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Physical Activity Counseling and Practices in Preventive Health: Review

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ABSTRACT
İncreasing the physical activity levels of all individuals in society and developing effective interventions for the prevention of diseases are public health priority. Physical Activity Counseling (PAC), one of these applications, can be defined as providing verbal and written advice or guidance to encourage increased physical activity and can be applied face-to-face or with technology-based methods. PAC, one of the preventive health services, is recommended by many public health organizations, including the World Health Organization. The aim of this review is to research the literature about the role and applications of PAC in preventive health and to provide current evidence-based information to clinicians and academics working in this field.
Keywords: Counseling, Exercise, Preventive health, Health

Koruyucu Sağlıkta Fiziksel Aktivite Danışmanlığı ve Uygulamaları: Derleme

ÖZ
Toplumdaki tüm bireylerin fiziksel aktivite düzeylerinin artırılması ve hastalıkların önlenmesine yönelik etkili müdahalelerin geliştirilmesi bir halk sağlığı önceliğidir. Fiziksel aktiviteyi arttırmaya yönelik sözlü- yazılı tavsiye veya rehberlik sağlamak olarak tanımlanan Fiziksel Aktivite Danışmanlığı (PAC) yüz yüze veya teknoloji tabanlı yöntemlerle uygulanabilir. Koruyucu sağlık hizmetlerinden biri olan PAC, Dünya Sağlık Örgütü de dâhil olmak üzere birçok halk sağlığı kuruluşu tarafından tavsiye edilmektedir. Bu derlemenin amacı, koruyucu sağlıkta PAC'nin rolü ve uygulamaları hakkında literatürü araştırmak, bu alanda çalışan klinisyenlere ve akademisyenlere kanıta dayalı güncel bilgiler sağlamaktır.
Anahtar Kelimeler: Danışmanlık, Egzersiz, Koruyucu sağlık, Sağlık.

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INTRODUCTION

Studies from the 1950s to the present provide evidence that an active lifestyle is important and beneficial for physical activity (Morris JN et al, 1953). The literature emphasizes that inactivity, which is defined as insufficient physical activity, is associated with an increased risk of many chronic diseases such as heart diseases, some types of cancer, diabetes, stroke, depression, and metabolic syndrome (Lee et al., 2012; Moore SC et al,, 2016). Lee et al. reported in their study that physical inactivity increases the risk of coronary heart disease, type 2 diabetes, breast and colon cancer by 33%, 20% and 33%, respectively (Lee, 2012). Physical activity has produced positive effects such as increase in well-being and quality of life, a decrease in fatigue and depression, even in individuals who have survived cancer, which is one of these chronic diseases (Fong et al., 2012). In addition, studies on diabetes, another chronic disease, have reported that physical activity has protective effects in individuals with impaired glucose tolerance, and it reduces the risk of cardiovascular disease and premature death in individuals with type 2 diabetes (Tuomilehto et al., 2011; Zethelius et al., 2014). The consequences of inactivity, are not only in terms of health, but also have wide and comprehensive consequences in terms of economic, environmental and social aspects. Experts suggest that inactivity is one of the five leading risk factors for chronic diseases and global mortality, so it should be considered as a pandemic situation (Kohl et al., 2012).

Today, increasing the physical activity levels of all individuals in society and developing effective interventions for the prevention of diseases are public health priority (Ferrucci, 2004). The World Health Organization (WHO) draws attention to the issue of primary care public health in order to raise awareness of individuals about health to encourage and support the use of tools and technology (World Health Organization, 2013).

Physical Activity Counseling (PAC), a method used in primary health care, is recommended by many public health institutions, including the WHO and International Society for Physical Activity and Health (ISPAH), due to its universal access and high potential for health services (World Health Organization, 2020; ISPAH, 2022). PAC, which are defined as providing verbal or written advice/guidance in order to encourage the participant to increase their physical activity level, can be applied face-to-face, over the phone or with technological approaches such as web programs (Otmanowski et al., 2020). Today, the applicability of current developments in technology in health services have increased, as in every field. The aim of this review is to research the literature about the role and applications of PAC in preventive health and to provide current information to clinicians and academics working in this field.

