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# BÖLÜM 1

## SURGERY TYPES AND SAMPLE SIZE DILEMMA IN SURGICAL PUBLICATIONS AND THEIR REFLECTIONS ON SURGICAL PRACTICES

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MERİH YILMAZ<sup>2</sup>  
KADİR YILMAZ<sup>3</sup>

### Introduction

Measurement and evaluation methods in surgical operations are more controversial than in other medical fields. Since the number of patients in surgical operations is relatively small in terms of quantity and quality, sample sizes are also limited (Farrokhyar et al, 2013; Dimick et al, 2004). In addition, the fact that health status and characteristics include more individual cases according to patient demographics and structure in surgical procedures constitutes a significant limitation in both sample collection and multi-center and prospective studies in studies conducted in the field of surgery (McCulloch et al, 2018; De Muth,

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2009; McCulloch et al, 2002). Especially in prospective studies, due to the generally high mortality levels even in elective surgical procedures, determining the control group and applying a different procedure to the other group represents a highly controversial and troublesome process. Therefore, there are serious deficiencies and situations that need correction regarding surgical operations, both in reaching sample sizes and in presenting prospective studies.

Although the subject of universe and sample is one of the most fundamental subjects of all statistical sciences, the field that is most debated is the field of biostatistics (Hazra and Gogtay, 2016; Singh and Masuku, 2014). Finding a sample is not a very difficult process in research conducted on engineering, architecture, production or social issues, and it is possible to reach the number of 384 and above, which represents a universe of 5 million, as stated by Cohen et al (2007) in these fields in a short time. However, in surgical operations, such as a cyst operation or aortic dissection, it may take years to reach this number in specific diseases. For this reason, unlike other fields, in medical sciences, sample is one of the weakest areas of statistical science. It is possible to state that sampling theory is one of the subjects where this deficiency is felt the most.

Studies in the field of surgery have been limited due to sample collection, controlled experiments on patients, cross-sectional research, ethical issues and similar problems, the field of surgery is actually one of the areas where statistical evaluation and inferential studies are needed the most. Since it is considered that the diseases with the highest mortality rates in medical fields are related to the field of surgery, it is clear that diagnostic and predictive studies on mortality are needed the most in this field. For this reason, sample sizes in surgical studies are an important issue for biostatistics and medical studies as well as the field of surgery. In this section, a series of suggestions are made on sample sizes for

surgical publications, based on some surgical applications and field applications.

### **Concepts of Universe and Sample**

In a scientific research or study, the researcher can reveal the subject he wants to reveal with qualitative, quantitative or semi-quantitative methods. In general, a scientific study refers to the process that emerges with the researcher's doubts and intuitions, then qualitative and quantitative data are collected, and then statistical and linguistic analyses are made (Kaliyadan and Kulkarni, 2019; Biau et al, 2008; Dahiru et al, 2006; Kerry and Bland, 1998). Although it is not possible to make a difference or distinction in value and importance between qualitative and quantitative studies in this process, quantitative studies are generally considered to be more evidence-based because they contain more objective information.

On the other hand, the most important basic issue for every research and argument is the universe in which the argument or hypothesis is made. In this respect, the universe actually represents the entire segment in which we plan to conduct the research. In surgical procedures, the universe represents all patients who have undergone the operation in question. In addition, in some sources, the universe can be divided into sub-universes. For example, the universe can be patients who have undergone bariatric surgery, or in a more specific study, the universe can be female patients who have undergone bariatric surgery. As a result, the universe is the macro patient group that includes the entire patient group we want to talk about.

Both theoretically and practically, it is not possible to evaluate and measure all patients or statistical units in a universe. For this, a certain number of statistical units are taken from the universe, research is conducted on them and the results are

generalized to all patients. At this point, the concept of sample comes to the fore. Sample refers to statistical units selected randomly or based on a certain method within a certain universe. Although this statistical unit is usually patients in the medical field, in some cases, cases such as eyes, teeth, organs can also be taken as statistical units.

Making a scientific statement about a universe and developing a hypothesis also brings certain conditions. First of all, the sample must be made correctly. For the accuracy of the sample, it must first be above a certain number and then it must be homogeneous. When collecting data on a research subject, patients or, more generally, statistical units can accumulate with a certain margin of error. Many factors, from seasonal effects to social and economic characteristics, affect this accumulation. In this case, cumulative accumulations can occur in the sample. Various methods have been developed in the literature to ensure homogeneity in the sample. A series of methods have been developed from taking randomly numbered sampling cases to stratified, snowball, systematic sampling. The basis of these methods is to reveal that the facts within the universe are expressed in a way that includes as much difference as possible. In other words, the main purpose is for the sample to be as similar to the universe as possible.

Another important issue regarding the sample is the sample size. Theoretically, the first condition required for normality in statistics will be provided for 30 and above measurement units. However, another condition for normal distribution is that the distribution has similar characteristics to the standard normal distribution curve. For this purpose, tests such as Kolmogorov Smirnov or the concepts of skewness and kurtosis are used. Sample size is also an important concept that shows the representativeness of the research (McHugh, 2009; Taub and Westheimer, 2009). At



this point, another issue that is frequently made wrong and debated today, power analysis, comes to the fore.

Theoretically, the higher the sample size reached in a study, the more representative power it can be said to have. However, a topic that emerged in the last decade and spread throughout the medical field, and still has remnants today, is the power analysis performed to determine the sample size (Ryan, 2013). Basically, the minimum number of patients to be included is determined by selecting a certain margin of error from a past study. However, the fact that the sample size varies according to the studies taken, and even the sample numbers change according to different parameters in the same study, actually reveals the inconsistency of the power analysis in determining the a priori sample. This approach, which essentially suggests using the formula in the basic sample assumption in statistics according to publications, has begun to be disapproved by the statistical community today.

As a result, it is not possible to measure statistical units in the entire universe in a study. Therefore, sampling is the name given to taking a smaller number of patients that best represent that universe, in accordance with the available possibilities and conditions. In medical sampling, some methods such as time-based sampling come to the fore in determining the inclusion and exclusion criteria and the number of patients and are also accepted by the statistical community. However, determining different sample sizes according to different studies with power analysis contradicts the consistency of statistics and scientific approaches.

### **Sample Size in Surgical Studies**

Sample size in surgical studies is a process that brings about more discussions and problems compared to sampling methods in other medical fields. Whether elective or mandatory, mortality rates are higher in surgical operations compared to other medical

practices and fields. For this reason, it is possible to say that there are quite difficult processes in surgical operations in terms of both controlled experiments and cohort studies and reaching the sample size. In terms of sample size, the fact that diseases are rare and operations are more specific than other clinical practices and that voluntary participation is more limited than other sampling processes have important effects. In terms of sampling method, it is possible to talk about basic restrictions related to controlled applications to patients and ethical rules.

