

Parental perceptions concerning the effect of center-based childcare on quality of life for healthy 2- to 4-year-old children

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In this study, we investigated the effects of center-based childcare on the quality of life in healthy 2- to 4-year-old children.

The study was conducted in the Başkent University School of Medicine Department of Pediatrics, and comprised 168 healthy 2- to 4-year-old children followed in the well-child outpatient clinic. After giving informed consent, the accompanying parent was asked to complete the parent proxy report of the Pediatric Quality of Life Inventory™ 4.0 and a sociodemographic information form.

Among the children in the study group, 42.26% (n=71) were girls and 31.36% (n=51) were attending childcare; 69% of the respondent parents were mothers (n=116). The mean total scale score of the study sample was 82.71 ±11.77. Total scale scores as well as psychosocial health, physical health, social functioning and emotional functioning subscale scores were significantly higher in children attending childcare.

In particular, mothers whose children were attending center-based childcare perceived their children's quality of life as higher, regardless of their educational and employment status. Improving access to center-based childcare may help to improve the quality of life for young children in Turkey.

Key words: quality of life, preschool children, childcare, healthy child.

The World Health Organization defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”¹. This has led to use of the quality of life (QOL) concept for risk assessment and resource allocation, determination of health outcomes of diseases and interventions, and even policy decisions^{2,3}. Assessing QOL is gaining popularity as a method of understanding health outcomes for children as well^{4,5}.

Participation of women in the workforce has led to a need for non-parental childcare⁶. As the number of children in childcare rose, researchers began to probe the possible effects of non-parental care on children, focusing

specifically on attachment, mother-child interactions, development, and behavioral and health-related problems^{6,7}. Center-based childcare increases social skills, self-confidence and problem-solving capability, self-care skills and peer-play skills⁶. These positive effects of childcare may contribute to a sense of comfort in daily life and better interfamily relationships, and may increase tranquility at home. Such effects may influence parental perception of the QOL of their children. In this study, we investigated the effect of center-based childcare attendance on parental perception of QOL for healthy 2- to 4-year-old children followed in the well-child outpatient clinic of Başkent University School of Medicine.

Material and Methods

Participants

This study was approved by the Baskent University Institutional Review Board and Ethics Committee (Project No: KA06/177). The subjects were 168 healthy 2- to 4-year-old children who were being followed in a well-child outpatient clinic run by the Department of Pediatrics of Baskent University School of Medicine in Ankara, Turkey. After giving informed consent, the parent(s) accompanying the child was asked to complete the parent proxy report for the Pediatric Quality of Life Inventory™ 4.0 (PedsQL) and a sociodemographic information form. The mother was preferentially asked to complete the form when both parents were present because of the assumption that the mother would be more involved with the child’s daily care. Children were categorized into two groups according to whether or not they attended center-based childcare.

Instruments

The PedsQL is a generic scale used to assess QOL in children 2 to 18 years of age⁸. Uneri et al.⁹ demonstrated this instrument to be valid and reliable for Turkish children aged 2 to 4 years and 5 to 7 years. The scale is composed of four subscales that measure the child’s functioning in the physical, emotional, social and school realms. The PedsQL version for 2- to 4-year-olds differs from versions for older age groups in that it includes only a parent proxy report, and the school functioning subscale has only 3 items instead of 5. Item responses are made on a 5-point Likert scale, and items are reverse scored, such that “0=never a problem”

scores 100 and “4=almost always a problem” scores 0; thus, the higher the subscale or total score, the better the QOL. As a formal rule of the scale’s scoring procedure, no scores are recorded for a given child if more than 50% of the items in each subscale remain unanswered⁸.

Several scores are calculated once the PedsQL is completed. A physical functioning scale score (PSS), an emotional functioning subscale score (ESS), a social functioning subscale score (SSS) and a school functioning subscale score (SchoolSS) are calculated for each child by calculating the mean score of the subscale. The total scale score (TSS) is the sum of all the items over the number of items answered on all the scales. The psychosocial health summary score (PsychSS) is the sum of items over the number of items answered in the emotional, social and school functioning subscales. The physical health summary score (PSS) is the physical functioning scale score as calculated.

The sociodemographic information form was developed by the researchers, and the data collected were the respondent parent’s age, education level and employment status, and the maternal education level.

