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AN INVESTIGATION OF THE STRESS AND HAPPINESS LEVELS OF PARENTS BASED ON THE PARTICIPATION STATUS OF CHILDREN WITH DOWN SYNDROME IN SPORTS ACTIVITIES*

Sibel GÖKÇE ADAK

Graduate Student., Amasya University, Amasya, Turkey, sibel.gokce44@hotmail.com
ORCID: 0009-0001-9422-1124

İlknur YAZICILAR ÖZÇELİK

Assist. Prof. Dr., Amasya University, Amasya, Turkey, ilknur.yazicilar@amasya.edu.tr
ORCID: 0000-0002-3259-7820

Nilgün VURGUN

Assoc. Prof. Dr., Manisa Celal Bayar University, Manisa, Turkey, nilvurgun@hotmail.com
ORCID: 0000-0001-7856-3303

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ABSTRACT

The aim of this study is to examine the stress levels and happiness levels of the parents of individuals with Down syndrome according to their participation in sports activities. For this purpose, parents' stress and happiness levels were examined in terms of their children's participation in sports activity, sports license status and weekly exercise frequency, parents' physical activity status. A total of 105 parents, 59 mothers and 46 fathers, who had children diagnosed with Down syndrome, participated in the study voluntarily. The data in the study were personal information form, Parental Stress Index Short Form adapted to Turkish by Mert et al. (2008), and Oxford Happiness Questionnaire-Short Form developed by Hills and Argyle (2002) and adapted into Turkish by Doğan and Çötök (2011). was collected using in the analysis of the data, descriptive statistics, independent groups t-test, one-way analysis of variance (ANOVA) and LSD Post Hoc. tests have been used. Cronbach Alpha internal consistency coefficients were calculated to determine the reliability of the scales. According to the results of the analysis, there is a statistically significant difference between down syndrome individuals' participation in sports activity, sports license status and weekly exercise frequency variables and their parents' parental stress index in all sub-dimensions and their happiness levels ($p < 0.01$). While there is a statistically significant difference between all sub-dimensions and happiness levels of the parental stress index, and physical activity status of the parents ($p < 0.01$). The results showed that the stress levels of the parents of the children who participated in sports activities were lower than those who did not, and their happiness levels were higher; It shows that parents of children who do sports with a license have a lower level of stress and a higher level of happiness than those who do sports without a license. In addition, it can be said that parents who do physical activity have a lower level of stress and a higher level of happiness than parents who do not do physical activity. Finally, it was concluded that the stress levels of the parents of the children with a weekly exercise frequency of less than 3 days were high and the happiness levels were low. The results show that the participation of individuals with Down syndrome in physical activities and exercising regularly three days reduce their parents' stress levels and their happiness levels.

Keywords: Down syndrome, sports activity, stress, happiness

*This study is based on the master's thesis of the first author under the supervision of the second author and presented as an abstract at the 11th International Congress of Scientific Studies (UBCAK).

INTRODUCTION

The concept of disability refers to individuals who, due to any genetic or acquired physical or mental incapacity, are unable to complete tasks that a typical person would perform in their personal or social life (Vurgun, 2015). Generally, disability is a condition characterized by specific limitations in participating in activities, integrating with society, adapting to social life, and meeting daily needs due to the congenital or acquired loss of physical, sensory, intellectual, and social abilities (Öztabak, 2017). Down syndrome, on the other hand, is a set of physical, intellectual, and characteristic abnormalities resulting from an extra chromosome in the 21st chromosome pair (Sansi & Özer, 2019). Individuals with Down syndrome acquire fundamental skills like sitting, speaking, and walking later than their peers. This also restricts their engagement in all other activities. Children with Down syndrome acquire skills more slowly compared to their peers and take time to adapt to life (Gerçeksever, 2011).

The impairments and difficulties arising from personal physical impairments differentiate disabled individuals from other members of society. Due to both physical and psychosocial barriers, it's essential to create suitable environments that enable disabled individuals to move independently within their surroundings and communicate effectively with other people (Vurgun, 2015). In societal life, besides generating social, cultural, and economic support for disabled individuals to build their own futures, social support services aimed at assisting disabled individuals who cannot meet their individual needs without aid hold great importance (MEGEP, 2011).

