

PHYSICAL EXERCISE AND PSYCHOLOGICAL WELLNESS IN HEALTH CLUB MEMBERS: A COMPARATIVE AND LONGITUDINAL STUDY

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ABSTRACT

This paper constitutes a comparative and longitudinal investigation of physical exercise and psychological wellness in a sample of health club members in Zululand, South Africa. The research was contextualized within a public health and community psychological model of mental health promotion. Physical exercise was categorized as regular or irregular, depending upon whether it met the criterion of exercising for an average of thirty minutes a day at least three times per week or not. A Wellness Profile was constructed from various questionnaires chosen on the basis of their relationship with the general construct of psychological wellness and administered to samples of health club members and university students. In the comparative investigation, health club members were more psychologically well than university students. Whether they were members of a health club or not, participants who were regular exercisers were found to be more psychologically well than irregular exercisers. In the longitudinal investigation, health club members who exercised regularly over a period of two or more months increased significantly in psychological wellness. The significance of the findings in themselves and for the promotion of public and mental health is discussed.

Key words: Physical exercise; Psychological wellness; Health clubs.

INTRODUCTION

In recent years, a paradigm shift has occurred in health care whereby a pathogenically orientated medical model has been complemented and extended by a public health approach with an emphasis on both illness prevention and health promotion (Kuhn, 1962; Trent, 1995; Oldenburg, 2001). This paradigm was made possible by the World Health Organization (WHO) positive definition of health in terms of not merely the absence of disease, but also as state of complete physical, mental and social well-being (WHO, 1946).

Well-being or wellness can be conceptualized as the positive component of optimal health. Health interventions typically involve three strategies of disease and illness treatment, disease and illness prevention and health and wellness promotion. Following the success of modern biomedicine and public health campaigns in treating and preventing disease and illness, recent years have seen the proliferation of health clubs concerned with the promotion of health and wellness (Corbin & Lindsey, 1997). Such clubs provide opportunities for various forms of physical exercise as well as social support for members, which factors are known to be related to mental health (Weinberg & Gould, 1999). Are health club members more mentally healthy and/or psychologically well than non-members? If so what sort of psychological wellness do they experience? What are the implications for the promotion of mental health? These were the sorts of questions that motivated this research.

A community psychological model of mental health promotion, essentially views mental health promotion as a form of general health promotion, with primary, secondary and tertiary components of both prevention and promotion. A model proposed by Edwards (1999; 2001b) is initially phenomenological in orientation, approach and perspective. There is recognition that conceptual distinctions made between illness and health, and various components such as physical, mental and social well-being are essentially arbitrary. From a phenomenological perspective, phenomena such as illness and health are revealed to us from direct experience in our ongoing being-in-the-world. For example health may be experienced as an energized feeling of well-being, leading to community psychological conceptualizations such as the Chinese term *chi* or Zulu word *impilo*. It is this emphasis on experience which makes the model more specifically and essentially psychological.

Based on this general public health and community psychological approach and including the views of Corben and Lindsey (1997), Pretorius (1998), Wissing and Van Eden (1998), Repucci *et al.* (1999) and Cohen (2000), the following assertions on psychological wellness seem apposite.

- Conceptualizations of psychological wellness in the literature are very diverse, which is understandable when we consider that it is a transient situation, which is multifactorial in etiology, process and promotion. For example, factors that define psychological wellness will differ at different ages and in different circumstances.
- In general, wellness can be conceptualized as the positive component of optimal health, and psychological wellness conceptualized as the positive component of psychological health.
- Psychological wellness has multidimensional personal, transactional and environmental determinants, which become more complex as the human life cycle progresses. Environmental factors also include non-psychological factors such as housing, food and employment.
- It is better to promote psychological wellness than prevent factors impeding wellness. There are thus many routes to psychological wellness and methods to promote it. For example, Cohen (2000) has put forward competence, empowerment and resilience as exemplar concepts for promotion within a wellness framework. The focus of the present paper is on physical exercise.

Physical exercise may be defined as a subset of physical activities that are planned and purposeful attempts to improve health and well-being. The use of exercise as a medium for health promotion is based upon international research evidence for the general and mental health benefits of physical activity, exercise and fitness interventions (Hayes & Ross, 1986; Morris & Summers, 1995; Scully, 1998; Weinberg & Gould, 1999; Fox, 2000; Edwards, 2001a). Research has proliferated on the duration, frequency and intensity of various forms of exercise (Morehouse & Gross, 1977). For example, the American College of Sports Medicine has recommended exercise programmes based upon findings that, in general, healthy adults receive cardiovascular benefits if they exercise for at least 20 to 30 minutes, three to five times a week at 60% to 90% intensity. Yet despite such health promotion and education, there is evidence that only 15% of adults in the USA participate in such vigorous exercise activity (Weinberg & Gould, 1999).

