

Examination of Psychotic-like Experiences in Men Applying for Gun License

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ABSTRACT

Worldwide, firearms are among the leading causes of injury and death and are an important public health problem concerning mortality and morbidity. This study aims to examine psychotic-like experiences (PLEs) in individuals who apply for a gun license (GL) and investigate personality traits and impulsiveness that may be associated with PLEs in these individuals. The GL group comprised 130 individuals, and the control group comprised 60 individuals. For the analyses, Personality Belief Questionnaire-Short Form (PBQ-SF), Community Assessment of Psychic Experiences Scale-Positive Dimension (CAPE-P), Barrat Impulsiveness Scale-11 (BIS-11), Beck Depression Inventory, Beck Anxiety Inventory, and Sociodemographic Data Form were utilized. CAPE-P score did not differ between the GL and control groups. In the GL group, the regression analyses found a statistically significant relationship between the change in the CAPE-P score, and PBQ-SF antisocial score and BIS-11 score. Evaluations for GLs are made cross-sectionally. Individuals attempt to show themselves well since the person's motivation is to obtain GL. Additionally, evaluations are made based on the person's statement. Revising the laws on armament worldwide and in our country, increasing interventions to reduce individual armament, creating information and training programs for society regarding the problems that can be caused by individual guns, increasing the efforts to prevent the illegal supply of guns, and ensuring that psychiatric evaluation can be made more longitudinally during GL recruitment can reduce individual armament and related problems in the world. Furthermore, notably, the problems that PLEs can potentially create in society apply to GL holders.

Keywords: Gun license, psychotic-like experiences, impulsiveness, personality beliefs.

ÖZ

Silah Ruhsatı İçin Başvuruda Bulunan Erkeklerde Psikoz Benzeri Yaşantıların İncelenmesi

Ateşli silahlar, yaralanma ve ölümün önde gelen nedenleri arasında yer almakta olup, mortalite ve morbidite açısından önemli bir halk sağlığı sorunudur. Bu çalışma, silah ruhsatı başvurusunda bulunan bireylerde psikoz benzeri yaşantıları incelemeyi ve bu bireylerde psikoz benzeri yaşantıları ile ilişkili olabilecek kişilik özelliklerini ve dürtüsellik araştırma amaçlamaktadır. Silah ruhsatı grubu 130 kişiden, kontrol grubu ise 60 kişiden oluşmuştur. Kişilik İnanç Ölçeği-Kısa Form (KİÖ-KF), Toplumda Psikik Yaşantıları Değerlendirme Ölçeği-Pozitif Boyut (TPYÖ-P), Barrat Dürtüsellik Ölçeği-11 (BDÖ-11), Beck Depresyon Envanteri, Beck Anksiyete Envanteri ve Sosyodemografik Veri Formu analizler için kullanıldı. TPYÖ-P skoru silah ruhsatı ve kontrol grupları arasında farklılık göstermedi. Silah ruhsatı grubunda, regresyon analizleri TPYÖ-P skorundaki değişim ile KİÖ-KF antisosyal skoru ve BDÖ-11 skoru arasında istatistiksel olarak anlamlı bir ilişki bulundu. Silah ruhsatlarına ilişkin değerlendirmeler kesitsel olarak yapılmaktadır. Kişinin motivasyonu silah ruhsatı almak olduğundan bireyler kendilerini iyi göstermeye çalışır. Ayrıca kişinin beyanına göre değerlendirmeler yapılır. Tüm dünyada ve ülkemizde silahlanmaya ilişkin kanunların revize edilmesi, bireysel silahlanmanın azaltılmasına yönelik müdahalelerin artırılması, bireysel silahların yaratabileceği sorunlar konusunda topluma yönelik bilgilendirme ve eğitim programları oluşturulması, silahların yasa dışı temininin önlenmesine yönelik çalışmaların artırılması, silah ruhsatı alımı sırasında psikiyatrik değerlendirmenin daha uzunlamasına yapılabilmesinin sağlanması dünyadaki bireysel silahlanma ve buna bağlı sorunların azaltılmasını sağlayabilir. Psikoz benzeri yaşantıların toplumda potansiyel olarak yaratabileceği sorunların silah ruhsatı sahipleri için de geçerli olduğunu belirtmek gerekir.

Anahtar Kelimeler: Silah ruhsatı, psikoz benzeri yaşantılar, dürtüsellik, kişilik inançları.



