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Nan Sheng, Jiali Ma, Wenwen Ding, Ying Zhang. "Effects of caregiver-involved interventions on the quality of life of children and adolescents with chronic conditions and their caregivers: a systematic review and meta-analysis", Quality of Life Research, 2018
17 words / < 1% match - Internet from 02-Dec-2018 12:00AM
www.hse.ie
17 words / < 1% match - Crossref
Lutz Goldbeck, Juliane Melches. "The impact of the severity of disease and social disadvantage on quality of life in families with congenital cardiac disease", Cardiology in the Young, 2006
17 words / < 1% match - Crossref
Emriye Hilal Yayan, Mürşide Zengin, Yeşim Erden Karabulut, Ayşehan Akıncı. "The relationship between the quality of life and depression levels of young people with type I diabetes", Perspectives in Psychiatric Care, 2019
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article.diabetesendocrinol.org
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www.cfah.org
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link.springer.com
16 words / < 1% match - Crossref

Monika Bullinger, Silke Schmidt, Corinna Petersen, Ulrike Ravens-Sieberer. "Quality of life—evaluation criteria for children with chronic conditions in medical care", Journal of Public Health, 2006
16 words / < 1% match - Crossref
Alena Spirkova, Petra Dusatkova, Monika Peckova, Stanislava Kolouskova et al. "Treated Autoimmune Thyroid Disease Is Associated with a Decreased Quality of Life among Young Persons with Type 1 Diabetes", International Journal of Endocrinology, 2015
16 words / < 1% match - Crossref
Carmen Soria, Sandra El Sabbagh, Sylvie Escolano, René Bobet, Christine Bulteau, Georges Dellatolas. "Quality of life in children with epilepsy and cognitive impairment: A review and a pilot study", Developmental Neurorehabilitation, 2009
14 words / < 1% match - Internet from 02-Jun-2016 12:00AM
jpepsy.oxfordjournals.org
14 words / < 1% match - Crossref
Chia-Ying Chen, Fu-Sung Lo, Bai-Hsiun Chen, Ming-Huei Lu, Yu-Mei Hsin, Ruey-Hsia Wang. "Pathways of emotional autonomy, self-care behaviors, and depressive symptoms on health adaptation in adolescents with type 1 diabetes", Nursing Outlook, 2017
12 words / < 1% match - Internet from 17-Apr-2019 12:00AM
estudogeral.sib.uc.pt
12 words / < 1% match - Internet from 17-Feb-2019 12:00AM
www.mdpi.com
12 words / < 1% match - Crossref
Wolf-Dieter Gerber. "MIPAS-Family—evaluation of a new multi-modal behavioral training program for pediatric headaches: clinical effects and the impact on quality of life", The Journal of Headache and Pain, 04/08/2010
11 words / < 1% match - Internet from 08-Apr-2019 12:00AM
onlinelibrary.wiley.com
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www.tandfonline.com
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dare.ubvu.vu.nl
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article.sapub.org
10 words / < 1% match - Crossref
"Textbook of Clinical Pediatrics", Springer Nature, 2012
10 words / < 1% match - Crossref
Lisa M Ingerski. "Correlates of glycemic control and quality of life outcomes in adolescents with type 1 diabetes", Pediatric Diabetes, 02/2010
10 words / < 1% match - Crossref
K. K. Hood. "Updated and Revised Diabetes Family Conflict Scale", Diabetes Care, 04/17/2007
9 words / < 1% match - Internet from 09-Oct-2017 12:00AM
link.springer.com
9 words / < 1% match - Internet from 29-Apr-2019 12:00AM
s829893a869e9c3f5.jimcontent.com
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brage.bibsys.no
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bpsmedicine.biomedcentral.com
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atrium.lib.uoguelph.ca
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jped.elsevier.es
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mhrd.gov.in

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essay.utwente.nl
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brage.bibsys.no
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dro.deakin.edu.au
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www.omicsonline.org
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care.diabetesjournals.org
8 words / < 1% match - Internet from 28-Aug-2016 12:00AM
www.omicsonline.com
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uir.unisa.ac.za
8 words / < 1% match - Internet from 19-Mar-2019 12:00AM
journals.humankinetics.com
8 words / < 1% match - Crossref
Egede, L.E.. "Diabetes and depression: Global perspectives", Diabetes Research and Clinical Practice, 201003
8 words / < 1% match - Crossref
Luis Felipe Higuita-Gutiérrez, Jaiberth Antonio Cardona-Arias. "Predictive Modeling of Quality of Life, Family Dynamics, and School Violence in Adolescent Students from Medellín, Colombia, 2014", School Mental Health, 2016
7 words / < 1% match - Crossref