Regular, moderate intensity exercise interventions seem particularly valuable, where the type, intensity and duration of the exercise programmes are tailored to suit the particular exercisers (Berger, 1994 & 2001). Studying desirable changes in mood and meaning in exercise programmes, researchers have emphasized regular, noncompetitive activity involving rhythmic, abdominal breathing of 20 to 30 minutes duration in comfortable, predictable contexts as in Tai Chi, Yoga, aerobic exercise and weight training. Various qualitative and quantitative methods have been used to both describe the experience/meaning and measure such changes (Berger, 1996 & 2001; Edwards, 2001a & 2001b; Stelter, 2000 & 2001). Public health interventions attempting to improve quality of life through increased exercise adherence clearly need to take such personal meanings into account, as well as the learning principle that people will repeat behaviours that are intrinsically rewarding.

Sinyor *et al.* (1983) were able to demonstrate that aerobically trained persons were able to recover faster from experimentally induced psychosocial stress than untrained persons on physiological, biochemical and psychological measures. Various similar physiologically orientated studies have demonstrated similar effects (Anshell, 1996; Scully, 1998; Summers, 1999). Related studies by Roth and Holmes (1985 & 1987) have indicated that physical fitness moderates the stress–illness relationship and that increasing fitness, through aerobic training, decreases the experience of stressful life events. Learning theory and Lazarus' (1993) model of stress as a transaction between persons and their environments predict that persons who engage in regular physical exercise will have more experience of and control over stress, as induced through such exercise and as generalized to other stressful life events, than those who do not exercise.

The aims of the present research were:

- to examine psychological wellness in health club members.
- to compare the psychological wellness of health club members with non-members.
- to examine longitudinal, causal effects of regular exercise on psychological wellness.
- to explicate the implications of this relationship for the promotion of mental health.

It was hypothesized that health club members would be significantly more psychologically well than non-members as would regular exercisers compared to irregular exercisers and that physical exercise would improve psychological wellness over time.

METHOD

A Wellness Profile was constructed from various questionnaires chosen, and in some cases adapted, on the basis of their relationship with the general construct of psychological wellness as conceptualized in this paper and as established in previous research. Personal communication with South African colleagues Marie Wissing and Tyrone Pretorius was particularly valuable in this respect. These psychological wellness components and their sources have been extensively described and analyzed (Edwards, 2002). Based on the research of Holmes and Rahe (1967), McNair *et al.* (1971), Diener *et al.* (1985), Antonovsky (1987 & 1993), Dean *et al.* (1990), Turner (1990), Frenz *et al.* (1993), Noakes and Granger (1995) and Pretorius (1998) the profile includes assessments of mood, lifestyle, satisfaction with life, sense of coherence, fortitude, stress, coping and an overall weighted wellness percentage. The lifestyle, sense of coherence and fortitude scales are fairly robust, whereas the mood, satisfaction with life, stress and coping scales are more sensitive to life changes.

In the comparative investigation, the Wellness Profile was administered to 106 health club members from four local clubs in the Zululand region of South Africa and 110 first year psychology students at Zululand University. The health club sample consisted of 54 men and 52 women. Average age was 30 years, with age range from 12 to 61. There were 60 English, 21 Afrikaans, 20 Zulu, two Swazi, one Xhosa and one Sotho speakers. The student sample consisted of 24 men and 86 women. Average age was 24 years with an age range from 17 to 47. In terms of home language, there were one Tsonga, one Xhosa, four Siswathi, five Tsonga and 99 Zulu speakers. The assumption was made that health club and student samples represented different populations. No measure assessed whether students were also health club members and/or health club members were students. It was assumed that the samples of over 100 members would control for any confounding or interaction effect of subjects representing both student and health club populations.

Regular exercise was defined as meeting the criterion of exercising for an average of 30 minutes a day at least three times per week.

In the longitudinal study, 26 of the original 106 health club members, who were still exercising regularly for a minimum period of two months, were re-evaluated at the preplanned six-month cut off date for the research. This large, expected drop-out rate reflects established norms of about 25% of the general population engaging in vigorous exercise and about 50% of participants dropping out of exercise programmes within the first six months (Weinberg & Gould, 1999), as well as the irregularity with which exercisers attend health clubs. The minimum time period of two months was chosen on the basis of previous studies reporting some exercise effects after five weeks, with the largest effects being observed after 10 to 15 weeks (Roth & Holmes, 1987; Scully, 1998). During re-evaluation, participants provided update information as to age, gender, home language, years of exercise experience, estimate of any wellness changes over the past two months, as well as type, amount, intensity and duration of their regular exercise.

