Comparative Evaluation of Role Play and Group Discussion as Teaching-Learning Method for Behavior Management in Pediatric Dentistry

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Abstract---Communication, behavioral and attitudinal skills are an integral part of teaching behavior management to dental undergraduate students. Due to the complexity of these skills, clinical teaching through didactic method imparts minimal capacity for adopting deep approach to learning. The implication of role play and group discussion could be an opportunity to facilitate such learning outcome. The objectives of this study were to evaluate and compare

the efficacy of role play and group discussion as teaching-learning methods for behavior management in pediatric dentistry. The study was carried out with ninety-two final BDS undergraduate students at Sharad Pawar Dental College & Hospital, INDIA. Tell-Show-Do, non-pharmacological behavior management technique was taught to intervention and control group by role play and group discussion method respectively. To assess knowledge gain, pre-test and post-test was conducted. To evaluate acquisition of communication, behavioral and attitudinal skills, students were made to perform a clinical procedure i.e. placement of pit and fissure sealant in primary molars. Each student was evaluated by direct observation using a check-list. Role play method was found to be highly effective as significant difference was observed in knowledge gain (p=0.020) and acquisition of behavioral and attitudinal skills (p= 0.027) among intervention and control group.

***Keywords*---**behavior management, group discussion, pediatric dentistry, role play, teaching-learning method.

Introduction

Behavior management is considered to be the key element in the management of children in Pediatric Dentistry. Behavior management is a comprehensive methodology meant to build the foundation of a trusting relationship between patient and the dental health care team. It is therefore considered to be the corner stone of the specialty. [1] McElroy (1895) provided a definition for behavior management. She wrote "Although the operative dentistry may be perfect, the appointment is a failure if the child departs in tears." This was the first criteria mentioned evaluating the success or failure of a child's appointment in the dental operatory. [2]Since childhood experience plays an important role in forming the adult behavior, proper behavior management from early stages will help in the development of positive oral health attitude among individuals throughout life. [3] Traditionally, behavior management is taught to dental students during the lecture class and through group discussion. In both the teaching methods, students receive directions to deal with young patients during clinical situations. This form of transmission of knowledge may be useful for rote learning but this method is ineffective at providing students with necessary clinical skills required for patient management in the dental operatory. [4, 5]

Since effective communication with the child is the backbone of all behavior management techniques, role play is perceived gratifying in terms of developing effective communication, appropriate behavioral and attitudinal skills. [6] In role-play, the learner develops and practices newly acquired skills by simulating a scenario. It involves minimum two or a group of students; who communicate both as dentist and as patient, as they switch between these roles. Role play being a skill-based approach requires attention to the structured learning objectives, communication content, and developing problem-solving skills. If the focus of instruction is learning of new skill, role-playing provides a realistic yet 'safe'

environment to students to practice those skills correctly and build confidence to execute them appropriately in clinical setting. [7, 8]

The major use of role-play in medical education is teaching communication and counseling skills to medical students. It is also useful in conditions where a desired behavior and attitude needs to be inculcated or an existing behavior needs to be altered. [9, 10] Students in health care profession need higher level of critical thinking to develop patient management in terms of communication, attitude, behavior and clinical judgment skills. Small group discussion is one method that create active learning environment for all students and has been reported to be an effective teaching method in dental education. [11] However, there are no published reports which can highlight the use of role play as a teaching tool in dental education. Hence, the present study was undertaken with an intention to study the effectiveness of role play in comparison to group discussion as teaching learning method for behavior management in pediatric dental patients.

Material and Methods

The present study was conducted for duration of one year after obtaining ethical approval from the institutional ethics committee (DMIMS (D.U.)/IEC/2017-18/6269). The participants included 92 final BDS students who were willing to voluntarily participate in the study. Written informed consent was obtained from each participant prior to start of the study. All 92 study participants were sensitized to role play as well as group discussion method of teaching and learning.