Ulf Jonsson, Iman Alaie, Anna Löfgren Wilteus, Eric Zander, Peter B. Marschik, David Coghill, Sven Bölte. "Annual Research Review: Quality of life and childhood mental and behavioural disorders - a critical review of the research", Journal of Child Psychology and Psychiatry, 2017
7 words / < 1% match - Crossref
Alex Y. Chen. "Effects of Family Structure on Children's Use of Ambulatory Visits and Prescription Medications", Health Services Research, 10/2006
6 words / < 1% match - Crossref
Martina Estevam Brom Vieira, Cibelle Kayenne Martins Roberto Formiga, Maria Beatriz Martins Linhares. "Quality of Life Reported by Pre-School Children and their Primary Caregivers", Child Indicators Research, 2017
6 words / < 1% match - Crossref
Peter Arrow. "Quality of life and psychosocial outcomes after fixed orthodontic treatment: a 17-year observational cohort study : Quality of life and psychosocial outcomes after fixed orthodontic treatment", Community Dentistry And Oral Epidemiology, 12/2011
6 words / < 1% match - Crossref
Amy E. Noser, Lindsay Huffhines, Mark A. Clements, Susana R. Patton. "Diabetes conflict outstrips the positive impact of self-efficacy on youth adherence and glycemic control in type 1 diabetes", Pediatric Diabetes, 2017

paper text:

The Influence of Family Factors on the Quality of Life of Children With
Diabetes Mellitus Type 1 in West Java, Indonesia: A Cross- Sectional Analytic Study ABSTRACT
Background Diabetes is a chronic
disease that has a negative impact on the quality of life
of children. Family should be a support system to help optimize the

quality of life of children with type 1 diabetes mellitus (T1DM). Purpose The study aims to analyze the influence of
family conflict,
number of children in the family, and
depression in children
on the quality of life of children with T1DM. Method The
study employed a cross-sectional analytic design with a sample of 51 T1DM children with inclusion criteria being aged 4-18 years and currently undergoing outpatient care at the hospital.
The measurement of quality of life used the
KINDLR instrument, which consists of versions for children and parents. Depression was measured using the Children's Depression Inventory and diabetes
-specific family conflict using the Revised Diabetes Family Conflict Scale.
Multivariate analysis with multiple linear regression was performed to obtain a prediction model for the quality of life of children with T1DM. Results The mean total scores of
the
quality of life for the children's and parents'
versionswere76.39 ± 13.27 and 78.64 ± 9.38,respectively. The mean score of diabetes-specific family conflictwas31.03 ± 9.28 with a min-max score of 19-50.
Quality of life of children was not different
between male and female (p = >.05). As many as 40% of the children experienced depression with ameanscore of 8.28 ± 5.02.
The quality of life of children for the
parent- rated version
had a positive correlation with the quality of life
of children with r = .463 at p= .002. Depression was
negatively correlated with the quality of life of children with
r = -.287 at p =.025. Multivariate analysis shows interactionsbetween family conflict
and number of children in the family (p
= .017) and depression (p = .050), both as the main factors affecting the
quality of life of children. Conclusions /Implications for practice
Family conflict and
the number of children in the family and depression in
children were predictors of
quality of life in children with T1DM. The results of the study
have implications for the importance of nursing interventions in improving the ability of
families of children with T1DM in handling diabetes-specific family conflict and efforts to prevent depression in children so that children can have better
quality of life. Keywords: T1DM, quality of life, depression, family
conflict INTRODUCTION It is
estimated that the number of children with diabetes mellitus (DM) in
the world will experience an increase (Karvonen et al., 2000). In Indonesia, there is no data on the exact number of children with DM.
National survey data suggests that in 2007 the prevalence of diabetes was 5.7%, of which more than 70% of cases were undiagnosed. This estimate hides large intracountry variation
((P., A., & D.L., 2013). DM is a
metabolic disorder characterized by an increase in blood glucose levels caused by insulin
dysfunction of pancreatic beta cells (Curtis&Hagerty, 2002). DM
has a negative impact on children's physical, psychological, social, and
spiritual conditions ((Guthrie, Bartsocas, Jarosz-Chabot, & Konstantinova, 2007 ; Bas &Bideci, 2011) and decreases the productivity
and quality of life in children
(Kalyva, Malakonaki, Eiser, &Mamoulakis, 2011).
Quality of life is an important indicator of patients with chronic
diseases, including diabetes(Katon, et.al, 2008; Murillo et al., 2017).
Health- related quality of life is a multi-dimensional construct that
is built from a

patient's perception of the impact of a disease and its care on aspects of life, including physical, psychological, and social(
Lin et al., 2017).
