Preschool-Age Problem Behavior and Teacher-Child Conflict in School: Direct and Moderation Effects by Preschool Organization

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Abstract

The hypothesis was tested that the new open-group Norwegian day care centers would more than traditionally organized centers negatively affect (1) current and (2) future teacher-child relationships, and (3) the developmental legacy of preschool problem behavior. The focus was on 850 four-year olds from 153 centers who were followed-up in first grade. Results of this natural quasi-experiment revealed that children from open-group centers (1) experienced less teacher-child closeness in preschool and (2) more teacher-child conflict in first grade; and (3) that high levels of preschool problem behavior forecast especially high levels of future teacher-child conflict, but only for children from open-group centers. Results highlight the importance of spatial and social organization of day care and their translational implications.

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One important goal of preschool is to prepare children for school. The transition from preschool to first grade requires children to adjust their behavior according to the new environment and to negotiate new social relationships. The establishment of relationships with new teachers appears particularly important, as their quality forecasts children's subsequent academic and social development (Sabol & Pianta, 2012). Indeed, negative teacher-child relationships involving high levels of conflict predict limited school engagement, poor academic achievement and problem behavior (Doumen, Verschueren, Buyse, Germeijs, Luyckx, & Soenens, 2008; Hamre & Pianta, 2001; Sabol & Pianta, 2012).

Relational conflict can be affected by many factors, including children's own characteristics (Birch & Ladd, 1997), prior relationship experiences (Howes, Phillipsen, & Peisner-Feinberg, 2000) and children`s own behavior (Birch & Ladd, 1998). Evidence indicates, for example, that children with more externalizing problems prior to school entry tend to have more conflict with their teachers than do other children (Birch & Ladd, 1998; Doumen et al., 2008; Ladd, Birch, & Buhs, 1999; Nurmi, 2012; Pianta & Steinberg, 1992).

Contextual factors also appear to influence student-teacher relationships (Hamre, Pianta, Downer, & Mashburn, 2008; Mantzicopoulos, 2005; Pianta, 1999). Not only is there evidence that more time spent in child care and more center care predicts more teacher-child conflict in school (NICHD Early Child Care Research Network, 2005; NICHD Early Child Care Research Network, 2003), but research also indicates that classroom composition and teaching style can moderate effects of early behavioral problems on later teacher-child relations (Buyse, Verschueren, Doumen, Van Damme, & Maes, 2008; Hamre & Pianta, 2005). Here we seek to extend work on the potential influence of preschool classroom

context on teacher-child conflict in first grade by focusing on the organization of the preschool, taking advantage of a large-scale Norwegian study. Thus, the current work has potential implications for how preschool and child-care settings are organized and thus for translational science.

The organization of the preschool is an important issue, given changes taking place in child care centers in Nordic and Central European countries, with a shift from relatively stable groups of children and caregivers, to more open, larger and flexibly changing groups (Kjørholt & Qvortrup, 2011). Conceivably, experience of open-group centers involving a changing mix of children and caregivers across various rooms could undermine teacher-child relationship stability. Drawing on Pianta`s reasoning that stability of teacher-child contact and interactions is essential for developing optimal relationships (Pianta, 1999), it is possible that preschool children in the open-group centers are not able to develop as secure bases with multiple teachers and that they might even develop more conflicted relationships, compared to children from traditional centers. In fact, previous research suggested that children experiencing more caregiver stability in day care establish more secure relationships with their caregiver (Barnas & Cummings, 1994; Raikes, 1993) and show higher levels of social competence (Howes & Hamilton, 1993) and well-being; such effects may well engender higher quality of relationships later on (De Schipper, Van IJzendoorn, & Tavecchio, 2004).

According to qualitative interviews with Norwegian teachers, open-group centers generate extra strain due to increased complexity of teacher-teacher, child-teacher, and child-child interactions and organizational tasks, thereby affording less opportunity for provision of emotional support and timely and sensitive response to individual child problem behavior (Seland, 2009). Open-group centers might thus fail to provide individual children with caregivers whose presence would be stable enough to provide children with emotional security and to facilitate development of positive relational styles. In the current study, we

thus aimed to test whether preschool classroom organization, operationalized in terms of open versus more traditional classrooms, would predict future teacher-child relationships. We also tested whether preschool organization would influence children`s functioning in terms of problem behavior, temperamental regulation and social competence. Furthermore, as preschoolers having difficulty regulating their behavior might be particularly susceptible to the hypothesized adverse effects of open-group centers, we investigated whether such classroom organization would also moderate links between preschool problems and conflicted relationships in first grade--by amplifying them for preschoolers already manifesting problems.

