Araştırma Makalesi / *Research Article*

PRIORITIZATION OF RISK FACTORS CAUSING JUVENILE DELINQUENCY WITH SWARA METHOD: A CASE STUDY FROM TÜRKİYE

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ABSTRACT

The population growth brought by urbanization, the communication and transportation opportunities provided by globalization, and the fact that many people live in communities cause a change and an increase in the concepts of crime and delinquency. The diversity and increase in juvenile delinquency, which is one of them, is important for societies. It is an indisputable fact that children are the only power that can change the future and destinies of countries. The need to minimize the negative effects of crimes involving children goes beyond necessity. Therefore, the fight against crime and delinquency should be done with strategic planning and programs before the crime, not after it occurs. The issue should not be looked at only from the legal dimension, and the factors that lead the child to crime should be determined and dealt with one by one.

Studies on juvenile delinquency seem to focus on the factors that push the juvenile to delinquency rather than trying to define the concept of juvenile delinquency. Determining the factors that cause juvenile delinquency; it will be one of the most important factors guiding researchers in preventing children from acquainting with crime and determining ways to solve problems. In this regard, there is a need for studies to examine and eliminate the factors that cause crime by emphasizing the individual, instead of putting the crime in the foreground and applying penal sanction in the prevention of children who have not yet completed their personality development. In this study, unlike the studies in the literature, the importance levels of the factors that cause juvenile delinquency was determined by the Stepwise Weight Assessment Ratio Analysis Method, which is one of the multi-criteria decision making methods. Thus, a model has been recommended that shows which factors should be emphasized more by researchers working on juvenile delinquency.

Keywords: Juvenile delinquency, Multi-Criteria Decision Making Method, Stepwise Weight Assessment Ratio Analysis Method

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ÇOCUK SUÇLULUĞUNA NEDEN OLAN RİSK FAKTÖRLERİNİN SWARA METODU İLE ÖNCELİKLENDİRİLMESİ: TÜRKİYE'DEN BİR ÇALIŞMA

ÖZ

Kentleşmenin getirdiği nüfus artışı, küreselleşmenin sağladığı iletişim ve ulaşım imkânları ile çok fazla insanın topluluk halinde yaşaması, suç ve suçluluk kavramlarında değişime ve artışa neden olmaktadır. Bunlardan biri olan çocuk suçluluğundaki çeşitlilik ve artış, toplumlar için önem arz etmektedir. Çocukların ülkelerin geleceği ve kaderlerini değiştirebilecek yegane güç olduğu tartışılmaz bir gerçektir. Çocukların karıştığı suçların yarattığı olumsuz etkilerin en aza indirilmesi ihtiyacı zaruretin ötesine geçmektedir. Bu yüzden suç ve suçluluk ile mücadelenin, suç meydana geldikten sonra değil, meydana gelmeden önce stratejik planlamalar ve programlar ile yapılması, konuya sadece hukuksal boyuttan bakılmaması ve çocuğu suça sürükleyen etkenlerin tespit edilerek tek tek ele alınması gerekmektedir.

Çocuk suçluluğu hakkında yapılan araştırmalarda çocuk suçluluğu kavramını tanımlamaya çalışmaktan çok, çocuğu suça iten etmenler üzerinde durulduğu görülmektedir. Çocuk suçluluğuna neden olan etkenlerin önceden tespit edilmesi; çocukların suçla tanışmasının önlenmesinde ve sorunların çözüm yollarının belirlenmesinde, araştırmacılara yol gösteren en önemli faktörlerden biri olacaktır. Bu noktada henüz kişilik gelişimini tamamlayamamış olan çocukların suç işlemelerinin önlenmesinde suçun ön plana çıkartılarak, cezai müeyyide uygulanması yerine, bireyin öne çıkartılarak, suça neden olan faktörlerin irdelenmesi ve ortadan kaldırılmasına yönelik çalışmalara ihtiyaç duyulmaktadır. Bu çalışmada literatürdeki çalışmalardan farklı olarak, çocuk suçluluğuna neden olan risk faktörlerinin önem dereceleri, çok kriterli karar verme yöntemlerinden Adım Adım Ağırlık Değerlendirme Oran Analizi Yöntemi ile belirlenerek çocuk suçluluğu hakkında çalışma yapan araştırmacıların hangi faktörler üzerinde daha fazla durmaları gerektiğini gösteren bir model önerilmiştir.

Anahtar Kelimeler: Çocuk Suçluluğu, Çok Kriterli Karar Verme Yöntemleri, Adım Adım Ağırlık Değerlendirme Oran Analizi Yöntemi

1. INTRODUCTION

Crime and delinquency, which are as old as the history of humanity, is a concept that emerged because of people living in groups. Juvenile delinquency is one of the most important dimensions of this concept. In Türkiye, the term "child delinquent" is used instead of the youngster committing a crime, as specified in the legislation of industrialized countries. This issue defines the children who are subject to legal process because they have committed an act subject to legal sanctions. The criminal behavior of the child is handled separately from other social elements. Therefore, the concept of victim child who is pushed into crime, dragged into crime or involved in crime is used instead of guilty child.