Children and adolescents with T1DM have a lower quality of life compared to children and adolescents who are healthy,
and depressions are more common in type-1diabetes (Gendelman et al., 2009). Diabetes in children does not only
have a negative impact on children
but also on their parents (Kalyva et al., 2011; Hirose, Beverly, &Weinger, 2012). Psychological disorders experienced by children will also be experienced by families and vice versa, so that psychological treatment is needed for both children and their parents (Cameron, Northam, Ambler, &Daneman, 2007; Sieh, Visser-Meily, & Meijer, 2013). The success of managing child diabetes is highly dependent upon the ability and skills of the family to provide holistic care for children(Klingensmith, Kaufman, Schatz, & Clarke, 2005; ADA, 2017)because family is a placefor children to grow and develop (Dai & Wang, 2015). Health care providers 1 must realize that the management of children with diabetes is different from that of adults so that family presence is important (Silversmith et al., 2005). Depression in diabetic children is a psychological disorder that often occurs and significantly increases the cost of care compared to diabetic children only (Simon, et.al, 2005). Based on the above descriptions, there are two main objectives of this study, namelyto analyze the influence of family conflict, number of children, and depression in children on
the quality of life of children with T1DM and to
find a prediction model for
quality of life of children. The research hypothesis to be
proven is that the higher the conflict and
the number of children in the family, the lower the quality of life of children with T1DM; the higher the child'
s depression score, the lower
the quality of life of children with T1DM. The results of
this study will be useful for nursing in reorienting the focus of
care for children with T1DM and their families,
especially in handling family conflict and depression in children. METHODS Study Design The study was conducted with across-sectional analytic design. The sample included a total of 51 children with T1DM who had been outpatients in 2 referral hospitals for the last 2 years, from 2016 to April 2018.The dependent variable is the quality of life of the child version, conflict variables in the family and depression as potential predictors and the number of children in the family as confounding variables. Participants Children with T1DMwith the inclusion criteria ofbeing aged 4-18 years and suffering from diabetes for ≥6 months participated in the research along with their parents. The T1DM children participating in this research were outpatients at 2 referral hospitals in West Java. The children were selected based on hospital medical records. The research variables consisted of
quality of life of children (children's version and parents'
version), diabetes- 2 specific family conflict,
number of children in the family, and
depression. Children's demographic variables comprised of age, duration of illness, gender, education, age at diagnosis, education level, and
number of children in the family. Parents'
demographic variables includedage, level of education, and occupation. Most of the parents in this study (95%) were mothers who cared for and accompanied their children every day. The child and parent demographic data collection formsweredeveloped by the researchers as needed. Instruments
Quality of Life Quality of life (QoL) of children
was measured using the Questionnaire for Measuring Health-Related Quality of Life in Children and Adolescents-Revised Version
(KINDLR).
The KINDLR is a generic instrument for assessing Health-Related Quality of Life in children and adolescents aged 3 years and older,
which has been revised and reconstructed
(Bullinger, Brütt, Erhart, & Ravens-Sieberer, 2008; Bullinger
et al., 2008). The questionnaire consists of 24 Likert-scale items related to sixdimensions, namely

physical health, emotional health, self- esteem, family, friends, and school. There are three different versions of the questionnaire for different age groups, namely for children aged 4-6 years and 7-13 years and adolescents aged 14-18 years. The parent-rated questionnaire consists ofone version for parents with children aged 4-6 years and another for parents with children aged 7-18 years, eachcomprising of 24 items in six dimensions. For children aged <6 years, the questionnaire consists of 12 items with six dimensions. The use of the KINDLR instrument referenced the instrument user manual (Ravens-Sieberer&Bullinger, 2000). Family Conflict This variable was measured using the Revised Diabetes Family Conflict Scale to measure diabetes-specific family conflict based on children's reports. The questionnaire consists of 19 statements. This instrument is intended for children with T1DM who are >6 years old; hence, 3 only47 respondents meeting this age criterion filled in the questionnaire, while 4 respondents were excluded because theywere≤6 years old. The instrument is a powerful psychometric tool used to measure diabetes-specific family conflict in families with children and adolescents with T1DM (Hood et al., 2006). Depression in Children Measurement of depression in children employed the instrument of Children's Depression Inventory (CDI) (Kovacs, 2003) because the CDI is the most established self-report measure of depressive symptoms for children (Hood et al., 2006). The questionnaire consists of 27 statements. Because the CDI is only intended for participants aged>6 years, the questionnaire was only distributed