Research report

Training for Parents of Adolescents with Gaming Disorder

A Pilot Study

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Abstract: *Aim:* Parents can influence the Internet use (IUD) or gaming disorder (GD) in their children in various ways. However, there is scant published research and limited structured guidelines on the subject. This article describes a group training for parents that does not require the participation of the affected individuals. *Methods*: In this non-controlled pilot study, 42 parents (31 families) participated, completing diagnostic questionnaires before and after group training (adolescent's GD Symptomatology, adolescent's internalizing and externalizing problems, the parent's and adolescent's quality of life). The training included six sessions and was divided into four main topics (psychoeducation, parent-child-communication, analysing and changing, own limits and needs). *Results:* The training was well-received by the participants. The training itself and most of the content were rated as helpful. From the parents' point of view, there were significant improvements in the GD symptomatology, the adolescent's internalizing and externalizing problems, and adolescent's quality of life. The parents' quality of life was already at an average high level at the beginning of the training and hardly changed. *Conclusions:* The training program is easy to implement and is considered beneficial. There are indications that positive changes are triggered by the training, even though the affected persons themselves are not involved. A randomized controlled efficacy study is still pending.

Keywords: gaming disorder, internet use disorder, parents, group training, intervention

Training für Eltern von Jugendlichen mit Computerspielstörungen: Eine Pilotstudie

Zusammenfassung: *Zielsetzung:* Eltern können auf vielfältige Weise auf die Entwicklung, Aufrechterhaltung und Veränderung einer Internetnutzungs- oder Computerspielstörung bei ihren Kindern Einfluss nehmen. Dennoch gibt es hierzu kaum publizierte Forschung zu manualisierten Herangehensweisen. Der vorliegende Artikel beschreibt die Evaluation eines Gruppentrainings für Eltern von Jugendlichen und jungen Erwachsenen, das ohne die Teilnahme der Betroffenen auskommt. *Methodik:* In der vorliegenden nicht kontrollierten Pilotstudie nahmen 42 Eltern (11 Elternpaare, 20 einzelne Elternteile) teil, die vor und nach dem Gruppentraining diagnostische Fragebögen ausfüllten. Die Diagnostik bestand aus der Erfassung der Elternperspektive zum Computerspielverhalten des Kindes (CSAS-FE), zur internalisierenden und externalisierenden Auffälligkeit des Kindes (CBCL), sowie der Lebensqualität von Eltern (FLZ) und Kindern (ILK). Zudem wurden die einzelnen Sitzungen sowie das Gesamttraining von den Eltern bewertet. Das Training umfasst sechs Einheiten und gliedert sich in 4 Schwerpunktthemen (Psychoedukation, Eltern-Kind-Kommunikation, Analysieren und Verändern, Eigene Grenzen und Bedürfnisse). *Ergebnisse:* Die Teilnehmer kamen gut mit dem Training zurecht. Das Training selbst und die meisten Inhalte wurden als hilfreich bewertet. Es zeigten sich aus Sicht der Eltern signifikante Verbesserungen im Computerspielverhalten der Kinder, der psychischen Auffälligkeit der Kinder, sowie der Lebensqualität der Kinder. Die Lebensqualität der Eltern war bereits zu Trainingsbeginn auf einem durchschnittlich hohen Niveau und veränderte sich kaum. *Schlussfolgerungen:* Das Trainingsprogramm ist gut durchführbar und wird als hilfreich erlebt. Es ergeben sich Hinweise darauf, dass durch das Training positive Veränderungen angestoßen werden, obwohl Betroffene selbst nicht involviert sind. Eine randomisierte kontrollierte Wirksamkeitsstudie, welche Veränderungen der Symptombelastung der Kinder, deren Behandlungsmotivation, sowie die Belastung der Eltern untersucht, steht noch aus.

Schlüsselwörter: Computerspielstörung, Internetnutzungsstörung, Eltern, Gruppentraining, Intervention

Introduction

Internet use disorders (IUDs) or gaming disorders (GDs) are common phenomena in adolescence and young adulthood. A representative survey in Germany came to an estimated prevalence of 5.7% for 12- to 25-year-olds (Wartberg, Kriston & Thomasius, 2017). Internationally, a meta-analysis found estimated prevalence of 7.02% for IUD and 2.47% for GD in different samples (Pan et al., 2020).