Open-group Centers in a Norwegian Context

In Norway, traditional day-care centers consist of a few separate, stable groups of children and caregivers, each assigned exclusive use of a few rooms. Norway recently started to build large day-care centers, with a much more flexible group organization, in order to fulfill increasing demand for child-care places (Buvik, Brandslet, & Bendiksen, 2005). For example, in years 2006-2008, the municipality of Trondheim (with around 180,000 inhabitants), where the current research was conducted, built 47 new open-group centers (Trondheim municipality, 2013a). In these open-group centers, children belong to a primary group, which has its own, relatively small physical base-area, with all the remaining area defined as common and thus shared with all other children in the center. This organization is based partly on Reggio Emilia philosophy stipulating that the room itself is a “teacher” (Ceppi & Zini, 2001; Strong-Wilson & Ellis, 2007) and partly on recent trends in Scandinavian pedagogy which regard children as free and competent individuals who can and, therefore, should be enabled, to co-determine their developmental experiences (Brembeck, Johansson, & Kampmann, 2004; Kjørholt, 2001; Seland, 2009). Thus, more so than in traditional centers, children can choose where and how to spend their time.

One consequence of this open-group arrangement is that the child's social world becomes substantially larger and less stable than in traditional centers, as children interact not only with children and teachers from their own primary group, but also with those from all other such primary groups. In traditionally organized centers, on the other hand, children spend virtually all their time with three or four teachers and a limited and well-defined number of other children. In a recent national survey in Norway, only 12 % of open- group centers reported that children spent more than 60 % of their time in their primary group, compared to 52 % of traditionally organized centers (Vassenden, Thygesen, Bayer, Alvestad, & Abrahamsen, 2011).

In addition, the primary groups in open-group centers tend to be larger than the traditional ones -- 22.7 vs. 18.8 children, on average (Vassenden et al., 2011). In 39 % of the open-group centers, teachers had to relate to more than 18 children while indoors; this was the case in only 28 % of traditional centers (Vassenden et al., 2011). These findings suggest that the social encounters and experiences of children in open-group centers are more varied and that teachers in these centers might be less able to provide children with individualized attention when in larger groups (despite the same teacher-child ratio 1: 6) as compared to traditional centers.

The most important factor determining where a child attends child care in Norway is geographical closeness of the center to child's home (Barnehage.no, 2012, Trondheim municipality, 2005). In 2005, Trondheim municipality introduced centralized management of placement of all children in all public day-care centers (Trondheim municipality, 2013b). Although parents could indicate their preferences to certain centers, due to overall shortage of child-care places (Trondheim municipality, 2013c), whether and in which day-care center children received a place was not under a family's direct control. Placement was typically based on the physical proximity of the center to the child's home and where centers were first

built was not a function of child, family or neighborhood characteristics. Comparison, then, of children who did and did not experience an open-group center makes the work reported herein a natural quasi-experiment.

The Present Study

In the current inquiry, we sought to determine whether there are any differences between children from two different preschool settings at both preschool and first grade in terms of children`s problem behavior, temperamental regulation, social competence and relationship with teacher. Furthermore, we aimed to explore the prospect, that the organization of the preschool in open groups would amplify the anticipated adverse effect of preschool-age behavior problems on the first-grade teacher-child relationships, particularly conflict with the teacher.

Method

Participants

The first wave of the Trondheim Early Secure Study (TESS) was conducted in 2008 and includes participants from two birth cohorts of children (born 2003 or 2004) and their parents living in the city of Trondheim; see Wichstrøm and associates (2012) for details about recruitment and procedures. Of the 1,250 parents invited to participate, 999 parents appeared at the university for further study, where parents provided information about childcare history and child and family factors, and children's language comprehension was assessed (Figure 1). Sample attrition did not vary by behavioral functioning (measured by the Strengths and Difficultly Questionnaire (SDQ) 4-16 version (Goodman, 1997)) ($\Delta\chi^2 = 5.70$ (3), $p = .13$) or gender ($\Delta\chi^2 = 0.23$ (1), $p = .63$). 795 parents participated in follow-up assessment two years later, when the child (50.5 % boys) was in first grade (T2). Children were tested at

approximately the same age. 66.8 % of the children attended day care at the age of 1, 90.1 % at the age of 2 and 98.1 % at the age of 3.

