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EFFECT OF GUIDED IMAGERY ON CHILDREN'S SOCIAL PERFORMANCE

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Abstract. The study examined the effect of guided imagery on overt social behavior of children during free play. Forty withdrawn and rejected first-graders (6 to 8 years of age) were randomly assigned to one of five conditions. Four of them were guided imagery conditions: mastery plus peer acceptance, mastery with no social contingency, coping, and gradual rehearsal. A fifth control condition involved no intervention. It was predicted that the four imagery conditions would increase and maintain positive socialization, but the coping condition would be the most effective. Children under the coping condition, which involved guided imagery of failure to get peer acceptance, but progressively mastering the social interaction and finally being accepted by peers, consistently increased positive socialization behaviors from baseline to post-treatment and follow-up, as compared to gradual rehearsal and control. Both mastery conditions increased socialization at post-treatment, but reverted to baseline levels during follow-up.

Keywords: Guided imagery, coping, children, social skills.

Introduction

Peer neglect has been associated with suffering and distress (Tami & Schneider, 1997), and there is increasing evidence that social interaction patterns, and rejection and neglect from peers during childhood, tend to remain stable over time (Parke et al., 1997; Pettit, Clawson, Dodge, & Bates, 1996). Negative social status prevents withdrawn and neglected children from learning new social skills or from refining those already acquired. Lack of social competence in childhood has links to depression, low academic achievement, substance abuse and delinquency later in life (Cole, Martin, Peeke, Seroczynski, & Hoffman, 1998; Cole, Martin, & Powers, 1997; Crocker & Hakim-Larson, 1997; Hughes & Knight, 1997; King, Akiyama, & Elling, 1996; Shah & Morgan, 1996).

Social competence involves overt social skills, and coping with social contingencies, such as peer acceptance, rejection or neglect. Modeling, shaping and peer mediation procedures, such as verbal instructions, coaching or role-playing, have been used as treatment approaches to promote social competence (Bierman & Furman, 1984; Hepler & Rose, 1988).

The efficacy of these procedures to promote and maintain change has been mainly demonstrated on sociometric measures, such as peer nominations or ratings (Gresham & Nagle,

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1980; Ladd, 1981; Oden & Asher, 1977). However, the validity of sociometry as a measure of social competence has been seriously questioned (Foster, Bell-Dolan, & Berger, 1986). Reliability of peer nominations and rating scores among young children is not conclusive (Hansen, Nagle, & Ellis, 1996; Hymel, 1983), and ethical concerns have emerged in relation to its use, as children are encouraged to work on ''hate lists'', which can damage those peers already facing social difficulties (Cairns, 1983). Also, according to Crick and Ladd (1989), the accuracy of children's scores in small to medium size classrooms decreases, while the classification error increases. An additional problem is that changes in sociometric status or reports from teachers and parents are not necessarily accompanied by changes in actual social interaction (Cairns, 1983; Gonzalez, Hernandez-Guzman, & Lopez, 2000; Schneider, 1991). Other studies, therefore, have explored the ability of social skills training to change the observed social interactions of withdrawn and neglected children (Edelson & Rose, 1981; Gottman, 1977; Harwood & Weissberg, 1987; Schneider, 1991). Results have suggested important changes after treatment and at follow-up.

More recent efforts, adding other components such as play therapy and parental education (Kaduson, 2000), point to the use of multimodal approaches to foster the generalization of acquired skills. Multimodal approaches have shown some results for reports of parents and teachers, but not for observed natural socialization (Frankel, Cantwell, & Myatt, 1996; Hemphill & Littlefield, 2001; Kratochwill & French, 1984; Schaefer, Jacobsen, & Ghahramanlou, 2000).

Although *in vivo* social skills training involving these procedures is an effective strategy to improve social interactions, it presents serious disadvantages, especially when implemented with children. For example, peer mediated approaches, such as coaching or role playing (Furman, Rahe, & Hartup, 1979) raise ethical issues, as treatment must be conducted within planned social situations. In such situations natural social contingency management applied by peers is especially difficult, since it requires peers to be confederates pretending social acceptance. Also, peers control the training situation, rather than professionals, fostering the possibility of later abuse or scolding (Polyson & Kimball, 1993).