This conceptual approach, known as juvenile delinquency, asserts that every child involved in crime is also a victim. Children, who are the guarantee of the future of societies, should be protected from crime (Solak, 2011). In the literature, there are many studies on juvenile delinquency, and new ones are published every year. Researchers examined the causes of juvenile delinquency (Sarpdağ,2004), the causes of juvenile delinquency as a risk-oriented concept (Topçuoğlu, 2014), factors in the delinquency of children (Fırat et al., 2016), theory and practice related to the use of crime prevention programs (Spruit et al., 2018), the effects of neighborhood, community and school factors (Liu and Miller, 2020), the detention of juvenile offenders (Kavur. 2021).

These researchers mostly focused on the socio-demographic characteristics of the delinquent children and their families, the relations of the children and their families with the crime, the precautionary decisions and types of children. In this study, it was stated that the risk factors determined to be effective in the delinquency of children should be compared with each other and their importance values should be determined, and the measures to be taken according to their priorities should be determined. In these calculations, Multi-Criteria Decision Making (MCDM) methods were used in order to provide scientific support to the researchers.

MCDM methods allow decision makers to evaluate by considering many factors (Gök Kısa & Ayçin, 2019). MCDM methods are used in almost every area where a ranking or weighting is required. Abdulvahitoğlu (2021) used MCDM techniques in the selection of the establishment site of the gendarmerie station, and Abdulvahitoğlu (2019) used MCDM techniques to weight different nanofluids used in internal combustion engine radiators. With the SWARA method, which is one of the newest methods of MCDM; house plan selection (Juodagalvienė et al., 2017), architect selection (Kersuliene and Turskis, 2011), performance

measurement of companies in the logistics sector (Özbek and Demirkol, 2018) and shopping sites (Çakır et al., 2018), catering company selection (Ulutaş, 2019) personnel selection (Karabašević et al., 2016), scaling the quality of life of cities (Ayyıldız and Demirci, 2017), energy analysis of internal combustion engines (Zavadskas et al., 2019), power plant site selection (Yücenur and İpekçi, 2021) Prioritization of UAV Usage Problems (Abdulvahitoğlu and Abdulvahitoğlu) etc. studies have been done. However, it has been observed that MCDM methods have never been used before in studies on juvenile delinquency.

In this study, it is aimed to provide decision support in the planning of strategies to be developed for the prevention of juvenile delinquency, on which factor to give weight to what extent, which factor will contribute to the prevention of juvenile delinquency. In the introduction, the relevant literature was reviewed. The risk factors for juvenile delinquency found in the literature are described in the first section. In the second part, the SWARA method is introduced. In the third section, the SWARA approach was used to establish the relative relevance of the factors of juvenile delinquency. The study was completed in the conclusion section with ideas that SWARA and other MCDM methods can be employed on similar subjective difficulties. Stage of this study is shown in Fig.1.
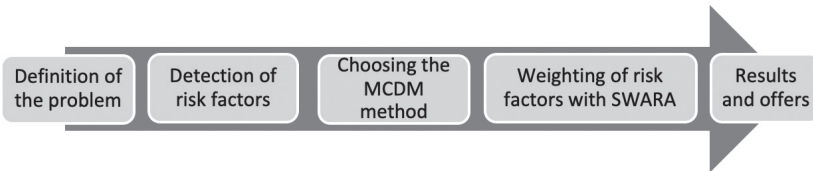

Fig.1. Stages of study

2. CHILD, CRIME AND JUVENILE DELINQUENCY

Experts agree that the concept of crime emerged as soon as people started living together and formed communities and will continue in the future. Societies have interpreted the concepts of crime and criminals, the causes of criminal behaviour in different ways according to their social, political and economic development situations from past to present. Juvenile delinquency, which is one of the most essential characteristics of the idea of crime and delinquency, is seen as one of the most pressing societal issues.

The child is not a good or bad being from birth but develops and changes as a result of the interaction the experiences with the environment. This development and change process in their lives determines whether they are good or bad. In this process, factors such as family, economic and political structure, social environment, education, etc. are decisive, and the child's acquaintance with crime is within this framework (Güngör, 2008).

Children have to know the world of adults in order to learn the rules of the society they live in, to know the society and to be appropriate individuals for the society. Children have a world of their own, which is not yet fully formed, in constant change and development, where there are transitions between reality and imagination. It's common to break the rules and act out of the adult world here. The need for adventure, the drive to try new things, a lack of experience, and other factors all contribute to the development of juvenile delinquency (Zengin and Keskin, 2013). Juvenile delinquency is more than just a criminal conduct; it is a manifestation of a child's anti-social mentality that necessitates judicial intervention.. Juvenile delinquency is combated with long-term strategic plans and programs. Studies on the prevention of adolescent delinquency have received a lot of traction recently around the world, and Türkiye's agenda has been heavily influenced by this topic since the 2000s.