In a study in the field of surgery, although sample size may seem to be of vital importance, at this point it is necessary to look at what is sacrificed to reach that number of patients. For example, a data collection process that lasts three or four years for a rare disease may mean sacrificing the progress of the disease and treatment methods during this process. In other words, if it is a cross-sectional study rather than a time-dependent study, there may be different treatment processes, methods and follow-up periods in the same sample. For example, as laparoscopic and minimally invasive methods progress in a surgical process, differences with previous operation results and the possibility of type II error will increase. In this process, in order to share the research design and the surgeon's observation with other surgeons, the suspected medical condition should be written down as up-to-date as possible. In this way, it is possible to benefit from possible clinical and literature contributions to the maximum extent.

Another problem with the sample is the deficiencies in ethical principles and general guidelines regarding controlled studies. This situation brings about serious deficiencies in prospective studies both in terms of scientific content and methods, and in terms of the number of patients and therefore the sample size. For this reason, it can be stated that there are more retrospective studies in surgical research. However, it is possible to

state that there is a need for much more controlled and prospective studies in surgical studies, especially in terms of mortality and morbidity. For this reason, prospective studies in surgical studies are seen as more valuable and are accepted by journals more quickly.

Another important problem with sample size in surgical studies is related to follow-up periods. In general, surgical processes are procedures in which patients' anxiety levels are at their highest. Therefore, during a surgical process, the patient visits as many doctors and health institutions as possible. This situation indicates a serious lack of numbers in temporal or longitudinal studies for the sample.

In conclusion, surgical studies are the most important studies in terms of predictability and sensitivity among medical research. However, the difficulties in conducting prospective studies due to the rarity and specificity of the cases, inadequate guidelines, and follow-up problems resulting from patients changing different health institutions pose serious problems in determining the sample size and accessing that sample.

## **Conclusion**

Studies in the field of medicine and surgery are important studies that concern not only individuals and patients in that field, but also the entire society. Health is defined as a global public good and is taxed accordingly all over the world. Therefore, the studies we conduct on our own patients in the clinic are actually a common value for all of humanity or the global public. Therefore, in order to obtain the highest efficiency from these studies, studies that focus on method and content are needed.

The problems with sampling in surgical studies actually stem from the fact that this field is considered the same as other clinical fields. Although theoretically each study includes the same

subject, method, patient and findings, it is important because it will provide cumulative information and data for advanced meta-analysis. However, in practice today, when publishing, editors give priority to topics that have not been studied before, which prevents generalization and inferences in surgical studies, and surgeons turn to new topics after a certain number of studies. This situation can be explained by increasing the number of publications from the surgeon's perspective and increasing the number of citations with different publications from the editor's perspective. However, when viewed from a scientific perspective, each study is important for individuals to have a healthy and better life. In this respect, it is necessary to both encourage surgeons to conduct studies and to ensure that the studies conducted reflect the truth as much as possible and that the margin of error is minimal.

In this respect, it is beneficial to conduct scientific research using the convenience sampling method in surgical studies, and then switch to a large sample structure with meta-analyses. The convenience sampling method is a method in which patients who apply to the clinic within certain date ranges and meet the inclusion and exclusion conditions are taken. Since there is no sampling limitation in the method, the surgeon will not deviate from the main purpose of the research in order to reach as many patients as possible while conducting his research. Undoubtedly, every surgeon will want to include every patient who is possible and meets the conditions in the research. However, focusing only on numbers can actually lead to moving away from the basic essence of the research.

In conclusion, surgical operations are a relatively rare field with some limitations in terms of the number of patients due to patients changing health institutions during the follow-up period. However, it is also one of the areas where the most beneficial studies in terms of mortality and morbidity will be conducted.

Unlike other areas, there is a need for convenience sampling methods and more general clinical guidelines for further studies in surgical studies.

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## BÖLÜM 2

### OBEZİTEYE MULTİDİSİPLİNER YAKLAŞIM

HAKAN YENEL

#### Obeziteye Giriş

Obezite, alınan ve harcanan enerji arasındaki dengesizlik sonucu vücutta fizyolojik sınırların ötesinde aşırı veya anormal miktarda yağ birikimidir.(Bray et al, 2016:4)Obezite, multifaktöriyel, kronik ve progresif bir hastalıktır. Dünya Sağlık Örgütü (DSÖ), obeziteyi beden kitle indeksi (BKİ)  $\geq 30$  kg/m<sup>2</sup> olarak tanımlamakta ve bu durumu küresel düzeyde artan prevalansı nedeniyle 21. yüzyılın en ciddi halk sağlığı sorunlarından biri olarak nitelendirmektedir. Obezitenin etiyolojisinde genetik yatkınlık, hormonal dengesizlikler, çevresel etkiler, yetersiz fiziksel aktivite ve yanlış beslenme alışkanlıkları gibi pek çok faktör rol oynamaktadır. (Kadouh and Acosta ,2017:14) (Byrd et al, 2018:34 ) (Aggarwal and Jain 2018:21-22)

Obezite; tip 2 diyabet, kardiyovasküler hastalıklar, dislipidemi, hipertansiyon, bazı maligniteler ve psikososyal sorunlar başta olmak üzere çok sayıda komorbidite ile ilişkilidir. Bu kapsamda obezite, yalnızca bireysel değil aynı zamanda toplumsal, ekonomik ve sağlık sistemleri üzerinde önemli yük oluşturan bir halk sağlığı problemidir. Literatürde obez bireylerin normal kilolu olan bireylere göre fiziksel ve psikolojik hastalıklar yönünden daha



fazla risk taşıdığı belirtilmektedir. (Sharma et al, 2017:8) (Dobner and Kaser, 2018:24) (Ozden and Atabey, 2019:19) (Daly et al. 2019:22)(Yesil et al, 2019:19).Bu nedenle obez bireylerin sağlığını tehdit eden aşırı kilolardan kurtulmaları ve tekrar kilo almamaları önemlidir

## **Obezitenin Tanımı ve Epidemiyolojisi**

### **Obezitenin Tanımı**

Obezite, vücutta sağlığı bozacak şekilde aşırı yağ birikimi olarak tanımlanır. En yaygın kullanılan ölçüm aracı Vücut Kitle İndeksi (VKİ/BMI)'dir.

BMI, kilogram cinsinden ağırlığın, metre cinsinden boyun karesine bölünmesiyle hesaplanır. BKİ değerinin 18,5-24,9 arası olması “normal kilo”, 25,0-29,9 arası olması “kilolu” ve 30,0 ve üstü değer olması “obezite” olarak kabul edilir(WHO ,2016:12).

30 - 34,9: Obezite sınıf I 35 - 39,9: Obezite sınıf II

40 ve üzeri morbid obezite (sınıf III) olarak sınıflandırılır.Obeziteyi tanımlamak için bir diğer kriter bel çevresi ölçümüdür.Bel çevresi ölçümünde obezite kriteri kadınlarda bel çevresinin 88 cm, erkeklerde 102 cm üzerinde olmasıdır.

### **Obezitenin Epidemiyolojisi**

Dünya genelinde 1 milyardan fazla insanın obez olduğu hesaplanmıştır.DSÖ 2022 ).Bunların yaklaşık 650 milyonu yetişkin,340 milyonu ergen,39 milyonu ise çocuk yaş grubundadır. Son yıllarda obezitenin küresel çapta her yaştan bireyi etkileyen önemli bir sağlık sorunu haline geldiği görülmektedir .(Byrd et al, 2018:34)(TUIK ,2019:32)(Blüher ,2020:41)Türkiye'de yetişkin nüfusun yaklaşık %30-35'i nin obez olduğu belirtilmiştir.