Reviews describe associations between IUD or GD with high stress levels in general, low quality of life and life satisfaction, depression, anxiety, compulsions, and ADHD (e.g.

Männikkö et al., 2020). At the same time, there are a few studies that point to the burden of the child's symptomatology on the parents (Bonnaire et al., 2019). For example, there are associations between depressive symptoms and anxiety in the parents and GD in the child (Lam, 2015; Wartberg, Kriston, Kramer et al., 2017). However, the available studies allow only limited conclusions as to whether these are causes, comorbidities, or consequences of symptomatology. The influence of family on the development, maintenance, or change of an IUD or GD has come into increasing focus in recent years (Bonnaire et al., 2019; Brandhorst et al., 2021). For example, associations are shown between symptoms of IUD or GD and problems in the parent-child relationship (Hwang et al., 2020), negative family communication (Faltýnková et al., 2020), more family conflict (De Leo & Wulfert, 2013), less time spent together between parent and child (Faltýnková et al., 2020), low family functioning (Wartberg et al., 2019), less subjective family support (Ergün & Işık, 2018), low family cohesion (Chung et al., 2019), or the experience of loneliness (İskender, 2018) or disharmony (Wang et al., 2014) in the family context. There are some longitudinal studies that follow families over time and thus provide clues to possible predictors. For example, problems in the parent-child relationship (Shek et al., 2019) or deficits in quality of parent-child communication (van den Eijnden et al., 2010) are considered relevant predictors of developing IUD later on. Parent-child relationships also suffer as a result of developing an IUD (Da Charlie et al., 2011). Parents' educational behaviour is also associated with symptoms of IUD and GD. It seems to have a protective effect if parents increasingly control their children with regard to Internet topics (Bonnaire & Phan, 2017) and are good role models (Wu, Ko et al., 2016). Interestingly, regulations may have protective (Martins et al., 2020) but also aggravating effects (Wu, Wong et al., 2016) or both: Van den Eijnden et al. (2010) found content regulations to be helpful but time regulations to be associated with more problem behaviour. A reciprocal relationship is also suggested, according to which not only the parents' rules influence the child's Internet use behaviour, but also vice versa (Su et al., 2018). Inconsistent rules appear to be harmful (Xin et al., 2018), as are rigid or unstructured rules (Valcke et al., 2010). Adolescents whose parents have an IUD have a threefold increased risk of themselves developing an IUD (Lam & Wong, 2015). Altogether, these findings suggest that the involvement of parents in the therapy of IUD or GU in their offspring is very important.

Although research demonstrates the influence parents can have on the symptomatology of the affected child, intervention programs almost exclusively address the affected person without intensively involving the caregivers (e.g. Lindenberg et al., 2020). Intensive involvement is more likely to be found in the context of early intervention (see program "ESCApade"; Thormann & Tietze, 2019). In the program of Liu et al. (2015), the topics of family communication and parent-child relationships, among others, are processed in group sessions with the families. The training was shown to be highly effective in reducing the child's IUD symptoms. Han et al., (2012) increased the amount of time spent together between parent and child as part of their family therapy services and were thus able to significantly reduce the adolescents' screen time. Programs that address only parents exist solely in the context of substance-related disorders. For example, the CRAFT program (Community Reinforcement and Family Training), which targets family members of alcohol-dependent individuals or Illicit drug users, is shown to be highly effective (Meyers et al., 2005).

In summary, parents can influence the development, maintenance, and change of their child's IUD and GD in many ways. Furthermore, the studies indicate that parents can not only influence but also suffer themselves as a result of the child's symptoms. Moreover, it is often the parents who perceive problems and want to motivate their child to seek treatment even before the adolescent shows any awareness of the problem. For these reasons, parents need a therapeutic remedy with which they can learn to exert a positive influence on their child on the one hand and find relief on the other. Therefore, a group training for parents of adolescents and young adults with IUD and GD was developed at the University Hospital Tübingen. The group training focuses on problematic computer game behaviour of adolescents. However, it also addresses other problematic Internet use habits (e.g., social media or streaming) and is not only intended for families whose children only play computer games. A first concept of this group training for parents was strongly geared to the CRAFT program and already published in 2011 (see El Kasmi et al., 2011). For the present pilot study, the concept of the training was completely revised and adapted to practical experiences and the current state of research. First data are presented here. The aims of the pilot study were to test the contents and the practical implementation of the newly designed training, and to investigate whether changes in GD symptoms, psychological stress, and quality of life can be observed.

