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Population Based Approaches for Health Promotion

Bevölkerungsbasierte Ansätze der Gesundheitsförderung

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ZUSAMMENFASSUNG

Problemstellung: Die erheblichen gesundheitlichen Vorteile körperlicher Aktivität (KA) sind gut belegt und beinhalten eine reduzierte Wahrscheinlichkeit zur Entwicklung vieler nicht übertragbarer Erkrankungen, eine verbesserte körperliche Funktionalität und mögliche Verzögerung im Auftreten von Behinderungen, eine bessere mentale Gesundheit und eine verringerte Sterblichkeit. Trotz dieser bekannten Vorteile sind die Raten regelmäßig durchgeführter KA gering. Verständliche, geprüfte Strategien zur Erhöhung der KA sind notwendig, um das KA-Level der Bevölkerung zu erhöhen. **Methoden:** Die vorliegende Übersichtsarbeit sichtet aktuelle flächendeckende Literaturarbeiten, die evidenzbasierte Ansätze zur erhöhten Teilnahme an körperlicher Aktivität behandeln und nutzt hierzu den Leitfaden der United States Task Force for Preventive Services zur Beschreibung effektiver Strategien. **Ergebnisse:** Kommunale Kampagnen können empfohlen werden, um die Bewertung körperlicher Aktivität zu beeinflussen. Verhaltensbasierte Ansätze und soziale Ansätze, inklusive individuell angepasster Programme zum Gesundheitsverhalten, körperliche Schulungsprogramme in Schulen und sozial unterstützte Interventionen in Gemeinden sind sinnvoll. Umgebungs- und politikbasierte Ansätze sind notwendig, um die KA-Level der Bevölkerung zu erhöhen, sie regen an, den Zugang zu Plätzen zum körperlich aktiv sein zu ermöglichen, thematisieren die Gestaltung der Gemeinden, Straßen und Städte und beeinflussen Transportrichtlinien. **Zusammenfassung:** KA-Level zu beeinflussen erfordert einen multi-modalen Ansatz mit der Betonung auf Umgebungs- und politikbasierten Ansätzen.

Schlüsselwörter: körperliche Aktivität, Prävention, chronische Erkrankungen, Gesundheitsförderung, Umfeld, Politik.

INTRODUCTION

The causes of disease, disability, and death have changed immensely since the early 1900's. Infectious illnesses were the leading cause of morbidity and mortality in the early 20th century. Chronic or non-communicable diseases became and have remained the leading cause of morbidity and mortality during the latter half of the 20th century. It is currently estimated that nearly 60% of worldwide mortality is now caused by chronic or non-communicable diseases (28). This transition from pandemic infectious diseases to communicable diseases is referred to as an epidemiologic transition (15). This transition is described as occurring in stages: (1) pestilence and famine, (2) receding pandemics, (3) degenerative and man-made illnesses and (4) delayed degenerative diseases (9,15). The first stage is characterized by a short human lifespan, starvation and malnutrition, pandemics of infectious disease, and high, fluctuating mortality rates. The second stage, which occurred during the 19th and 20th centuries in the US and Europe, is characterized by an increased lifespan, a reduction in the spread of infection diseases through im-

SUMMARY

Problem: The substantial health benefits of physical activity (PA) are well established and include a reduction in the likelihood of developing several non-communicable diseases, improved physical function and potentially delays in the onset of disability, improved mental health and decreased risk of mortality. Despite these known benefits, rates of regular participation in physical activity are low. Understanding proven strategies for increasing physical activity is necessary to improve population PA levels. **Methods:** This paper reviewed recent comprehensive literature reviews examining evidence-based approaches for improving PA participation using a framework suggested by the United States Task Force for Preventive Services to describe effective strategies. **Results:** Community-wide campaigns and point-of-decision prompts are recommended to influence cognitions about PA. Behavioral approaches and social approaches including individually adapted health behavior programs, physical education programs in schools and social support based interventions in community settings are warranted. Environmental and policy-based approaches are necessary to increase population PA levels and suggested interventions include increasing access to places to be physically active, addressing community design, street and urban design and influencing transportation policies. **Conclusion:** Improving PA levels will require a multi-sectorial approach that addresses strategies across multiple levels with an emphasis on environmental and policy approaches.

Key Words: Physical activity, chronic disease prevention, health promotion, environment, policy.

proved sanitation and better medical care. The third stage, which is characterized by high rates of non-communicable disease, occurred during the mid-20th century and is attributed to behavioral factors such as tobacco smoking, reductions in both intentional and lifestyle physical activity (PA), and increased intakes of diets high in animal products and fat. The fourth stage began in the 1960's in the US and is characterized by decreased mortality rates from cardiovascular disease due to prevention, tobacco cessation and improved medical care all resulting in a longer life expectancy. It has been proposed that inactivity and obesity might be the fifth stage of the epidemiological transition (9). The improvements society has seen in delaying the onset of morbidity and mortality might be lost if physical inactivity and obesity levels are not reduced.