Obezitenin etiyolojisi multifaktöriyel ve komplekstir .(8,20) Health Nİo, Obesity NAAftSo. The Practical guide: identification,

evaluation, and treatment of overweight and obesity in adults. NIH Publication Number ,2000:4084) (James PT, Leach R, Kalamara E, Shayeghi M. The worldwide obesity epidemic. Obesity research, 2001;9(S11):228S-33S)

Obezitenin etiyolojisinde genetik yatkınlık, hormonal dengesizlikler, çevresel etkiler, yetersiz fiziksel aktivite ve yanlış beslenme alışkanlıkları gibi pek çok faktör rol oynamaktadır (1,2,9) (Bray et al, 2016:4)

(Kadouh and Acosta ,2017:14) Aggarwal and Jain 2018:21-22)

### **Genetik ve Biyolojik Faktörler**

Genetik yatkınlık: Ailede obez bireylerin bulunmasının riski arttırdığı bilinmektedir.Genetik yatkınlığa bağlı olarak bu bireylerde özellikle leptin, melanokortin reseptörleri gibi genlerdeki mutasyonların enerji dengesini etkilediği,bazal metabolizma hızının düşük olduğu, insülin, leptin, ghrelin gibi hormonlarda dengesizlikler olduğu, barsak flora dengelerinin bozukluğu sebepler arasında sayılmaktadır.

### **Beslenme Alışkanlıkları**

Yüksek kalorili, yağlı ve şekerli yiyeceklerin tüketimi,düzensiz öğünler,büyük porsiyonlar ve hızlı yemek yeme obeziteyi hazırlayıcı nedenler olarak ön plana çıkmaktadır.

### **Fiziksel Aktivite Eksikliği**

Günlük yaşamda hareketin azalması, Egzersiz yapma alışkanlığının olmaması ekran başında geçirilen sürenin artması , ileri teknoloji ürünü araçların (cep telefonu, televizyon, bilgisayar, ev sineması vb.) kullanımının yaygınlaşması obezite oranının artmasına önemli ölçüde katkıda bulunmaktadır ( Health Nİo, Obesity NAAftSo. The Practical guide: identification, evaluation,

and treatment of overweight and obesity in adults. NIH Publication Number ,2000:4084) TEMD (Obezite LM, Hipertansiyon Çalışma Grubu TÜRKİYE ENDOKRİNOLOJİ ve METABOLİZMA DERNEĞİ, 2018:40-41-42 ) Sağlık Hizmetleri TSBTS, Müdürlüğü G. Türkiye obezite (şişmanlık) ile mücadele ve kontrol programı, 2010:23 )

### **Psikolojik Faktörler**

Duygusal yeme eğilimi,düşük benlik algısı ve yetersizlik hissi,yeme bozuklukları gibi durumlar obeziteyle ilişkilidir.

### **İlaçlar ve Tıbbi Nedenler**

Antidepresanlar, kortikosteroidler, antipsikotikler kilo alımına neden olabilir.

Endokrin bozukluklar: Hipotiroidi, Cushing sendromu, polikistik over sendromu (PCOS) gibi hastalıklar obeziteye yol açabilir.

### **Uyku Bozuklukları**

Yetersiz uyku, leptin ve ghrelin hormon dengesini bozarak iştah artışına neden olur.Uyku apnesi gibi hastalıklar hem sonuç hem neden olabilir.

### **Sosyoekonomik ve Kültürel Faktörler**

Düşük gelir ve eğitim düzeyi ,kültürel normlar ,şehirleşme ve yaşam tarzı obeziteyi tetikleyebilen faktörlerdir.

### **Obezitenin Sonuçları**

Obezite sadece estetik bir sorun değil, aynı zamanda çok sayıda fiziksel, psikolojik, sosyal ve ekonomik sonucu olan kronik bir hastalıktır.

## **Fiziksel (Tıbbi) Sonuçlar**

### **1. a) Metabolik Hastalıklar**

Tip 2 Diyabet (T2DM): Obez bireylerde insülin direnci gelişir ve kan şekeri kontrolü bozulur.

Metabolik Sendrom: Obezite, hipertansiyon, dislipidemi ve glukoz intoleransı birlikteliğiyle görülür

Dyslipidemi: LDL ve trigliserit düzeylerinde artış, HDL'de azalma görülür.

### **2. b)Kardiyovasküler Hastalıklar**

Hipertansiyon: Obezitenin en sık eşlik eden durumlarından biridir.

Koroner arter hastalığı ve kalp krizi riski artar.

Kalp yetersizliği ve ritim bozuklukları obez bireylerde daha yaygındır.

### **3. c) Solunum Sistemi Sorunları**

Obstrüktif Uyku Apnesi: Uyku sırasında nefes durmaları (apne) sık görülür.

Astım ve solunum zorluğu: Göğüs duvarına binen yük nedeniyle solunum mekanikleri bozulur.

### **4. d)Kas-İskelet Sistemi Problemleri**

Osteoartrit (eklem kireçlenmesi): Özellikle diz, kalça ve belde görülür.

Bel ve sırt ağrıları: Vücut ağırlığının artışı omurgaya yük bindirir.

### **5. e)Gastrointestinal Problemler**

Karaciğer yağlanması (NAFLD): İleri evrelerde siroz gelişebilir.

Safra kesesi taşları ve reflü: Obez bireylerde daha sık görülür.

#### 6. f)Kanser Riski

Obezite; meme, endometrium, kolorektal, yemek borusu, pankreas, böbrek gibi çeşitli kanser türleriyle ilişkilidir.(TEMD (Obezite LM, Hipertansiyon Çalışma Grubu TÜRKİYE ENDOKRİNOLOJİ ve METABOLİZMA DERNEĞİ, 2018:40-41-42 )

#### **Psikolojik Sonuçlar**

Sosyal damgalanma ,depresyon,anksiyete gibi durumlar obez bireylerin kalıcı kilo verme süreci ve tedaviye uyumu daha da zorlaştırmaktadır. (Nigatu et al, 2017:18)

#### **Sosyal ve Ekonomik Sonuçlar**

İş gücü kaybı ve üretkenlikte azalma,İş yerinde ayrımcılık,sağlık harcamalarında artış görülebilen sosyal ve ekonomik sonuçlardır.

#### **Yaşam Kalitesinde Azalma**

Fiziksel aktivitenin kısıtlanması,sosyal yaşamdan çekilme,günlük işlevlerde zorluk görülür.