- Sensitization of students to role Play
  A mini workshop was taken for sensitizing students to role Play method. The students were explained about designing the role play settings, objectives of role play activity and its relevance in professional education. Role play videos were also used to explain the role playing process.
- Sensitization of students to group discussion:
  A second workshop was taken by the investigator for sensitizing students to group discussion method of teaching and learning.
- Random Assignment:
  Following sensitization, students were randomly assigned to group A (Role Play) and Group B (Group Discussion) using lottery method. On the basis of review of the guidelines on behavior guidance a questionnaire to test knowledge gain and a skill based assessment tool to test the communication and attitudinal skills were designed.
- Actual conduct of Role play and Group Discussion:
  The topic selected for the study was Tell-Show-Do non-pharmacological behavior management technique in pediatric dental patients. After sensitization, pre-test for group A and group B was conducted. A questionnaire including ten multiple choice questions was distributed among students. Students of group A were divided into five subgroups. The role play method included the principal investigator and eight students for each subgroup. The role play proceeded for about 20-25 minutes where the principal investigator focused on certain points like use of nonverbal

communication skills, implementation of Tell-show-Do technique during treatment and positive reinforcement of patient towards dental care.

Students of Group B were also divided into five subgroups. The small group discussion was conducted for 30 minutes where the principal investigator explained the topic in detail with all the aspects covered in role play. The students were also given opportunity to participate in discussion and ask questions. To test retention of the topic, a surprise objective test of ten questions, and to assess the communication and attitudinal skills an OSCE (objective structured clinical examination) test were conducted after one month. In OSCE test, students of both the groups were made to perform a clinical procedure (placement of pit and fissure sealant) in 3-4 year old patients. Each student was taken to a well-equipped special operating room where he/she engaged with a patient for about 15 