Statistical Analyses

Data were analyzed using SPSS for Windows, Version 16.0 (SPSS Inc., Chicago, USA). Descriptive statistics (means and standard deviations) were calculated. Group results were compared using the chi-square test. The Mann-Whitney U test was used for the comparison of PedsQL scores with the 168 children categorized according to childcare attendance and the respondent parents’ gender

Table I. Demographic Characteristics of Children Attending and Not Attending Childcare.

	Child’s Sex	Respondent Parent	Respondent Parent’s Age	Respondent Parent’s Employment Status	Respondent Parent’s Educational Status
	% (n) Male Female	% (n) Mother Father	(years) Mother Father	Employed % (n) Mother Father	>12 years % (n) Mother Father
Attending childcare (n=51)	64.7 (33) 35.3 (18)	76.5 (39) 23.5 (12)	33.8±4.6* 35±3.7	82.1 (32)* 100 (12)	82.1 (32)* 50 (6)
Not attending childcare (n=117)	54.7 (64) 45.3 (53)	65.8 (77) 34.2 (40)	29.1±4.5* 34.7±5.1	22.1 (17)* 95 (38)	54.5 (42)* 80 (32)

*p<0.001

and sociodemographic characteristics. Results were presented with 95% confidence intervals; p values <0.05 were considered statistically significant.

Results

Of the total 168 children, 71 (42.3%) were girls and 97 (57.7%) were boys. Fifty-one (31.4%) of the children (18 girls and 33 boys) attended childcare, while 117 (60.4%) did not. One hundred sixteen (69%) of the respondents were mothers and 52 (31%) were fathers. The response rate of all respondents in all subscales was 100%, so none of the cases were dropped from the study.

Table I shows the sociodemographic characteristics of children attending/not attending center-based childcare. Comparisons revealed that mean parental age was higher when the respondent parent was the mother in the group attending center-based childcare ($p<0.001$). Significantly more respondent mothers in the group attending center-based childcare were employed and had received more than 12 years of education ($p<0.001$). There were no significant differences between the two groups with respect to children's sex, respondent parents' sex, mean age and education and number of employed respondent fathers.

Table II. Comparisons of Pediatric Quality of Life Inventory™ 4.0 Scores with the 168 Children Categorized According to Center-Based Childcare Attendance.

	Total Scale Score	Psychosocial Health Summary Score	Physical Health Summary Score	Social Functioning Subscale Score	Emotional Functioning Subscale Score
Center-based childcare					
Attending (n= 51)	89.6±8.3*	87.3±9.1*	92.0±9.5*	94.5±10.2**	77.9±14.6**
Not attending (n=117)	79.7±11.8	78.7±13.0	83.3±12.2	88.3±14.6	69.0±17.7

* $p < 0.001$ ** $p < 0.05$

Table III. Respondent Mothers' Perception of Their Children's QOL Scores, Categorized According to Center-Based Childcare Attendance and Mothers' Sociodemographic Characteristics.

	Total Scale Score	Psychosocial Health Summary Score	Physical Health Summary Score	Social Functioning Subscale Score	Emotional Functioning Subscale Score
Respondent mother's education \leq 12 years (n=42)	79.8±13.0	79.3±14.9	83.5±12.0	86.9±18.5	71.6±17.9
Attending center-based childcare (n= 7)	91.0±6.2**	90.2±5.1**	91.8±8.9**	99.29±1.89**	80.71±9.8
Not attending center-based childcare (n=35)	77.6±12.4**	77.2±15.3**	81.9±12.1**	84.4±19.3**	69.8±18.6
Respondent mother's education $>$ 12 years (n= 74)	83.7±12.4	82.1±12.2	87.2±13.3	91.4±11.6	72.5±17.6
Attending center-based childcare (n=32)	90.3±7.9*	87.7±9.4*	92.9±8.7*	94.5±10**	80.0±13.4*
Not attending center-based childcare (n=42)	78.6±12.8*	77.9±12.5*	82.8±14.6*	89.0±12.4**	66.7±18.4*
Respondent mother employed (n= 49)	86.2±9.5	84.0±9.7	89.6±9.4	92.3±11.2	75.2±14.4
Attending center-based childcare (n=32)	90.2±7.8*	87.7±9.1*	92.7±8.7*	94.8±10.0**	80.0±12.8*
Not attending center-based childcare (n=17)	78.6±7.6*	76.9±6.6*	83.7±7.9*	87.6±12.0**	66.2±13.0*
Respondent mother unemployed (n=67)	79.4±14.0	79.1±15.1	83.1±14.5	87.9±16.5	69.9±19.5
Attending center-based childcare (n=7)	91.2±7.1**	90.09±7.9**	92.34±9.09	97.86±3.9	80.71±13.4
Not attending center-based childcare (n=60)	78.0±14.0**	77.8±15.2**	82.03±14.7	86.73±17.0	68.7±19.8

* $p < 0.001$ ** $p < 0.05$

Table IV. Respondent Fathers' Perception of Their Children's QOL Scores, Categorized According to Center-Based Childcare Attendance and Fathers' Sociodemographic Characteristics.