Method

Design and Setting

The study took place at the University Hospital Tübingen in Germany. A positive ethics approval from the Ethics Committee Tübingen was granted (registration number: 826/2017BO2). The parents were recruited via the outpa-

tient clinic for IUD and GD of the Department of Psychiatry, Psychosomatics and Psychotherapy in Childhood and Adolescence. Prior to the first training appointment, informed consent was obtained, and the pre-diagnostic questionnaires were completed. After the sixth training appointment, the post-diagnostic questionnaires were completed. In addition, the training content was evaluated anonymously by the parents after each training session.

Intervention

The training took place in closed groups of four to seven families with a maximum of two parents per family (group size 4–14 persons) on six evenings for 90 minutes each over a period of eight weeks. The first four training dates took place once a week, the last two dates two weeks apart. Each training group was led by a psychologist, psychotherapist, or psychiatrist. The adolescents or young adults themselves did not participate in the training at any time; participants were only the parents.

Each training session consisted of approximately 50 % guided exchange of experiences between the group participants and 50 % theory and exercises. The content of the training, based on cognitive behavioural therapy, can be divided into four areas that were distributed throughout the sessions: 1) Psychoeducation: information on media use in Germany, addiction, prevalence, aetiology, learning theories; 2) Communication: non-violent communication, identification of dysfunctional communication patterns, resource orientation and positive focus, appreciation, expressing praise and criticism; confident and effective non-verbal communication; 3) Analysis and change: Reflecting on family media use, alternative recreation, fostering a positive relationship, situational analysis, regulation of media time; 4) Own boundaries/needs: Identifying co-dependent behaviour, identifying and maintaining own needs and boundaries, dealing with crisis situations and violence, reflecting on own leisure time activities.

Inclusion and Exclusion Criteria

Participants were parents of adolescents or young adults with GD, subjectively perceived as afflicted by the parents. There were no age restrictions and adolescents, or young adults did not have to meet any specific addiction criteria.

Measurements

The following survey instruments in German language were used for pre- and post-diagnostics.

Computer Game Addiction Scale, Parents' Version ("Computerspielabhängigkeitsskala" CSAS-FE; Rehbein et al., 2015): The questionnaire captures via 18 items conspicuous gaming behaviour with regard to electronic screen games (according to the DSM-5 criteria of an Internet Gaming Disorder) from the perspective of parents, close educators and life partners. The questionnaire has good reliability and validity. Studies show high values for internal consistency (α=.90; Lindenberg & Hofmann, 2021).

Child Behavior Checklist ("Elternfragebogen über das Verhalten von Kindern und Jugendlichen" CBCL/6-18R; Döpfner et al., 2014): The CBCL/6-18R measures behavioural problems, emotional problems, somatic complaints, and social skills of school-aged children and adolescents from the parents' perspective via 113 items. The internal consistency of the second-order scales (Internal Problems, External Problems) is in the good range with values for Cronbach's alpha >.80. The internal consistency of the total value is very good with a Cronbach's alpha of at least α=.93.

Life Satisfaction Questionnaire ("Fragebogen zur Lebenszufriedenheit" FLZ; Fahrenberg et al., 2000): The FLZ measures parents' life satisfaction by means of seven items each on nine scales. The questionnaire is standardized, the internal consistency (Cronbach's alpha) of the scales is between α=.82 and α=.95, the validity is considered assured.

Inventory for the Assessment of Quality of Life in Children ("Inventar zur Erfassung der Lebensqualität bei Kindern" ILK; Mattejat & Remschmidt, 2006): The ILK measures the quality of life of their child as perceived by the parents with 9–11 items on six scales. The internal consistencies (Cronbach's alpha) range from α=.55 to α=.76 for the total score, and the various retest reliabilities (two to six weeks) range from r=.60 to r=.80 for the total score.