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INTRODUCTION

The need to acquire a gun can be considered from numerous perspectives, including protection, security, cultural strength, acceptance, entertainment, sports, impulsivity, and different manifestations of aggression. It is also associated with many fields, including sociological, psychological, political, and cultural (Mencken & Froese, 2019; Puşuroğlu et al, 2022). Studies show that the need to be safe must be prioritized (Carroll, 2005; Mencken & Froese, 2019; Stroebe et al, 2017).

In acquiring a gun for security purposes, the perceived risk comes to the forefront rather than the objective attack risk. It is also accompanied by a widespread thought pattern that stems from the belief that the world is dangerous and unpredictable (Kleck et al, 2011; Stroebe et al., 2017). The more individuals value the need for protection/self-defense in terms of the need to be safe, the more they are expected to provide the means to achieve it (Kruglanski et al., 2018).

Armament can be thought of as a different way of expressing aggression and impulsivity. Aggression results from social, cognitive, personality patterns, developmental, and biological factors working together. Numerous social-cognitive phenomena work for perception, interpretation, decision-making, and action. Owing to beliefs, attitudes, schemas, and resulting automatic thoughts, behavioral consequences (gaining a gun, not going out alone, showing aggression at the slightest argument, and acting impulsively) will appear (Allen et al, 2018; Anderson & Bushman, 2018).

One of the most critical factors shaping cognitive processes is the environment. An individual born in a geography dominated by violence and war will normalize armament (Allen et al., 2018). Violent media, games, and websites also normalize violence, increase social learning and implications, and display a pattern supporting aggression (Anderson & Bushman, 2018; Shapira & Simon, 2018). Personality traits are also one of the influential factors in acquiring a gun. Some personality patterns (especially groups A and C) were found to be associated with gun ownership (Torun et al, 2011).

Although more than 200,000 people lose their lives every year due to gun violence, approximately 150,000 murders and over 65,000 suicides occur as a result of using firearms, and it is reported that more than 20,000 gun accidents occurred in which individuals lost their lives (Florquin, 2020).

Individual armament emerges based on many reasons, including social, cultural, economic, and psychological ones. Individuals are armed for security, hunting, sport, curiosity, vanity, souvenirs, culture, entertainment, collection, or profession (Parker, 2017; Gramlich & Schaeffer, 2019). The reasons for armament can include that a gun is an element associated with

identity and a sign of power, being transferred from one generation to the next, and is a means of establishing dominance over other people in regions where crime is common (Dierenfeldt et al, 2021; Legault, 2008).

The legal way to obtain guns in Türkiye is to issue GLs by hospital health boards. The person is evaluated by many physicians, including psychiatrists, by applying to the health committee, and GLs are given to individuals who are found to be suitable with the decision of the board (Ilkiz, 2006). There are no specific standards for the mental state examination and psychometric assessments of the people applying for a GL examination; clinicians have to make short-term and instant assessments in outpatient clinic conditions, and consequently, it is not possible to be examined and evaluated adequately and to the required extent (Özalp & Soygür, 2006; Özsoy & Müberra, 2021).

Recent studies show that psychotic or psychotic-like symptoms are present not only in psychotic disorders but also in the general population. Psychosis is thought to be variations that occur along a continuum (Van Os et al, 2009). The definition of PLEs is not in the psychiatric disorder class but refers to subthreshold levels of psychosis (DeRosse & Karlsgodt, 2015). Nonetheless, PLEs are associated with worsening neurocognitive domains (Guerrero-Jiménez et al., 2018; Kelleher et al, 2013), decreased psychological resilience (Meşel et al., 2020), anxiety (Goodwin et al, 2004), and depression levels (Yung et al., 2007). PLEs have also been associated with aggression (Kinoshita et al., 2011; Mojtabai, 2006; Nederlof et al, 2012), cognitive biases (Livet et al, 2020), and various personality traits (Fonseca Pedrero & Debbané, 2017; Sengutta et al, 2019). These relationships can be important for the use of guns.

This study aims to investigate PLEs in individuals who apply for a GL and investigate personality traits and impulsiveness that may be associated with PLEs in these individuals.

METHODS

Participants

Patients who applied to an outpatient psychiatry clinic in Türkiye for a GL were assigned to the GL group. Volunteers who applied to clinics other than neurology or psychiatry clinics or who applied to the health board due to other health problems and whose sociodemographic characteristics were similar to those of the GL group were appointed as the control group. Those outside the age range of 18–65 years and those with psychiatric and neurological disorders have been excluded. Those in the control group who had a license to carry or possess a gun were excluded. The GL group comprised 130 individuals, and the control group consisted of 60 individuals.