2.1. Factors Causing Juvenile Delinquency

In studies on juvenile delinquency, there are many reasons such as gender, age, ethnicity, school, relationship with peers, parental relationship, etc., which are effective in the formation of juvenile delinquency. (Montgomery et al., 2011). These reasons, which play a role in the development of the behaviors subject to juvenile delinquency and in the delinquency of children, are also defined as risk factors. (Pardini, 2016). Children conduct criminal activities in unsupervised settings such as parks, playgrounds, and sports fields, where they spend time outside of school and at home. The fact that children can easily obtain alcohol

and drugs in these areas and times triggers the occurrence of acts that are the subject of juvenile delinquency (Trinidad et al., 2019). Furthermore, children's friendships with criminal peers enhance the likelihood of coming into contact with alcohol, cigarettes, and narcotics (Semerci et al., 2006). Children who do not want to break away from the friendship environment adapt to the behaviors of their peers and behave like them (Güngör, 2008). Because of peer relations, a significant number of children are also involved in neighborhood or school gangs. Children living on the streets in these groups are at even greater risk. At the same time, these orphans, separated from their families, constitute cheap human resources for criminal organizations. The family, being the first place where the children begin their existence, is one of the variables that are beneficial in understanding the reasons of juvenile delinquency. As a result, determining the family interactions and the actors who are effective in these relations as a beginning point for managing juvenile delinquency is critical.

The factors that lead to children committing or being drawn into criminal activity are conceptually expressed using different words, despite their semantic similarity. According to the researchers, the risk factors that cause juvenile delinquency are shown in Table 1.

Table 1. Factors affecting the formation of juvenile delinquency (created by the author)

Nu.	Year	Author	Risk factors causing juvenile delinquency
1	1999	Williams vd.	Beliefs, peer and sibling influence, school attachments and commitments, family relationships, low academic and social skills
2	2003	BM	Economic and social, cultural, urbanization, migration, media, exclusion, peer influence, criminal identities, offenders and victims
3	2006	Işık	Family or community violence, substance abuse and use, peer relationships, unconsciousness, inability to express abilities, lack of family love,
4	2011	Montgomery et al.	Age, gender, ethnicity, peers, running away from home, school, carrying a gun, alcohol and substance use, parental relationship,
5	2012	Fite et al.	Negative life events, neighborhood problems, peer delinquency, best friend delinquency, depressive symptoms,, age, gender, race
6	2014	Topçuoğlu	Individual, family, school, peers and living environment

7	2015	Ediz and Türe	Neighborhood, educational status, economic situation, domestic violence, social environment, substance abuse,
8	2016	Pardini	Sociodemographic, spiritual, peers, school, family, neighborhood, social-cognitive, psychophysiological, neurocognitive and neurobiological
9	2019	Fleming et al.	Community, family, school, peer-Individual
10	2020	Bobbio et al.	Individual, social, environmental factors, motivation to crime and risk of committing crime, variables of official records
11	2020	Leban and Gibason	Psychological, physical and sexual abuse, family substance abuse, domestic violence, family mental health and domestic criminal behavior
12	2020	Liu and Miller	Neighborhood, community and school
13	2021	Eker et al.	Role of mother, role of father, relationship between parents, family structure, parental behaviors, criminal history of family members

Juvenile delinquency is handled sensitively by national and international organizations. The United Nations (UN), which deals with the issue in a strategic framework, examined the factors that are effective in the delinquency of children in the World Youth Report published in 2003. (UN, 2003). As indicated in the research cited above, the elements that contribute to juvenile delinquency are numerous and have a complicated structure that makes it impossible to anticipate them accurately.

2.2. Juvenile Delinquency in Türkiye

As in contemporary countries, importance is attached to the concept of juvenile delinquency within the scope of sustainability of future generations in Türkiye. Article 3 of the Convention on the Rights of the Child, adopted by the UN in 1989, states that. "States parties undertake that institutions, services and activities responsible for the care or protection of children comply with the standards set by the competent authorities, in particular in terms of safety, health, the number and suitability of staff and the adequacy of management.". In this direction, data that will shed light on the formation of juvenile delinquency have been collected, analyzed and published regularly through the Turkish Statistical Institute (TURKSTAT) since the 2000s. In Table 2, where the main information about the delinquent and victim children is shown, the excess in the number of delinquent children and child victims draws attention.