Evaluation questionnaires: The training content was evaluated by evaluation questionnaires after each training session (e.g. helpfulness of topics like communication, educational behaviour, self-care; 1 = "was fully helpful to me," to 5 = "was not helpful to me at all"). In addition, parents were asked about the applicability of the training content and changes after each session (e.g. transferability of content, responsiveness of content, motivation, change in symptomatology, reduced burden of parents; 1="completely agree" to 5="strongly disagree"). After the last appointment, the parents were also asked about their general evaluation of the training (e.g. overall satisfaction, recommendation, number, duration and timing of training appointments, satisfaction with opportunities to raise own concerns in the group; 1="completely agree" to 5="strongly disagree").

Statistical Analysis

Data were analysed using IBM SPSS Statistics version 27.0. To avoid an increase of errors of 1st kind, single missing data at the post-measurement time point were replaced by the values of the pre-measurement time point according to the "intent-to-treat" method (as recommended by Griffiths & Christensen, 2006). Questionnaire data from two parents in relation to the same child (CSAS-FE, CBCL/6-18R, ILK) were averaged. When evaluating the number of diagnostic criteria met according to CSAS-FE, a criterion was considered met if at least one parent indicated so. For pre-post comparisons, raw scores were analysed. Normally distributed questionnaire data were compared with t-tests, and nonnormally distributed data or data with insufficient scale level were compared with the Wilcoxon-tests. Data from the evaluation questionnaires available for each training session were assessed using analysis of variance with repeated measures. Cohen's d was used as a measure of effect size for significant pre-post comparisons. For this purpose, the difference values were divided by the standard deviation (<0.5 small effect, 0.5–0.8 medium effect, >0.8 large effect; Cohen, 1988).

Participants

31 families (42 persons) participated in the pilot study (30 mothers, 12 fathers; age: 41–69 years, M=50.1, SD=5.71). In 11 families, both parents participated in the training. In 19 families, only the mothers participated, in one family only the father. The adolescents of these parents were 97 % male (30 boys, one girl) aged 10–24 years (M=15.84, SD=2.83). Most parents (77.4 %) completed the training as planned, attending six (41.9 %) or five (35.5 %) training sessions. A small proportion of parents attended only four (9.7 %) or three (6.5 %) sessions, and two parents dropped out after one (reason: training was not deemed appropriate) or two appointments (reason: son moved to a residential group).

Results

Satisfaction and Subjective Course

The ratings of some of the individual training contents are shown hierarchically in Table 1. Across all six training sessions, parents reported high levels of agreement on the questions of whether they were able to apply the general content to their personal situation (M=1.62), whether the topics covered at the session appealed to them (M=1.44), and whether the session motivated them to continue working on their adolescent's problematic media use (M=1.47). Significant or trending significant improvements over the six training appointments were evident in the questions "I am of the opinion that my child's problematic media use has improved." (F=17.67, p≤.000), "I feel that I am better able to deal with my child's problematic media use." (F=3.94, p=.005) and "I feel less burdened by my child's problematic media use." (F=2.34, p=.080; see Figure 1).

The last appointment also showed a high level of agreement with the questions of whether the parents found participation in the training overall beneficial (M=1.47), whether they were satisfied with the training overall (M=1.56), and whether they would recommend the training to other families (M=1.28). 50 % of participants felt the number of training sessions was just right, 50 % would have liked more sessions. 81 % stated that the duration of the training sessions (90 minutes) was just right, 3 % found the training sessions too long, 16 % too short. The spacing of the training appointments (every 1–2 weeks) was just right for 91 % of the participants, 9 % would have liked shorter intervals. The opportunity to raise individual concerns had sufficient space during the training appointments for 82 % of the participants, 3 % would have liked less space, 15 % more space.

Questionnaire Results

Mean values and results of pre-post-comparisons can be found in Table 2.

Internet Gaming Disorder Scale (CSAS-FE)

According to the parents' own judgment in the CSAS-FE, 90.6 % of the adolescents fulfilled the diagnostic criterion "psychosocial problems" as a result of computer game use. Also 90.6 % met the criterion "loss of control". 84.4 % described that their adolescents use computer games to escape from negative emotions. The frequency of other criteria varied between 50 % and 72 % (tolerance 71.9 %, loss of interest 71.9 %, withdrawal symptoms 68.8 %, deception 56.2 %, risk of relationships/ career 50.1 %, preoccupation 50 %).