Theories of physical activity counseling

In order to increase the success of PAC interventions, to better interpret the achievements and to ensure the sustainability of the gains, knowing the underlying theories of the concept can provide the opportunity to look from a wide perspective and increase the efficiency of the application. Recent studies have focused on these theoretical models, which constitute the scientific infrastructure of PAC applications (Otmanowski, 2020; Hillsdon, 2005; Kerse, 2005; Rasinaho, 2012). Theoretical models used in many randomized controlled studies on PAC in the literature are social cognitive theory and transtheoretical models (Rasinaho, 2012; Rossen, 2021; Rossen 2015). We believe that knowing the mediators, components and methods of the theories will increase the effectiveness of PAC applications.

Social cognitive theory (SCT) is a widely used theory in PAC applications. One of the main components of this theory is concept of “self-efficacy” (Bandura, 1997). Self-efficacy can be increased by motivational, face-to-face, technology-based interviews and effective counseling methods (Bandura, 1997). Therefore, these methods may be preferred in PAC applications according to SCT. Social cognitive theory consists of personal, social and environmental variables. While the personal variables consists of self-efficacy, incentives and self-regulatory skills, the social variables consists of observational learning and support of physical activity components, and environment variables consist of access to facilities, access to resources that promote physical activity and access to programs (Rasinaho et al., 2012).

Another theory of behavior change is the transtheoretic models. This theory is based on regulating behavior such as advancing towards the goal or sometimes moving away from it. Within the scope of this theory, feedback and self-evaluation methods are frequently used (Kanfer, 1991). In this model, the PAC consultant defines the participant’s process such as preparation, action, and maintenance before initiating appropriate interventions and sets goals accordingly (Marcus, 2006). Therefore, transtheoretical model consists of pre-contemplation, contemplation and preparation phases (Rasinaho et al., 2012).

Information on the methods of the theories is available in Figure 1 (Rasinaho et al., 2012).

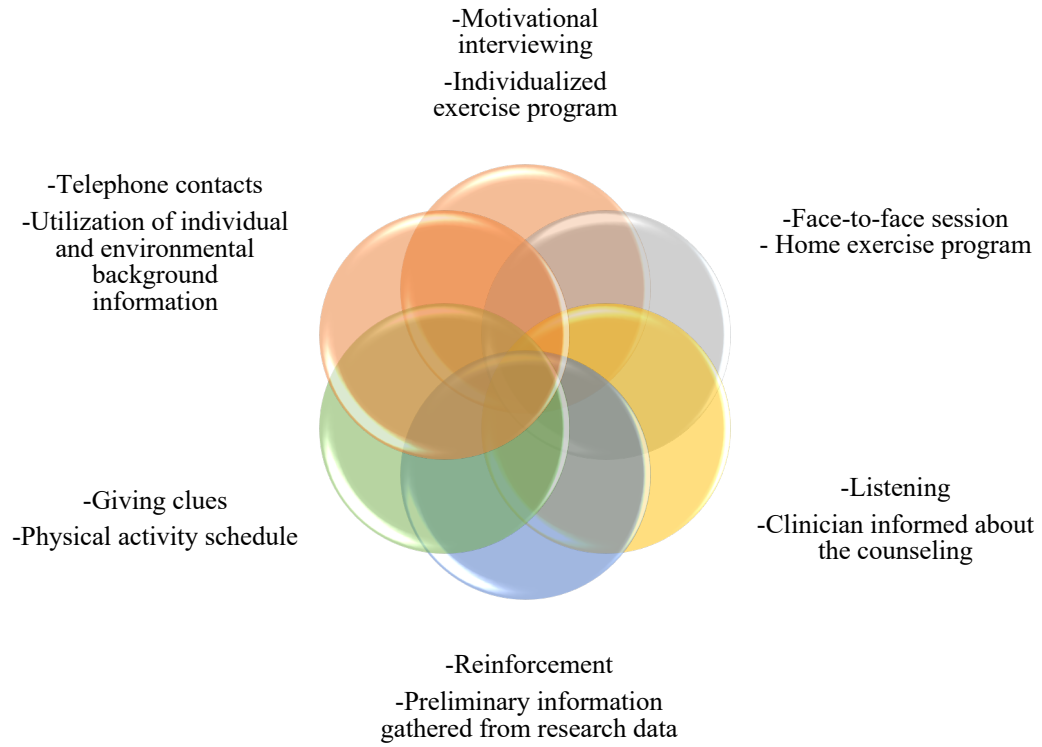

Figure 1. Methods of the physical activity counseling (Rasinaho et al., 2012).