to 47 children. Respondents' Characteristics Child demographic variables comprised of age, duration of illness, gender, education, age at diagnosis, and level of education. Parents' demographic variables includedage, level of education, occupation,and number of children in the family. Most of the parents in this study (95%) were mothers, who cared for and accompanied their children every day. The child and parent demographic data collection formsweredeveloped by the researchers as needed. Data Collection and Statistical Analysis All information was obtained directly from primary sources (children and parents) using the previously prepared instruments and user manuals. Because of age, information bias is possible where respondents do not understand the information in the questionnaire. However, researchers have appointed trained enumerators as data collector.Prior to data collection, the researchers explainedabout the study to the respondents and obtained their consent. The study was conducted by considering the recommendations of the research ethics committee. Data analysis began with univariate analysis, where numerical data were presented in the forms of mean values, standard deviations, and minimum and maximum values. To proceed 4 to bivariate analysis, a normality test using the Shapiro-Wilk test was first performed on the numerical data, such as quality of life, depression, number of children, and family conflict. The results of the normality test show that the variables of quality of life, number of children, and family conflict were normally distributed (p> .05), while the variable of depression was not normally distributed (p <.05). A Pearson correlation test at a confidence level of 95% was subsequently carried out to see the relationshipsamong the quality of life ofchildren and family conflict, number of children, and depression. Variables with correlation significance value of ≤ .250 were then included in the modeling using multiple regression analysis. The analysis was intended to build a prediction model for quality of life in children by measuring the influence of family conflict, number of children, and depression. This analysis was also intended to control the possibility of confounding variables and identify possible interaction variables.All respondents can participate fully so that all the expected data can proceed to the analysis stage. Ethical Considerations Throughout the whole research process, research ethics were adhered to by the researchers. The research was previouslygrantedan ethical approval from the National Research Ethics Committee No. 31/KEPK/TE/01/VII/17 and permission from the hospitals where the research was conducted No. LB.02.01/X.2.2.2/12538/2018. All participants, both children and parents, gave written consent before the

study was conducted. RESULTS Demographic Characteristics of Research Participants All ofthe 51 T1DM children
and their parents were able to fully participate in the study according to the agreed conditions. The proportion of children aged 4-13 years reached 64%, where 8.9% were children aged 4-6 years, and teenagers aged 14-18 years made up 35% of the whole participants. Most children (62.2%) were female, with a duration of illness>1 year 127 as the largest proportion (75.6%), and 17.8% of them had had diabetes for >5 years. The level 128 of education of parentswasmostly (71.1%) middle to lower education. The characteristics of 129 T1DM children and their parents
are presented in Table 1. 130 131 Table 1.Characteristics of
T1DMChildren and Their Parents No Characteristics Quality of Life (Children's Version) x ± SD SD Min Max 1 Participants' age 1. 4--6 years 76.39 22.94 54.17 100.00 2. 7– 13 years 76.04 11.59 46.88 92.71 3. 14-18 years 73.69 13.25 48.96 95.83 2 Duration of illness (Diabetes) 1. < 1 years 76.66 15.69 48.96 95.83 2. 1-5 years 74.39 12.54 46.88 100.00 3. >5 years 75.65 10.84 64.58 92.71 4 Age at Diagnosis of Diabetes 1. ≤ 6years 78.56 13.47 54.17 100.00 2. 7-13 years 73.19 10.94 46.88 88.54 3. 14-18 years 77.86 21.87 48.96 95.83 5 Gender 1. Male 74.02 10.59 48.96 90.63 2. Female 75.95 14.24 46.88 100.00 132 133 134 135 136 6 DM History in Family 1. Yes 76.36 2. None 72.51 13.47 48.96 11.12 46.88 100.00 92.71 7 Parents'
Education Level 1. Primary Education 2. Secondary Education 3. Higher Education
73.76 15.53 76.76 8.45 75.32 13.41 48.96 64.58 46.88 95.83 90.63 100 9 Parents' Occupation 1. Civil Servant/Army/Indonesi 76.95 an Police/Retired 2. Private Employee 74.13 46.88 16.52 11.09 48.96 100.00 93.75 3. Entrepreneur 76.25 14.52 52.08 95.83
Quality of Life of Children Parents' rating of the quality of life of
children was generally higher than children's
rating of their own quality of life,
differing by 2.25 points, but not significantly different (p = .20). 138 139 140 141 142 Both children and parents rated the highest scores to friend dimension and lowest on school dimension. More details
on the quality of life (QoL) of children rated by children and parents are shown in
Table 2. Table 2. QoL of Children, Family Conflict, and Depression Dimensions
of Quality of Life Mean±SD Min-Max
Shapiro-Wilk Normality Test Children's Version (n=51) 76.39±13.27 37.50-97.92 .135 Physical Dimension 74.54±14.07 50.00-100.00 Emotional Dimension 76.37±13.17 37.50-100.00 Self-Esteem Dimension 75.15±19.34 6.25-100.00 Family Dimension 76.37±17.54 31.25-100.00 Friend Dimension 85.67±14.61 43.75-100.00 School Dimension 72.87±17.88 25.00-100.00 Parents'Version (n=51) 78.64±9.38 55.21-95.83 .101 Physical Dimension 70.83±15.31 31.25-100.00 Emotional Dimension 81.67±16.50 31.25-100.00 Self-Esteem Dimension 79.17±17.42 43.75-100.00 Family Dimension 81.81±12.42 43.75-100.00 Friend Dimension 90.14±12.53 62.50-100.00 School Dimension 68.19±10.22 43.75-93.75 Depression (n=47) 8.28±5.02 2.00-27.00 .137 Family Conflict (47) 31.03±9.28 19-50 .020 143 144 Correlation among Family Conflict,