#### **Obezite Tanı ve Değerlendirme Süreci**

Obezite kronik bir hastalık olarak kabul edilmeli ve buna uygun olarak yönetilmelidir(Harvey E, Glenny AM, Kirk S, Summerbell C. An updated systematic review of interventions to improve health professionals' management of obesity. obesity reviews, 2002;3(1):45-55)

#### **Klinik Öykü (Anamnez)**

İlk değerlendirme aşamasında ayrıntılı hasta öyküsü alınmalıdır.Bu değerlendirmede ;

kilo alma süreci (ne zamandır kilo alındığı, hangi dönemlerde arttığı ),beslenme alışkanlıkları( öğün sayısı, porsiyon büyüklüğü, gece yeme alışkanlığı),fiziksel aktivite düzeyi( günlük hareketlilik, egzersiz yapma alışkanlığı),ailede obezite öyküsü ,ilaç kullanımı( Kilo alımına neden olabilecek ilaçlar( kortikosteroidler, antidepresanlar vs.))ve altta yatan hastalıklar(hipotiroidi, PCOS, Cushing sendromu gibi endokrin hastalıklar) dikkatle sorgulanmalıdır.

### **Fizik Muayene**

Boy , kilo ve bel çevresi ölçümü yapılarak bireyin obezite düzeyi hesaplanmalıdır.

### **Laboratuvar ve Biyokimyasal Testler**

Amaç: Obeziteye eşlik eden metabolik hastalıkları ve risk faktörlerini değerlendirmektir. Buna ışık tutacak kan tahlileri yardımcı olacaktır.

Yaygın olarak ;Açlık kan şekeri ve HbA1c ,lipid profili (kolesterol, HDL, LDL, trigliserid) ,Karaciğer fonksiyon testleri ,TSH, T3, T4 ,İnsülin düzeyi ve HOMA-IR ,Ürik asit, üriner protein kullanılır.

### **Psikolojik ve Davranışsal Değerlendirme**

Yeme davranışları analizi ,psikiyatrik değerlendirme,motivasyon ve farkındalık düzeyi mutlaka değerlendirilmelidir.

### **Komorbiditelerin Tespiti:**

Tip2 diyabet,hipertansiyon,kardiyovasküler hastalıklar, Uyku apnesi ,osteoartrit,gastroözofageal reflü,polikistik over sendromu (kadınlarda) obeziteye yandaş hastalıklardır

## **Risk Sınıflaması ve Takip Planlaması**

Tanı konduktan sonra birey, BMI, bel çevresi ve ek hastalıklar dikkate alınarak **kardiyometabolik risk açısından sınıflanır** ve uygun bir tedavi planı oluşturulur.

## **Multidisipliner Yaklaşımın Önemi**

Obezite, yalnızca fazla kilo sorunu veya fazla yemek yemekten kaynaklanan bir durumdan öte aynı zamanda biyolojik, psikolojik, sosyal ve çevresel faktörlerin bir araya geldiği kompleks bir kronik hastalıktır. Bu nedenle tedavisinde birden fazla disiplinin iş birliği içinde çalışması gerekir. Kilolu ve obez bireylerin sağlıklı ve kalıcı bir şekilde kilo verebilmesi için tek başına diyet ya da egzersiz yeterli olmaz. Bireyin ayrıntılı muayenesi sonucu ortaya çıkan tablo tahminen obezite nedeninin multifaktöryel temelli olacağının göstereceğinden sadece diyet ve gıda alımını kısıtlama kilo veriminde kişiyi zayıflaması için başarıya ulaştıramayacaktır. Buradan yapılması gereken çıkarım tek bir sağlık profesyoneli ile başarının sağlanmasının son derece zor olacağıdır. Uygulanan yöntemin düzenli ve etkili işleyebilmesi için de sağlık profesyonellerine büyük görevler düşmektedir. (Ertem, 2017:22) Bu ekip genellikle endokrinolog, metabolik cerrahi uzmanı, diyetisyen psikolog ve fizyoterapistten oluşmaktadır. Bu ekip sayesinde sağlıklı yeme alışkanlığı yeniden kazanılabilir, hasta sürekli takip edilebilir.

## **Tedavi Seçenekleri**

Obezite tedavisinde amaç, obeziteye ilişkin morbidite ve mortalite risklerini azaltmak, bireye yeterli ve dengeli beslenme alışkanlığı kazandırarak yaşam kalitesini yükseltmektir (Martin KA, Mani MV, Mani A. New targets to treat obesity and the metabolic syndrome. European journal of pharmacology, 2015;763:64-74.)

Obezitede tedavi, kişiye özel, basamaklı ve bütüncül bir yaklaşımla planlanmalıdır. Amaç yalnızca kilo vermek değil; aynı zamanda sağlıklı kilo kontrolünü sürdürmek, komplikasyonları önlemek ve yaşam kalitesini artırmak olmalıdır.

### **Yaşam Tarzı Değişiklikleri (İlk Basamak)**

Temel amaç vücut ağırlığını hedeflenen düzeye indirmek, bireyin günlük besin ihtiyacını yeterli ve dengeli bir şekilde karşılamak, bireye doğru beslenme alışkanlıkları kazandırmak, hedef kiloya ulaştıktan sonra kilonun korunmasını ve kontrolünü sağlamak olmalıdır (Harvey E, Glenn AM, Kirk S, Summerbell C. An updated systematic review of interventions to improve health professionals' management of obesity. obesity reviews, 2002;3(1):45-55)

(Hensley RD. Primary care management of obesity: Individualized treatment strategies. The Nurse Practitioner,2018;43(7):41-8.)

### **Tıbbi Beslenme Tedavisi**

Sürdürülebilir, uzun vadeli beslenme alışkanlığı hedeflenir

- Diyetisyen eşliğinde kişiye özel beslenme planı yapılır.Kalori açığı oluşturmak esas olup haftalık 0.5–1 kg kayıp hedeflenir.Doymuş yağ, şeker ve rafine karbonhidratlar azaltılırken protein ve lif oranı arttırılarak tokluk hissi desteklenir.

### **Fiziksel Aktivite**

Genel olarak, her yaştaki hasta için, günde ortalama 30-45 dakika süren ve mümkünse haftanın her günü yapılan orta düzeyde bir fiziksel etkinlik önerilmelidir (Sağlık Bakanlığı TS. Türkiye Fiziksel Aktivite Rehberi 2014:940)



Sedanter kişilerde başlangıçta yürüyüş ile başlanmalı; sonrasında tempolu yürüyüş, orta şiddette koşu, bisiklet ve yüzme gibi aerobik egzersizler ile devam edilmelidir

### **Davranışsal Terapi**

Psikolog eşliğinde bireyin yeme ve yaşam alışkanlıkları yeniden yapılandırılarak duygusal yeme, dürtüsel davranışlar ve stresle baş etme becerileri geliştirilir. Obezite tedavisinin en önemli paçalarından birisi de davranış tedavisidir. Amaç hastanın yeme ve aktivitesiyle ilişkili alışkanlıklarında farkındalık ve değişim oluşturmaktır. Kalıcı kilo kontrolü sağlayabilmenin birinci koşulu, hastada başarabileceği duygusunu uyandırıp motivasyonunu sağlamaktır

### **Farmakolojik Tedavi (İlaçlar)**

İlaç tedavisi hiçbir hastada tek başına kullanılmamalı, egzersiz, diyet ve davranış değişikliği ile kombine edilmelidir. Beden kitle endeksi 30kg/m<sup>2</sup> ve üzerinde olup ameliyat ve ilaç kullanmadan yapılan tüm yöntemlere rağmen kilo azalması sağlanmayan olgulara ve beden kitle endeksi 27-29,9 kg/m<sup>2</sup> düzeyinde olup, Tip 2 Diyabet, koroner arter hastalığı, hipertansiyon, dislipidemi gibi metabolik hastalığı olan olan obezlere ilaç tedavisi başlanabilir.(10)Kullanılan ilaçlar değişik yollarla iştahı ya da emilimi azaltmak üzerine etki gösteren ilaçlardır.