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As regular PA has a powerful impact on metabolic and cardiovascular health, physical inactivity has been identified as the biggest public health problem of the 21st century (3). This is ironic, since as little as 50 years ago, nearly half of all private industry jobs required at least moderate-intensity labor (6) and only 20% of families owned more than one vehicle (24). Contrast this to 2010, where fewer than 20% of all jobs required workers to expend at least a moderate-intensity effort (6) and nearly 60% of households owned two or more cars (23,24). Labor-saving technologies have been attributed to declines in the energy expended during work but that is only part of the issue. Some other causes of this sedentary transition include higher levels of employment in jobs that require sitting all day (26), low neighborhood walkability and longer television viewing (13), and spending more time commuting in an automobile (8).

To determine if physical inactivity is a public health problem one must know the scope of the issue related to demographic, health, economic, and social. In 2007, 36 percent of adults 18 years and older failed to achieve the recommended 150 minutes per week of moderate-to-vigorous intensity PA (5). The proportion of inactive adults is higher in women than in men and increases with advancing age. While race, ethnicity, and income or educational attainment are not considered in many countries when assessing the demographics of PA behaviors, health disparities dictates examination of PA levels by race and ethnicity and educational attainment. In the U.S., African Americans and Hispanics have disproportionately high levels of physical inactivity (African Americans, 49%; Hispanics 43%) as compared with non-Hispanic whites (32.5%). As well, adults with lower levels of educational attainment experience less self-reported leisure time PA than their peers with a college education or higher (52.2% vs. 67.8%). The drivers for disparities in the prevalence of PA are complex and include less access to safe areas to be physically active (2), lack of social support for physically active lifestyles and low levels of self-efficacy for PA engagement (12).

There is irrefutable evidence that regular PA in excess of 150 minutes per week is health enhancing and reduces the risks for most lifestyle-related chronic diseases. According to Powell et al. (1987), if all American's were physically active, the mortality rate from coronary heart disease would decrease by 30% (20). Men in the middle-to-upper triad of fitness levels in the Aerobic Center Longitudinal Study had a 26 to 53% lower risk for developing the metabolic syndrome, a clustering of cardiovascular and diabetes risk factors, than men who had low aerobic fitness levels (14). Accordingly, the economic costs attributable to inactive adults ranges from 1.2%-2.5% of the total health care expenditures (11).

Increasing population level PA will require a systemic, multi-sectorial approach (29). It is well known that individual efforts to initiate behavior change have limited success and the likelihood of long-term maintenance is even lower. Public health efforts targeting PA need to make the choice to be physically active easy while simultaneously making it difficult to lead a sedentary lifestyle. They also need to focus attention on collective responsibilities for helping people make and sustain behavior changes. Nearly 15 years ago, Sallis and colleagues (1997) commented on the need to preserve natural environments and create built environments in cities and communities that are supportive for residents to be physically active (21). Environments rich in resources for physical recreations, such as parks, trails, and bicycle lanes and that feel safe from crime are more likely facilitate physically active behaviors. While it is possible for individuals to persist in a physically active lifestyle despite

an environment void of environmental supports, it is unlikely that most community residents will do so. To create these supportive environments, policy and environmental approaches are required as are multisectorial approaches (10,22,29). For example, the National Physical Activity Plan has identified eight sectors that will need to work together to create an improved infrastructure for active lifestyles (18).

Implementing evidence-based approaches for promoting PA in community settings is necessary to increase population PA. The U.S. Task Force for Community Preventive Services has identified intervention approaches for communities with sufficient evidence to be recommended as evidence-based (25). Specifically, they examined eleven areas targeted by interventions including: informational approaches, behavioral and social approaches and environmental and policy approaches. Other, more recent reviews have identified additional policy and environmental efforts that have had success increasing PA and should be considered evidence-based approaches (10,22).

INFORMATIONAL APPROACHES

Recommended informational approaches, which target cognitions about PA, include community-wide campaigns that include both mass media messages and community-wide education components (e.g., support groups, PA counseling, or community events) and point-of-decision prompts (25). Points of decision prompts are effective at increasing the decision to use the stairs over elevators or escalators. There is insufficient evidence to recommend stand-alone mass-media campaigns based on two reviews (4,25). The latter review did not include studies that utilized newer media platforms such as mobile devices or social media sites. Given the ubiquity of social media, these may be effective channels to disseminate PA messages to a large audience and more research is needed. Finally, there is insufficient evidence to recommend classroom based education about PA.