Practices of physical activity counseling

Each year, the evidence for the harmful effects of inactivity is increasing, and the consequences of inactivity are becoming more pronounced (Shuval, 2017). Published guidelines for physical activity recommend that adults engage in at least 150 minutes of moderate-intensity physical activity per week. (Physical Activity Guidelines Advisory Committee Report, 2008). The applicability of the recommendations published in the guidelines in daily life is important in terms of the protection and sustainability of health. Some organizations recommend including physical activity counseling within the scope of primary health care services, as physical activity has multiple benefits in terms of individual, social and economic aspects such as maintaining health and preventing chronic diseases like diabetes, obesity, stroke, depression, and metabolic syndrome (Physical Activity Guidelines Advisory Committee Report, 2008; Hebert, 2012). The American College of Sports Medicine (ACSM) emphasizes that "physical inactivity" should be evaluated as a basic parameter such as weight and blood pressure measurement within the scope of preventive health services. Therefore, PAC applications have an important role in preventive health services in terms of preventing and diagnosing chronic diseases. ACSM and the National Institute for Health and Care Excellence (NICE) also emphasizes that PAC practices such as preparing personalized physical activity prescriptions should be included within the scope of preventive health services (American College of Sports Medicine, 2016; National Institute for Health and Care Excellence, 2013).

Content of physical activity counseling

In PAC practices, individualized physical activity targets are created in line with the needs of the participant by considering personal factors such as age, gender, occupation, socio-economic conditions, environmental factors, interests and preferences (Füzéki, 2020). The steps to reach the goal are planned with the cooperation of the consultant-participant (Füzéki, 2020). In a review of 19 studies in 2020, in which PAC application contents were extensively investigated by Füzeki et al., ıt has been reported that there are suggestions for types of physical activity, information about health benefits of physical activity, suggestions about frequency and intensity of activity, exercise preferences of patients, exercise capacities of individuals, motivational interviewing, referral to group exercise sessions or therapists, setting appropriate goals, and follow-up (Füzéki, 2020).

In PAC practices, it is recommended to apply the 5A framework (assess, advise, agree, assist, arrange) to clinicians working in the field in order to transform the gains in physical activity into behavioral dimensions and to ensure sustainability (Estabrooks, 2003). The contents of the 5A Framework are shown in Figure 2 (Shuval et al., 2017).

Creating Physical Activity Counseling Strategies

An important approach that increases the effectiveness of PAC interventions from primary health care practices is the determination of appropriate strategies by the consultant. Studies emphasize that goal setting is an important strategy (Hoekstraa, 2019; Vries 2016). The accessibility or suitability of the goals can be determined by objective evaluations made at regular intervals. It is a wise approach to identify the characteristics, physical activity determinants, barriers, and motivators of the participant to whom PAC service is provided and to create strategies accordingly. Otmanowski reported that when working with older adults, it plays an important role relieving the anxiety of the participant, giving reassurance and encouragement (Otmanowski, 2020). Herghelegui et al. used a health risk assessment tool prior to PAC to identify the participant's barriers to activity (Herghelegiu, 2017).