*Tablo 1: Obezite tedavisinde kullanılabilen farmakolojik ajanlar*

<i>İlaç</i>	<i>Etki Mekanizması</i>	<i>Notlar</i>
<i>Orlistat</i>	<i>Yağ emilimini engeller</i>	<i>GI yan etkiler</i>
<i>Liraglutid (GLP-1 agonisti)</i>	<i>İştahı azaltır, tokluk hissi verir</i>	<i>Subkutan enjeksiyon; diyabet tedavisinde de kullanılır</i>
<i>Semaglutid</i>	<i>Güçlü GLP-1 analogudur</i>	<i>Haftalık enjeksiyon; obezite için onaylıdır</i>
<i>Naltrekson/Bupropion</i>	<i>Beyindeki ödül ve açlık merkezini etkiler</i>	<i>Psikiyatrik yan etkiler gözlenebilir</i>
<i>Lorcaserin</i>	<i>Selektif seratonin reseptör agonisti</i>	
<i>Topiramate</i>		<i>Antiepileptik</i>
<i>Fentermin</i>		<i>Semptamomimetik ajan</i>

*kaynak(10,16,20)*

## **Bariatrik (Obezite) Cerrahisi**

### **7. Bariyatrik cerrahi kimlere uygulanır?**

BKİ 40 kg/m<sup>2</sup> daha fazla olan kişilerde başka bir hastalık aramaksızın bariyatrik cerrahi uygulanabilir.

BKİ 35-40 arasında olan kişilerde bariyatrik cerrahi uygulamak için yandaş bir hastalığın varlığı gerekir .Obez bireyin Tip 2 diabetes mellitus , hipertansiyon , uyku apnesi ,alkol dışı yağlı karaciğer hastalığı veya “non-alkolik steatohepatit , Gastro-özofagial reflü hastalığı ,Astım veya günlük yaşamı etkileyen artrit gibi metabolit yandaş bir hastalığının varlığında endikasyon doğar.

Bariyatrik cerrahi kimlere uygulanmaz?

18 yaşından küçük veya 65 yaşından büyük olan, tedavi edilmemiş ve obeziteye yol açan bir endokrin hastalığın olan , tedavi edilmemiş bir yeme bozukluğu, (bulimia nervosa gibi), majör

depresyon, psikoz ya da alkol veya madde bağımlılığı olan, ameliyatı zorlaştırabilecek ciddi bir pıhtılaşma bozukluğu olan ,anesteziye engel bir patoloji olan hayat boyu sürececek vitamin replasmanı ya da kalori kısıtlayıcı diyet gibi beslenme önerilerine uyum sağlayamayacak olan, halen gebe olan veya 12-18 ay içinde gebelik planı olan, bilinen kanser hastalığının olan, portal hipertansiyonu olan bireylerde bu ameliyatlar kontrendikedir.

### **Başlıca Cerrahi Yöntemler**

Kullanılan cerrahi yöntemler 3 ana başlıkta toplanmıştır.

8. 1. Emilim Bozucu Yöntemler; Emilimin aktif olduğu ince barsak uzunluğunu kısaltarak, absorpsiyon yapılan alanın bypass edilmesi ve/veya emilimde rol oynayan biliopankreatik salgılarla karşılaşmayı engelleyerek kilo kaybına yol açan ameliyatlardır.
9. 2. Alımı Kısıtlayıcı Yöntemler (hacim küçültücü); Mide hacmini küçültüp gıda alımını azaltarak kilo kaybı sağlayan ameliyatlardır. İnce barsağın absorpsiyon fonksiyonunda değişiklik olmaz.
10. 3. Kombine Yöntemler; İlk iki yöntemin (emilim bozucu + alımı kısıtlayıcı) kombine edilmesiyle geliştirilen yöntemlerdir. Her iki etkiden de yararlanır.

### **Cerrahinin Faydaları:**

Ortalama %50–70 oranında fazla kilonun kaybını sağlayan bu ameliyatların sonrasında varsa tip 2 diyabette çok hızlı bir kan şekeri remisyonu sağlanmakta ,kardiyometabolik riskler belirgin azalmakta, yaşam kalitesinde artış görülmektedir.

#### **4. Ameliyatsız yöntemler**

### **Cerrahi dışı yöntemler**

Endoskopik yöntemler: Mide balonu bu grupta sayılabilir.

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## **BÖLÜM 3**

### **RELATIONSHIP BETWEEN ROBOTIC SURGERY METHODS AND ELECTIVE SURGERY**

**MAHMUT DURAN<sup>1</sup>**

#### **Introduction**

In the treatment process of a disease, surgery is the last preferred medical method because it involves very few invasive procedures. However, in some cases, surgical methods may not be the last resort or the only option (Fu et al, 2020; MacCormick et al, 2003; Kearon and Hirsh, 1997). In particular, in some applications of plastic surgery and surgical operations performed for more aesthetic concerns, the level of electiveness may be higher. In other words, in some surgical applications, there may be a matter of discretion rather than necessity (Edmonds, 2013). At this point, discussions continue on the extent to which surgical procedures involve invasive interventions and to what extent they are related to body integrity. However, even in a surgical application that has been decided to be elective, the surgeon generally tends to perform the least invasive procedure possible.

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The necessity of a surgical procedure may vary not only according to the type of operation or the area of the disease, but also according to different treatment alternatives for a single disease. For example, a rhinoplasty and gallbladder surgery are two different disease treatment methods in terms of necessity, and rhinoplasty can be considered relatively elective (Seetan et al, 2025; Adugna et al, 2023; Lloréns, 2013). On the other hand, in some surgical methods such as hydatid cyst and kidney stones, surgical treatment can be considered elective or elective within medical treatment methods. Therefore, when talking about whether a surgical procedure is elective or not, it is necessary to consider together the benefits and harms of the same surgical method for different diseases, as well as the treatment opportunities offered by different treatment methods for the same disease.

In the treatment process of some diseases, when deciding between surgical methods and other medical treatment methods, the degree to which the surgical method will harm the body integrity and the level of invasive intervention the patient will be exposed to become important criteria in decision making (Edmonds, 2013). At this point, robotic surgery methods come first among the developments that are stated to have relatively increased the preference for surgical treatment methods.

