthy behaviors related to mental health in the PMS and considering adolescence as a critical period, especially in girls, who are psychologically more sensitive and vulnerable, this study conducted with the aim of determining the effect of the training-care programs on the mental health of high school girls in Shiraz suffering from PMS.

Materials and Methods

This study is a randomized clinical trial performed in 6 months in 2017 (December 2016–May 2017). The study population included all high school students at level of four areas in Shiraz. The minimum sample size in each group obtained as 50 students using the formula for calculating the sample size, the results of similar studies, the amount of influence of 2, standard deviation of 3.1 and a significance level of 5% and power of 0.9.

$$N_i = (Z_{\alpha/2} + Z_\beta)^2 SD^2 / d^2$$

Inclusion criteria of the study included: willingness to participate in the study, being affected by premenstrual syndrome, being student of the last 3 years of high school, having no mental illness while exclusion criteria of the study included: students willingness for leaving the study, no active participation of adolescents in more than two sessions of training classes without attending makeup classes in other groups, and occurrence of stressful events for adolescents or their family during the study.

The study method was as follows: four high schools were selected as a cluster (400 students) after approval of the Council of Graduate Studies of Shiraz University of Medical Sciences for intervention under the supervision of the general organization of education and training. The share of student's participation in the study for each area was 100 students who selected based on a simple goal-oriented method after entering the high school sample were selected. Students who were eligible for inclusion completed a consent form by themselves and their parents, a demographic questionnaire and premenstrual symptoms screening questionnaire in two consecutive months before intervention. Then, 100 patients suffering from premenstrual syndrome were determined and divided into two groups and 50 students were randomly assigned in each group. Next, the study questionnaires were completed. To avoid any kind of possible errors, the completed questionnaire coded by a research assistant.

In the intervention group, 6 training sessions, 60 min, held twice a week. Titles and educational goals of the classes are listed in Table 1. The first two sessions held by psychologists and other sessions held by the researcher.

The study tools included demographic data (students' age and their educational grade), screening premenstrual symptoms questionnaire, and standard Goldenberg Mental Health Questionnaire (Goldberg GHQ-28) completed after the intervention.

Screening questionnaire represents the severity of premenstrual symptoms to the extent that is necessary and

Table 1: The plan of counseling sessions in mental health of girls with premenstrual syndrome

Session	Title	Educational goals	Training practices
First session	Adolescence and main problems during this period	The student can explain the physical and emotional changes of adolescence Students become familiar with the concept of anger and aggression and their difference Students learn how to deal with negative thoughts and their change	Lecture, question and answer, group discussion, brain storming, learning assist tools
Second session	General orientation of problem-solving	Help students to accept the problem as a natural potential phenomenon that can be changed Help students to believe in the effectiveness of the framework of problem solving in dealing with the problem Anger management	Lecture, group discussion, learning assist tools
Third session	Physiology of menstruation	Students become familiar with the menstrual cycle Students become familiar with hormonal changes during this period Students become familiar with dysmenorrhea and solving the problems of this period	Lecture, group discussion, learning assist tools
Forth session	Dysmenorrhea and methods to deal with it	Students become familiar with the concept of dysmenorrhea and its different types Students become familiar with symptoms and signs of this period Students become familiar with health tips of this period and methods to decrease them	Lecture, group discussion, learning assist tools
Fifth session	PMS	At the end of these sessions, students become familiar with the following concepts: The concept of PMS Signs and symptoms of this period The duration of this syndrome and available treatments	Lecture, group discussion, learning assist tools
Sixth session	Dietary changes and the use of anaerobic exercise	Students become familiar with exercises that help to decrease PMS Students become familiar with foods that reduces the symptoms of PMS Students become familiar with dietary changes and diet during this period	Lecture, group discussion, role playing Learning assist tools