BEHAVIORAL AND SOCIAL APPROACHES

Behavioral and social approaches for promoting PA have been extensively evaluated with varying evidence of success. Behavioral strategies primarily involve helping people learn the behavioral management skills necessary to engage in PA. Social approaches typically focus on enhancing the social environment for PA and are frequently used in conjunction with behavioral approaches. Individually adapted behavior change strategies, social support interventions in community settings and school-based PE are recommended as evidence-based strategies (25) There is insufficient evidence to support college-based health education and PE, classroom-based education targeting reductions in time spent watching television and playing video games and family-based social support for PA (25).

Common approaches used in individually adapted behavior change programs include goal-setting, social support, behavioral reinforcement through self-reward, problem solving and relapse prevention (25). Typically these programs try to teach people how to make PA part of one's lifestyle. These programs can be delivered in a face-to-face setting, by email, internet, mail or phone or a com-

bination of these methods enhancing the ability to broadly disseminate these types of interventions. Interestingly, in a systematic Task Force review of the effectiveness of behavioral counseling in the clinic or healthcare setting (16), there was insufficient evidence to show that PA counseling from a healthcare provider was effective as a stand-alone intervention. Physical activity counseling by healthcare providers may be effective when there is coordination of clinical care and it is coupled with existing community resources (19). The National Physical Activity Plan recognizes the importance of the healthcare sector in improving PA (18). Likewise, the global Exercise is Medicine™ initiative is focusing its efforts on making exercise a “vital sign” and ensuring the incorporation of exercise into treatment plans for individuals (1). One of its goals is to have all healthcare providers assess PA levels during every patient encounter and to advise patients to obtain at least 150 minutes of moderate intensity activity per week.

Programs improving social support in community enhance one's social support network for physical activity (25). Examples of strategies commonly used in social support settings include establishing exercise buddies, exercise contracts with an exercise leader or walking clubs. Often times, social support is used in conjunction with individually adapted behavioral strategies to enhance effectiveness.

School-based PE programs have the potential to increase the PA levels of a large proportion of the youth population (7,25). School health guidelines for promoting healthy eating and PA emphasize the need for schools to have a comprehensive PA program with PE as the main source of PA (7). Specifically, they suggest that all students in kindergarten through 12th grade take part in a structured, daily PE program that provides students with a large percentage of the daily PA recommendation and teaches students how to adopt and maintain an active lifestyle. Schools should also offer opportunities for activity outside of PE that meet the needs of and appeal to all students. As of 2012, 38 states in the US required PE to be offered to students in kindergarten through 12th grade but only 6 states required PE to be offered to students every year (17). As of 2012, only 9 states required recess to be offered in elementary schools while 13 had guidelines for the amount of weekly PA elementary students should obtain. Finally, another promising strategy for increasing PA is the use of short PA breaks in the classroom (27).

ENVIRONMENTAL AND POLICY APPROACHES

At the time of the Task Force review, environmental and policy approaches to physical activity were relatively new. The primary recommendation for environmental approaches was to create or enhance access to places to be physically active in combination with outreach activities (25). Recent evidence suggests urban design and land use policies and regulations are effective for enhancing PA (10,22). Urban design and land use policies focus on neighborhood characteristics such as the density of development, the use of cul-de-sacs versus gridded streets and the locations of stores or schools within a neighborhood. Street scale urban design efforts, focusing on redesigning streets, creation of bike lanes and paths and improving perceived safety issues in the environment have also been shown to increase physical activity (10). Transportation policies and travel interventions, such as enhancement of bike lanes, subsidizing transit passes, increasing parking costs and adding bi-

cycle racks to buses may also be effective ways to increase physical activity but more research is needed (22).

DISCUSSION AND CONCLUSION

Physical inactivity is a global health concern that needs to be addressed. Improving population PA levels is going to take a concerted, transdisciplinary effort; no sector will be able to work effectively in a silo. Partnerships across many sectors of society will need to be formed to tackle the complex influences on physical activity and this will require the need for different sectors to learn each other's languages (18,29). It is evidently clear that health promotion efforts solely targeting individuals will not be effective in the long term. Policy level and environmental approaches are essential for increasing population level PA (10,18,22,29). An area where more research is needed is how to embed or combine interventions targeting individuals into policy and environmental efforts to increase the likelihood of success. The obesity epidemic has propelled the importance of PA into the limelight through initiatives like First Lady Michelle Obama's “Let's Move” campaign but obesity prevention is not the only reason to get people moving. Initiatives such as Exercise is Medicine™ have also brought attention to the importance of PA (1). Now public health professionals have the challenge of leading the charge to disseminate evidence-based recommendations for PA so that a large proportion of the population is reached and leading an active lifestyle becomes the norm.

Conflict of interest

The author has no conflicts of interest.

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