Parents consented to having the child-care provider (T1) and primary-school teacher (T2) who knew the child best complete questionnaires regarding teacher-child relationship quality. Caregiver/teacher response rates exceeded 90 %. Caregivers and teachers had known the child for an average of 13 and 6 months, respectively. Children attended schools according to their neighbourhoods; first-grade classrooms included children from both open and traditional centers, though teachers were not aware of such prior child-care history.

Design and Measures

Child-care center organization. Child-care center leaders answered one question concerning whether the center was organized in an open-group manner or in traditional groups. The third option provided, "other", resulted in exclusion of cases when it was selected. The overall breakdown of number of centers and number of children was 32/215 for open centers, 121/635 for traditional centers, and 18/65 for other. The clustering of child respondents in each center was rather low (mean = 4.5). The resulting size of the design effect was small (DE = 1.36), suggesting that clustering of children within centers did not warrant a multilevel analysis.

Since all Norwegian day-care centers have to comply with national standards in terms of child:staff ratio, staff training and curricula, open-group centers did not differ from traditional centers in terms of these criteria, with one exception: open-group centers complied with the qualified-teacher ratio requirement more than traditional centers (Vassenden et al., 2011). Norwegian welfare state guarantees a maximum price for a child-care place (approximately USD 330/month).

Student-Teacher Relationship. Caregivers and teachers completed the conflict and closeness subscales of the Student-Teacher Relationship Scale (STRS; Pianta, 2001). Conflict scale (12 items) provides teacher perceived negativity within the relationship with the child, while closeness (11 items) assesses whether the teacher perceives the relationship to be warm, affectionate, including open communication (Jerome et al., 2008). Cronbach's alphas were .77 and .82 for conflict, and .65 and .70 for closeness at T1 and T2, respectively. The reliability of the closeness scale did not differ by center type (α = .65 in traditional centers, α = .63 in open-group centers). However, Cronbach`s alpha for conflict (T1) was slightly higher in the traditional centers (α = .79), as compared to open-group centers (α = .67). A Wald test of measurement invariance by center type revealed that 2 out of 12 factor loadings for conflict were considerably lower in the open-group centers, as compared to the traditional ones (factor #22: $\Delta\chi^2 = 4.46$ (1), $p = .03$; and factor #24: $\Delta\chi^2 = 8.34$ (1), $p = .01$). Nevertheless, correcting for the measurement error in the main analysis did not influence the results.

Externalizing problem behavior. Parents completed the externalizing scale of the Child Behavior Checklist (CBCL) (1.5-5 year version, 25 items at T1, α = .89 ; and 6-18 year version, 35 items at T2, α = .88) (Achenbach & Rescorla, 2000). This approach meant that problem behavior and teacher-child relationships were rated by independent reporters.

Temperamental regulation. Children`s *negative affectivity* (α = .88 at T1, α = .82 at T2) and *effortful control* (α = .85 at T1, α = .78 at T2) was reported by the parents using the Children`s Behaviour Questionnaire (CBQ) (Rothbart, Ahadi, Hershey, & Fisher, 2001).

Social competence. Caregivers and teachers rated children`s social competence using the 30-item Social Skills Rating System (SSRS-T) (Gresham & Elliott, 1990) (α = .93 at T1, α = .94 at T2).

Child and family covariates. Due to established links with the primary variables, we controlled for the following: gender (Birch & Ladd, 1997; Koepke & Harkins, 2008); language ability using a Norwegian adaptation of The Peabody Picture Vocabulary Test (10 items) (PPVTIII; Dunn & Dunn, 1997; O`Connor, 2011) (α = .98); parent reported child-care group size and mean number of hours per week spent in day care between the ages 3 and 5; parental depression, assessed using the Beck Depression Inventory –II (21 items) (BDI-II; Beck, Steer, & Brown, 1996, McCartney et al., 2010) (α = .89); parental emotional availability, measured by The Emotional Availability Scales (Biringen, 2000) (α = .83); levels of maternal and paternal education (McCartney, Burchinal, Clarke-Stewart, Bub, Owen, & Belsky, 2010); household`s gross annual income; and highest occupational status, coded according to the International Classification of Occupations (International Labour Office, 1990).