The presence of children holds a significant place in all societies. From the moment people learn they will have children; they desire to have healthy offspring. However, the birth of a child with a disability induces stress even on the most stable parents (Hassal et al., 2005). The primary concerns among families with disabled members include questions about the type of education their child will receive, how their adolescence will unfold, and how their child's life will continue after the parents pass away. Additionally, the inadequacy and limited accessibility of educational institutions for disabled children, coupled with the inability to receive necessary support from family members, contribute to the stress experienced by parents. Consequently, families with disabled members tend to feel isolated, with increased levels of anxiety and stress, and decreased levels of happiness (Ari et al., 2012).

Just like individuals with normal development, disabled individuals also need exercise. This is because sports play a crucial role in helping disabled individuals integrate into society (Açak & Kaya, 2015). The development of physical and motor skills not only allows disabled individuals to be more independent in their daily lives but also assists in the development of their social skills. Participation in sports activities can help improve skills such as communication with others, teamwork, and competition. As a result, increased social interactions and engagement in daily life can be achieved. The literature contains studies that report the positive impact of exercise participation on the development of physical and motor skills for individuals with various types and levels of disabilities (Aslan, 2015). There are also studies indicating that disabled individuals who engage in

sports feel happier and more comfortable in their daily lives, experience improvements in sleep problems, and see enhanced development in family relationships (Mor, 2009).

In recent years, the approach to services provided has shifted from exclusively focusing on services for disabled individuals to including parents as well. Prioritizing the identification of problems, concerns, needs, and requirements of family members, especially parents, has gained significance (Görgü, 2005). Taking these insights into account, studying the factors that influence the stress and happiness levels of parents of disabled individuals is believed to contribute to the field.

When examining research related to sports, exercise, and physical activity concerning individuals with Down syndrome and their parents, it is observed that some studies focus on children with Down syndrome (Amini et al., 2016; Baynard et al., 2008; Chera-Ferrario, 2012; De Winter et al., 2009; İlkim, et al., 2018; İlkim et al., 2021; Keskin et al., 2017; Regaieg, et al., 2020; Şenlik, 2017); while others involve their parents (Akçakın & Erden, 2001; Doğru & Arslan, 2008; İlkim et al., 2017; Kaytez et al., 2015; Özdemir et al., 2020; Seltzer et al., 1993; Sola & Diken, 2008). In many studies involving parents, factors such as age, education, and income are considered, but there seems to be insufficient research regarding the stress and happiness levels of parents related to their children's participation in sports and exercise.

In this context, the aim of this research is to examine the stress and happiness levels of parents of individuals with Down syndrome based on their participation in sports activities. The study will investigate whether there are differences in stress and happiness levels among families in terms of their children's participation in sports activities, possession of sports licenses, weekly exercise frequency, and parents' engagement in physical activity. The results of this study are anticipated to contribute to understanding the factors influencing the stress and happiness levels of parents of individuals with Down syndrome and encourage parents to guide their children towards sports activities, potentially enhancing both their children's and their own quality of life.

METHOD

Research Method

In this study, a descriptive survey method was employed. The descriptive survey model, which is a quantitative research method, aims to define a past or current event as it exists (İslamoğlu & Alnıaçık, 2016).

Population and Sample

The study population consists of parents of children diagnosed with Down syndrome who receive education from special education and rehabilitation centers in the Şehitkamil district of Gaziantep province. The sample includes a total of 105 parents who voluntarily participated in the research, including 59 mothers and 46 fathers. The research results are limited to the participating parents. The sample of the research was determined using the convenience sampling technique. Convenience sampling, which is a non-probability sampling technique, is used to select easily accessible cases from the population due to its cost and time

efficiency (Dawson & Trapp, 2001). The suitability of the sample was assessed using the KMO-Barnett analysis, and descriptive characteristics of the participating parents and their children are presented in Table 2. In this study, a descriptive survey method was employed.