The unique nature of child psychotherapy poses further considerations when designing therapeutic interventions directed at children. Not all children necessarily understand some of the cognitive strategies used in verbal instructions and coaching. Their language development, reasoning ability, memory span and verbal fluency might limit the use of some techniques (Hart & Morgan, 1993). Their attention span requires short sessions to avoid boredom and reduction of intervention impact, limiting the efficacy of intervention, especially in the case of video modeling or multimodal strategies. Besides, usually parents and teachers are the ones seeking professional help, not the children, thus affecting their motivation to change and actively participate in interventions designed to help them (Kendall & Braswell, 1993).

Some of the disadvantages related to the application *in vivo* of social skills training procedures to children could be avoided by using covert procedures, and measuring the effects on observed socialization behavior. Some studies have demonstrated classical (Dadds, Bovbjerg, Redd, & Cutmore, 1997) as well as operant (Cautela, 1976, 1977) conditioning, using guided imagery in adults. Guided imagery can include modeling or rehearsal of social behaviors and exposure to social contingencies by imagined peers (Cautela, Flannery, & Hanley, 1974; Harris & Benett-Johnson, 1983; Homme, 1965; Thase & Moss, 1976).

Especially in those cases involving inoculation against self-confirming failure expectancies (Meichenbaum, 1985), imagery allows the recreation of situations and introduces unlim-

ited combinations of contingencies, without involving the actual participation of other children during treatment. The introduction of complex scenes, behaviors and peer responses might facilitate the practice of behaviors, reducing costs, length of training sessions and effort.

Apparently, people process mental images as having similar qualities to the actual stimulus (Kosslyn, 1994). Covert modeling (a model is imagined exhibiting the target behavior) and rehearsal (a variation of modeling in which the person imagines him/herself exhibiting the target behavior) have been suggested as effective as overtly practising the behavior to establish assertive behaviors (Kazdin, 1982) and empathy responses (Uhleman & Koehn, 1989) in adults. Reports from research testing these procedures have supported their effectiveness treating adult obesity (Zgourides, Warren, & Englert, 1989), establishing verbal behavior in autistic adolescents (Groden & Cautela, 1988), enhancing motor performance of pre-adolescent children with mild mental disabilities (Screws & Surburg, 1997), of adult gymnasts (Taylor, 1996), as well as roller skating (Vadocz, Hall, & Moritz, 1997) and figure skating adult competitors (Garza & Feltz, 1998).

Kazdin (1974) indicated the superiority of covert modeling followed by imagined positive reinforcement on assertive behaviors, as compared to covert modeling with no reinforcement. The effects of more complex contingencies, such as imagining a hesitant model and having trouble at the beginning, but gradually coping more successfully, were evaluated on actual snake manipulation by snake adult phobics (Kazdin, 1973) and on test anxiety and test performance (Harris & Benett-Johnson, 1983). In both studies, covert modeling was successful, but imagining the coping model was the most effective procedure to change overt behavior.

The work in this area, though scarce, has supported the use of coping imagery in adults. However, in the case of children, guided imagery has been mainly directed to the treatment of phobias (King, Molloy, Heyne, Murphy, & Ollendick, 1998; Konno, 1997). Even though young children can imagine and report the content of imagination (Estes, 1998), and use imagination in their daily life (Connoly & Doyle, 1984; Doyle, Doehring, Tessier, de Lorimier, & Shapiro, 1992), skill acquisition and overt behavior change in children through guided imagery has received limited attention from researchers. Behavioral techniques applied to private events could be used to promote overt behavior change, in the same way they are applied *in vivo*. Results predicted by learning theory applied *in vivo* could also be predicted from the manipulation of private events.

The purpose of the present study is to evaluate the effect of guided imagery on overt social behavior of children during free play as an alternative to *in vivo* social skills training, which poses ethical and practical limitations. Guided imagery of failure to get peer acceptance, but progressively coping and mastering the social interaction and finally being accepted by peers, was compared to imagined mastery of the social target behaviors, with and without peer acceptance, and to imagined gradual rehearsal. Based on previous results with adult and studies on social skills training with children, it is hypothesized, first, that all four imagery conditions: mastery of the social target behaviors followed by peer acceptance, mastery with no contingency delivered by peers, coping, as well as gradual rehearsal, will increase and maintain overt positive socialization of children. But, second, that coping imagery will be the most effective. Third, children not exposed to any intervention will show no improvement in any of the repeated measures of social interaction.