Number of Children in Family, and Depression and 145 Quality of Life (QoL) in
Children 146 147 Prior to correlation analysis, a Shapiro-Wilk normality test was carried out, and
it was found 148 that data on quality of life and depression
were normally distributed (see Table 2). Using 149 Pearson correlation analysis, a moderate to strong positive relationship (.463) was found 150 between parents' version of QoL of children and QoL of children. Depression in children had 151 a weak to strong negative relationship with the QoL of children (-.287). Family conflict had a 152 p = .076 and number of children p = .166, so both were included in the multivariate-analysis 153 modelling. The results in detail are shown in table 3. 154 155 156 158 Table 3. Correlationamong QoL of Children and Family Conflict, Number of Children, and Depression Variable Pearson p Correlation Note Correlation QoL of Children 1.00 * Significant at a confidence level of QoL of .463 -.002* (+) moderate to Children(Parents' strong 95% ,both sides Version) Depression in - .287 .025* (-) weak Children Family Conflict - .287 -076** ** Number of Children - .218 .166** Included in further in Family analysis/modelling 172 173 174 175 176 The Influence of Family Conflict,
Number of Children in Family, and Depression on Qualify of Life of
Children Both variables of family conflict and number of children had a p = .250; hence, they were included in the multivariate analysis with multiple linear regression for modeling. The results of modeling show there was an interaction between the variables of family conflict
and number of children in the family, where the R-
square change = >10%, so model 4 was found to be effective at predicting

quality of life in children with T1DM. To find out whether the
model conforms to the assumptions of multiple linear regression, the following tests were performed. 1. Existential assumptionwas met
with a residual mean of 0.000 and a standard deviation of
9.648. 2. Independence Assumption was met with a Durbin-Watson value of 1.863 (<2) 3. Linearity assumption was metwith an ANOVA score of 0.001 4. Homoscedasticity assumption was met with the spread of dots showing a similar pattern. As the plot, the dots are spread out in a similar pattern and below the diagonal line 0. Hence, the homoscedasticity assumption was met. 5. Normality test. The point distribution of the normal P-P plot image is relatively close to the straight line indicating the fulfillment of the normality distribution 6. Multicollinearity Test. Multicollinearity did not occuras can be seen from the tolerance statistics score of less than 0.4and a VIP of less than 10. The Final Model With all of the multivariate analysis assumptions being met, the final model
to predict the quality of life of
children is as shown in Table 4. Table
4. Model Summary Unst Coeff B t p Collinearity Statistics R- Durbin Tolerance VIF Square Watson Anova Constant 61.837 6.017 .000 QoL of children (Parents' version) .350 2.799 .008 .991 1.009 Depression in children -.670 -2.034 .050 .972 1.029 0.373 1.863 0,001 Interaction (family conflict*number of -.081 -2.502 .017 .979 1.021 children) 185 186With the following linear equation model Quality of life of children: 61.837+0.350 Quality of life of children (parents' version)-0.081 interaction (Number of children*family conflict)-0.67 depression in children The final multivariate modeling displayed in Table 4shows that quality of life (parents' version), family conflict, and number of children and depression in children are predictors of the
quality of life of children with T1DM and the
overall variables can explain
the quality of life of children with T1DM by
37.3%. The positive (+) effect of
quality of life of children (parents' version) on the quality of life of
children is obtained after the influence of depression and family conflict and number of children is controlled. Each increase
in the score of quality of life of children
(parents' version) by 1 unit will increase the score of
quality of life of children by 0.350, with a value of
p = .000. On the other hand, the negative influence (-) of child depression on
the quality of life of children is obtained after the variablesofquality of life of
children (parents' version) and family conflict and number of children are controlled. Each increase by 1 unit in the score of depression in children will reduce the score of
quality of life of children by 0.67 with a value of
p = .50. The interaction between family conflict and number of children
has a negative influence (-) on the quality of life of children after the
variablesofquality of life of children (parents' version) and depression in children are controlled. Each increase in the scores of family conflict and
number of children in the family will reduce the score of quality of
life of children by 0.081 with a value of p = .017. The variables that greatly influence the score of
quality of life of children are family conflict and number of children in the
family and depression in children. DISCUSSION
This study provides important evidence for the urgency of health
care providers
to pay attention to the condition of families with children with diabetes.