Table 1. Kaiser-Meyer-Olkin (KMO) Test Analyses

Scales	Kaiser-Meyer-Olkin Sampling Adequacy (KMO)	Bartlett Testi		
		Ki-Kare	Sd	p
Parental Stress Index-Short Form	0.740	2237.494	630	0.001*
Parental Distress	0.811	529.952	66	0.001*
Parent-Child Dysfunctional Interaction	0.646	321.864	66	0.001*
Difficult Child	0.742	434.249	66	0.001*
Oxford Happiness Questionnaire-Short Form	0.860	201.309	21	0.001*

*p<0.01

In Table 1, it has been determined that the values of the scales used, according to the results of the Kaiser-Meyer-Olkin (KMO) test conducted for sample adequacy, are higher than 0.50, and the adequacy of the sample is assumed. A high Kaiser-Meyer-Olkin value implies that each variable in the scale can be perfectly predicted by the other variables. A KMO coefficient higher than 0.50 along with a significant result in the Bartlett's test indicates the suitability of the data for factor analysis (Çokluk et al., 2012).

Table 2. Descriptive Statistics of Participants

Variables	Category	f	%
Parent	Mother	59	56.2
	Father	46	43.8
	Total	105	100.0
Parent Age	Below 40 years	40	38.1
	41-45 years	40	38.1
	Above 46 years	25	23.8
	Total	105	100.0
Participation in Sports Activities (Child)	Participating	91	86.7
	Not Participating	14	13.3
	Total	105	100.0
Sports License Status (Child)	Licensed	21	23.1
	Unlicensed	70	76.9
	Total	91	100.0
Exercise Frequency (Child)	1 day/week	30	33.0
	2 days/week	27	29.7
	3 days/week	13	14.3
	4 days/week or more	21	23.1
	Total	91	100.0
Participation in Physical Activity (Parent)	Participating	21	20.0
	Not Participating	84	80.0

Looking at the demographic findings related to the participating parents in the study, it is observed that 56.2% (n=59) are mothers and 43.8% (n=46) are fathers; 38.1% (n=40) are below 40 years old, 38.1% (n=40) are between 41-45 years old, and 23.8% (n=25) are above 46 years old; 20.0% (n=21) are engaged in physical activity, while 80.0% (n=84) are not engaged in physical activity.

According to the information provided by parents about their children, 86.7% (n=91) of the children participate in sports activities, while 13.3% (n=14) do not; 23.1% (n=21) have a sports license, while 76.9% (n=70) do not; 33.0% (n=30) exercise 1 day per week, 29.7% (n=27) exercise 2 days per week, 14.3% (n=13) exercise 3 days per week, and 23.1% (n=21) exercise 4 days or more per week. When looking at the participation status of parents in physical activity, it is seen that 20.0% (n=21) are engaged in physical activity, while 80.0% (n=84) are not (Table 2).

Data Collection

Prior to collecting the data, ethical approval was obtained from the Amasya University Social Sciences Ethics Committee under the permission number E-30640013-108.01-41696 dated 01/11/2021. Subsequently, permission was also obtained from the Gaziantep Provincial Directorate of National Education (MEB Research permission: E-34659092-605.01-42724330). Within the scope of the research, the surveys were administered through one-on-one interviews with the parents.

Data Collection Instruments

The data for the study was collected using the "Personal Information Form," the "Parental Stress Index-Short Form (PSI-SF)," and the "Oxford Happiness Questionnaire-Short Form (OHQ-SF)."

Parental Stress Index-Short Form (PSI-SF): The Parental Stress Index was developed by Abidin (1982) as a measurement tool to assess the stress levels experienced by parents of children with developmental disorders. The Turkish adaptation of the Parental Stress Index Short Form (PSI-SF) was conducted by Mert et al. (2008). The PSI-SF consists of a total of 36 items with 3 subscales: Parental Distress, Parent-Child Dysfunctional Interaction, and Difficult Child. In addition to scoring the subscales, a total stress score can also be calculated. The internal consistency and Cronbach's Alpha coefficients were reported to be 0.71 for the total stress score, 0.81 for the Parental Distress subscale (items 1-12), 0.76 for the Parent-Child Dysfunctional Interaction subscale (items 13-24), and 0.78 for the Difficult Child subscale (items 25-36). The test-retest correlation was found to be $r = 0.88$. The researchers have stated that the scale is an appropriate tool for measuring parenting stress and has cross-cultural validity (Mert et al., 2008).

In this study, the Cronbach's Alpha coefficient was calculated as 0.88 for the total stress score, 0.79 for the Parental Distress subscale, 0.66 for the Parent-Child Dysfunctional Interaction subscale, and 0.80 for the Difficult Child subscale.