Method

Participants

Forty isolated children (6 to 8 years of age, 17 girls and 23 boys) from a total of 260 low socioeconomic first-graders, attending the morning or afternoon shifts in a public school located within a socially disadvantaged area of Mexico City, participated in the study. Isolated children were targeted during recess. Their peers also victimized some of these children. After a 2-week anecdotal daily direct observation period during free play at recess, previous to the study, those children who were isolated or following an adult 90% or more of the recorded time, were selected to participate. Parental consent was previously obtained for all first graders, regardless of their participation in the study.

Instrument

Behavioral Observation Code (SOC-IS). The Behavioral Observation Code (SOC-IS) (Santoyo, 1994) was used to record children's behavior during recess. The SOC-IS describes the observation of behavior categories related to free play. Behaviors performed by the focal subject included positive and negative initiatives of social interaction, prosocial play, parallel play, isolated play, wandering around, and other responses, such as eating, waiting in line, and interacting with adults. Behaviors performed by peers with respect to the focal child included positive and negative initiatives, positive (acceptance) and negative reception (rejection and neglect) of social initiatives and sustained social interaction. Also, dyadic or group activities including the focal subject were recorded as either positive or negative.

Procedure

Prior to the study, six observers blind to the experimental conditions were trained in the use of the SOC-IS behavioral code, until a 90% reliability score during three consecutive sessions with an independent observer was reached. Also, a social validation study was conducted. The behavior of the most socially accepted children was recorded during free play. The resulting list was compared to behaviors related to social competence in the research literature, and was further validated by a group of 10 professional psychologists, who hierarchically ordered them. Behaviors obtaining the highest ranks were used to design the scenes to be described during guided imagery.

The 10 basic scenes could include (a) a context, diverse common situations at the playground, (b) the behavior and, (c) a social contingency, which could be acceptance, rejection or neglect by a peer. Two trained doctoral students presented the scenes, containing detailed prepared scripts.

Baseline, post-treatment and follow-up. Baseline measurement involved the observation of the 40 children participating in the study, using the Behavioral Observation code (SOC-IS). Each one of three pairs of trained observers recorded at least two children during baseline for 10 minutes during the 30-minute recess. Treatment started at different times for each child, as soon as an 80-minute baseline observation quota was reached. Baseline was completed after 14 weeks for all subjects. Post-treatment and follow-up involved the same recording procedure

and observation time quota. Follow-up measures were taken 3 months later, after a 2-month summer break, and one additional month after starting the next school year.

Treatment

Participants were randomly assigned to one of four imagery conditions and one control condition, with no intervention. There were eight children in each condition. Except those in the control condition, they were individually exposed to one of the four imagery conditions after baseline measurements in an isolated room within the school premises. Scenes were verbally presented having the child seated comfortably and relaxed with the eyes closed. Scenes were presented during 10 sessions, one scene per session. During the 20-minute session, the scene was presented in eight consecutive trials. Children were cooperative and agreeably participated in the study. Each child received the same amount of time in treatment, regardless of group. The content of each trial was related to the corresponding condition.

1. Mastery with peer acceptance (MPA). Guided imagery of mastering the social target behaviors and receiving peer acceptance as the imagined contingency. During this condition the material to be imagined by the child was the visualization of him/herself mastering the social behaviors in a given context followed by peer acceptance. Example scene: ''You are in the playground during recess and find your classmate (David), standing by himself watching some children play. You approach him and invite him to play with you. 'I brought a ball today, come let's play'. He smiles and puts his arm on your shoulder, saying: 'OK, let's play'. Other children join and you spend the rest of the recess playing soccer.'' Under this condition the eight trials within a session described the same specific scene.

2. Mastery with no social contingency (MNC). Guided imagery of mastering the social target behaviors, with no peer response. The contextual and behavioral components of the scene were exactly the same as in the mastering plus peer acceptance condition, but no peer responses were introduced. The child was asked to imagine only the behavior within a context: ''You get to the playground during recess and find your classmate (David), standing by himself watching some children at play. You approach him and invite him to play with you: 'I brought a ball today, come let us play'.'' As with the previous condition, trials in a session involved the same scene.

3. Coping (C). Guided imagery of behaviors progressively matching the socially desired target behaviors and being exposed to imagined peer neglect or rejection at the beginning of the intervention, and gradually receiving peer acceptance as mastery was reached. Under this condition, the scene in the initial trials of the session depicted the child as hesitant and having trouble approaching his/her peers: ''You get to the playground during recess and find your classmate (David), standing by himself watching some children play. You want to approach him, but you do not know what to say to him. Finally, after lots of thinking, you softly tell him: 'Would you play with me?' He does not even look at you; someone else calls him and he leaves''. Intermediate scenes included peer neglect, as well as peer rejection. Trials toward the end of each session were the same as those induced for the mastery plus peer acceptance condition.