PMS=Premenstrual syndrome

also shows the symptoms impact on the lives of people. This questionnaire is more practical than prospective two cycle charts and it is more economical in terms of time. The questionnaire consisted of two parts, symptoms and impact of the symptoms on people’s lives. It contained 19 questions in two parts (the first part included 14 questions about mood, physical, and behavioral symptoms that impact the lives of people and the second part measured the impact of symptoms on the lives of those and contained five questions). For each question, for each question four criteria of not at all, mild, moderate, and severe was scored from zero to three. In order to confirm the diagnosis of moderate or severe PMS, all the following three conditions should be present together: (1) at least one moderate or severe option among the items 1–4; (2) at least four moderate or severe options among the items 1–14 in the first part; and (3) at least one moderate or severe option among the items of the impact of symptoms on people’s life (5 last options). According to the study conducted by Farahmand *et al.*, internal consistency reliability of this tool was 0.83 calculated by Cronbach’s alpha coefficient.^[13]

The mental health questionnaire of 28 questions (28-GHQ) by Goldberg included four subcomponents of physical symptoms, anxiety and insomnia, social dysfunction, and depression symptoms that examined mental state of the person in one last month. Likert scale scoring of four values (0, 1, 2, and 3) was used. All questions had

four options and Likert scale scoring of four values (0, 1, 2, and 3) was used. In this questionnaire, the cutoff point 23 was used (score higher than 23 in total test indicates a mental disorder) and the maximum score was 84. This questionnaire is one of the most reliable screening tests of psychological symptoms in the world the reliability and validity of which has been proven in different internal^[14] and external^[15] studies.

Ethical considerations

The protocol of the study was approved by the local Ethics Committee of Shiraz University of Medical Sciences (IRCT code: 2014060717998N1). Permissions were also received through the authorities in the schools. Written informed consents were obtained from all the participants. They all were assured of the confidentiality of their personal information.

Data analysis

Descriptive statistics, independent *t*-test, Chi-square test and SPSS software, version 16 (IBM Company Armonk, NY, USA), were used for statistical analysis. In all tests, the significance level of 0.05 was considered.

Results

In this study, the mean age and standard deviation at intervention and control groups was (16.56 ± 0.92) and

(16.24 ± 1.45), respectively. According to the results of independent *t*-test, in terms of age, (*P* = 0.427) and Chi-square test in terms of the level of education (*P* = 0.833), there was no significant difference between intervention and control groups. Demographic characteristics of both groups are shown in Table 2.

Table 3 shows that, according to the reported *P* value, the severity of physical complaints, anxiety and sleep disorders, social functions disorder and depression in the training class group is significantly lower than the control group.

Discussion

Since the concept of mental health, as a general aspect of the health concept, refers to all measures used to prevent the development of mental disorders, then the training of developed mental health can be considered as one of the most effective methods to make healthy society and prevent injuries.^[16]

This study was conducted to investigate the effect of the training-care programs on the mental health of high school girls with PMS in Shiraz. The results showed that training-care programs had been effective in reducing the symptoms of mental disorders and mental health of students with PMS.

Results showed that the average physical complaints of the training class group were significantly lower

than the control group. Results of Maddineshat *et al.*'s study, conducted to evaluate the effect of Group Cognitive-Behavioral Therapy on symptoms of premenstrual syndrome, also indicated that training intervention caused a significant reduction of physical symptoms in high school girls^[17] that are consistent with the results of this study. Perhaps one of the reasons for it in both studies is the training of stress management skills. Results of Bennell *et al.*^[18] and Bahrami *et al.*^[19] studies are also consistent with findings of the present study that all of them show the positive impact of training. Therefore, some educational planning must be conducted in this area because the lack of mental health leads to person's physical and mental pain and symptoms such as feeling pain and abdominal pain, anxiety, asking reassuring repeated questions, repeated awakenings accompanied by difficulty in falling asleep, isolation, seclusion, and disruption in doing duties.^[20]

The results showed that training classes were effective in reduction of the average of anxiety and sleep disorder. The results of studies by Vigerland *et al.*,^[21] Kilburn *et al.*,^[22] and Li *et al.*,^[23] are line with this study. The results of Chandra-Mouli and Patel study showed that the group training is effective to reduce menstrual symptoms and problems and it helps to obtain information about this period.^[24] However, it was not generally consistent with results of the present study that could be due to the content, training methods and tools used in the present study and the number of people in both studies. These studies confirm that family and friends support along with training of mental health by reducing anxiety will improve mental health in this group of adolescents. Ghaffari *et al.*'s study also indicated that mental education programs can improve mental health in families of elderly with Alzheimer's disease. Usually, these intervention programs include emotional depletion, cognitive therapies, and counseling.^[25] Furthermore, training interventions are effective in providing information and problem-solving skills; they can improve the quality of their life and reduce their anxiety.^[26]