	Total Scale Score	Psychosocial Health Summary Score	Physical Health Summary Score	Social Functioning Subscale Score	Emotional Functioning Subscale Score
Respondent father's education \leq 12 years (n=14)	81.7 \pm 12.6	77.9 \pm 15.4	86.1 \pm 12.2	83.2 \pm 16.6	68.9 \pm 21.0
Attending center-based childcare (n=6)	84.1 \pm 13.6	81.9 \pm 12.4	86.3 \pm 16.2	85.0 \pm 15.5	70.0 \pm 24.7
Not attending center-based childcare (n=8)	79.9 \pm 12.4	75.0 \pm 17.5	85.9 \pm 9.4	81.9 \pm 18.3	68.1 \pm 19.6
Respondent father's education $>$ 12 years (n=38)	84.4 \pm 8.0	83.0 \pm 9.1	86.2 \pm 9.3	93.9 \pm 7.7	71.4 \pm 14.7
Attending center-based childcare (n=6)	90.2 \pm 5.8	87.7 \pm 6.6	93.5 \pm 5.7**	98.3 \pm 4.1	71.7 \pm 11.7
Not attending center-based childcare (n=32)	83.4 \pm 8.0	82.1 \pm 9.4	84.8 \pm 9.3**	93.1 \pm 8.0	71.7 \pm 4
Respondent father employed (n=50)	83.8 \pm 9.5	81.9 \pm 11.2	86.0 \pm 10.2	91.4 \pm 11.3	70.9 \pm 16.8
Attending center-based childcare (n=12)	87.13 \pm 10.4	84.77 \pm 9.9	89.9 \pm 12.6	91.7 \pm 12.9	70.8 \pm 18.4
Not attending center-based childcare (n=38)	82.7 \pm 9.1	81.0 \pm 11.5	84.8 \pm 9.4	91.3 \pm 10.9	70.9 \pm 16.5
Respondent father unemployed (n=2)	82.0 \pm 7.9	75.0 \pm 14.1	90.6 \pm 0	82.5 \pm 24.7	67.53.5
Attending center-based childcare (n=0)	-	-	-	-	-
Not attending center-based childcare (n=2)	81.95 \pm 7.9	75.0 \pm 14.1	90.6 \pm 0	82.5 \pm 24.7	67.5 \pm 3.5

** $p < 0.05$

The mean TSS for the study sample overall was 82.71 ± 11.77 . Table II summarizes the TSSs, PsychSSs, PSSs, SSSs and ESSs with the 168 children categorized according to center-based childcare attendance. The group attending center-based childcare had a significantly higher mean TSS, PSS, PsychSS, SSS, and ESS than the group not attending childcare (all $p < 0.05$). Table III summarizes the respondent mothers' perceptions of their children's QOL scores, categorized according to center-based childcare attendance and mothers' sociodemographic characteristics. The group attending center-based childcare had a significantly higher mean TSS, PSS, PsychSS, SSS, and ESS than the group not attending childcare (all $p < 0.05$). In addition, the QOL scores of children attending center-based childcare were significantly higher no matter what the respondent mother's educational or employment status, except for the PSS, SSS and ESS when the respondent mother was unemployed.

Table IV summarizes the respondent fathers' perception of their children's QOL scores,

categorized according to center-based childcare attendance and fathers' sociodemographic characteristics. The group attending center-based childcare had a significantly higher mean PSS when the father had received more than 12 years of education.

Discussion

Keeping in mind that our sample comprised healthy children being followed in the well-child outpatient clinic of an urban university hospital, we found significantly higher mean TSSs, PSSs, PsychoSSs, SSSs, and ESSs in the group attending center-based childcare when the respondent parent was the mother.

In the literature, studies have generally focused on effects of childcare attendance on children's social, cognitive and emotional development^{6,7}. In their review of studies done throughout the world concerning childcare and the well-being of children, Bradley and Vandell⁶ reported that children exposed to center-based childcare had superior social knowledge and skills, had more self-confidence, were more accomplished at entertaining themselves and at problem

solving, were more positive and skilled in peer play, had superior cognitive competency and had better math skills during kindergarten and second grade. The authors found that these positive outcomes remained even when factors related to children's QOL, such as family demographics, maternal educational level and parenting quality, were controlled for. They also observed that even center-based childcare of modest quality reduces the risk of poverty and maternal depression and promotes the development of children from low-income families to a greater extent than does home-based care.