The study demonstrates that illness-specific family conflictwasnegatively correlated with
the quality of life of children. It was also negatively correlated with the number of
children in the family. Moreover, both of the factors(interaction variables) were strong predictors of
the quality of life of children with T1DM. Depression in
children also serves as a predictor. The finding indicating
that diabetes-specific family conflict was negatively correlated to the quality of
life of diabetic children is
in accordance with that of previous studies (Cameron et al., 2007; Laffel et al,

2003). Diabetes-specific family conflict is a negative condition caused by the less than optimal family resilience in caring for children andfamily's lack of knowledge and skills, especially parents, in caring for children (Klingensmith, Kaufman, 10 Schatz, & Clarke, 2005). Family conflict causes depression in diabetic children (Hood et al., 2006). Family conflict can arise due to financial constraints (Pediatrics & American Academy of Pediatrics, 2003).Diabetic children who experience depression increase the cost of health financing because of the increased frequency of doctor visits and use of drugs (Holt, De Groot, & Golden, 2014);as a result, depression in children with diabetes becomesa complicating variable on the quality of life of children. In line with the results of previous studies, the number of children in the family also had a negative correlation with the quality of life of children (Özyazıcıoğlu, Avdal, &Sağlam, 2017). The number of children in the family triggers and aggravates conflicts in the family because each family member needs time and attention from parents and other family members; hence, more members in the family means more time and attention needed (Dai & Wang, 2015); meanwhile, diabetic children need more attention. Providing holistic care for children with diabetes is one of the family's tasks (Geisler et al., 2012; Dai & Wang, 2015; Pereira, Berg-Cross, Almeida, & Machado, 2008).Poor glycemic control and ability of children in self-care are associated with a decrease in the quality of family functions. Family processes also play a major role in the development of depression in adolescents with diabetes (Moore, Hackworth, Hamilton, Northam, & Cameron, 2013). The negative correlation of depression in children with T1DM with the quality of life of children found in the present study is also in accordance with the result of previous studies (Egede & Ellis, 2010). Depression is a condition that describes a decrease in the interest and ability to carry out daily activities, fatigue, and difficulty in concentrating(Avianti, Z., & Rumahorbo, 2016). Therefore, when depression occurs in a child with diabetes, it will worsen the condition of the disease because the child will have difficulty to take such therapy as insulin injection, physical exercise, diet, and monitoring of blood glucose levels (Chen et al., 2017; Moore et al., 2013). Meanwhile, a study shows that the quality of life of children with T2DM 11 is better in children who do physical exercise ≥30 minutes and who routinely monitor blood glucose every day (Anderson et al., 2017). Depressed teenagers also exhibit poor performance in their communication and overall roles (Chen et al., 2017);however, psychological therapy yields better results in children and adolescents with diabetes than in adults(Winkley, Landau, Eisler, & Ismail, 2006). Children with T1DM who experience severe depression are at risk of being hospitalized due to complications of the disease (Hood et al., 2006). Depression correlates with poor self-care ability related to poor family function, blood glucose control, and recurrence of complications of ketoacidosis (8, 10) and is a serious comorbid that worsens quality of life, high cost of living, complications, and decreased productivity;thus, depression must be prevented and minimized.