Table2. Number of incidents involving children because of arrival and gender, 2018-2020 (TURKSTAT, 2021)

	2018			2019			2020		
Reason for arrival	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	483 184	313 674	169 510	511 247	334 158	177 089	450 803	309 660	141 143
Delinquency	152 011	127 752	24 259	168 250	137 780	30 470	114 038	95 496	18 542
Misdemeanour	8 908	7 894	1 014	11 711	10 155	1 556	83 611	73 244	10 367
Lost (Found)	15 374	7 790	7 584	17 339	9 704	7 635	22 380	11 103	11 277
Victim	232 851	123 339	109 512	235 931	127 550	108 381	170 961	93 130	77 831
Consulting information	73 231	46 469	26 762	76 997	48 383	28 614	58 744	36 060	22 684
Other	809	430	379	1 019	586	433	1 069	627	442

The sum of the number of children who commit a crime and the number of children who are dragged into crime is less than the number of children who are victims. It is also seen in the statistical data that the child, who is a more immature personality, is not a criminal, but dragged into crime, and even as a victim, affected or damaged by crime. Table 3 shows that while the number of people driven to crime and committing a misdemeanor increases dramatically between the ages of 15 and 17, which is the transition to adulthood, there is a small decrease in the number of victims.

Table 3. Number of incidents involving children because of arrival, age group and gender (TURKSTAT, 2021)

	Age								
	- 11			12 - 14			15 - 17		
Reason for arrival	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	85 712	50 064	35 648	91 029	57 175	33 854	273 606	202 170	71 436
Delinquency	3 802	2 384	1 418	30 135	24 299	5 836	79 675	68 579	11 096
Misdemeanour	219	139	80	574	458	116	82 818	72 647	10 171
Lost (Found)	1 641	1 049	592	5 657	2 875	2 782	15 082	7 179	7 903
Victim	72 607	42 420	30 187	36 658	19 273	17 385	61 696	31 437	30 259
Consulting information	7 169	3 909	3 260	17 803	10 147	7 656	33 742	21 987	11 755
Other	274	163	111	202	123	79	593	341	252

The change in the number of children dragged into crime and victimized by years is shown in Fig.2. It is seen that the number of children dragged into crime and child victims are parallel. The significant decrease in both actions because of the measures taken in 2020 compared to 2019 is a result of the strategies implemented in Türkiye on juvenile delinquency.
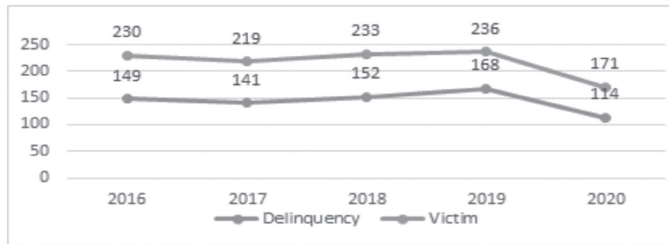
Fig.2. Change in the number of children dragged into crime and victimized by years (TURKSTAT,2021)

3. SWARA (STEPWISE WEIGHT ASSESSMENT RATIO ANALYSIS) METHOD

The SWARA method, expressed as Stepwise Weight Assessment Ratio Analysis, was developed by Kersuliene et al. in 2010 to be used in evaluations based on the knowledge, experience and opinion of experts (Keršuliene et al., 2010; Maghsoodi et al., 2018). SWARA is a MCDM approach used to determine the weights of various criteria. SWARA enables decision makers to select, evaluate and weight indicators. SWARA's main advantage over other methodologies is the ability to assess decision makers' accuracy when weighing indications during the weighting process (Xuan et al., 2022). It is a simple and easy-to-use method that has been widely applied to determine the importance of criteria in many decision problems until today (Özbek and Demirkol 2018). Since the method is simple, it gives the decision makers the opportunity to easily work in a team (Maghsoodi et al., 2018). It's also known as an expert-focused strategy in the literature because it enables for the efficient integration of expert perspectives (Zavadskas et al., 2019; Adalı and Işık, 2017).

To weight the subjective factors in decision issues, a small number of approaches have been devised. The SWARA approach is particularly advantageous since it overcomes issues such as the complexity of calculating problems with a large number of criteria and the necessity for specialized software.

The SWARA approach is particularly advantageous since it overcomes issues such as the complexity of calculating problems with a large number of

criteria and the necessity for specialized software. In other words, it is suggested to use the SWARA method in situations where experts have knowledge and experience and in problems where priorities are known. (Zolfani and Saparauskas, 2013).

The SWARA method can be easily used in problems with much more criteria, as it allows fewer comparisons than the Analytical Hierarchy Process (AHP) method (Mostafaeipour, 2020). The strategy allows decision makers to specify their own priorities while avoiding inconsistency by avoiding complex pairwise comparisons. While the 1-9 scale suggested by Saaty (1980) is used in the AHP method, the decision makers have more freedom in expressing their opinions in the SWARA method. This situation allows decision makers to evaluate more easily than AHP and BWM (Good-Bad Method) (Stanujkic et al., 2015; Xuan et al., 2022). Not only is SWARA less difficult and faster than most of its peers, it also allows for consultation among decision makers (Kersuliene vd. 2010). The results show that apart from pairwise comparisons, SWARA and BWM are definitely similar and in some cases SWARA may be more accurate and effective (Zolfani and Chatterjee, 2019).