Robotic surgery, in its most general definition, is a computer-aided surgical operation that aims to obtain the most effective results by performing the least invasive intervention. Although many different definitions were used in the early days of robotic surgery, the most common of these and the definition that also shows the superiority of the method is minimally invasive surgery (Diana and Marescaux, 2015; Lanfranco et al, 2004). In fact, minimally invasive surgery is a definition that should be used for all surgical procedures. Because every surgeon tends to complete the surgical process with the least possible time and intervention. However, the fact that the

margin of error is minimized in robotic or computer-aided systems and that the procedures have deviation values under millimeters in incisions or possible interventions has caused robotic surgery to be used with the definition of minimally invasive compared to classical surgical procedures (Kalan et al, 2010; Mack, 2001). In addition, the fact that robotic surgery does not vary much from surgeon to surgeon and has a higher standardization in surgical procedures allows robotic surgery to be described as minimally invasive in terms of invasive procedures.

With the development of minimally invasive and robotic surgery methods, open surgical methods have given way to surgical procedures that are performed in shorter periods of time, allow patients to return to their daily lives in a shorter period of time, and involve less invasive procedures. At this point, there has not been sufficient study and discussion on the direction in which elective surgical procedures are shifting and to what extent robotic surgery affects surgical methods in general treatment processes. However, with the decrease in the disadvantages of surgical methods compared to open surgeries in the past, there should be a significant change in this balance of preferences. In this section, it was aimed to examine the effects of developments in robotic surgery methods on the theoretical preference of elective surgery methods.

### **Concepts of elective and necessary surgical procedures**

In fact, whether a surgical procedure is elective or not brings up some ethical questions. When it is considered that a surgeon will not perform an invasive procedure or surgery unless necessary, the level of electiveness of the surgical option becomes open to discussion. At this point, it is necessary to define the concept of elective surgery well and draw its boundaries well.

By definition, elective surgery means that there is no urgent need for the surgical intervention in question, but it should be



performed within the framework of a specific plan and program (Diaz et al, 2020; Fregene et al, 2017). According to this definition, although surgical operation is not a matter of discretion, there is flexibility in when the operation will be performed.

In general, surgical procedures are medical conditions that require urgency, acute or short-term intervention. Injuries that occur after trauma or accidents, advanced malignancy or serious complications require urgent intervention. In such health problems, surgery is both the only option and an urgent intervention. On the other hand, in cases such as tonsillectomy, aesthetic surgeries, benign but cosmetically disturbing lesions, both the duration and the procedure are determined by communication and consensus between the surgeon and the patient, and are considered elective operations.

The word originates from the concept of elective, which refers to the possibility of choice or the situation where there are conditions for choice. Therefore, it is understood that in elective cases, the surgeon and the patient have the opportunity to choose different treatment methods. However, in literature and practice, since the surgeon prefers minimally invasive procedures as a principle and always prioritizes body integrity ethically, this condition of choice is considered limited only to the time of the operation. In addition, developments in treatment processes and new alternatives aim to eliminate the need for surgical methods or to perform operations with minimal surgical methods. Therefore, from a surgical perspective, the concept of elective is mainly related to whether the operation is acute or planned. From a patient perspective, it can be stated that the purpose and type of the intervention also come to the forefront in terms of whether the surgical option is elective or not. For example, it is seen that aesthetic surgery is mostly evaluated as elective, and is a matter of choice when viewed from a surgical or evidence-based medicine perspective. Although aesthetic surgery is also a subject related to

psychiatric illnesses today, it is possible to argue that aesthetic operations are more elective in a surgical sense compared to other types of surgery.

### **Robotic surgery overview**

Robotic surgery is the general name given to operations performed with robot support or computerized system support. The most important feature of robotic surgery is that the operation is mostly performed by a surgeon with robotic arms (Sheetz et al, 2020; Ng et al, 1993). Although computerized systems know the necessary and sufficient instructions for the entire operation process, due to the different and multivariable structure of patients and cases, the process is managed by surgeons with high open surgery experience in robotic surgery methods.

The basic principle of medicine and medical ethics is to heal and cure patients. However, while doing this, since there will be some external factors, the body will have a defense and resistance mechanism against every medical intervention. In this resistance process, the body will be damaged to a certain extent while trying to protect itself. Therefore, it is possible to describe treatment as an intervention that has more benefits than harms. Therefore, the most basic goal in surgical procedures is to manage the surgical process with the least possible intervention and intervention and to restore the patient's health. The most important issue for this is minimally invasive procedures.

Although minimally invasive surgery is basically an approach that is presented with the aim of minimizing intervention and causing the least harm to the patient, every surgical operation involves a serious invasive process. However, in order to minimize this, surgical methods with much higher sensitivity than human sensitivity are being developed (Jaffray, 2005; Darzi and Munds, 2004; Tendick et al, 1998). The main goal of these methods is to

provide the most effective treatment and health opportunity by using the least invasive procedure.

Robotic surgery allows patients to undergo the least invasive procedure, and complications that may arise from humans or surgeons during the procedure are minimized. Since robotic arms do not contain emotions that may affect decision-making mechanisms, such as sleep, anger, joy, and sadness, they do not include the problems experienced in surgical procedures, albeit limited (Ciuti et al, 2025; Brodie and Vasdev, 2018; Ahmad et al, 2017; Wedmid et al, 2011). In addition, robotic methods allow interventions and procedures to be performed with fewer complication rates by making comparisons that include historical data and computational-based evaluations.

### **Relationship between robotic surgery and elective surgery**

The relationship between robotic surgery and elective surgery can be considered from two perspectives. The first of these is the relationship between robotic surgery and elective surgery in terms of choosing between treatment methods, and the other is the relationship between robotic surgery and elective surgery in terms of preferences for non-essential surgical methods. In the first, the surgeon's decision-making authority and involvement process is at the highest level, while in the second, the patient's authority and involvement in the decision-making process is at the highest level.

Although treatment agents and methods are developing during the treatment process, surgical option is one of the most prominent methods. However, in some operations such as tumor removal and tonsillectomy, laser methods are being developed as an alternative to surgical methods. Although these methods are seen as surgical interventions in essence and in principle, many risks and undesirable results in open surgery are minimized through closed operations.

Robotic surgery has enabled less invasive interventions in terms of the physician's freedom to choose treatment, thus enabling a higher level of surgical options. In other words, robotic surgery helps the surgeon to give more weight to surgical alternatives when making a decision during a treatment process. When considered from this perspective, robotic surgery has an effect on increasing surgical interventions in medical conditions that have alternatives during the treatment process and do not require acute intervention in terms of duration.

In terms of patient selection, robotic surgery provides much higher comfort to the patient than open surgery. The most important of these are minimum invasion, quick recovery and return to daily life. The recovery and return to daily life process that takes days with open surgery has been reduced to a very short time thanks to robotic surgery. In addition, robotic surgery gains more trust from patients in terms of bringing surgeries to a certain standard and minimizing complications. In this case, it increases the tendency of patients to choose a surgical method among the treatment options of the same disease and to perform surgical procedures that are not actually necessary due to aesthetic or similar reasons.

In short, robotic surgery increases both the number and the direction of elective surgeries for the patient and the surgeon. Despite the increasing surgical interventions, there is a significant decrease in invasive procedures and complication rates compared to open surgeries performed in the past. Based on this, it is possible to say that robotic surgery has made a significant contribution to the field of elective surgery.