Oxford Happiness Questionnaire-Short Form (OHQ-SF): The Turkish adaptation of the Oxford Happiness Questionnaire-Short Form (OHQ-SF), developed by Hills and Argyle (2002), was conducted by Doğan and Çötök (2011). The internal consistency of the Turkish version of the scale was found to be between 0.74 and 0.85, indicating acceptable reliability. The OHQ-SF, a self-report scale, consists of a single dimension with 7 items and

is rated on a five-point Likert scale. Two items in the scale are reverse-coded (1st and 7th items). Higher scores on the scale indicate higher levels of happiness (Doğan & Çötök, 2011). In this study, the reliability coefficient of OHQ-SF was calculated as 0.81.

Data Analysis

The normality, homogeneity, skewness, and kurtosis values of the data distributions were evaluated using graphical approaches. George and Mallery (2016) state that skewness and kurtosis values between ± 1.0 are generally considered to be quite good for most psychometric purposes.

As a result of the assessment, it was observed that the data had a normal distribution (Table 2). Descriptive statistics were used to evaluate the data, independent samples t-test for two-group variables, one-way analysis of variance (ANOVA) for comparing more than two groups, and LSD Post Hoc analysis to determine the source of differences. Cronbach's Alpha coefficients were calculated to determine the reliability of the scales in this study. The significance level was set at p<0.05. The descriptive statistics of scale scores, results of normality distribution, and reliability analysis are presented in Table 3.

Table 3. Descriptive Statistics of Scale Scores, Normality Distribution, and Reliability Analysis Results

Variables	n	Min-Max	Mean	Sd.	Skewness	Kurtosis	Cronbach's Alpha
PSI-SF Total Score	105	2.14-4.00	3.09	0.039	0.076	-0.684	0.88
Parental Distress	105	2.33-4.17	3.13	0.048	0.473	-1.073	0.79
Parent-Child Dysfunctional Interaction	105	1.83-3.75	2.60	0.037	0.150	0.018	0.66
Difficult Child	105	2.00-4.50	3.53	0.055	-0.597	-0.024	0.80
OHQ-SF	105	11.00-28.00	19.80	0.408	-0.185	-0.865	0.81

According to the results presented in Table 3, it has been determined that the Parental Stress Index and Oxford Happiness Questionnaire have sufficient Cronbach's Alpha reliability coefficients, indicating the reliability of the scales. Additionally, the skewness-kurtosis values of the measurement instruments indicate that the data are normally distributed.

FINDINGS

Table 4. Independent Samples t-test Results for the Relationship between the Sport Participation Status of Children with Down Syndrome and Parental Stress Index and Happiness Levels

Variables	Sport Participation Status of Children	n	Mean	Sd	t	p
PSI-SF Total Score	Participating	91	3.01	0.374	-5.513	0.001*
	Not Participating	14	3.58	0.251		
Parental Distress	Participating	91	3.05	0.456	-4.436	0.001*
	Not Participating	14	3.63	0.425		
Parent-Child Dysfunctional Interaction	Participating	91	2.52	0.332	-6.219	0.001*
	Not Participating	14	3.11	0.298		
Difficult Child	Participating	91	3.46	0.559	-3.557	0.001*
	Not Participating	14	4.01	0.363		
OHQ-SF	Participating	91	20.51	3.953	7.096	0.001*
	Not Participating	14	15.21	2.326		

*p<0.01

According to the results presented in Table 4, there is a statistically significant difference in the mean scores of parental stress and happiness levels between the parents of children who participate in sports activities and the parents of children who do not participate ($p < 0.01$). The parents of children participating in sports activities have lower average stress scores and higher average happiness scores compared to the parents of children not participating in sports activities.

Table 5. T-test Results for the Relationship Between Sports License Status of Children with Down Syndrome and Parental Stress Index and Happiness Levels

Variables	Sports License**	n	Mean	Sd	t	p
PSI-SF Total Score	Yes	21	2.72	0.237	-5.548	0.001*
	No	70	3.10	0.364		
Parental Distress	Yes	21	2.86	0.279	-2.983	0.004*
	No	70	3.11	0.484		
Parent-Child Dysfunctional Interaction	Yes	21	2.21	0.350	-4.975	0.001*
	No	70	2.62	0.263		
Difficult Child	Yes	21	3.10	0.440	-3.555	0.001*
	No	70	3.56	0.549		
OHQ-SF	Yes	21	23.04	2.539	4.497	0.001*
	No	70	19.75	3.997		

* $p < 0.01$; ** Sports License Status: "Yes" indicates that the child has a sports license and participates in sports within school/club teams. "No" indicates that the child does not have a sports license and engages in sports by attending courses at a sports school or training centre.