The SWARA approach is implemented in three stages (Keršuliene et al., 2010; Stanujkic et al., 2015; Radovic and Stevic, 2018; Gök Kısa and Ayçin, 2019; Ulutaş, 2019; Salamai, 2021). The steps of the SWARA method, which will be used in this study to determine the degree of importance of the risk factors that cause juvenile delinquency, are explained in Fig.3.
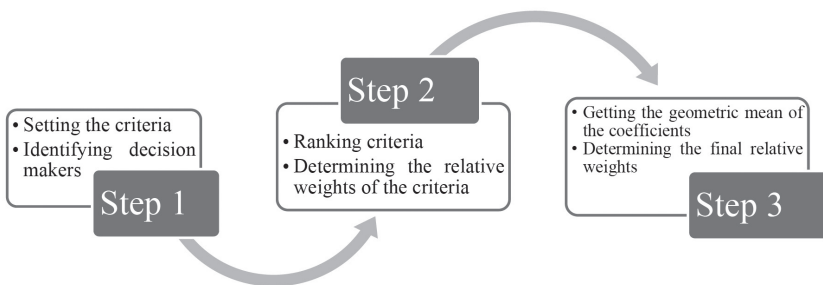

Fig.3. The steps of the SWARA method

Step-1: Determination of Criteria and Decision Makers.

In the first stage, the criteria in the decision problem and the decision makers who will evaluate these criteria are determined. There are n criteria (Cn, n=1,2,…, n) in the decision problem and there are m decision makers (Km, m=1,2, …, m) in the decision committee.

Step-2: Choosing the Criteria's Order of Importance

After establishing the value of each criterion according to themselves, experts rank the factors from most important to least important using this method (Keršuliene and Turksis, 2011). The relative importance levels of the criteria listed in the previous stage are calculated by comparing the importance of the j criterion to the (j+1) criteria.. This value is expressed as "sj". Decision makers give a full score of 1.00 to the most important factor in this evaluation. They give other factors values between 0 and 1 expressed as multiples of 5. The importance degrees "wj" decided by each decision maker for each criterion are then calculated after determining the "kj" and "qj" coefficients, respectively.

Each expert determines the "kj" coefficients for each criterion with the formula (1).

$$k_j = \begin{cases} 1, & j = 1 \\ s_j + 1 & j > 0 \end{cases} \tag{1}$$

Each expert calculates the weight "qj" of each criterion with formula (2).

$$q_j = \begin{cases} 1, & j = 1 \\ \dfrac{q_{j-1}}{s_j}, & j > 1 \end{cases} \tag{2}$$

Each expert calculates the relative weight "wj" of each criterion with the formula (3).

$$w_j = \frac{q_j}{\Sigma_{j=1}^n q_j} \tag{3}$$

Step-3: Determining the Final Relative Weights of Each Criteria

The result is determined by taking a geometric average of the relative weights "wj" values acquired from expert evaluations in multi-expert calculations (Zolfani, and Chatterjee, 2019).

4. Determination of Significance Degrees of Risk Factors Causing Juvenile Delinquency with SWARA Method

It is a well-known fact that individuals who exhibit criminal behavior in childhood are more likely to continue similar behaviors in adulthood. If the factors that lead children to delinquency are identified, the risk of juvenile delinquency can be determined before they become involved in delinquency, and delinquency can be prevented at an early stage with appropriate preventive improvement programs. However, considering that criminal behavior occurs under the influence of multiple conditions and factors rather than a single risk factor, diagnostic tools are needed to evaluate multiple factors together. Thus, children and adolescents at risk can be identified before criminal behavior occurs by considering certain factors (Ucuz et al., 2020).At this point, it was decided that MCDM approaches would be acceptable due to the subjective structure of juvenile delinquency and the elements that create juvenile delinquency, as well as the need to do the analysis based on expert judgments. The SWARA technique was chosen since the risk variables producing adolescent delinquency are subjective, as mentioned in the literature section.
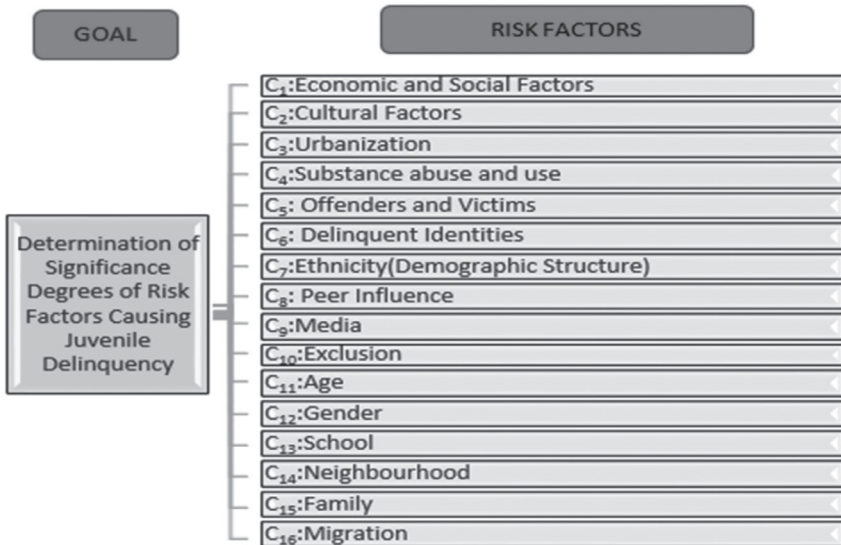