4. Gradual Rehearsal (GR). Guided imagery of behaviors progressively approaching the social target behaviors, with no contingency. Scenes were exactly the same as in the coping

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condition, but no social contingency delivered by peers was described. During guided imagery conditions, after each treatment session, before releasing the child, he/she was asked to briefly describe the imagined material. The description was recorded and it was checked to contain the context, behavior and social contingency, according to the scene worked that day. In some cases, the child was required to provide more details. Children's descriptions matched the content of the material to be imagined in 100% of the cases.

5. *Control condition*. Children assigned to this condition did not have any contact with researchers. They were only observed during recess using the Behavioral Observation code (SOC-IS). The procedure anticipated the treatment of these children after the follow-up measures at the beginning of the next school year. However, unfortunately none of these children continued in the same school after the summer break.

Results

Dropouts

One child assigned to the gradual rehearsal condition dropped out of school at the beginning of the study. Up to post-treatment measures, 39 subjects were still participating in the study. As the follow-up measure was conducted after the summer break, 13 participants had changed school, and thus discontinued the study without completing follow-up measurements. Three children in the mastery with peer acceptance, one in the mastery with no contingency, one in the coping, and all eight children under the control condition were lost this way. Twenty-six children remained throughout the study. Drop out rate is rather common among children living under extreme poverty in Mexico.

Given the amount of data collected per participant, as a result of the behavioral observation (11 behavior categories × 3 phases of 80-minute observation periods each), behaviors were integrated into three main categories:

(a) isolation behaviors
(b) positive socialization behaviors
(c) aggression, which was rarely observed.

Average percentages of response frequencies were calculated for baseline, post-treatment and follow-up for each condition and behavioral category, except for the control condition, in which data for follow-up were not available. Isolation and positive socialization were mutually exclusive. However, they did not keep an exact relation, because some instances of aggression did occur. Therefore, a percentage score of positive socialization was calculated, according to the following formula: positive socialization / (positive socialization + isolation) × 100. The resulting percentage score ranged from 0% to 100% positive socialization.

A two-way within subjects (repeated measures) ANOVA was first conducted to compare baseline and post-treatment measures of all five groups. The main effects of group F (4, 34) = 0.23; p = .92 and time F (1, 34) = 1.10; p = .30 were not significant. However, the interaction effect was significant F (4, 34) = 2.88; p < .0371. Inspection of Figure 1 reveals that positive socialization increased under the following conditions from baseline to post-treatment: mastery with peer acceptance slightly increased from 54.56 (SD = 20.44; N = 8)

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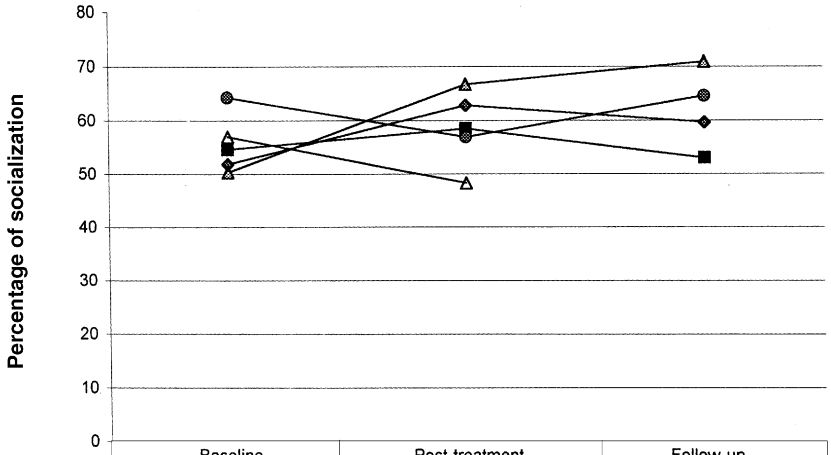

	Baseline	Post-treatment	Follow-up
Mastery/peer accept	54.56	58.48	52.96
Mastery w/no contingency	51.83	62.8	59.62
Coping	50.29	66.77	70.86
Gradual rehearsal	64.29	56.91	64.55
No intervention	56.98	48.29	