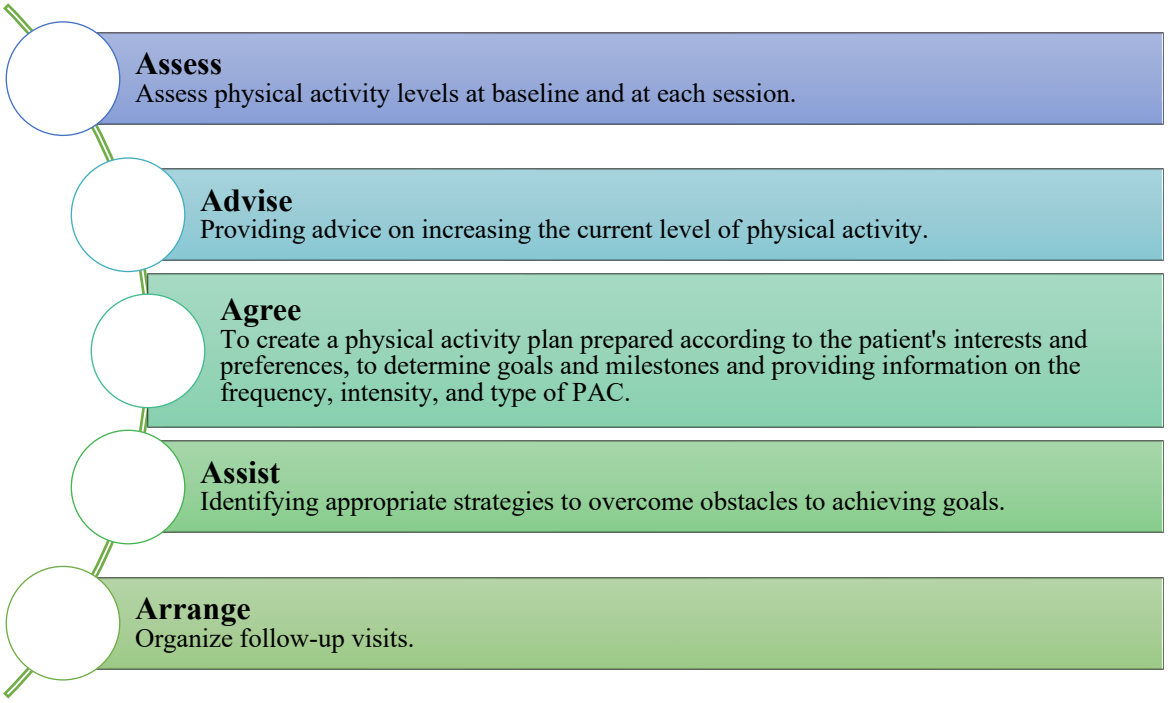

Figure 2. The 5A framework and content used to provide PAC (Shuval et al., 2017).

Method of physical activity counseling

PAC, defined as promoting physical activity through oral or written advice or guidance, can be carried out either face-to-face or over the phone (Otmanowski, 2020). In a review containing the results of 12 studies published by Otmanowski et al. in 2020, important points regarding PAC applications were emphasized (Otmanowski, 2020). Except for one study in the review, it was reported that PAC was given orally and the first counseling session was face-to-face in all studies (Otmanowski, 2020). In the study, which was not based on face to face oral advice, it was reported that PAC applications were made through a health coach accessed by tablet (Bickmore, 2013). In addition, it was reported that telephone interviews were used as a method after the first face-to-face counseling to ensure continuity in studies (Otmanowski, 2020).

Period of physical activity counseling

Another concept as important as effectiveness in PAC interventions is the "sustainability". According to our clinical observations, although the physical activity levels of individuals increase to the targeted levels during PAC interventions, they usually return to baseline in a long term. This can be interpreted as transforming the knowledge learned in PAC interventions into a lifestyle by gaining behavioral dimension is more valuable than short-term gains. There are limited studies in the literature showing that positive results continue 12 or more months after PAC (Rasinaho, 2012; Kerr, 2018). Otmanowski et al report that the most successful PAC interventions rely on structured care and behavior change strategies to achieve long-term results (Otmanowski, 2020). In addition, the US Preventive Services Task Force recommends that successful PAC interventions take 6-18 months with an average of 12 interviews in individuals diagnosed with cardiovascular disease (US Preventive Services Task Force, 2020).

Frequency of physical activity counseling

The development of technology has affected all areas of life as well as health services. For example, phone calls or web-based interviews are popular methods used to ensure sustainability after the first personal

consultation in PAC applications (Rasinaho, 2012, Hoekstraa, 2019). In a study published in 2019, Hoekstraa et al., studied PAC from a broad perspective in a prospective cohort study conducted with the participation of 18 rehabilitation centers (Hoekstraa, 2019). The frequency and duration of phone calls and the frequency of e-mail calls were evaluated in this study, in which they mentioned important points about the frequency of PAC interventions (Hoekstraa, 2019). The results of the study report that more intensive phone-based counseling is not associated with better behavior. (Hoekstraa, 2019). This study suggests that some changes should be made and flexible programs should be used with personalized strategies to encourage physical activity when applying PAC in different environments and conditions (Hoekstraa, 2019).

Follow-up of physical activity counseling

Monitoring of physical activity interventions is carried out by subjective and objective methods.