Fig.4. The hierarchy of the problem

In the literature, 16 risk variables for adolescent delinquency were identified, and experts agreed that the risk factors identified by the researchers were appropriate. The problem hierarchy showing the aim of the study and the risk factors is shown in Fig. 4, and the abbreviations of the risk factors are shown in Table 4.

Face-to-face interviews with 9 instructors (who has professional training and experience) were done to establish the degree of importance of the characteristics identified as causes of juvenile delinquency. The experts whose opinions were sought are still lecturer at the Gendarmerie and Coast Guard Academy (GCGA). These experts were not sociologists, psychologists, pediatricians, or other professionals with formal academic background. These individuals took part in the process of applying numerical tools to analyze and assess the data gathered as a consequence of the research conducted by the juvenile delinquency experts. These are the personnel who provide undergraduate and graduate education on crime and security issues, and also served as a supervisor in the public order units of the Gendarmerie General Command for many years.

Criteria (C_i)	Explanation	Criteria (C_i)	Explanation
C_1	Economic and social factors	C_9	Media
C_2	Cultural factors	C_{10}	Exclusion
C_3	Urbanization	C_{11}	Age
C_4	Substance abuse and use	C_{12}	Gender
C_5	Offenders and Victims	C_{13}	School
C_6	Delinquent identities	C_{14}	Neighborhood
C_7	Ethnicity (Demographic Structure)	C_{15}	Family
C_8	Peer influence	C_{16}	Migration

SWARA calculation steps will be applied for the decision problem discussed in this study. The first step of the method, the decision criteria, was started to be calculated with the order of the most important one. The results of the sequencing process performed separately by each expert in this step are shown in Table 5. For example, the most important criterion was determined as "Peer influence (C_8)" by the first expert (CV_1).

Table 5. Evaluation of the risk factors that cause juvenile delinquency by the decision makers

Decision Maker	Rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
KV_1	Criteria	C	C_{15}	C_{13}	C_{10}	C_{14}	C_3	C_2	C_1	C_7	C_{11}	C_{12}	C_{14}	C_5	C_9	C_6	C_{16}
	s_i	1	0,95	0,90	0,85	0,80	0,70	0,65	0,60	0,50	0,45	0,35	0,30	0,25	0,20	0,15	0,10
KV_2	Criteria	C_8	C_{14}	C_{13}	C_{15}	C_4	C_2	C_1	C_6	C_5	C_9	C_{11}	C_{10}	C_{12}	C_{16}	C_3	C_7
	s_i	1	0,95	0,90	0,85	0,80	0,75	0,60	0,55	0,50	0,45	0,35	0,30	0,25	0,20	0,15	0,10
KV_3	Criteria	C_{15}	C_1	C_4	C_{10}	C_{11}	C_{12}	C_3	C_2	C_5	C_6	C_7	C_8	C_9	C_{16}	C_{14}	C_{13}
	s_i	1	0,95	0,90	0,85	0,80	0,70	0,65	0,60	0,50	0,45	0,40	0,35	0,25	0,20	0,15	0,10
KV_4	Criteria	C_1	C_{15}	C_8	C_9	C_{12}	C_{13}	C_3	C_{14}	C_7	C_6	C_4	C_{11}	C_{16}	C_{10}	C_2	C_5
	s_i	1	0,95	0,90	0,85	0,80	0,75	0,70	0,70	0,60	0,55	0,45	0,40	0,35	0,30	0,25	0,15
KV_5	Criteria	C_{15}	C_7	C_8	C_{10}	C_{14}	C_{11}	C_3	C_6	C_{12}	C_{13}	C_{15}	C_{16}	C_4	C_5	C_1	C_9
	s_i	1	0,90	0,85	0,80	0,75	0,70	0,65	0,55	0,50	0,45	0,40	0,35	0,25	0,20	0,15	0,10
KV_6	Criteria	C_{15}	C_8	C_{14}	C_{13}	C_{10}	C_6	C_2	C_3	C_9	C_4	C_{16}	C_5	C_7	C_{16}	C_{11}	C_{12}
	s_i	1	0,95	0,90	0,85	0,80	0,75	0,75	0,70	0,65	0,60	0,50	0,45	0,35	0,25	0,20	0,15
KV_7	Criteria	C_8	C_{15}	C_4	C_1	C_2	C_6	C_5	C_7	C_{10}	C_{13}	C_3	C_{14}	C_9	C_{11}	C_{12}	C_{16}
	s_i	1	0,95	0,85	0,80	0,75	0,70	0,60	0,55	0,50	0,45	0,40	0,35	0,30	0,30	0,25	0,15
KV_8	Criteria	C_{15}	C_1	C_8	C_9	C_{10}	C_{11}	C_{14}	C_{12}	C_{16}	C_7	C_2	C_{13}	C_5	C_6	C_4	C_3
	s_i	1	0,95	0,90	0,85	0,80	0,70	0,70	0,65	0,60	0,50	0,45	0,45	0,30	0,25	0,20	0,10
KV_9	Criteria	C_1	C_9	C_4	C_{15}	C_{10}	C_8	C_{14}	C_2	C_{13}	C_{16}	C_3	C_7	C_6	C_5	C_{12}	C_{11}
	s_i	1	0,95	0,90	0,85	0,80	0,75	0,70	0,60	0,55	0,45	0,40	0,35	0,30	0,30	0,15	0,10