Results showed that the average of social functions disorder in the training class group was significantly less than the control group. Khodakarami *et al.*'s study aimed to investigate the effect of group counseling on severity of premenstrual syndrome among high school girls in Hamedan found a positive effect of training.^[27] Results of studies conducted by Akbarzadeh *et al.*,^[28] Zheng *et al.*,^[29] and Li *et al.*,^[30] are also consistent with this study. However, it is inconsistent with Kang *et al.*'s study because their study showed that stress coping program in a low level cause a reduction in the quantity of social function disorder^[31] and this difference may be due to differences in type of training. According to the World Health Organization report, in the developing countries

Table 2: Comparison of demographic characteristics of subjects, in both case and control groups

Demographic variable	Frequency (%)		P*	χ ²
	Educational group	Control group		
Age (years)				
14-16	25 (50)	24 (48)	0.427	-
16-18	25 (50)	26 (52)		
Educational level				
First class	10 (20)	15 (30)	0.833	5.01
Second class	12 (24)	15 (30)		
Third class	14 (28)	11 (22)		
Preuniversity	14 (28)	9 (18)		

*Independent *t*-test

Table 3: Comparison the average of Goldberg Mental Health Questionnaire-28 subscales after the intervention, in both case and control groups

Subscales of GHQ-28	Mean±SD		P*
	Educational group	Control group	
Somatic symptoms	8.24±3.98	11.12±4.33	<0.001
Anxiety symptoms and sleep disorder	7.64±3.87	10.6±3.39	0.01
Social dysfunction	7.62±3.34	9.68±3.8	0.02
Depression	8.94±5.97	11.8±4.44	<0.001

*Independent *t*-test. SD=Standard deviation, GHQ-28=Goldberg Mental Health Questionnaire-28

rapid changes are observed in social behaviors, economic problems and role disorders role with increased mental disorders.^[32] Findings of the present study identified the importance of psychological characteristics and their interactive effect on the emergence of high-risk behavior in adolescents and pointed to the need for effective assessment and intervention in removing the negative indicators of mental health and fostering positive indicators of mental health.

The results showed that training classes had been effective in reduction of the severity of depression in adolescent girls. Parker *et al.*^[33] and de Jonge-Heesen *et al.*^[34] also found that simple psychological and training interventions reduced depression symptoms, but results of Kang *et al.*'s study^[31] showed that training did not reduce depression. This difference may be due to the difference in the content of training, life skills training, recognition of puberty, and physical and emotional changes during this period conducted in two sessions by a psychologist. Moreover, this difference may be due to the larger number of training sessions and selection of training group in four areas of the city and in all four educational grades of the high school in the present study while interventions of Kang conducted in 8 sessions of stress coping program based on mindfulness meditation on 41 nursing students. Therefore, interventions must be considered in this respect. Goldberg also believed that today, due to increased stress and pressure incurred by adolescents, the incidence of depression in this period has increased and its major reason is the adolescent's tendency toward behaviors that threaten their health in addition to their attempt to get rid of the symptoms of depression.^[35]

Among limitations of this study was not to mention many factors affecting mental disorders in most studies which considered as a barrier to investigate factors affecting the increase of the desired outcome. Furthermore, some of the studies had used different questionnaires or, despite using the standard form of GHQ-28, different cutoff points had been used.

According to results of the present study, it is suggested that schools, communities, and health care team members work together for prevention and treatment of mental disorders, emotional growth, and prevention of abnormal behaviors in girls with premenstrual syndrome.

Conclusion

The results of this study showed that appropriate intervention and health promotion in the field of healthy behaviors related to mental health issues such as social awareness and improved understanding of

mental health, ability to plan for achieving the goal, reduced stress and promoted mental health, self-control, decision-making skills, problem solving, flexibility, and developed skills of communication are effective among girls with premenstrual syndrome.

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Conflicts of interest

There are no conflicts of interest.