minutes and performed the clinical procedure. An evaluator who was blinded to the study design and students' group assignment evaluated students' performance using a checklist. Crossover was done after a washout period of 3 months to minimize bias in the study. Perception of participants of both the groups regarding two teaching methods was obtained. The study protocol is depicted in Fig. 1.
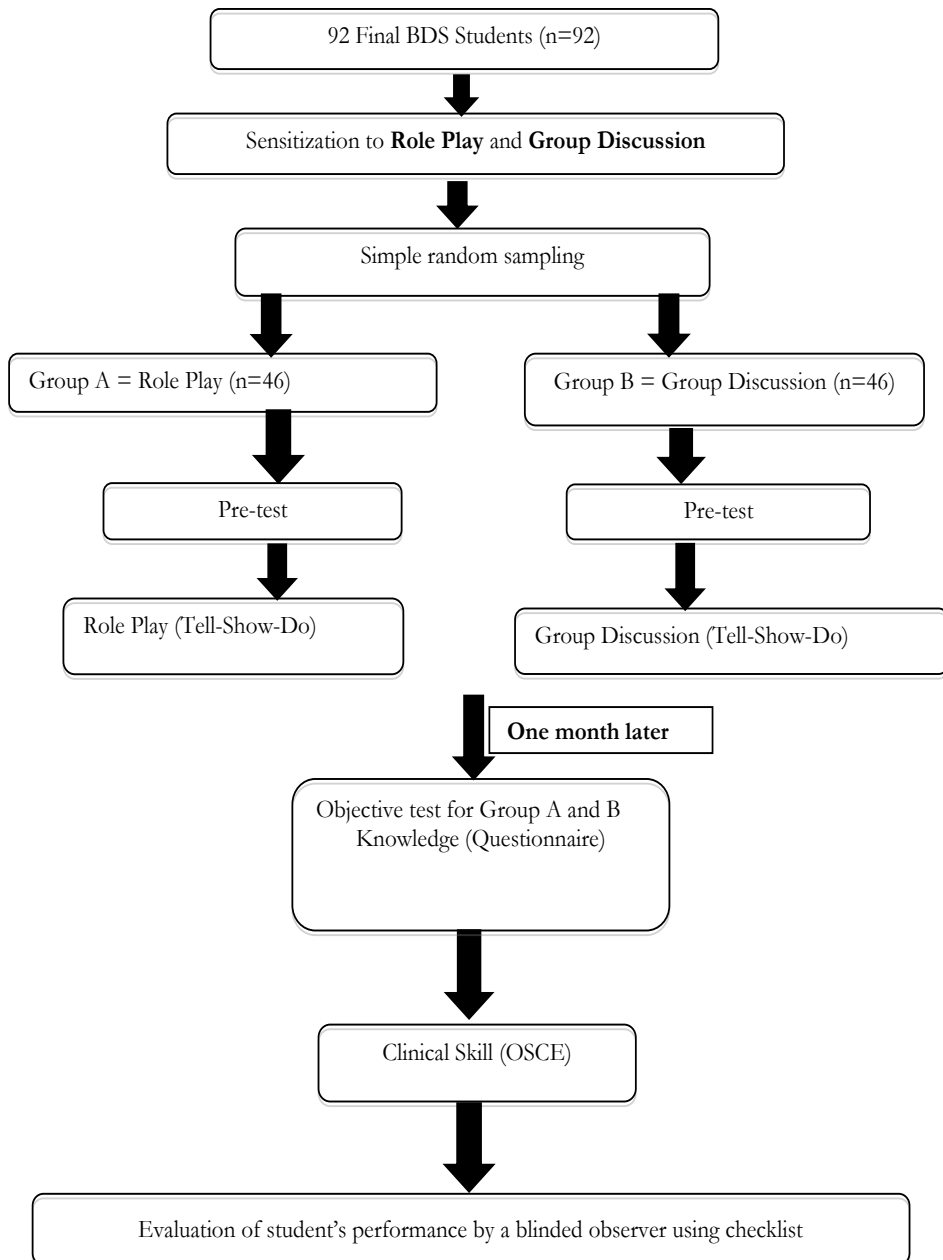
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┌─────────────────────────────────────────────────┐
│        92 Final BDS Students (n=92)              │
└─────────────────────────────────────────────────┘
                        ↓
┌─────────────────────────────────────────────────┐
│  Sensitization to **Role Play** and **Group Discussion** │
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                        ↓
┌─────────────────────────────────────────────────┐
│            Simple random sampling                │
└─────────────────────────────────────────────────┘
           ↓                          ↓
┌──────────────────────┐    ┌──────────────────────────┐
│ Group A = Role Play  │    │ Group B = Group Discussion│
│        (n=46)        │    │          (n=46)           │
└──────────────────────┘    └──────────────────────────┘
           ↓                          ↓
┌──────────────────────┐    ┌──────────────────────────┐
│      Pre-test        │    │        Pre-test           │
└──────────────────────┘    └──────────────────────────┘
           ↓                          ↓
┌──────────────────────┐    ┌──────────────────────────┐
│ Role Play (Tell-Show-│    │ Group Discussion (Tell-   │
│        Do)           │    │        Show-Do)           │
└──────────────────────┘    └──────────────────────────┘
                        ↓  **One month later**
┌─────────────────────────────────────────────────┐
│        Objective test for Group A and B          │
│          Knowledge (Questionnaire)               │
└─────────────────────────────────────────────────┘
                        ↓
┌─────────────────────────────────────────────────┐
│             Clinical Skill (OSCE)                │
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│ Evaluation of student's performance by a blinded │
│          observer using checklist                │
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Figure 1. Flow chart showing the study protocol