The participants were informed about the research, and their consent was obtained. Approval for the research was ob-

Table 1. Comparison of the GL and control groups in terms of sociodemographic features

	GL (n=130)		Control (n=60)		Statistics/ χ^2	p
	n	%	n	%		
Age (years), Mean \pm SD	44.45 \pm 10.98		42.90 \pm 9.94		t=0.930	0.354
Duration of education (years), Mean \pm SD	9.55 \pm 4.10		13.93 \pm 4.54		t=-6.464	<0.001
Monthly income (Turkish lira), Median (Q1–Q3)	7500 (3750–15000)		18333 (7688–40000)		Z=-5.156	<0.001
Marital status					1.076	0.300
Single	24	18.5	15	25		
Married	106	81.5	45	75		
Employment status					1.786	0.181
Employed	110	84.6	55	91.7		
Unemployed	20	15.4	5	8.3		
Inhabited region					26.671	<0.001
Village-town	57	43.8	3	5		
Urban	73	56.2	57	95		
Previous psychiatric admission					4.167	0.041
No	113	86.9	45	75		
Yes	17	13.1	15	25		
Family history of psychiatric disorders					43.081	<0.001
No	130	100	42	70		
Yes	0	0	18	30		
History of suicide						
No	130	100	60	100		
Yes	0	0	0	0		
Occasional alcohol use					54.755	<0.001
No	115	88.5	22	36.7		
Yes	15	11.5	38	63.3		
Tobacco use					0.192	0.661
No	78	60	38	63.3		
Yes	52	40	22	36.7		

GL: Gun license; P: Significance level; Q1: First quartile; Q3: Third quartile; χ^2 : Chi-square test statistic; n: Number of samples; SD: Standard deviation.

tained from the Giresun Education and Research Hospital Clinical Research Ethics Committee with decision number 17.07.2023/04. The research data were collected between July and August 2023. The study was conducted based on the Declaration of Helsinki.

Measures

To determine the sociodemographic information, economic situation, psychiatric and treatment history, family history, tobacco use, and occasional alcohol use, the sociodemographic data form was employed.

To measure the dimensions of psychosis, the Community Assessment of Psychic Experience (CAPE) has been developed. The scale evaluates the quantity and quality of PLEs observed in society. The positive dimension is considered to evaluate PLEs. There are 20 questions for positive psychotic experiences. Positive PLEs have four dimensions: persecutory ideation, perceptual abnormalities, bizarre experiences, and grandiosity. Higher scores indicate the presence of more severe PLEs (Stefanis et al., 2002). The positive dimension (CAPE-P) was used in this study. The Turkish validity and reliability study of the scale was carried out in 2019 (Sevi et al, 2019).

Table 2. Comparison of the GL and control groups in terms of CAPE-P scores

	GL (n=130)	Control (n=60)	Statistics	p
Persecutory ideation, Mean±SD	9.77±2.19	10.17±2.37	t=-1.131	0.260
Perceptual abnormalities, Median (Q1–Q3)	5 (5–5)	5 (5–5.75)	Z=-0.898	0.369
Bizarre experiences, Mean±SD	6.25±1.67	6.23±1.44	t=0.082	0.935
Grandiosity, Median (Q1–Q3)	2 (2–4)	2 (2–3)	Z=-1.780	0.075
CAPE-P total, Median (Q1–Q3)	22 (21–25)	24 (21–27.75)	Z=-0.660	0.509

GL: Gun license; P: Significance level; Q1: First quartile; Q3: Third quartile; SD: Standard deviation.

Table 3. PBQ-SF, BIS-11, BDI, and BAI mean scores of the GL group

	Mean±SD
Avoidant	9.13±5.84
Dependent	5.32±5.59
Passive–aggressive	7.02±5.88
Obsessive–compulsive	10.72±6.47
Antisocial	5.84±6.19
Narcissistic	5.85±5.71
Histrionic	4.66±5.75
Schizoid	9.66±5.74
Paranoid	7.42±5.77
Borderline	5.85±5.47
BIS-11	50.55±8.31
BDI	1.11±1.78
BAI	1.18±2.19

SD: Standard deviation.

Personality Belief Questionnaire-Short Form (PBQ-SF) is a scale containing beliefs about personality disorders and questions for each personality structure. The scale provides information on the personality characteristics of the person filling it out and evaluates 10 different personality types (Butler et al, 2007). The Turkish validity and reliability study was performed in 2011 (Taymur et al, 2011).