Advances in science and technology are facilitating the monitoring and evaluation of PAC interventions. The concept of Wearable Technology in Rehabilitation, whose popularity has increased in recent years, is gaining importance. Besides, it was emphasized that these technology-based methods, which are an innovative approach in health, can be useful tools to increasing motivation and participation to activity, in addition providing objective data on physical activity results. Otmanowski et al. reported that wearable technology equipments were used to provide motivation and record results in addition to counseling strategies in four studies (Otmanowski, 2020). In addition, in two studies in this review, it was reported that the participants did not maintain their step increase with wearable technological equipment without consultancy support (Bickmore et al., 2013; McMurdo et al., 2010). Rossen et al. mentioned important points regarding the use of technology in preventive health in individuals with Type 2 diabetes (Rossen, 2021). In their study, in which participants used a wearable activity tracker, a pedometer or a self-tracking website to objectively evaluate the daily step count, the number of steps was evaluated at 6 and 12 months (Rossen, 2021). In this study, which investigated behavior change and sustainability as a result of PAC and wearable technology interventions, it was reported that objective monitoring of the number of steps is a suitable method to increase physical activity (Rossen, 2021). In addition, the results have been interpreted that wearable activity trackers alone cannot provide behavioral change in the long term, and that professional guidance on physical activity can also be an effective approach.Wearable Device Application examples in literature are given in Figure 3 (Huifeng et al, 2020).

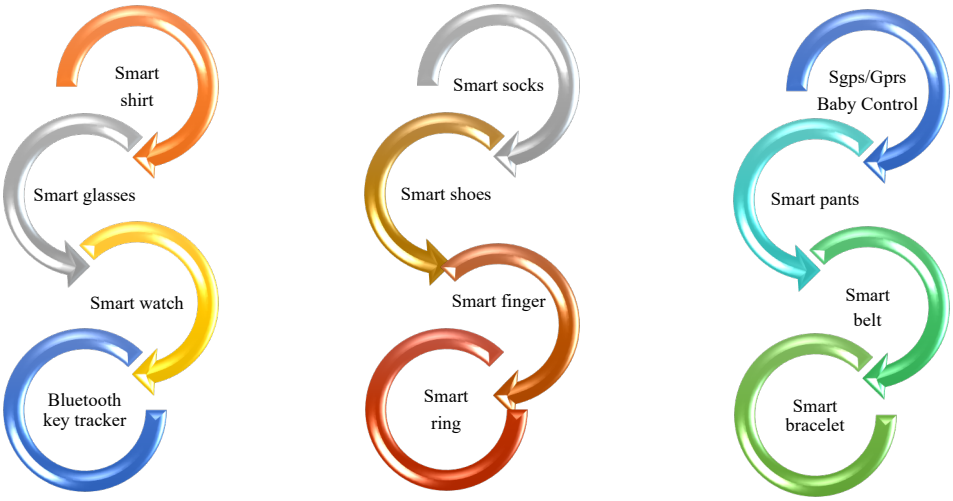

Figure 3. Wearable device application examples (Huifeng et al., 2020).

CONCLUSION

There are many evidence-based studies on insufficient physical activity, which is one of the important problems of our time. PAC, which is one of these applications, is recommended by many health authorities. PAC, which appeals to everyone in the society and whose applications have been increasing in recent years, can be used in preventive health to increase the level of physical activity and prevent the risk of chronic diseases. It is recommended that physical activity level assessments be added to the basic assessments in preventive health services and effective PAC interventions should be planned by clinicians with the results obtained. Within the scope of effective PAC interventions in preventive health, measures can be taken for chronic diseases such as obesity, diabetes and cardiac diseases by providing individualized exercise recommendations and counseling to increase the level of daily life physical activity. Developments in technology affect health services can increase the effectiveness and applicability of the PAC concept, which is one of the preventive health applications. Technology-based approaches are valuable as they can obtain objective

data and increase efficiency by increasing the motivation of the participant, and consultants should be encouraged to use these methods. PAC interventions consist of components such as content, method, frequency, duration, and follow-up. Since PAC is one of the current applications that have been increasingly used in clinical practice in recent years, studies with
long-term follow-up and large sample groups are needed to determine the ideal approaches.

Conflict of Interest

The author declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article

Author Contributions

Plan, design: GT; **Material, methods and data collection:** GT; **Data analysis and comments:** GT; **Writing and corrections:** GT.

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