- Data Analysis
  For assessing the effectiveness of role play and group discussion method, a descriptive inferential analysis was performed. The mean scores of both the groups were compared by unpaired 't' test. The difference between scores was considered significant if the p value was less than 0.05.

Results

A statistically significant difference was observed between mean pre-test and post-test scores of group A students subjected to role play method as well as group B students subjected to group discussion method. When pretest scores of Intervention group (role play) and control group (Group Discussion) were compared, the average scores were 2.48±0.78 and 2.64±0.62 respectively (Table - 1), (Fig.2).

Table 1
Comparison of pretest score (cognitive domain)

Group	N	Mean	Std. Deviation	Std. Error Mean	p-value
Role play	46	2.48	0.78	0.12	
Group Discussion	46	2.64	0.62	0.09	0.088
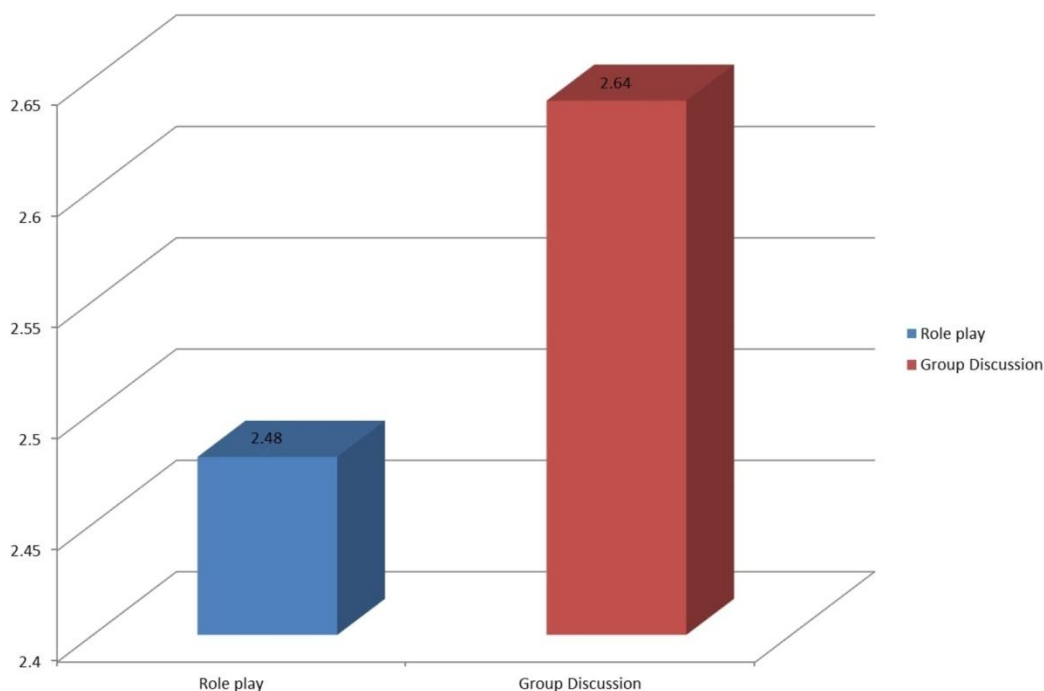
Figure 2. Comparison of pretest scores

On comparison of post-test scores, statistically significant difference was found with average scores of 8.57±0.98 and 6.97±0.12 in intervention and control group respectively. (p<0.05) (Table-2) (Fig.3). These findings suggest that learning behaviour management with role play was highly effective as compared to group discussion method.

Table 2
Comparison of post-test score (cognitive domain)

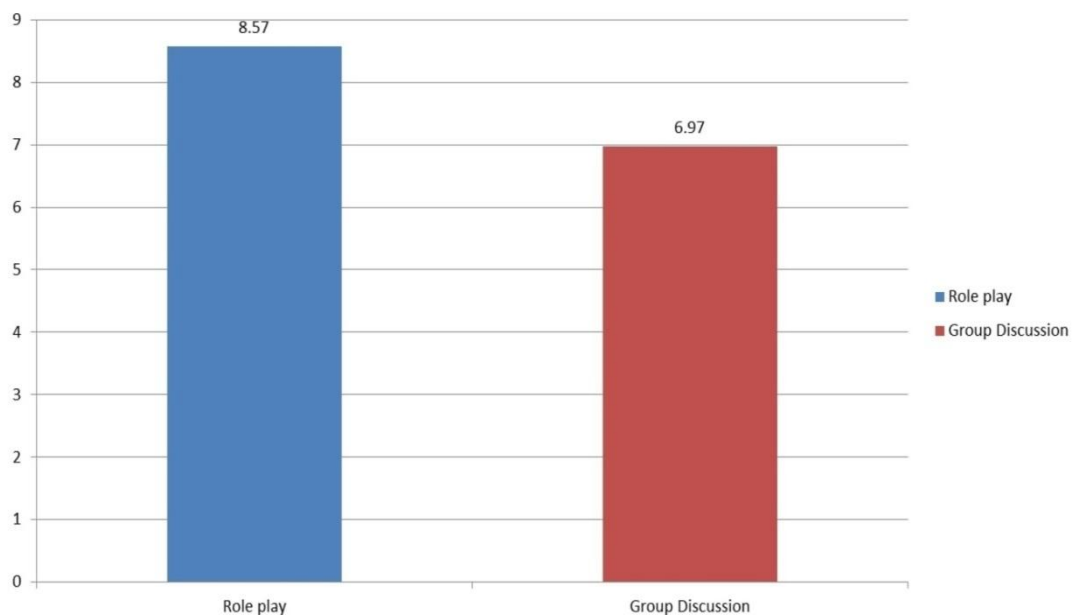| Group	N	Mean	Std. Deviation	Std. Error Mean	p-value
Role Play	46	8.57	0.98	0.14	
Group Discussion	46	6.97	0.12	0.04	0.020