Table 5 presents the comparison of the total score averages from the stress and happiness scales of parents based on their children's sports license status. There is a statistically significant difference in the stress and happiness levels of parents whose children engage in licensed sports compared to those whose children do not have a sports license ($p < 0.01$). The analysis results indicate that the significant difference is in favour of parents whose children are engaged in licensed sports.

Table 6. One-Way ANOVA Results for the Relationship Between the Weekly Exercise Frequency of Children with Down Syndrome and Parental Stress Index and Happiness Levels

Variables	Exercise Frequency	n	Mean	Ss.	Sd.	F	P	Significant Differences
PSI-SF Total Score	a. Once a week	30	3.24	0.266	0.048	15.789	0.001*	a>c and d b>c and d
	b. Twice a week	27	3.10	0.413	0.079			
	c. Three times a wee	13	2.75	0.207	0.057			
	d. Four or more times a week	21	2.72	0.237	0.051			
Parental Distress	a. Once a week	30	3.17	0.498	0.091	3.736	0.014**	a>c and d b>c and d
	b. Twice a week	27	3.17	0.531	0.102			
	c. Three times a wee	13	2.84	0.212	0.058			
	d. Four or more times a week	21	2.86	0.279	0.060			
Parent-Child Dysfunctional Interaction	a. Once a week	30	2.78	0.227	0.041	28.649	0.001*	a>b-c and d b<a b>c and d
	b. Twice a week	27	2.59	0.183	0.035			
	c. Three times a wee	13	2.29	0.125	0.034			
	d. Four or more times a week	21	2.21	0.350	0.076			

Difficult Child	a. Once a week	30	3.78	0.284	0.052	10.167	0.001*	a>c and d b>c and d
	b. Twice a week	27	3.54	0.695	0.133			
	c. Three times a wee	13	3.13	0.414	0.115			
	d. Four or more times a week	21	3.10	0.440	0.096			
OHQ-SF	a. Once a week	30	17.96	2.882	0.526	16.250	0.001*	a<b-c and d b>a b<c and d
	b. Twice a week	27	19.70	4.366	0.840			
	c. Three times a wee	13	24.00	1.732	0.480			
	d. Four or more times a week	21	23.04	2.539	0.554			

*p<0.01; **p<0.05

When examining Table 6, it can be observed that there is a statistically significant difference between the weekly exercise frequency of children and the stress and happiness levels of their parents ($p<0.01$). The results indicate that as the children's exercise frequency increases, their parents' stress levels decrease, and their happiness levels increase.

The findings obtained in the study should be supportive of the research aim and problem. In the Results section, only the findings should be presented and explained. No interpretations should be provided in this section. Interpretations, discussions, and conclusions should be reserved for the Discussion and Conclusion sections. When necessary, tables, figures, graphs, or images can be used in the Results section to provide explanations.

Table 7. Results of t-test for Parent's Stress and Happiness Sublevels According to Parent's Physical Activity Status

Variables	Physical Activity Status	n	Mean	Ss.	t	p
PSI-SF Total Score	Yes	21	2.71	0.245	-6.687	0.001*
	No	84	3.18	0.387		
Parental Distress	Yes	21	2.72	0.204	-7.255	0.001*
	No	84	3.23	0.491		
Parent-Child Dysfunctional Interaction	Yes	21	2.38	0.235	-3.113	0.002*
	No	84	2.66	0.393		
Difficult Child	Yes	21	3.03	0.551	-4.942	0.001*
	No	21	23.42	2.873		
OHQ-SF	Yes	84	18.90	3.971	5.935	0.001*

*p<0.01

Table 7 presents the comparison of the total scores of parent's stress and happiness measures based on the parent's physical activity status. According to the analysis results, there is a statistically significant difference in the stress and happiness levels of parents who engage in physical activity and those who do not ($p<0.01$). The significant difference appears to be in favour of parents who are engaged in physical activity.