Loeb et al.⁷ studied children 12-42 months of age whose mothers had entered welfare-to-work programs in the US; they reported that participation in center-based childcare had a significant positive effect on almost all cognitive outcomes relative to those of children who were cared for in family homes in poor communities or in homes of individual kith or kin providers in such communities. They also found that the positive effects of attending facility-based childcare remained significant even after controlling for children's basal cognitive status, children's ages, mothers' education, mothers' cognitive proficiency and quality of care at the center⁷. In this study, we found that the QOL scores of children attending center-based childcare were significantly higher when the respondent was the mother, and this significance remained constant whatever the respondent mother's educational or employment status. The reason similar results were not observed when the respondent was the father may be the relatively low number of respondent fathers. In addition, mothers may be more aware and sensitive than fathers concerning their children's well-being.

Regarding our findings, it is possible that center based care may have increased children's levels of physical activity and provided them with more social experience, learning activities and developmental stimuli as well as greater environmental stability and a more predictable daily routine, thus reducing life's chaos. In addition, witnessing the positive effects of center-based childcare on their children's development may have contributed to their perception of their young children's QOL.

Jirojanakul et al.⁴ used a different scale

(C-QOL) to investigate QOL in 498 children between 5 and 8 years old in Thailand. These authors found that parents' education level and income had significant influence on QOL. In contrast to this, we found no relationship between the respondent mother's educational status and QOL. We did not collect data on family income; however, compared to the children not attending childcare, those attending center-based childcare had a larger number of respondent parents employed, and the group with employed respondent parents had a significantly higher mean TSS than the group with unemployed respondent parents. These findings suggest that higher family income may be an explanatory variable for QOL in 2- to 4-year-old children.

Varni et al.⁵ investigated QOL in 13,878 healthy 2- to 16-year-old children in the US. The mean TSSs for the 2-, 3-, and 4-year-old age groups in their study were 88.14 ± 12.11 , 87.96 ± 11.63 and 87.37 ± 12.67 , respectively. Lau et al.¹⁰ used the PedsQL to assess QOL in healthy 2- to 4-year-old children living in Hong Kong, and observed a mean TSS of 83 ± 12 ¹³. The mean TSS for our sample of 2- to 4-year-old Turkish children investigated with the PedsQL was 82.71 ± 11.77 . This is somewhat lower than the scores noted above, but was higher than expected given Turkey's status as a developing country. Sociopolitical support of children's attendance of center-based childcare may contribute to the QOL of children in our country.

Turkey is a developing country, and the number of children benefiting from the advantages of center-based childcare is still relatively low^{11, 12}. For Turkish children under the age of 6 with working mothers, nationwide data have shown that approximately 10.1% of those living in urban areas and 1.8% of those in rural areas have the opportunity to attend childcare centers¹¹. More recently, Organization for Economic Cooperation and Development (OECD) data from 2011 indicated that the center-based education rate for Turkish children was 4% in 3 year olds and 19% in 4 year olds, while the corresponding OECD averages were 67% and 84%; in this respect, Turkey ranked last among 36 countries¹². The proportion of children in our sample who were attending childcare was 33.2 %. This is higher than the

average statistic for Turkey, but lower than European Union countries' rates, which are between 77% and 90%¹². The higher rate of center-based care in this study group may be related to the fact that our sample was from a university hospital well-child clinic in the capital city, Ankara, where residents and families of high socioeconomic status may be overrepresented. The lower rates of center-based care in Turkey compared to European and OECD countries may be related to economic inadequacies, a low number of facilities or parents' choice of home-based childcare due to cultural beliefs.

The main limitation of this study is that other factors that may affect QOL in children, such as quality of the childcare center, children's daily activities other than childcare, family income, marital conflict and parental psychological problems, were not analyzed.

Confirmation that childcare has a positive effect on children's health in a developing country such as Turkey, by increasing the QOL as a component of well-being for this age group, could influence and support government policies in our country and in other developing nations. Our findings may also lay the groundwork for more detailed investigations of the effects of center-based care on QOL in different regions of Turkey, in urban and rural areas, and in groups with different sociocultural and socioeconomic backgrounds.

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