Figure 3. Comparison of post-test scores

The average pre-test and post-test scores were 2.48±0.78 and 8.57±0.98 in group A (Role Play) while 2.64±0.62 and 6.97±0.12 in group B (group discussion) respectively showing statistically significant difference ($p < 0.05$.) (Table-3), (Table-4).

Table 3
Comparison of cognitive pre and post-test groups in role play

Group	N	Mean	Std. Deviation	Std. Error Mean	p-value
Pre-test	46	2.48	0.78	0.12	0.001*
Post-test	46	8.57	0.98	0.14	

Table 4
Comparison of cognitive pre and post-test scores in group discussion

Group	N	Mean	Std. Deviation	Std. Error Mean	p- value
Pre-test	46	2.64	0.62	0.09	0.001*
Post-	46	6.97	0.12	0.04	

test

The overall clinical competence including, communication skills, attitudinal skills and implementation of Tell-Show-Do method in both the groups was assessed by direct observation using a check-list. When the data was subjected to unpaired't' test, statistically significant difference was obtained between two groups. The mean scores in group A and group B were (19.70±0.87) and (13.98±1.51) respectively (p<0.05) (Table -5) (Fig.4). This implies that, students who had been taught /instructed the Tell-show-do technique by group discussion, performed notably less than those who observed the faculty employing this management approach in clinical practice.

Table 5
Comparison of overall clinical competence (communication, behavioral and attitudinal skills)

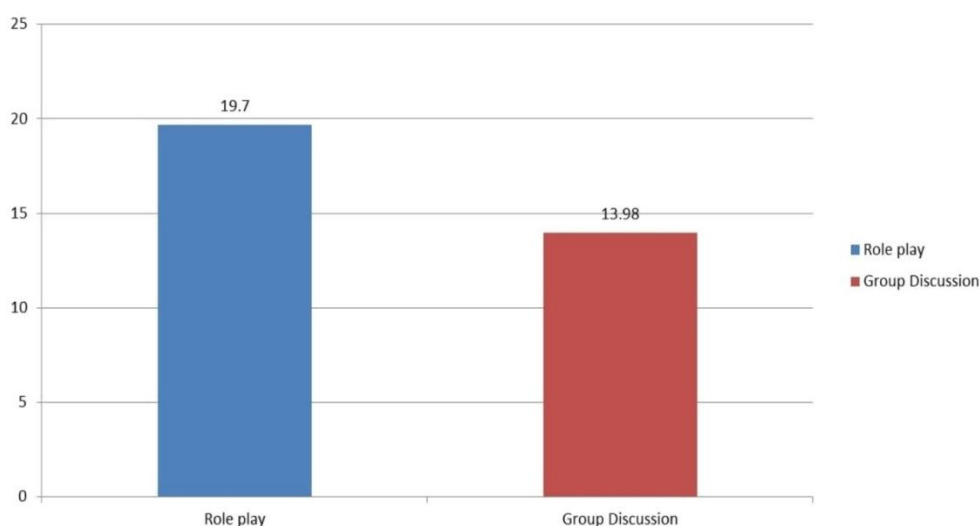| Group	N	Mean	Std. Deviation	Std. Error Mean	p-value
Role Play	46	19.70	0.87	0.13	0.027
Group Discussion	46	13.98	1.51	0.22	

Figure 4. Comparison of overall clinical competence (communication, behavioral and attitudinal skills)

The perception of participants of both the groups regarding two teaching methods with reference to learning and development of required competencies revealed noticeable difference as depicted in table 6. In role play, 78% (n=72) students agreed that learning becomes easier in role play sessions as compared to 21% (n=20) students of group discussion method. Majority of students 85% (n=78) believed that the new method helped them learn better communication skills and they enjoyed participating in it. 86% (n=79) agreed that role play offers an opportunity for active participation. However only 14 %(n=13) students agreed

with group discussion method in this regard. 83 %(n=77) students believed that role play method helped them in overall development of competencies including knowledge, attitude and skill. While only 17%(n=15) agreed with group discussion method.