CONCLUSION and DISCUSSION

In this study, the stress and happiness levels of parents were examined based on the participation status of individuals with Down syndrome in sports activities. The study took into consideration variables such as the

parents' stress and happiness levels, their children's participation status in sports activities, possession of a sports license, weekly exercise frequency, and the parents' engagement in physical activity. It is important to acknowledge that individuals with disabilities, including those with Down syndrome, require physical exercise just as much as individuals without disabilities. Sports play a significant role in promoting their integration into society (Açak & Kaya, 2015).

The literature suggests that participation in exercise contributes to the development of physical and motor skills among individuals with different types and levels of disabilities (Aslan, 2015). Studies also indicate that individuals with disabilities who engage in sports activities experience increased happiness and comfort in their daily lives, improved sleep patterns, and enhanced family relationships (Mor, 2009). Recently, the focus has shifted from solely providing services for disabled individuals to including parents as well. This approach aims to address the issues and concerns of family members, considering their needs and requirements when delivering services (Görgü, 2005). Considering these insights, investigating the factors influencing the stress and happiness levels of parents of disabled individuals can contribute to the field.

The results of this study reveal a significant difference in the stress and happiness levels of parents based on the participation status of individuals with Down syndrome in sports activities. According to the findings, parents of children engaged in sports activities exhibit lower stress levels and higher happiness levels compared to parents of children not participating in sports. These findings are supported by existing research (Ilkım et al., 2017) and studies indicating that individuals with disabilities who engage in sports activities feel happier, experience improved sleep patterns, and have more active family relationships (Mor, 2009). Additionally, it is suggested that engaging children in sports can alleviate the stress and burden on parents (Bulut, 2013).

Furthermore, the study reveals that there is a significant difference in the stress and happiness levels of parents based on their children's possession of a sports license and the frequency of weekly exercise. Parents of children with sports licenses who engage in exercise three days or more per week exhibit higher average happiness scores and lower stress levels. Even the mere fact that their children are involved in sports seems to impact the stress and happiness levels of parents. Having more frequent exercise sessions during the week also positively affects parents' stress and happiness levels. Researchers have highlighted that individuals who are actively involved in sports often feel the need for rest and proper nutrition during their non-sporting time, which helps them distance themselves from the negative effects of existing health conditions or disabilities (Bulut, 2013; Opper et al., 2005). This suggests that engaging in physical activities has a positive impact on reducing the stress levels of parents whose children are involved in sports.

Lastly, the study indicates that there is a significant difference in the stress and happiness levels of parents based on the parents' engagement in physical activity. Parents who engage in physical activity have lower stress scores and higher happiness scores compared to those who do not. This aligns with studies that have shown that regular participation in sports and recreational activities leads to a decrease in depression, anxiety,

and stress levels among adults, as well as an increase in happiness and life satisfaction levels (Abu-Omar & Rütten, 2008; Argyle & Martin, 1991; Dođru & Arslan, 2008; Harvey et al., 2017). These consistent findings in the literature lend support to the results of this study.

SUGGESTIONS

In conclusion, the findings of this study suggest that parents of individuals with Down syndrome experience lower stress levels and higher happiness levels when their children are engaged in sports activities, possess a sports license, exercise frequently, and when they themselves engage in physical activity. Therefore, it is recommended to conduct further research considering the factors that influence the stress and happiness levels of parents of disabled individuals, particularly focusing on their children's participation in sports activities and exercise. The study results can contribute to the understanding of factors influencing the stress and happiness levels of parents of individuals with Down syndrome, with potential implications for encouraging parents to guide their children towards sports activities and thereby enhancing both the children's and parents' quality of life. Additionally, recognizing and addressing the social and psychological needs of parents in efforts to improve the quality of life of individuals with disabilities, and educating parents about sports activities, can assist in cultivating a habit of regular exercise in their children.

ETHICAL TEXT

The rules of journal writing, publication guidelines, research and publication ethics, and journal ethical standards have been adhered to in this article. Any potential violation related to the article is the responsibility of the author(s).

The conduct of this study was approved by the Social Sciences Ethics Committee of Amasya University with the ethics committee decision dated 01/11/2021 and numbered E-30640013-108.01-41696.

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