Barratt Impulsiveness Scale-11 (BIS-11) was used to measure impulsivity. It evaluates attentional, motor, and unplanned impulsiveness. High scores indicate high levels of impulsivity (Patton et al, 1995). The validity and reliability of this scale were made in 2008 (Güleç et al, 2008).

To determine the level of depression, the Beck Depression Inventory (BDI) was utilized (Beck et al, 1987). The Turkish validity and reliability study of BDI was conducted in 1989 (Hisli, 1989).

To determine the level of anxiety, the Beck Anxiety Inventory (BAI) was employed (Beck et al, 1993). The Turkish validity and reliability study was conducted in 1998 (Ulusoy et al, 1998).

Sociodemographic data form and CAPE were applied to the control group. Sociodemographic data form, CAPE, PBQ-SF, BIS-11, BDI, and BAI were applied to the GL group.

Statistical Analysis

Statistical analyses were carried out using the IBM SPSS Statistics 25 package program. Normality tests were performed based on the suggestion of Tabachnick and Fidell (Tabachnick et al, 2012). To compare normally distributed variables, the Student's t test was utilized, and to compare not normally distributed variables between the two groups, the Mann–Whitney U test was employed. Chi-square test was used to compare categorical variables. In the GL group, a regression model was created to determine the independent variables that predicted PLEs, and a stepwise regression analysis method was employed. The significance level (p) was accepted as 0.05.

RESULTS

Table 1 shows the comparison of the GL and control groups regarding sociodemographic data. There was no statistically significant difference between the two groups in terms of age, marital status, employment status, and tobacco use ($p>0.05$). Individuals in the GL group mostly lived in villages and towns ($p<0.001$). The control group's educational level and monthly income were higher than the GL group's ($p<0.001$). The control group had a higher incidence of occasional alcohol use ($p<0.001$), previous psychiatric admission ($p=0.041$), and a family history of psychiatric disorders ($p<0.001$).

Table 2 provides the comparison of the GL and control groups in terms of CAPE-P scores. There was no statistically significant difference between the two groups in terms of CAPE-P dimensions use ($p>0.05$).

Table 3 shows the PBQ-SF, BIS-11, BDI, and BAI mean scores of the GL group.

Table 4. Stepwise multiple linear regression analysis to predict CAPE-P scores in the GL group

	F	R ²	p	B	%95 CI
Constant	16.662	0.234	<0.001	14.350	8.356–20.343
PBQ-SF antisocial				0.339	0.186–0.492
BIS-11 score				0.161	0.042–0.280

%95 CI: %95 confidence interval; B: Beta coefficient; P: Significance level; R²: Variance explained.

Stepwise multiple linear regression models were derived to predict CAPE-P scores in the GL group. This analysis aims to show the variables that can statistically define the most robust relationship among the explanatory variables. Age, educational level, economic status, depression, and anxiety scores, which were previously found to be associated with PLEs, as well as PBQ-SF and BIS-11 scores, were entered into the stepwise multiple linear regression analysis to predict the CAPE-P score.

In the final model, a significant relationship ($F=16.662$; $R^2=0.234$; $p<0.001$) was found between the change in the CAPE-P score, and PBQ-SF antisocial score and BIS-11 score. According to this model, a one-unit increase in the PBQ-SF antisocial score explains an increase of 0.339 points in the CAPE-P score (%95 GI=0.186–0.492), and a one-unit increase in the BIS-11 score explains an increase of 0.161 points (%95 GI=0.042–0.280) (Table 4).

DISCUSSION

In our country, the tendency toward firearms is high, and there has been an increase in individual armament in recent years (Atlı et al., 2015). Many studies determined that men apply to health boards at a higher rate to obtain a GL (Özsoy & Müberra, 2021; Torun et al., 2011).

In our study, the educational level of the control group was higher than the GL group. Previous studies determined that the educational level of people who applied for GL was lower (Torun et al., 2011). There is a relationship between educational level and gun use, and crime rates decrease as educational level increases (Topçu et al, 2015). The low level of education of the people who applied for a GL has been a thought-provoking situation in terms of the possibility of unconscious armament (Özsoy & Müberra, 2021). As the level of education increases, the awareness of the risks of armament increases, and the decrease in some cultural cognitions (e.g., the idea that guns will protect honor or provide entertainment and that having a gun is accepted as a sign of power) may explain the difference in educational levels between the GL and the control group.

The mean monthly income of the control group was higher than that of the GL group, and the GL group mostly lived in a village–town settlement. The literature determines that the group receiving GL has a medium income and mostly lives in rural areas. The geographical and traditional structure that does not allow mass settlement is one of the factors that lead people to have guns (Topçu et al, 2015). Our findings are consistent with these results. Additionally, individuals with low-income levels are likely to apply for a GL because of jobs that require guns, such as hunting and various security-related jobs (soldier, police, and private security guard).