The CSAS-FE showed significant improvements in the number of diagnostic criteria and total score. There was also a trend towards improvement in mean daily play time, which may be attributed to the reduction in play time on weekends. Play time on weekdays did not change.

Child Behavior Checklist 6-18R (CBCL6-18R)

High pre-measured values for problematic behaviour of the adolescents were observed for the scales "Withdrawn/ Depressed" and "Internalizing Problems". Marginal prob-

Table 1. Evaluation of some Individual Training Contents by the Participants

Topics	Helpful %	Not sure %	Not helpful %	Mean values
Getting to know the other families	100.00	0.00	0.00	1.28
Appearance of confidence	97.06	2.94	0.00	1.65
Step out of escalation	96.30	3.70	0.00	1.67
Learning-model: Learning through consequences	90.63	6.25	3.13	1.59
Learning-model: Observational learning	87.50	12.50	0.00	1.63
Self-care	87.50	6.25	6.25	1.88
Technical ways of setting limits	85.19	11.11	3.70	1.96
Communication: I-/You-messages	83.78	8.11	8.11	2.00
Nonviolent communication	83.33	16.67	0.00	1.80
Creating a situation analysis	78.38	21.62	0.00	2.05
Psychoeducation: Addiction criteria, Prevalence, Factors influencing the development of addiction Information on media use in Germany, Alternatives to media use	62.50–75.00	18.18–25.00	0.00–9.38	1.50–2.06
Describing the favourite application or game of the person concerned	59.46	21.62	18.92	2.41
Recording media time	46.15	26.92	26.92	2.62

Notes. Helpful = rating of "was fully helpful to me" and "was rather helpful to me"; Not helpful = rating of "was not helpful to me at all" and "was rather not helpful to me". Mean of ratings 1 = "was fully helpful to me", 2 = "was rather helpful to me", 3 = "don't know", 4 = "was rather not helpful to me", 5 = "was not helpful to me at all".

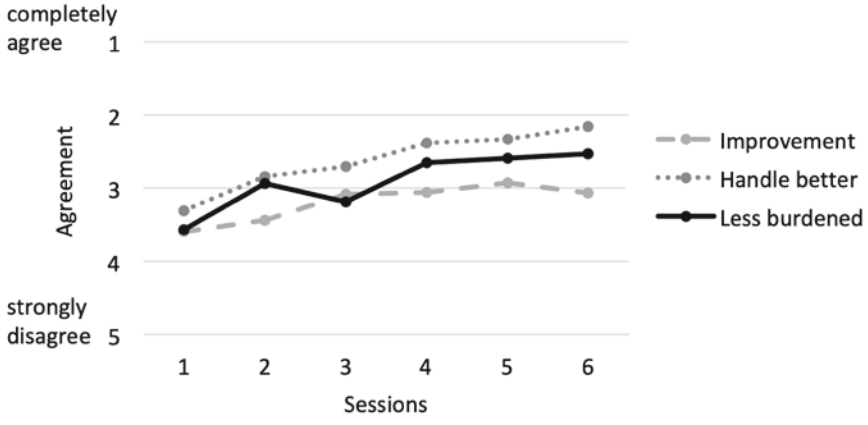

Figure 1. Global Evaluation Over the Six Treatment Sessions. Explanation: Answers to questions regarding "Improvement" ("I am of the opinion that my child's problematic media use has improved."; p≤.000), "Handle better" ("I feel that I am better able to deal with my child's problematic media use."; p=.005), and "Less burdened" ("I feel less burdened by my child's problematic media use.", p=.080).

lems were found for the scales "Attention Problems", "Aggressive Behaviour", "Externalizing Problems", and "Total Score".

All secondary scores ("Total Score", "Internalizing Problems", and "Externalizing Problems") showed significant improvements. Furthermore, significant improvements were found for the following scales: "Anxious/Depressed", "Somatic Complaints", "Rule Violating Behaviour", and "Aggressive Behaviour". In addition, there was a trend for the subscale "Withdrawn/ Depressed". The following scales showed no change: "Social Problems", "Thought Problems", and "Attention Problems".