Statistics

We applied linear regression using Mplus (Muthén & Muthén, 2008), employing maximum likelihood estimation with robust standard errors. Missing data were handled with full information maximum likelihood estimation (FIML). Analytically, because a quasi-experimental condition should imply no pre-existing differences between children according to center type, we first tested this with regard to covariates, and second in respect to mean levels of children`s functioning. This was done by comparing the fit of a model in which means were set to be equal to a model where means were freely estimated. Next, we tested the first proposition that center type should influence later teacher-child conflict, problem behavior, temperamental regulation and social competence by regressing these outcomes in first grade on center type, adjusting for initial levels of these separate measures and covariates. Thereafter we tested the moderation effect of center type by including an interaction term between problem behavior at T1 and preschool organizational form in the

model. In addition, a detected moderation effect was illuminated using a multi-group analysis, with comparison of the differences between groups based on the corrected chi-square difference test (Satorra & Bentler, 2001).

Results

Comparisons of children from traditional versus open-groups centers on a range of relevant covariates revealed that children in the two groups did not differ in terms of their gender, language ability, temperament, daycare hours, parental emotional availability, parental depression, maternal education, family income or parental occupational status (Table 1). However, children in traditional centers had more highly educated fathers ($\Delta\chi^2$ = 4.31 (1), p = .04) and average group size was smaller in traditional centers ($\Delta\chi^2$=35.80 (1), p < .001).

At T1, children from traditional centers scored higher on closeness ($\Delta\chi^2$ = 16.14 (1), p < .001) and negative affectivity ($\Delta\chi^2$=6.45 (1), p = .01). At T2, children from open-group centers scored higher on teacher-child conflict ($\Delta\chi^2$ = 12.43 (1), p < .001). Otherwise, child behavior, temperamental regulation, social competence and relationship quality did not differ at T1 or T2 (Table 1).

Predictively, children with more preschool externalizing problems experienced more first-grade teacher-child conflict (Table 2). Notably, however, Table 2 and Figure 2 indicate that this association was stronger for children from the open-group centers compared to those from the traditional centers. Specifically, simple slope analysis showed that this moderated predictor-outcome association starts to significantly differ by center type when children score 5 on behavior problems (F = 4.35, p = .04), meaning that it is children with high levels of behavior problems in preschool for whom open-group experience forecasts high levels of teacher-child conflict two years later.

Notably, in respect to other tested outcomes included in the study, preschool center organization was neither predictive of first-grade age effortful control (β = -.03, p = .50), negative affectivity (β = .01, p = .74), social competence (β = .04, p = .42) nor problem behavior (β = -.02, p = .52), adjusted for their respective initial levels.

Discussion

Results indicate that children from open-group centers experienced less closeness with their preschool teachers and, seemingly as a result, more conflict with their first-grade teachers than children from traditional centers. This suggests, given the quasi-experimental nature of the research design, that center organization can affect children's experience in child care. Even more noteworthy, perhaps, is that for preschool children with high levels of behavior problems, open-groups forecast particularly high levels of teacher-child conflict in first grade, which was not so for such dysregulated children from traditional centers. This result seems especially important given that there were no differences in children's behavior or social competence as a function of preschool group either while in preschool or in first grade. Thus, what was discerned were differences in teacher-child relationship quality as a result of varying preschool experience, along with differences in developmental processes, that is, processes linking problem behavior when children were of preschool age with later teacher-child relationship experience in school.

Reflecting on the results of the present investigation, it would seem more difficult for children experiencing large spaces, different rooms, and flexibly changing staff to develop close relationships with their teachers, relative to children who experience a "smaller"—and perhaps more intimate -- social world (Alvestad et al., 2013; Vassenden et al., 2011). Such stable and secure relations might be especially important to children with behavioral problems (Baker, 2006; Silver, Measelle, Armstrong, & Essex, 2005). According to Clarke-Stewart

(1989), children do not learn to follow social rules or to resolve conflicts without resorting to aggression unless guided by their caregivers. Therefore, we suspect that in challenging situations, perhaps especially when dealing with feelings of anger and frustration, children might be more able to learn to regulate their emotions and behavior in socially acceptable ways when guided and continuously supervised by a known adult, to whom the child feels attached. Across days spent in flexibly changing groups, it might be less likely that an individual child will secure the same level of individual attention and emotional support.