References

1. Galderisi S, Heinz A, Kastrup M, Beezhold J, Sartorius N. A proposed new definition of mental health. *Psychiatr Pol* 2017;51:407-11.
2. van Droogenbroeck F, Spruyt B, Keppens G. Gender differences in mental health problems among adolescents and the role of social support: Results from the Belgian health interview surveys 2008 and 2013. *BMC Psychiatry* 2018;18:6.
3. Gustavson K, Knudsen AK, Nesvåg R, Knudsen GP, Vollset SE, Reichborn-Kjennerud T. Prevalence and stability of mental disorders among young adults: Findings from a longitudinal study. *BMC Psychiatry* 2018;18:65.
4. Hassanzadeh J, Rezaei F, Khazaei Z, Noroozi M, Jahangiry L. The prevalence of mental health problems and the associated familial factors in adolescents in the South of Iran. *Int J Pediatr* 2019;7:9317-25.
5. Mumtaz T, Roohi N, Iqbal MA. A census of premenstrual syndrome in young adolescent girls: Facts about women health in developing country. *Med Rep Case Stud* 2018;3:2.
6. Farrokh-Eslamlou H, Oshnouei S, Heshmatian B, Akbari E. Premenstrual syndrome and quality of life in Iranian medical students. *Sex Reprod Healthc* 2015;6:23-7.
7. Lee YJ, Yi SW, Ju DH, Lee SS, Sohn WS, Kim IJ. Correlation between postpartum depression and premenstrual dysphoric disorder: Single center study. *Obstet Gynecol Sci* 2015;58:353-8.
8. El Fotooh A, Fawzi H, El Din N, Ali S, Gonied AS. A premenstrual syndrome and its association with adolescent girls quality of life. *Zagazig Nurs J* 2018;14:190-202.
9. Schulte-Körne G. Mental health problems in a school setting in children and adolescents. *Deutsches Ärzteblatt International* 2016;113:183.
10. Askari S, Behroozi N, Abbaspoor Z. The effect of mindfulness-based cognitive-behavioral therapy on premenstrual syndrome. *Iran Red Crescent Med J* 2018;20:1-7.
11. Shariati K, Ghazavi H, Saeidi M, Ghahremani S, Shariati A, Aryan H, *et al.* Psychotherapy for depression and anxiety in premenstrual syndrome (PMS): A systematic review and meta-analysis. *Int J Pediatr* 2019;7:9169-79.