Quality of Life in Adolescents

Most parents (75 %) reported an impaired quality of life in their adolescents. Furthermore, 18.8 % described quality of life in an average range. 6.3 % of parent couples showed diverse opinions. No parent reported quality of life above

Table 2. Results of Pre-Post-Comparisons of Raw Values

	Pre		Post		t-value	p-value	Cohen's d
	mean	SD	mean	SD			
Internet gaming in children (CSAS, mean raw values)							
Total score	40.23	1.43	37.06	1.58	3.00	.005	0.53
Number of fulfilled diagnostic criteria	6.03	0.35	4.81	0.47	3.29	.002	0.58
Average gaming time (minutes)	351.97	38.13	313.17	32.90	1.74	.094	0.34
Gaming time on weekdays (minutes)	292.50	37.37	271.73	32.14	1.82	.081	0.36
Gaming time on weekends (minutes)	421.88	39.96	427.50	38.04	-0.24	.811	
Child behavior (CBCL6-18R; T-Values)							
Anxious/Depressed	63.64	10.92	63.14	9.28	2.13	.041	0.38
Withdrawn/Depressed	74.67	11.50	72.16	10.89	2.03	.051	0.36
Somatic Complaints	62.73	8.47	60.27	8.36	2.59	.015	0.45
Social Problems	59.95	7.68	59.92	7.94	-0.18	.860	
Thought Problems	64.20	7.86	62.61	7.93	1.29	.208	
Attention Problems	67.09	9.16	66.53	9.08	0.64	.528	
Rule Breaking Behaviour	63.72	6.16	62.33	5.90	2.51	.018	0.44
Aggressive Behaviour	65.55	9.65	62.89	9.53	3.31	.002	0.58
Internalizing Problems	70.70	9.98	67.88	9.65	3.25	.003	0.57
Externalizing Problems	65.41	8.60	62.88	8.64	3.25	.003	0.57
Total Score	69.44	8.18	67.19	8.29	2.91	.007	0.54
Quality of life in children (ILK, %)							
Quality of life (according to 100 %)	44.27	13.72	47.55	14.37	-2.11	.043	-0.37
Problem score	91.06	15.02	88.99	18.20	1.33	.194	
Quality of life in parents (FLZ; stanine values)							
Physical health	4.10	1.93	3.90	1.81	0.70	.495	
Work	5.49	1.94	5.15	1.72	0.14	.889	
Finance	6.05	1.88	5.68	1.98	1.02	.314	
Leisure acitivities	4.05	1.50	4.15	1.53	-1.12	.274	
Partnership	4.27	2.04	3.97	1.87	1.72	.094	0.29
Children	2.83	1.97	3.11	1.81	-1.29	.205	
Person	4.61	1.88	4.43	2.01	1.15	.258	
Sexuality	4.00	2.13	3.74	2.04	2.15	.038	0.35
Friends	4.29	2.09	3.93	1.83	0.94	.351	
Apartment	5.98	1.77	5.60	1.84	1.94	.060	0.30
Total value	5.51	2.46	5.39	2.51	1.40	.169	

Notes. SD = standard deviation. $p \leq .05$ are significant, $p \leq .1 \geq .05$ trend. Cohen's d was calculated for trends or significant results only. bold = striking values; italicized = borderline striking values.

average. In accordance with these results, parents reported high problem scores in their adolescents (81.3 % high scores, 18.8 % average scores, 0 % diverse opinion).

A small but significant improvement in quality of life in adolescents was found. However, problem score did not change.

Quality of Life in Parents

Standardized stanine values showed average quality of life for parents in almost all areas. Only for the "relationship to the child" quality of life was impaired. Pre-post comparisons of raw values showed significant negative changes in life satisfaction regarding "sexuality" and a trend for the subscale's "partnership" and "apartment".

Discussion

The research literature indicates that it is useful to integrate parents into treatment for an IUD or GD in adolescents or young adults. Yet, to date, few studies exist that explore the integration of parents into treatment. This study examines the feasibility of implementation and preliminary evidence of potential effectiveness of a group training for parents of adolescents and young adults with GD.