Ultimately, teachers in traditionally organized centers might be better positioned to get to know the child better and to engage more often in teacher-child exchanges that enhance teacher-child relationship quality, thereby fostering security and responsiveness, good inhibitors of problem behavior. Thus, even though the different experiences of preschool children in open and traditional classrooms did not generate differences in mean levels of behavior in preschool or in first grade, it did affect how children related to the adults who cared for them. This may be why preschool-age behavior problems bode especially poorly for children in first grade when they came from open groups.

Our results correspond with findings from a Dutch study, where children from child-care centers with lower stability in care (e.g. more variability in caregivers, peer contact and program structure) scored lower on well-being; and children from highly flexible care (e.g. wide opening hours) showed more non-compliance (De Schipper, Tavecchio, Van IJzendoorn, & Linting, 2003). However, the same study also reported more stability in caregivers being linked to less positive caregiver behavior. This unexpected finding, indicating the opposite of what we suggest here – that stability promotes positive interaction, could be a result of unmeasured characteristics of the caregivers in the study. It should also be noted that this effect emerged only in multivariate analyses with many predictors in small sample (n = 52) and not in bivariate associations between stability and positive caregiver

behavior. It is therefore possible that this finding at p-value level of $< .05$ was a chance finding. It is also possible that caregivers in more flexible settings tried to compensate for what was clearly an instability in care. Such a perception on behalf of the staff is less likely to be present in routine care, such as in the present study, and such findings from special arrangements might not generalize to other settings of instability, such as those in the present report.

In sum, the wide-open nature of open groups seems to influence not only children's relationships with their teachers in preschool—by fostering less closeness--and two years later—by promoting more conflict—but developmental processes as well, in that children from open groups with more behavior problems proved especially prone to teacher-child conflict in first grade than did similarly behaved preschool children from traditional centers. These latter results are likely a function of the open-group centers' relative inability to help children with elevated levels of behavior problems learn how to appropriately communicate and interact with teachers.

Limitations

Although evidence indicated that children`s background characteristics did not differ, for the most part, by center type, we were not able to ascertain in this quasi-natural experiment, whether the procedure of assignment to the centers was truly random. It is possible that some parents exercised undetected preferences. Nor can we preclude the possibility that children in the two groups differed on unmeasured variables (e.g., parental child-care beliefs or neighborhood characteristics). We also did not have data on staff or group stability in the centers. Such information, together with process variables pertaining to quality, might have provided more explanatory insight about *how* the effects detected materialized. Future research would do well to focus on such processes. Furthermore, baseline

measures of children`s functioning were assessed several months after the children enrolled preschool and could have thus theoretically already have been influenced by the preschool center. We have to acknowledge as well that the results might partly reflect newness of the open centers, because it might take some time to strengthen caregivers` practices and to set routines.

Conclusion

The idea of open-group child care is based partly on Montessori and Reggio Emilia philosophy regarding the developmental significance of affording children free choice to structure their daily experiences and be self-determining agents. Although this report provides no evidence that the new child-care arrangements adversely affect children's behavior in general, we did find that it seems to undermine teacher-child relationships in preschool (i.e., less closeness) and in first grade (i.e., greater conflict), while exacerbating the negative effects of elevated levels of early behavior problems on later teacher-child relationships. On the one hand, such findings might not generate much concern; but when it is appreciated that early teacher-child relationships in school appear to be of consequence for children's academic and social functioning over the longer term, the findings reported herein can be seen in a different light, raising rather than alleviating concern. We thus believe that more consideration needs to be given to how centers are organized and, especially, what might be done, intervention-wise, to reduce the apparent untoward consequences that open groups appear to have on teacher-child relationships—in preschool and first grade —and to the development of children showing problems in preschool.