Figure 1. Percentage score of positive socialization during baseline, post-treatment and follow-up per condition

to 58.48 (*SD* = 14.87; *N* = 8), mastery with no social contingency from 51.83 (*SD* = 14.29; *N* = 8) to 62.80 (*SD* = 18.63; *N* = 8) and coping from 50.29 (*SD* = 12.39; *N* = 8) to 66.77 (*SD* = 19.12; *N* = 8). In contrast, a decreasing trend for positive socialization was observed under gradual rehearsal, from 64.30 (*SD* = 22.06; *N* = 7) during baseline to 56.91 (*SD* = 23.11; *N* = 7) in post-treatment, and under the control condition from 56.98 (*SD* = 26.01; *N* = 8) to 48.29 (*SD* = 19.47; *N* = 8).

Further contrast analyses were carried out to evaluate the interaction of specific conditions according to the hypotheses of the study. The evaluation of the interaction between both mastery conditions F (1, 34) = 0.60; p = .44 was not significant. The planned comparison of both mastery conditions against coping was also not significant F (1, 34) = 1.31; p = .26. However, the comparison of gradual rehearsal with the rest of the imagery conditions yielded significant results F (1, 34) = 5.22; p = .03. Also, the contrast comparing the control condition with the four imagery conditions was significant, F (1, 34) = 4.14; p = .05.

Due to the loss of participants, statistical comparisons for follow-up were not conducted; only the trend of positive socialization in each condition was analyzed in relation to changes observed from baseline to post-treatment. A reversal to baseline levels during follow-up was observed under mastery with peer acceptance to 52.96 (*SD* = 18.55; *N* = 5). Also, children in the mastery with no social contingency condition reverted to 59.62 (*SD* = 28.88; *N* = 7) during follow-up. On the other hand, children under the coping condition maintained the increasing trend 70.86 (*SD* = 29.79; *N* = 7), whereas the follow-up score during gradual rehearsal was similar to the one observed during baseline: 64.55 (*SD* = 26.59; *N* = 7).

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Discussion

It was predicted that all four imagery conditions in the present study would promote changes in overt positive socialization. This hypothesis was only partially confirmed, since data from the present study showed that positive socialization significantly increased from baseline to post-treatment under three of the four imagery conditions: mastery with peer acceptance, mastery with no social contingency and coping, as compared to gradual rehearsal and control conditions. Furthermore, this increase was maintained upon follow-up only under the coping condition.

In the case of the mastery with peer acceptance condition, the increase in socialization observed after post-treatment also reverted to baseline levels during follow-up. Always mastering the social behaviors and having a positive outcome in every case was apparently too unrealistic. Children under this condition might have tried to perform the imagined social behaviors in the playground, but as real contingencies did not resemble the imagined scenes, behavior changes did not maintain for long.

Positive socialization increased after treatment in the mastery with no contingency condition, in which children imagined themselves mastering the target behavior, but responses from peers were not presented to imagination. However, this increasing trend reverted to baseline levels 3 months later. A possible explanation of this result might be that, under this condition, children would probably have no expectancies concerning a response from peers, thus promoting their socialization behaviors in the playground. As they were not prepared to deal with rejection or neglect, however, they stopped trying to socially interact with peers, which could account for the failure to maintain the effect during follow-up.

Although both mastery conditions reverted to baseline levels, children, who imagined themselves gradually coping and being exposed to failure at the beginning, but mastering the target behavior toward the end of each session, increased positive socialization during post-treatment, and this trend was maintained upon follow-up.

Under the gradual rehearsal condition, the coping situation was incomplete, because children imagined only a hesitant child, who finally mastered the social behaviors, with no consequences in terms of peers' behaviors. Children even practiced in some trials poor social skills without the benefit of the necessary feedback provided by congruent social contingencies, such as neglect when their social initiatives were too weak or inappropriate. They were not exposed to rejection or neglect, which could have helped them to learn coping skills useful to improve their social performance. This might account for the observed decrease of positive socialization from baseline to post-treatment and the return to baseline level during follow-up.

Previous studies had suggested the effectiveness of *in vivo* modeling, shaping, coaching and peer mediation procedures for increasing sociometric nominations and ratings, or teachers' and parents' reports, and these effects were maintained over time (Gresham & Nagle, 1980; Hemphill & Littlefield, 2001; Ladd, 1981; Oden & Asher, 1977). Results of behavioral measures have pointed in the same direction (Bierman, 1989; Gottman, 1977; Gresham & Nagle, 1980; Ladd, 1981; Schneider, 1991), with some exceptions (Edelson & Rose, 1981). Results from this study on the increase of positive socialization from baseline to post-treatment in three imagery conditions contribute further by suggesting that learning to cope provides the ability to maintain changes in overt behavior over time.