After each expert determined the relative importance values of the criteria, other calculations were made using formula (1)-(3).Sample calculations made by Decision Maker-1 (KV1) are shown in Table 6.

Table 6. The SWARA approach was used to evaluate Decision Maker-1.

Decision maker	Rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Criteria	C_8	C_{15}	C_{13}	C_{10}	C_{14}	C_3	C_2	C_1	C_7	C_{11}	C_{12}	C_{14}	C_5	C_9	C_6	C_{16}
Decision Maker-1	s_j	-	0,95	0,90	0,85	0,80	0,70	0,65	0,60	0,50	0,45	0,40	0,35	0,25	0,20	0,15	0,10
	k_j	1	1,95	1,90	1,85	1,80	1,70	1,65	1,60	1,50	1,45	1,35	1,30	1,25	1,20	1,15	1,10
	q_j	1	0,512	0,269	0,146	0,081	0,048	0,029	0,018	0,012	0,008	0,006	0,005	0,004	0,003	0,003	0,002
	w_j	0,466	0,239	0,125	0,068	0,038	0,042	0,025	0,016	0,010	0,007	0,005	0,004	0,004	0,003	0,003	0,003

The sample calculations made in Table 6 for KV1 were repeated separately for each expert opinion. The final weights were obtained by taking the geometric mean of the "wj" values obtained. These weights are shown in Table 7.

Table 7. The relative relevance of the criteria, as determined by the lecturer who were interviewed.

Criteria	KV_1	KV_2	KV_3	KV_4	KV_5	KV_6	KV_7	KV_8	KV_9	w_j
C_1	0,008	0,013	0,239	0,469	0,001	0,022	0,071	0,240	0,468	0,0522
C_2	0,013	0,022	0,008	0,001	0,452	0,012	0,040	0,002	0,008	0,0124
C_3	0,022	0,001	0,013	0,013	0,015	0,007	0,003	0,000	0,003	0,0048
C_4	0,002	0,038	0,126	0,002	0,002	0,003	0,127	0,001	0,126	0,0104
C_5	0,002	0,006	0,006	0,000	0,001	0,001	0,015	0,001	0,000	0,0017
C_6	0,001	0,009	0,004	0,003	0,009	0,000	0,024	0,000	0,001	0,0026
C_7	0,006	0,001	0,003	0,005	0,238	0,001	0,010	0,003	0,002	0,0043
C_8	0,466	0,465	0,002	0,127	0,129	0,241	0,458	0,126	0,022	0,1091
C_9	0,001	0,004	0,002	0,068	0,001	0,004	0,002	0,068	0,240	0,0065
C_{10}	0,068	0,002	0,068	0,000	0,071	0,038	0,006	0,038	0,038	0,0166
C_{11}	0,004	0,003	0,038	0,001	0,024	0,001	0,001	0,022	0,000	0,0033
C_{12}	0,003	0,002	0,022	0,038	0,006	0,000	0,001	0,008	0,001	0,0034
C_{13}	0,126	0,126	0,000	0,022	0,004	0,069	0,004	0,002	0,005	0,0106
C_{14}	0,038	0,239	0,001	0,008	0,041	0,127	0,002	0,013	0,013	0,0176
C_{15}	0,239	0,068	0,466	0,241	0,003	0,470	0,235	0,468	0,068	0,1393
C_{16}	0,000	0,001	0,001	0,001	0,002	0,002	0,000	0,005	0,004	0,0012

The ranking of the final criterion weights is shown in Table 8.