Based on the results of this study, we can recommend effective forms of intervention that can improve the quality of life of diabetic children. As suggested by Curtis and Hagerty(2002), continuous educational interventions are effective in managing children with diabetes and psychoeducational interventions can increase parental involvement in glycemic control and family conflict management (Katz Michelle L; Volkening Lisa K, 2014). Educational interventionsfor parents are also recommended in the treatment of T1DM children in Indonesia(Tridjaya AAP et al., 2015) The implications of this study highlight the needs of families with diabetic children for effective interventions in managing diabetes-specific family conflict as well as building family capacity to prevent and control depression that occurs in children with diabetes. In addition, more accessible information and optimal support for children are needed to optimize quality of life of children with diabetes. Limitations The

design employed was
a cross-sectional study, with a limited number of
samples (51 T1DM children and their parents). Because of the limited information available about 12 T1DMchildren and the limited number of subjects seeking treatment, the study only tested three independent variables, namely diabetes-specific family conflict,
number of children in the family, and
depression in children. Conclusions The results of multivariate analysis show that family factors, especially the interaction
between diabetes-specific family conflict and
the number of children in the family, were the main predictors of quality of
life of children with T1DM. Depression was negatively correlated to and adversely affected
quality of life of children. The quality of life of children in the
children's and parents' versionswaspositively correlated.Nurses can develop psychoeducation interventions in helping children and parents An effective model to predict
quality of life of children with
T1DMisas follow: 61.837 + 0.350
quality of life of children (parents'
version) - 0.081 interaction (number of children*family conflict) - 0.67 depression in children. Family conflict and depression in children can be overcome by psychoeducational interventions for children and parents as an effort to optimize the quality of life of children. Acknowledgment This study was financially supported
by the Health Ministry' s Human Resource Development Center of the Republic of
Indonesia in 2018.
Conflicts of interest The authors declare that they have no competing interests.
References American Diabetes Association. Children and adolescents. Sec. 12. In Standards of Medical Care in Diabetesd2017. Diabetes Care 2017;40(Suppl. 1):S105–S113 Anderson, B. J., Laffel, L. M., Domenger, C., Danne, T., Phillip, M., Mazza, C., … & Mathieu, C. (2017). Factors associated with diabetes-specific health-related quality of life in youth with type 1 diabetes: The global teens study. Diabetes Care, 40(8), 1002– 1009. https://doi.org/10.2337/dc16-1990 Avianti, N., Z., D., & Rumahorbo, H. (2016). Progressive Muscle Relaxation Effectiveness of the Blood Sugar Patients with Type 2 Diabetes. Open Journal of Nursing, 06(03), 248– 254. https://doi.org/10.4236/ojn.2016.63025 Bas, V. N., &Bideci, A. (2011).Evaluation of factors affecting quality of life in children with type 1 diabetes mellitus.Journal of Diabetes & Metabolism, 02(08), 1–5. https://doi.org/10.4172/2155-6156.1000154 Bullinger, M., Brütt, A. L., Erhart, M., & Ravens-Sieberer, U. (2008). Psychometric properties of the KINDL-R questionnaire: Results of the BELLA study. European Child and Adolescent Psychiatry, 17(SUPPL. 1), 125–132. https://doi.org/10.1007/s00787- 008-1014-z Cameron, F. J., Northam, E. A., Ambler, G. R., &Daneman, D. (2007).Routine psychological screening in youth with type 1 diabetes and their parents.Diabetes Care, 30(10), 2716– 2724. https://doi.org/10.2337/dc07-0603.Abbreviations Chen, Q., Du, W., Gao, Y., Ma, C., Ban, C., &Meng, F. (2017). Analysis of family functioning and parent-child relationship between adolescents with depression and their parents.Shanghai Archives of Psychiatry. https://doi.org/10.11919/j.issn.1002- 0829.217067 Curtis, J. A., &Hagerty, R. N. (2002).Managing diabetes in childhood and adolescence.Can Fam Physician, 48, 499-509. Dai, L., & Wang, L. (2015).Review of Family Functioning.Open Journal of Social Sciences, 03(12), 134–141. https://doi.org/10.4236/jss.2015.312014 Egede, L. E., & Ellis, C. (2010). Diabetes and depression: Global perspectives. Diabetes Research and Clinical Practice. https://doi.org/10.1016/j.diabres.2010.01.024 Geisler, A., Lass, N., Reinsch, N., Uysal, Y., Singer, V., Ravens-Sieberer, U., &Reinehr, T. (2012). Quality of life in children and adolescents with growth hormone deficiency: Association with growth hormone treatment. Hormone Research in Paediatrics, 78(2), 94–99. https://doi.org/10.1159/000341151 Gendelman, N., Bishop, F., Paul Wadwa, R., McFann, K., Kinney, G., Maahs, D. M., …Rewers, M. (2009). Prevalence and correlates of depression in individuals with and without type 1 diabetes.Diabetes Care, 32(4), 575–579. https://doi.org/10.2337/dc08- 1835 Guthrie, D. W., Bartsocas, C., Jarosz-Chabot, P., & Konstantinova, M. (2007). Psychosocial Issues for Children and Adolescents With Diabetes: Overview and Recommendations. Diabetes Spectrum, 16(1), 7–12. https://doi.org/10.2337/diaspect.16.1.7 Holt, R. I. G., De Groot, M., & Golden, S. H. (2014).Diabetes and depression.Current Diabetes Reports. https://doi.org/10.1007/s11892-014-0491-3 Hood, K. K., Huestis, S., Maher, A., Butler, D., Volkening, L., &Laffel, L. M. B. (2006). Depressive symptoms in children and adolescents with type 1 diabetes: Association with diabetes-specific characteristics. Diabetes Care, 29(6), 1389–1391.