Table 6
Perception of students to both the methods with reference to learning and development of competencies

Items	Number of students agreed in Role play (n=46)	Number of students agreed in Group Discussion (n=46)
Learning becomes easier in RP	72 (78%)	20 (21%)
Learnt better communication skills in RP	78(85%)	14(15%)
RP offers the opportunity for active participation	79(86 %/)	13(14%)
RP help students to develop required competencies (Knowledge, attitude and skills)	77(83%)	15(17%)

Discussion

Guiding patient behavior is of utmost importance for practicing dentist, and the behavior of pediatric patients is perhaps the most challenging to manage. The rationale for incorporating behavior management training in dental education is that the students develop the professional competence to impart good oral health, instill positive dental attitude in pediatric population and to function as an important member of an efficient and effective health care team. [2, 12]

To maximize student learning, a diversity of teaching styles and a variety of methods are needed. In the present study, role play method was implemented for final BDS students to teach them Tell-show-do behavior management technique in pediatric dentistry. The research on the use of role play has largely been used to acquire comprehensive competence including knowledge, skill, problem solving ability, attitude etc. But, based on the systematic literature search, it has been found that the potential of role play is not being used as a tool to impart subject knowledge in dental education.

In the present study, sensitization to group discussion was conducted for both the groups. Along with this, a second training workshop about the role play for both the groups was conducted. This was in accord to Wong ML *et al*[13] who organized a training session for students at the beginning of the role play where they had hands-on practice in applying the communication skills. Similarly in the study by Maha *et al* [14] prior to teaching generic skills, delegates were required to attend training sessions to develop communication and presentation skills.

A significant difference was observed in the mean scores of knowledge gain by the students of Intervention (8.57±0.98) and control group (6.97±0.12) (p<0.05) (Table-2), (Fig.3). The findings suggest that even though considerable learning

occurred in both the groups, role play method was more advantageous. Although no studies have been conducted to compare Role play and group discussion to teach behavior management, in agreement with our findings, Kristina M. *et al* [15] measured knowledge retention in terms of subjective reports and objective assessment at two distinct times, reported role play simulation as an effective teaching technique. Likewise, Hober C *et al* [16], found role play to be effective when analyzed nursing students' perceptions of Role play in High-Fidelity simulation based on three themes; conceptualizing the learning experience, capturing the big picture, and connecting with the team.

Overall clinical competence including, communication and attitudinal skills and implementation of Tell-Show-Do behavior management method in both the groups was assessed by direct observation using a check-list. The mean scores in the Intervention and control group were (19.70±0.87) and (13.98±1.51) respectively (p<0.05) (Table -3) (Fig.4). This difference in overall clinical competence of students both in terms of knowledge and skills can be attributed to the learner-centered active nature of role play method which incorporates simulations, games, demonstration of real life cases and authentic activities that can engage learners. [17]

In present study, statistically significant difference (p<0.05) were obtained when knowledge gain and overall clinical competence of the two groups were compared. This could be attributed to the very nature of role play technique that allow students to explore realistic situations by interacting with other people in contrast to group discussion where students simply take part in interactive sessions supervised by a facilitator. Furthermore, group discussions have a tendency to benefit the stronger students, the individuals already more familiar with the subject. The freedom of participation in group discussion leads to a relaxation to some extent for passive students. This problem escalates as the group size increases. [18]

In present study, majority of students perceived that role play helps to develop comprehensive competencies including knowledge, skill and attitude. Similar findings were reported by Suzanne MD[19] who stated that role play method is interesting, lively and helpful in breaking monotony. In our study, considerable learning occurred in both the methods. However, role play certainly was found to be more effective for dental undergraduates when knowledge gain and acquisition of communication & attitudinal skills were considered. Hence, role play can be considered as a valuable teaching-learning tool for dental students. Role play can be recommended by educators as a new teaching modality as it offers the opportunity for active student participation and integration of learnt concepts into practice.[20-23]

Conflict of interest: The authors declare that they have no conflict of interest.

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