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Table 1

Descriptive statistics and p values of χ^2 test for differences in means by center type

Variables	Open-group center		Traditional center		p-value
	M	SD	M	SD	
Conflict, T1	17.50	3.71	17.85	4.84	0.72
Conflict,T2	18.97	5.63	17.80	4.90	<0.001
Closeness, T1	38.31	4.56	39.48	4.43	<0.001
Closeness, T2	37.97	5.23	38.41	4.88	0.65
Behavioral problems, T1	6.21	5.27	7.33	6.57	0.08
Behavioral problems, T2	4.26	4.95	3.97	4.48	0.63
Negative affectivity, T1	3.60	0.42	3.71	0.50	0.01
Negative affectivity, T2	3.75	0.58	3.80	0.56	0.25
Effortful control, T1	4.88	0.43	4.80	0.46	0.15
Effortful control, T2	5.14	0.51	5.12	0.51	0.51
Social competence, T1	56.27	12.92	56.97	12.31	0.26
Social competence, T2	55.86	13.08	57.32	13.36	0.57
Group size	22.05	9.70	18.09	4.31	<0.001
Gender (1=boy)	0.53	0.50	0.51	0.50	0.23
Language ability	90.09	21.16	92.73	21.50	0.16
Hrs/week in day care 3-5y	28.70	13.61	29.45	14.01	0.20
Parental depression	3.81	5.20	4.62	5.27	0.22
Parental emotional availability	105.19	8.71	105.25	9.36	0.39

Maternal education	3.75	1.13	3.85	1.09	0.29
Paternal education	3.53	1.24	3.73	1.20	0.04
Occupational status	4.35	1.06	4.44	0.95	0.11
Family income	9.97	2.91	10.00	2.95	0.49

Table 2

Estimates (beta, p-values) for predictors of conflict with teacher at T2 for the whole sample and by type of child-care organization[a]

	Whole sample	Whole sample	Open-group center	Traditional center
Conflict T1	0.20 (0.00)	0.20 (0.00)	0.29 (0.00)	0.23 (0.00)
Behavioral problems T1	0.16 (0.00)	0.11 (0.02)	0.31 (0.00)	0.14 (0.01)[b]
Center type (1=open)	0.11 (0.01)	-0.01 (0.93)		
Open Center X Behavioral Problems T1		0.17 (0.03)		

[a]Adjusted for covariates (see Method for list of covariates). [b]χ^2 test of equality of parameters for behavioral problems across centers: $\Delta\chi^2$=9.28 (1), p <0.01.