Table 8. Final ranking based on combined criteria weights

Ranking	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Criteria	C_{15}	C_8	C_1	C_{14}	C_{10}	C_2	C_{13}	C_4	C_9	C_3	C_7	C_{12}	C_{11}	C_6	C_5	C_{16}
Degrees of Importance (w_j)	0,1393	0,1091	0,0522	0,0176	0,0166	0,0124	0,0106	0,0104	0,0065	0,0048	0,0043	0,0034	0,0033	0,0026	0,0017	0,0012

According to Table 8, the first three most important criteria were determined as "family", "peer influence" and "age", respectively. Calculations were made using Microsoft Excel software.

As can be seen in the result, the most important factor in the formation of juvenile delinquency is the concept of family. Eker et al. (2021), focused their studies on the family, stating that the first factor that affects the development of the child is the concept of family, which is the leading factor in the delinquency of children. Karatas et al. (2020) emphasized that one of the greatest means of control over children is the family. In addition, Leban and Gibason (2020) associated the causes of negative childhood behaviors with the substance addiction of the family with which the children live, domestic violence, family mental health and domestic criminal behaviors. Zoettl (2018) stated that the lack of parental authority causes inappropriate behavior in children. Ozturk Copur et al. (2015), on the other hand, compared the number of cases in Türkiye and the world, stating that Türkiye is in a relatively better situation compared to the rest of the world, and stated that juvenile delinquency is a reflection of the problems experienced in the society and the solution lies in the family and society.

5. CONCLUSION AND RECOMMENDATIONS

Children, who are more open to change and development than adults, have the opportunity to live, protect, develop etc. supportive studies based on their rights will be able to change their behavior. For this reason, it is important to work be done before children are dragged into crime. At this point, it is evaluated that first, understanding the concept of juvenile delinquency, determining the risk factors affecting the formation of juvenile delinquency, and determining which factors should be handled first with the weighting studies to be made between these factors will contribute to the prevention of juvenile delinquency.

In the literature research, it was determined that research were conducted to determine the risk factors that cause juvenile delinquency and to determine the relationships between the reasons for juvenile delinquency. However, in the literature; No other study was found in which (1) the severity of the causes of juvenile delinquency was determined, and (2) the MCDM methods in general and the SWARA method, in particular, were used on juvenile delinquency.

In this study, it was discovered that the risk factors for juvenile delinquency found in the literature analysis were subjective, conflicting, or interconnected in

a complicated structure. Therefore, face-to-face interviews were conducted with 9 lecturers working at GCGA to evaluate the criteria. Because of the calculations, it has been disclosed which factors will be given weight, the resources and effort allocated to fight which factor will be more useful, and it has been established that the SWARA approach may be utilized effectively in criminal investigations. It has been determined that studies on the first three risk factors causing juvenile delinquency (Family, Peer Influence, and Economic and Social Factors) should be focused on.

There are some limitations to this study, as there are to all studies. It is considered that this study can be expanded and contributed to the literature within the scope of the issues listed below.

i. The causes of juvenile delinquency in this study were based on the factors indicated in the United Nations youth report as well as risk factors reported by other researchers. The results of studies conducted in different countries may change depending on the other countries.

ii. It is possible to compare the results acquired using various procedures.

iii. The weights of all units in the fight against juvenile delinquency, from sociologists to security personnel, can be calculated. Then, the weights of the risk factors that cause juvenile delinquency and the weights of each occupational group can be multiplied with each other and the effect values on the overall result can be found.

iv. The data collection process covers a short period and the evaluation process covers an institution. This process can be improved and the number of institutions and experts participating in the evaluation process can be increased.

v. Different subjective criteria weight determination methods (AHP, DEMATEL, SWARA, CRITIC etc.) can be used. Sensitivity analyzes can be made by comparing the results obtained in this study.

vi. Interviewing security personnel, social workers, teachers, doctors, and probation officers can contribute to the work in various ways.

As a result, the government and professionals are frequently the decision-makers in juvenile delinquency cases. Since expert evaluations can be transferred to the calculation processes without errors, the SWARA method can be used effectively in determining the importance of risk factors that cause juvenile delinquency. SWARA can be useful in many decision-making processes at the highest level in any society. Thus, SWARA can be used as a framework for decision making at the highest level on juvenile delinquency and all-important issues.

Thus, it is expected that the SWARA method will attract the attention of researchers due to its contribution to the literature, since it determines the degree of importance by weighting the risk factors that cause the formation of juvenile delinquency. In addition, it is predicted that the SWARA method and other MCDM methods, which have not been used in crime research before, will yield successful results in future studies on crime research. However, new contributions to the literature can be made with the mathematical programming to be applied.

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