Research literature reports the observation of socialization behavior within situations involving play with one selected peer or controlled classroom interactions. Only rarely were

the effects of training tested on behavioral outcomes measured in real life situations, such as free play during recess. As the present study evaluated the effects of intervention in a natural situation, where generalization was directly observed, it further added information on the ability of imagined coping to facilitate generalization.

The second hypothesis, postulating that coping imagery would be the most effective of the four imagery conditions, was confirmed. Coping did not differ from mastery with peer acceptance and from mastery with no social contingency from baseline to post-treatment, but it was the only one to maintain positive socialization over follow-up. Previous research with adult populations has suggested that guided imagery of coping models successfully promoted skill acquisition (Harris & Bennett-Johnson, 1983) and its maintenance (Kazdin, 1973). The present study extends these results to children. Although improvements were observed under both mastery and the coping conditions after treatment, this trend did not persist after 3 months, except when coping was involved.

Present data suggest that coping imagery is successful at maintaining overt behavior over a 3-month period. It seems reasonable to suppose that children under this condition learned to cope with failure (Meichenbaum, 1985), which was described in terms of peer neglect or rejection, thus allowing them to persist in their intent to socialize with other children. Individual observations revealed that positive initiatives by these children were gradually followed by sustained social interaction with peers, in comparison to positive initiatives of children in the other conditions. Thus, natural social contingencies might be responsible for the tendency to increase positive socialization and to further improve during follow-up.

Regardless of the statistical differences, the clinical and social relevance of changes from baseline to follow-up under the coping condition deserves attention. These results are especially important in view of the suffering and willingness to make friends expressed by these children at the beginning of the study. Lack of social skills is a common problem in children living under extreme poverty, which is the case of the participants in this study. Follow-up data showed sustained positive social interactions after the coping condition. Even though no other adjustment criteria beyond social competence were measured, teachers' reports after the study also suggested better adjustment and more interest in school in these children. Future studies should conduct follow-up measures not only of social competence, but of other individual functioning criteria.

Hypothesis three was not only confirmed, but positive socialization decreased from baseline to post-treatment, revealing a tendency to worsen. This result apparently confirms the suggestion concerning the deteriorating effect of peer rejection and neglect over time (Pettit et al., 1996; Parke et al., 1997), and the implied danger of lacking the opportunity to acquire and refine social skills during childhood. However, data from the follow-up measures would have added information needed to appropriately interpret these results.

Though not highly conclusive, the present data have implications for guided imagery directed at behavior change as a preventive strategy. It is a viable procedure that offers the possibility of presenting complex situations and behaviors to the imagination in order to affect social behavior of young children. School based applications of covert procedures might also facilitate generalization to common school situations (Hemphill & Littlefield, 2001).

Methodological considerations

Although the above findings are promising, several uncertainties remain. The small sample size and attrition precluded statistical analysis of follow-up data, reducing the power of

conclusions. Future work in this area should include larger samples. Loss of participants under the control condition posed a further problem: follow-up measures would have added internal and external validity to the study. Also, as control children were supposed to act as a control-wait-list group, it was not possible to replicate the effects of the most effective condition in a second group of children.

The selection procedure, based on anecdotal recordings, was not as sensitive as the Behavioral Observation Code (SOC-IS) used later during the study. Children isolated 90% of the time according to the anecdotal recordings were isolated only 45 to 50% of the time during baseline. Future studies should select participants using reliable observation codes.

Nonetheless, even though no control condition, as such, was possible during follow-up, the gradual rehearsal condition describing scenes, such as the subject gradually rehearsing but never receiving feedback from peers, could be considered as an alternative comparison control condition. A major component included in the coping condition was absent: contingencies provided by peers.

Furthermore, the fact that different children started the treatment at different moments, as soon as an 80-minute observation period was completed, allows considering each individual as its own control and a replication. The effects of the different conditions were replicated at the individual level, thus adding internal validity to the study.

Finally, the use of a behavioral observation code by naive observers contrasts with other studies that have relied solely on sociometry or teachers' and parents' reports. The selection procedure in the present study used an anecdotal observation, raising doubts concerning its validity. A valid formal observation code should be used in future studies to select participants.

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