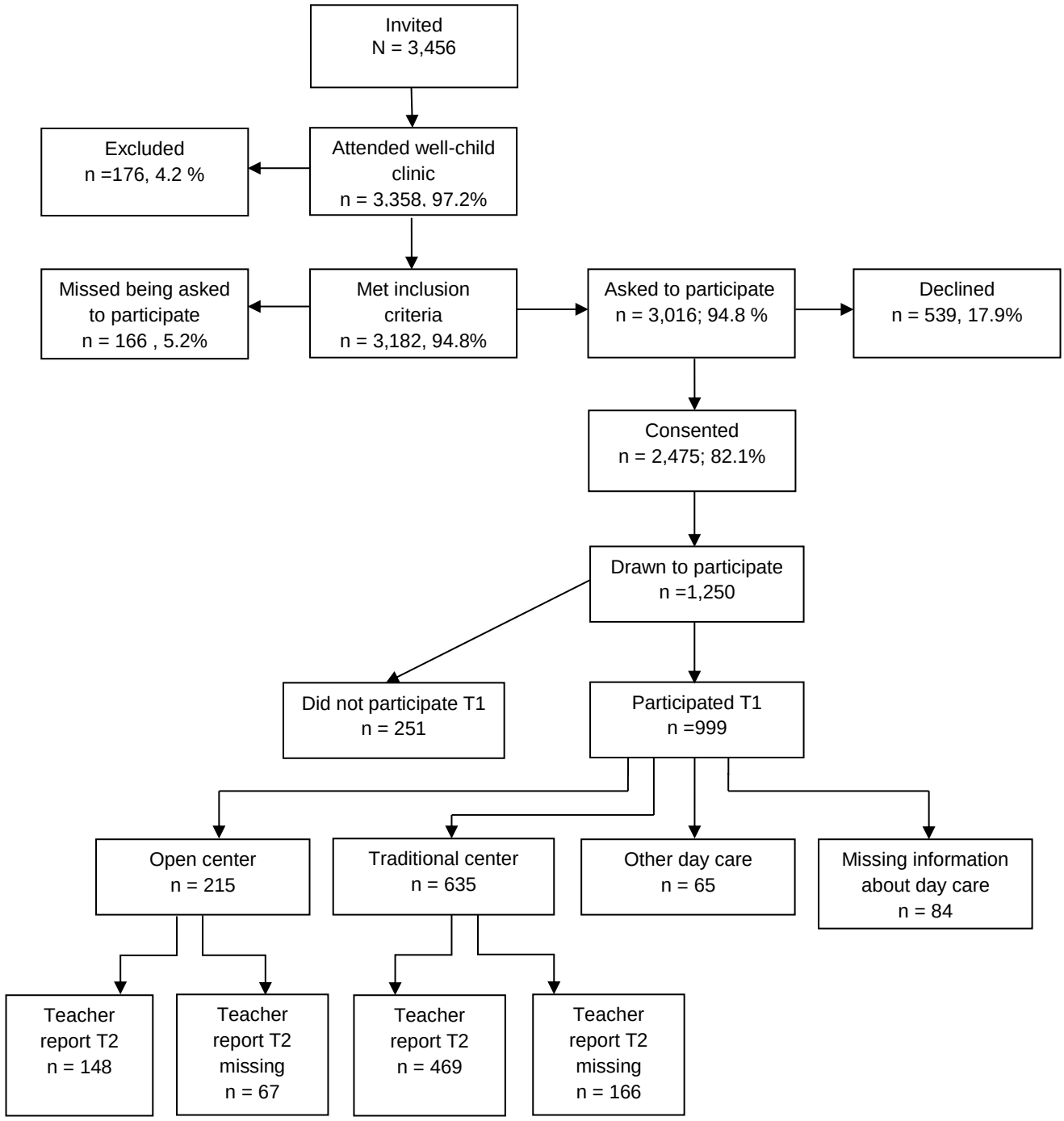

Figure 1. Recruitment and participation

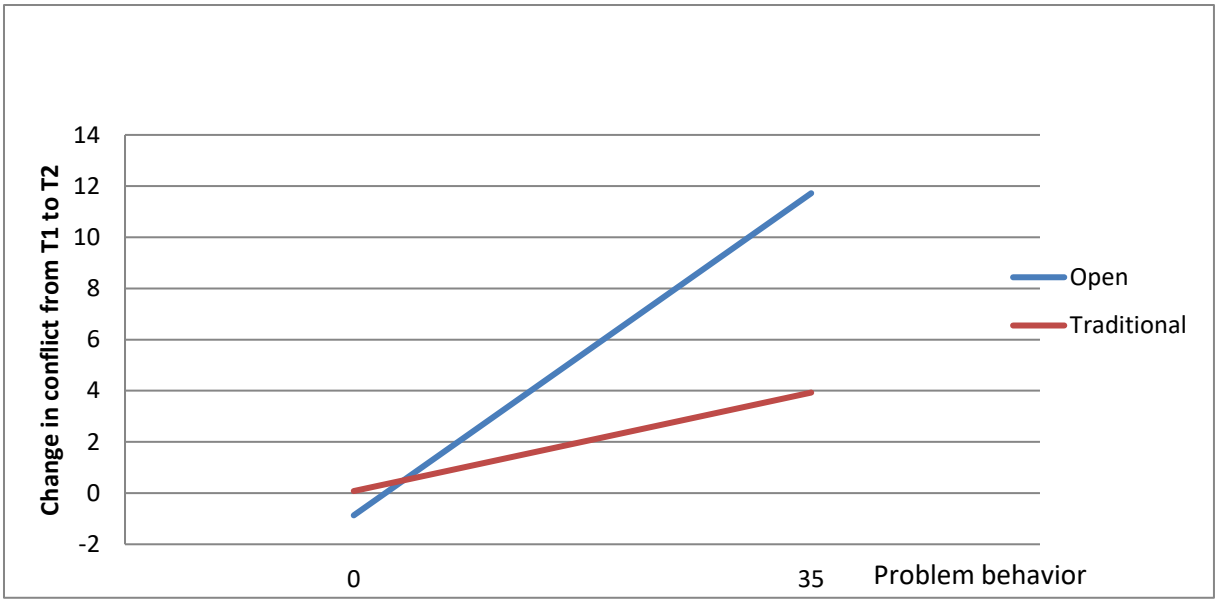

Figure 2. Predicted values of change in teacher-child conflict from T1 to T2 by values of externalizing problem behavior at T1 for children from open-group centers versus traditional centers. Covariates are fixed at their means.