## **Conclusion**

Surgical methods have an important place in the treatment process of a disease and today, they provide important and effective results in many diseases with high mortality and morbidity. Both the

invasiveness of the function and the fact that it is applied more for cases with high mortality risk show that surgical methods are the most important treatment alternative in medical processes. Today, there are developments in many areas from smart drug use to functional medicine, from preventive medicine to epidemiological studies, which are being developed as alternatives to many surgical methods. However, surgical treatment is seen as the only and most important treatment option in many vital situations such as emergency injuries, traumas, malignancies, organ and functional disorders.

With the development and advancement of robotic surgery methods, more optimal solutions are offered against many negative situations that occur in open surgeries. As a result, robotic surgery is becoming more widespread and the level of preference of patients and physicians for robotic surgery is increasing. As a result of this increase in preference, it is necessary to look at whether the procedure is elective or not in order to decide whether it is in the interest of the patient and the public.

Deciding whether surgical methods are elective or not, not only physical health but also mental and psychological health should be taken into consideration. Although in the past, when it comes to evidence-based modern medicine, physical health and quantitative indicators were the first things that came to mind, today it has been shown that the psychological and neurotic states of individuals have an important contribution and effect in many diseases and treatment processes. In this respect, instead of evaluating each surgical procedure as only functionally elective or not, it is necessary to consider it multivariately, multidisciplinary and with different perspectives.

One of the most important contributions of robotic surgery is the removal of the limitations of minimally invasive surgery to a large extent. In this respect, robotic surgery provides the opportunity

to more effectively intervene in cases that were difficult or impossible to intervene with minimally invasive surgery in the past and to manage the treatment process. Therefore, with the advances in robotic surgery methods, there has been a significant increase in elective surgical procedures.

Although the priority of physicians and surgeons in the health system is generally the lives and health of individuals, there may also be unwanted financial interest-oriented approaches in health institutions. Especially in countries and systems where supervision and public weight are low, health is seen as a marketing issue, and due to the high economic returns of surgical procedures and especially robotic surgery, it can be supported for profit. In this case, robotic surgery can also lead to malicious health procedures. In order to prevent these negativities, public supervision alone is not enough, and necessary developments and inspections must also be made on the patient side. Especially today, individuals must be reached on social media and digital environments, and actions that will increase health literacy and digital literacy levels must be mobilized.

As a result, whether in elective or mandatory surgical procedures, robotic surgery minimizes the negative aspects such as minimally invasive limitations of surgeries, differences arising from surgeon differences, and more invasive procedures compared to alternative treatment methods. This situation allows for more intensive use and preference of robotic surgery in elective surgical procedures.

More research can be conducted on the effects of robotic surgery on the surgical field in general, as well as on other treatment processes and public health, and on its contribution or harm to health costs. In this way, the effects of robotic methods on surgical procedures and their reflections on treatment processes can be analyzed more effectively. In addition, further studies can include multi-faceted and supported studies on the participation of patients

in the treatment process, their trust in robotic surgery methods and their effects on treatment success.

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## **BÖLÜM 4**

### **NEW TRENDS IN BARIATRIC SURGERY AND WEIGHT CONTROL**

**MAHMUT DURAN<sup>1</sup>**

#### **Introduction**

With the increasing urbanization and the increasingly sedentary lifestyle, obesity is one of the most important health problems of our age (Katzmarzyk et al, 2015; Mitchell et al, 2009; Rey-López et al, 2008; Manson et al, 2004). Although awareness of healthy nutrition, alternative food types and functional food nutrition has increased, it is becoming more difficult for individuals to control their weight every day (McLean et al, 2003; Vainio and Bianchini, 2002; Stefanic, 1993). The main reasons for this are easier access to food and a significant decrease in physical activity levels. The increase in time spent on social media and the internet in particular has caused a significant loss of physical activity in young people and adults.

The most effective and important way not to gain weight is to ensure a balance between calories taken and calories lost. In order to lose weight, no matter what method is tried, it is necessary to

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create a calorie deficit. When it is considered that calorie intake is through nutrition and calorie loss is through physical activity, it is possible to say that both of the important factors for weight control today are working against weight control.

Although there are many options for individuals to combat weight gain and obesity, such as adjusting their diet, increasing physical activity, hormone or herbal supplements, and medical interventions, surgical methods are widely used today (Maggard-Gibbons et al, 2013; Fobi et al, 2005; Balsiger et al, 2000). In fact, although surgical intervention is the last resort for an illness or health problem, this is not exactly the case in bariatric surgery. While individuals need to have very strong willpower during the nutrition phase and for physical activity, today's intense stressful urbanization and technological advances make it difficult to achieve this willpower.

While interest in bariatric surgery methods for weight control is increasing day by day, alternative methods for weight control with less invasive procedures are constantly being sought in bariatric surgery methods. There is an approach based on the principle of continuous development in many areas, from the methods used to the selection of materials, from the type of surgical intervention to the degree of effectiveness of the intervention. However, it can be stated that there are not enough studies and researches on the relationship between the development and advancements of these methods and weight control, and what kind of a change and development process is involved. In this section, it is aimed to examine the relationship between modern trends in bariatric surgery methods and weight control.

## **Bariatric Surgery and Weight Management**

Bariatric surgery or obesity surgery methods are generally a term that includes Sleeve Gastrectomy (gastric tube), Minigastric

bypass, diabetes surgery with small intestine bypass with a gastric sleeve, and Roux-En-Y bypass surgeries (Angrisani et al, 2015; Runkel et al, 2011; Elder et al, 2007). Apart from these, although there are different techniques from the stapler used to the surgical method, the most commonly used are the gastric sleeve and bypass techniques. Although there is no definitive distinction as to which method is superior, which involves a less invasive procedure, and which is more effective in losing weight, it can be stated that the method is generally selected according to the patient's condition and clinical characteristics (Arterburn et al, 2020; Karmali et al, 2010; Santry et al, 2005).

The main purpose of bariatric surgery methods is to minimize food intake in weight control, thus creating a calorie deficit and enabling individuals to lose weight. However, in both method groups, in the methods of sleeve gastrectomy or partial removal of the stomach, and in bypass methods, the focus is only on the calorie intake part of the weight control process (Piche et al, 2015; Sjöström et al, 2012; Nguyen et al, 2011). Therefore, at the end of the bariatric surgery process, supportive treatments such as appetite suppressants, diet programs, and lifestyle changes are given. One of the first questions that comes to the patient's mind during this process is whether they can lose weight with these measures without having bariatric surgery procedures. In other words, since weight loss will already be achieved in the long term after paying attention to what they eat and drink, the necessity of bariatric surgery methods is questioned. Therefore, patients who come to bariatric surgery wait too long and are taken into surgery with a high body mass index.

In fact, although this idea is theoretically valid, the problem here is how long the long term is and after reaching a certain threshold, weight control is no longer possible with these measures. In addition, in cases of comorbid diseases and deterioration in health conditions caused by excessive weight, health conditions and

complications that require urgent weight loss, bariatric surgery is an inevitable option.