Previous psychiatric admissions, family history, and intermittent alcohol use were higher in the control group. It is common for people to hide their psychiatric symptoms and show themselves well in forensic evaluations (Caruso et al, 2003). In cases with gains, such as acquiring a GL, present and past psychiatric symptoms can be expected to be hidden. The lower rates of previous psychiatric admission, family history, and intermittent alcohol use in the GL group may be because they were reported less frequently, secondary to the worry of not having a gun. Moreover, a study shows that occasional alcohol use was not significantly different in the GL and control groups (Torun et al, 2011). The reason for this difference may be regional differences.

Both groups scored similarly in terms of PLEs. There was no difference in persecutory ideation, perceptual abnormalities, bizarre experiences, and grandiosity. Considering that the GL group also comprises healthy individuals, it likely does not differ from the control group. However, there was no significant difference may be because the individuals in the GL group showed themselves qualified to obtain a GL. Nevertheless, PLEs in individuals presenting for a GL must be examined because PLEs also manifest themselves in the healthy population (Van Os et al, 2009) but are associated with anxiety (Goodwin et al, 2004) and depression levels (Yung et al, 2007), aggression (Kinoshita et al., 2011; Mojtabai, 2006; Nederlof et al, 2012), and various personality traits (Fonseca Pedrero & Debbané, 2017; Sengutta et al, 2019), which may negatively affect rational gun use.

It is believed that there is an important link between PLEs and impulsivity and there is also an important personality trait in the general population (Compton & Kaslow, 2005). Moreover, impulsivity is associated with antisocial behavior (Luengo et al, 1994). The regression analysis performed in our study determined that antisocial personality traits and impulsivity predicted PLEs in the GL group. Impulsivity may be associated with executive and sensory integration functions, which may also be involved in the pathophysiology of positive psychotic symptoms. People with high levels of impulsivity may have impaired cognitive function, which may be associated with perceptual misinterpretations that can lead to PLEs (Barratt, 1994; Compton & Kaslow, 2005). Even though those with GL have undergone a psychiatric evaluation, the guns used by 34% of criminals are licensed (Özdeş et al, 2014). High anger expression and low anger control in GL patients pose a risk to society (Torun et al, 2011). The relationship between PLEs, impulsivity, and antisocial personality traits is a finding that should be considered in decisions made in health committees because PLEs on their own can produce unhealthy results for the person.

The idea of self-preservation is often the priority in the individual armament of individuals. Violence in society is gradually increasing with individual armament. In this case, people feel insecure individually and perceive the outside world as threatening. Thus, they tend to take up arms for their security (Warner & Thrash, 2020). This situation may increase persecutory ideation levels and, hence, individual armament. People can take up arms because of the idea that the outside world is dangerous and that people should protect themselves (Buttrick, 2020).

The strength of the study is to investigate some psychological factors, including PLEs, which may affect individual armament related to public health but on which research is limited.

One of the limitations of the study is its cross-sectional design. Therefore, a causal relationship cannot be established. Self-report scales may affect the objectivity of the data. Additionally, the difference between the two groups in terms of education and income level, inhabited region, previous psychiatric admission, family history of psychiatric disorders, and occasional alcohol use may have affected the results. The results cannot be generalized since the study was carried out in the Black Sea region, and there may be differences between regions.

CONCLUSION

Obtaining GL is one of the legal ways to buy a gun. In each institution, various psychometric tests are applied to individuals; medical and forensic records and alcohol and substance tests are examined, and self-mutilation scars are evaluated to detect impulsivity. However, all these examinations provide cross-sectional evaluations, and since the person's motivation is to

obtain GL, individuals attempt to show themselves well. Moreover, evaluations are made based on the person's statement. Revising the laws on armament worldwide and in our country, increasing interventions to reduce individual armament, creating information and training programs for society regarding the problems that can be caused by individual guns, increasing the efforts to prevent the illegal supply of guns, and ensuring that psychiatric evaluation is done more longitudinally during GL recruitment can reduce individual armament and related problems in the world. Furthermore, notably, the problems that PLEs can potentially create in society apply to GL holders.

To determine the factors that cause individual armament and to take necessary precautions, more research is warranted.

Ethics Committee Approval: The Giresun Education and Research Hospital Clinical Research Ethics Committee granted approval for this study (date: 17.07.2023, number: 17.07.2023-04).

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