12. Tsai SY. Effect of yoga exercise on premenstrual symptoms among female employees in Taiwan. *Int J Environ Res Public Health* 2016;13. pii: E721.
13. Farahmand M, Ramezani Tehrani F, Khalili D, Amin G, Negarandeh R. Factors associated with the severity of premenstrual syndrome among Iranian college students. *J Obstet Gynaecol Res* 2017;43:1726-31.
14. Shayan Z, Pourmovahed Z, Najafipour F, Abdoli AM, Mohebipour F, Najafipour S. Factor structure of the general health questionnaire-28 (GHQ-28) from infertile women attending the yazd research and clinical center for infertility. *Int J Reprod Biomed (Yazd)* 2015;13:801-8.
15. Kokkinis N, Galanaki E, Malikioti-Loizos M. Factor structure and internal consistency of the Greek version of the General Health Questionnaire-28 (GHQ-28). *Ment Health Prev* 2017;7:21-7.
16. Jenkins R. Implementing mental health promotion approaches in mental health services. In: *Implementing Mental Health Promotion*. Cham: Springer; 2019. p. 533-62.
17. Maddineshat M, Keyvanloo S, Lashkardoost H, Arki M, Tabatabaiechehr M. Effectiveness of group cognitive-behavioral therapy on symptoms of premenstrual syndrome (PMS). *Iran J Psychiatry* 2016;11:30-6.
18. Bennell KL, Nelligan R, Dobson F, Rini C, Keefe F, Kasza J, et al. Effectiveness of an internet-delivered exercise and pain-coping skills training intervention for persons with chronic knee pain: A randomized trial. *Ann Intern Med* 2017;166:453-62.
19. Bahrami E, Mazaheri MA, Hasanzadeh A. Effect of anger management education on mental health and aggression of prisoner women. *J Educ Health Promot* 2016;5:5.
20. Coakley R, Wihak T. Evidence-based psychological interventions for the management of pediatric chronic pain: New directions in research and clinical practice. *Children (Basel)* 2017;4. 1-18.
21. Vigerland S, Ljótsson B, Thulin U, Öst LG, Andersson G, Serlachius E. Internet-delivered cognitive behavioural therapy for children with anxiety disorders: A randomised controlled trial. *Behav Res Ther* 2016;76:47-56.
22. Kilburn TR, Sørensen MJ, Thastum M, Rapee RM, Rask CU, Arendt KB, et al. Rationale and design for cognitive behavioral therapy for anxiety disorders in children with autism spectrum disorder: A study protocol of a randomized controlled trial. *Trials* 2018;19:210.
23. Li J, Riedel N, Barrech A, Herr RM, Aust B, Mörtl K, et al. Nine-Year longitudinal psychosocial and mental outcomes of a stress management intervention at work using psychotherapeutic principles. *Psychother Psychosom* 2017;86:113-5.
24. Chandra-Mouli V, Patel SV. Mapping the knowledge and understanding of menarche, menstrual hygiene and menstrual health among adolescent girls in low- and middle-income countries. *Reprod Health* 2017;14:30.
25. Ghaffari F, Fotokian Z, Rostami M. Analytical on effect of resilience interventions on mental health in family caregivers of elderlies with Alzheimer's disease: A review literature. *Clinical Excellence* 2017;7:13-35.
26. Willems RA, Mesters I, Lechner L, Kanera IM, Bolman CA. Long-term effectiveness and moderators of a web-based tailored intervention for cancer survivors on social and emotional functioning, depression, and fatigue: Randomized controlled trial. *J Cancer Surviv* 2017;11:691-703.
27. Khodakarami B, Babakhani N, Masoumi SZ, Farhadian M. Investigating the effect of group counseling on severity of premenstrual syndrome among high school girls in hamedan. *J Pharm Sci Res* 2017;9:2196-9.
28. Akbarzadeh M, Moshfeghy Z, Dehghani M, Emamghoreishi M, Tavakoli P, Zare N. Comparison of the effect of Melissa officinalis capsule and care educational programs on the intensity of physical, mental and social symptoms of premenstrual syndrome in high school female students. *Int J Women's Health Reprod Sci* 2018;16:18-26.
29. Zheng G, Lan X, Li M, Ling K, Lin H, Chen L, et al. Effectiveness of tai chi on physical and psychological health of college students: Results of a randomized controlled trial. *PLoS One* 2015;10:e0132605.
30. Li M, Fang Q, Li J, Zheng X, Tao J, Yan X, et al. The effect of Chinese traditional exercise-baduanjin on physical and psychological well-being of college students: A randomized controlled trial. *PLoS One* 2015;10:e0130544.
31. Kang YS, Choi SY, Ryu E. The effectiveness of a stress coping program based on mindfulness meditation on the stress, anxiety, and depression experienced by nursing students in Korea. *Nurse Educ Today* 2009;29:538-43.
32. Lund C, Brooke-Sumner C, Baingana F, Baron EC, Breuer E, Chandra P, et al. Social determinants of mental disorders and the sustainable development goals: A systematic review of reviews. *Lancet Psychiatry* 2018;5:357-69.
33. Parker AG, Hetrick SE, Jorm AF, Mackinnon AJ, McGorry PD, Yung AR, et al. The effectiveness of simple psychological and physical activity interventions for high prevalence mental health problems in young people: A factorial randomised controlled trial. *J Affect Disord* 2016;196:200-9.
34. de Jonge-Heesen KW, van Ettehoven KM, Rasing SP, Liempd FH, Vermulst AA, Engels RC, et al. Evaluation of a school-based depression prevention program among adolescents with elevated depressive symptoms: Study protocol of a randomized controlled trial. *BMC Psychiatry* 2016;16:402.
35. Aebi M, Kuhn C, Banaschewski T, Grimmer Y, Poustka L, Steinhausen HC, et al. The contribution of parent and youth information to identify mental health disorders or problems in adolescents. *Child and Adolescent Psychiatry and Mental Health* 2017;11:23.