Although bariatric surgery is not a weight control method, it plays an important role in making the weight that is out of control manageable. When the patient reaches the stage of morbid obesity, the patient's blood and laboratory parameters, as well as body parameters, get out of control over time, and very serious health problems occur. For this reason, bariatric surgery methods offer effective and important opportunities for effective weight control. However, although it contributes significantly to weight control, bariatric surgery is ultimately a surgical operation and can be shown among the medical solutions that should be applied after all other medical methods have been tried.

### **New Trends in Weight Management**

The term weight control for individuals is understood as being in the ideal weight range according to age and height. Although many different approaches have been introduced for the ideal weight rate, the most common ideal weight indicators today are body mass index and visceral fat indexes (Paixão et al, 2020; Kim, 2007; Serdula et al, 1993). These indexes generally show the weight per unit area, not the total weight of individuals or their body volume.

Ideas about ideal weight have been associated with societal and social reasons as well as medical reasons. While being overweight was seen as being well-groomed and attractive, especially in Middle Eastern societies, this perception is gradually being replaced by the concept of “fit” (Krukowski et al, 2008; Greenberg et al, 2006). Today, in Anatolia and many rural areas, low weight is still associated with diseases, and people who are underweight are believed to have serious health problems. However,

it is possible to say that obesity is a much more dangerous and health-threatening problem when compared to being underweight.

The general trend in modern societies regarding weight is moving towards a more “slim fit” look and a direction where people consume less food and consume fewer calories. For this reason, the posts of dietitians, doctors and health workers, whose number increases every day on social media, and the informative content of pharmaceutical companies and food companies are causing a society to become more conscious about weight control. In addition to these, it is possible to obtain information about the calories and nutritional values of every food every second through smartphones and the internet. While in the past, consumers only had access to food information based on information provided by food manufacturers, today they have the opportunity to receive more comprehensive and interactive information.

In addition to all these positive aspects of weight control, there are also some negative outcomes of technological developments. The most important of these are sedentary lifestyle and decreased physical activity. With the advancement of technology, communication and transportation tools bring both higher comfort and faster movement and sharing opportunities. However, this situation limits the physical activities of individuals, and individuals are developing more dependent on computer or phone screens. As a result of this process, there may be significant disruptions in physical activity in weight control.

To summarize the new trends in weight control, it is seen that there is a greater tendency towards the calorie intake side of weight control, but there is a negative tendency towards the calorie loss side, i.e. physical activity. In other words, the methods to give calories are decreasing, while new trends are developing to reduce calorie intake. However, as a result, the increasing tendency of the prevalence and incidence of obesity in every age and group shows that the lack of

physical activity in weight control is greater and that the innovations and trends made on nutrition are not sufficient to close this gap.

### **New Trends in Bariatric Surgery**

Bariatric surgery, unlike other surgical methods, is one of the health areas that is most frequently subject to medical tourism. As a result of the increasing difficulty of weight control due to the reasons mentioned in the previous heading, individuals increasingly feel the need to lose weight in a sense for weight control and resort to bariatric surgery for this purpose. It is possible to state that there is a serious obesity surgery trend, especially from countries with medium or high income levels to countries with lower income levels.

It is an important issue for individuals coming from another country or another region to undergo surgery and follow-up after the operation. Patients need to be followed up to return to their old lives as soon as possible, but also to fulfill the requirements of new living arrangements and weight control in their own country. Therefore, the operation time, hospitalization time and follow-up can be described as the three most important motivations for bariatric surgery today.

The duration of the operation also includes the invasive procedures applied to the patients. Today, many parameters are focused on, from minimally invasive surgeries, robotic surgery methods, the effect of the stomach volume removed in the sleeve gastrectomy method to the bypass length in the bypass method. The duration of hospitalization is also related to the duration of the operation and procedures, and theoretically, in bariatric surgery, as in other surgical procedures, increasing invasive procedures and surgical interventions cause the length of hospitalization of the patients to increase. In addition, many variables affect the duration of hospitalization, from the patient's physical and clinical parameters, physical examination findings, and concomitant diseases to family or surgical history.



The follow-up period has become easier today, especially with the increase in communication opportunities. From weight and height control to eating habits, from patients' blood and body parameters to physical parameters, computerized systems today make it possible to follow up even from very long distances. Remote working technologies, especially after Covid-19, have made significant contributions to this issue. Even in the international arena, the follow-up of patients subject to medical tourism after the operation, the regular keeping of their data and their analysis can be carried out much more effectively.

In conclusion, when we look at the current trends in bariatric surgery, we see that bariatric surgery is the subject of a medical tourism trend, especially from higher income countries to lower income groups, focusing on shortened operation and hospitalization times. In addition, as in every field of surgery, minimum invasion is undoubtedly one of the most basic motivations for all bariatric surgery trends.

## **Conclusion**

Weight control is an important issue that affects not only the physical health parameters of individuals but also their psychological health. Overweight individuals experience serious decreases in their quality of life due to serious disruptions in their body functions, and serious psychological problems are experienced due to body image perception. In this respect, weight control is an important issue that affects the health burden of society as well as individuals, where both physical and mental health are effective together.

Bariatric surgery methods in weight control are not actually a control method, but only an important process or stage to prepare the appropriate environment for control. Unfortunately, in cases where bariatric surgery methods are seen as a weight control tool

today and patients are not given sufficient support after surgery, weight gain and then revision surgeries may occur. A second intervention after a bariatric surgery requires much more risk and invasive procedures. For this reason, weight control after bariatric surgery can be seen as much more important than for individuals who have never undergone a surgical procedure.

Although the trends in bariatric surgery, as in other areas of modern medicine, are basically in the form of providing the least invasive intervention, in reality, due to the medical tourism value of bariatric surgery, methods are emphasized that will allow patients to get back on their feet in a shorter time and that the intervention can be faster. The main motivation in all of these is to provide the fastest and most effective recovery process to patients coming from different countries and communicating with the doctor in a limited time. Although there are economic and liberal reasons underlying this situation, the results are ultimately in favor of the patient, as less invasive procedures and faster recovery.

Regardless of which bariatric surgery method is chosen, the most important issues are the patient's weight control process after the operation and their lifestyle during this process. In principle, after bariatric surgery, not only calorie intake and irregular nutrition should be prevented, but also physical activity should be encouraged and increased. In this way, weight control can be transformed into a more sustainable and healthier process in patients who have undergone bariatric surgery.

In general, to summarize, trends in bariatric surgery methods are developing in a way that patients can return to their daily lives in a shorter time with faster, more effective and less invasive procedures. In all this process, alternative food types, functional foods and increasing social media sharing in weight control are moving towards a more conscious society. However, at this point,

information pollution, decrease in physical activity due to social media is also causing weight control to become more difficult.

Obesity and weight control are not only individuals, but also a public health issue and problem due to the other diseases and indirect effects it causes. Therefore, bariatric surgery methods should be addressed not only with a dietician and psychologist, but with a more comprehensive multidisciplinary approach. In particular, the current application and evaluation patterns in practice indicate that there is not enough cooperation between weight control and bariatric surgery methods. In bariatric surgery trends, there is a need for sufficient and guiding studies on weight control methods.

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