https://doi.org/10.2337/dc06-0087 Kalyva, E., Malakonaki, E., Eiser, C., &Mamoulakis, D. (2011). Health-related quality of life (HRQoL) of children with type 1 diabetes mellitus (T1DM): Self and parental perceptions. Pediatric Diabetes. https://doi.org/10.1111/j.1399-5448.2010.00653.x Karvonen, M., Viik-Kajander, M., Libman, I., LaPorte, R., Tuomilehto, J., Moltchanova, E., …Tuomilehto, J. (2000). Incidence of childhood type 1 diabetes.Diabetes Care, 23(10), 1516–1526. https://doi.org/10.2337/diacare.23.10.1516 Katz, M. L., Volkening, L. K., Butler, D. A., Anderson, B. J., &Laffel, L. M. (2014). Family- based psychoeducation and care ambassador intervention to improve glycemic control in youth with type 1 diabetes: a randomized trial. Pediatr Diabetes, 15, 142–150. doi: 10.1111/pedi.12065. Klingensmith, G., Kaufman, F., Schatz, D., & Clarke, W. (2005). Diabetes care in the school and day care setting. Diabetes Care. https://doi.org/10.2337/diacare.28.suppl_1.S43 Lin, C. Y., Lee, T. Y., Sun, Z. J., Yang, Y. C., Wu, J. S., & Ou, H. T. (2017). Development of diabetes-specific quality of life module to be in conjunction with the World Health Organization quality of life scale brief version (WHOQOL-BREF). Health and Quality of Life Outcomes, 15(1), 1–10. https://doi.org/10.1186/s12955-017-0744-3 Ludman, E., &Ciechanowski, P. S. (2008).Outcomes in patients with depression and diabetes.Long-Term Effects on Medical Costs of Improving Depression Outcomes in Patients with Depression and Diabetes, 31(6), 2–11. https://doi.org/10.2337/dc08- 0032.Long-Term Moore, S. M., Hackworth, N. J., Hamilton, V. E., Northam, E. P., & Cameron, F. J. (2013). Adolescents with Type 1 Diabetes: Parental perceptions of child health and family functioning and their relationship to adolescent metabolic control. Health and Quality of Life Outcomes. https://doi.org/10.1186/1477-7525-11-50 Özyazıcıoğlu, N., Avdal, E. Ü., &Sağlam, H. (2017).A determination of the quality of life of children and adolescents with type 1 diabetes and their parents.International Journal of Nursing Sciences, 4(2), 94–98. https://doi.org/10.1016/j.ijnss.2017.01.008 P., S., A., F., & D.L., T. (2013). Challenges in diabetes management in Indonesia: A literature review. Globalization and Health, 9(1), 1–17. https://doi.org/10.1186/1744-8603-9-63 Ravens-Sieberer, U., &Bullinger, M. (2000).KINDLR questionnaire for measuring health- related quality of life in children and adolescents. Schor, E. L., &American Academy of Pediatrics Task Force on the Family. (2003). Family pediatrics: Report of the task force on the family. Pediatrics, 111(6), 2541–1571. https://doi.org/10.1542/peds.111.6.S1.1541 Tridjaya AAP, B., Yati, N. P., Faizi, M., Marzuki, A. N. S., Moelyo, A. G., & Soesanti, F. (2015). Konsesus Nasional Pengelolaan Diabetes Melitus tipe 1. Original work published in Indonesia Wayne J. Katon, MD1, Joan E. Russo, MD1, Michael Von Korff, SCD2, Elizabeth H.B. Lin, MD, MPH2, Evette Ludman, PHD2, and Paul S. Ciechanowski, MD, M. (2008). long- term effects on medical costs of improving depression outcomes in patients with depression and diabetes. Long-Term Effects on Medical Costs of Improving Depression Diabetes Care, 31(6), 2–11. https://doi.org/10.2337/dc08-0032.Long-Term Winkley, K., Landau, S., Eisler, I., & Ismail, K. (2006). Psychological interventions to improve glycaemic control in patients with type 1 diabetes: Systematic review and meta- analysis of randomised controlled trials. British Medical Journal, 333(7558), 65–68. https://doi.org/10.1136/bmj.38874.652569.55 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 159 160 161 162 163 164 165 166 167 168 169 170 171 177 178 179 180 181 182 183 184 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 126 137 157 1 5 6 7 8 9 13 14 15 16