The first goal of this study – to test the feasibility of the training – was achieved. The training program was positively evaluated by the parents. The parents were able to apply the general information to their personal situation and felt addressed and motivated by the content. Overall, they rated the training as helpful and would recommend the training to other families. Half of the subjects would have liked more than six appointments. This shows how great the need for advice and information is among parents of adolescents with GD. Parents rated getting to know other families with comparable problems as most helpful. In this pilot study, group therapy effect factors were not assessed. Future studies should investigate the efficacy factors of the group experience (e.g., communication of hope, social learning, expression of feelings in the group, recognition of relational influence; Mander et al., 2016), which may act independently of the content taught. In terms of the content, parents rated elements of the communication training (self-confident appearance), acquiring ways of getting out of escalating conflicts (e.g., through time-out, relaxation, or communication strategies) and information on learning through consequences (use of positive, natural, and timely consequences, reduction of co-dependency) as most helpful. Future studies should examine whether all these issues are necessary to initiate change. Like Liu et al. (2015) already showed, the focus on communication and promotion of empathy of the parents towards the child could already be sufficient to achieve a reduction of the symptomatology. An exercise on logging media use times, which aimed to objectify subjective assessments as much as possible, was rated less well. Monitoring usage times was hardly feasible for parents in practice, as most adolescents used mobile devices or had devices in their own rooms, so that usage took place out of the parents' field of vision. These experiences are in line with research showing that capturing children's screen time exposures is complex and good solutions are yet to be found (Byrne et al., 2021). Parents also showed difficulty with the exercise of learning about the adolescent's favourite application with a positive gaze. In the future, adapted instruction should make it easier for parents to develop an appreciative attitude toward the adolescent's Internet skills without glossing over the problem, thus promoting a positive dialogue with the adolescent. Further results of this pilot study show that the adolescent's GD symptomatology can be reduced, at least from the parents' point of view. In addition, an improvement in the adolescent's quality of life and a reduction in the adolescent's internalizing and externalizing problems were observed. These results are in line with research showing the association between quality of life and symptoms of IUD in adolescents (Kumcagiz, 2019). A randomized controlled trial will have to test in the future whether these effects can be attributed to the parent group training. No improvement in the parents' quality of life was observed. Overall, the parents showed hardly any stress in the FLZ survey instrument used, so that further improvements were not to be expected. The only stress was related to the parent-child relationship, which could not be changed in the eight-week period. It is possible that such changes triggered by the training could take effect later. Other changes in the FLZ appeared to be random and not explainable by the intervention. Similarly, another study that offered parent training for young children on six dates showed that changes in quality of life were not observed equally in mothers and fathers and not across all measurement time points (Reedtz et al., 2019). Analogous to other studies training caregivers of persons with substance-related dependencies, survey instruments that capture stress, anger, depression, and anxiety for at least six months might be more suitable (c.f. CRAFT; Meyers et al., 2005).

Strengths, Limitations, and Outlook

The strengths of this study lie in the standardized conduct of the groups and the use of mostly validated instruments. The study is limited by the fact that there was no

control group and no randomization, so the changes cannot be attributed to the training. Furthermore, it was not checked whether any parallel treatments took place. The sample consisted almost exclusively of male adolescents, which limits the transferability to parents of girls. Furthermore, only computer game addiction symptoms were recorded and not a general problem with Internet use. In addition, we did not differentiate between online or offline computer games. On the one hand, the anonymous collection of the evaluation questionnaires was an advantage to prevent social desirability. On the other hand, no evaluations could be carried out that could have been related to the subjects.

Similar to other trainings for relatives with substance-related addictions, future studies should examine whether all elements of the training are necessary to achieve the training goals (see Kirby et al., 2017). Future studies should also consider the judgment of adolescents and young adults, not just parental judgment. Furthermore, the differentiated evaluation of both parents would be of interest. In addition, more objective measures than questionnaire data would be desirable. Future studies should consider follow-up surveys or booster sessions, as some changes that might be triggered by the training (e.g., related to the parent-child relationship or family communication), might take longer than eight weeks to manifest.

Overall, the results of the pilot study can be considered promising. An adaptation of the treatment manual with the experiences of the pilot study and a randomized controlled evaluation are pending.

Conclusions for the Practice

1. Parents can be enabled to influence an GD symptomatology in their adolescents, even if the adolescent does not show any personal awareness of the problem and is not (yet) motivated to seek treatment.
2. Parents find the group setting particularly helpful.
3. In practice, the following main topics have proven to be useful: Psychoeducation, parent-child communication, analysing and changing, own limits and needs.

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