The sample of 26 persons in this longitudinal investigation consisted of 11 women and 15 men. Average age was 31.7 years, with an age range from 16 to 52 years. In terms of home language, there were four Zulu, seven Afrikaans and 15 English speakers. Participants had been attending health clubs for an average of five years and nine months, with a range from two months to 20 years. Although seven participants were new health club members, two of these new members also had previous health club exercise experience. Of the 26 participants, 24 had improved in total wellness on re-evaluation. This 92% improvement rate is excellent, considering that most were seasoned health club exercisers. The two participants whose wellness decreased on re-evaluation had both suffered serious personal stress at the time of assessment.

The SPSS statistical programme was used to analyze data. In the following results, certain wellness components are abbreviated as follows: health club member (health) satisfaction with life (satis), sense of coherence (soc), fortitude (fort) and coping (cope). The single (*) and double asterisks (**) indicate the usual convention for significant findings at the 5 and 10% level of significance respectively

RESULTS

TABLE 1. SUMMARY TABLE FOR MEANS OF HEALTH CLUB MEMBERS (N=106) AND STUDENTS' (N=110) WELLNESS COMPONENTS

Subject	Mood	Life	Satis	Soc	Fort	Stress	Cope	%Wellness
Health	33.6	4.9	25.2	61	58	105	11.9	61.8
Student	33.7	3.9	25.7	62	59.9	135	10.9	56.6
<i>F</i> statistic	0.07	29.3**	0.3	0.2	1.3	4.6**	7.3**	6.2**

Table I refers to means and *F* statistics for the analysis of variance of wellness components of health club members and university students. Multivariate analysis to correct for any effects of age, gender, language, and exercise, confirmed that health club members were significantly more psychologically well than students, especially due to their healthier lifestyle, decreased stress and improved coping. Significant interaction effects were observed for gender and stress, language and fortitude and for exercise with wellness, mood, lifestyle and coping, which lead to further multivariate analysis of wellness components comparing regular and irregular exercisers, as corrected for the effects of health club membership, age, gender, language and lifestyle. In that regular exercise as defined in terms of occurring at least three times per week for at least 30 minutes per session was one of the lifestyle components, the other lifestyle components were regarded as covariates in this analysis.

TABLE 2. SUMMARY TABLE FOR MEANS OF REGULAR (N=121) AND IRREGULAR (N=95) EXERCISERS

Exerciser	Mood	Life	Satis	Soc	Fort	Stress	Cope	%Wellness
Regular	34.6	5.1	26	61.9	59.8	112.3	11.8	60.7
Irregular	32.4	4.4	24.7	61.5	58.5	130.8	10.9	56.3
<i>F</i> statistic	5.6**	95.2**	2.9	0.1	1.1	1.7	6.4**	7.6**

Table 2 indicates the significant influence of regular exercise on wellness, with special reference to mood, lifestyle and coping in the total sample of 216 participants. Table 3 refers to pre- and post-test means for the longitudinal investigations on 26 regularly exercising health club members, which were carried out to test causal connections between regular exercise and improved psychological wellness.

TABLE 3. PRE- AND POST-TEST MEANS AND *T*-STATISTICS FOR WELLNESS COMPONENTS OF 26 REGULAR EXERCISERS

Test	Mood	Life	Satis	Soc	Fort	Stress	Cope	%Wellness
Pretest	33	6.1	25.8	59.9	57.7	99.7	12	61.5
Posttest	36.6	6.3	26.6	65	62.5	60	13.2	71.7
<i>t</i> -statistic	2.03*	0.96	0.99	4.1**	3.4**	3.1**	2.42*	5.4**

From inspection of Table 3's pre and post test mean scores and *t*-statistics, it is clear that there were significant improvements over time for the wellness components; mood, sense of coherence, fortitude, stress, coping and wellness percentage. From the means for lifestyle and satisfaction with life, it appears that exercisers were already living very healthily (scoring six

out of a possible seven) and were already, at pretest, fairly satisfied with their lives (scoring 26 out of a possible 35 on the satisfaction with life scale). This latter score could also reflect exercisers' relative dissatisfaction and ongoing process of striving for more life satisfaction, as, for example in the sense of being their own hard task-masters in a form of idealist striving for goals such as health, strength and wellness.

Multiple regression analysis and tests for repeated measures indicated that the significant wellness improvement within-group effect was not significantly influenced by any of the following independent variables:- health club affiliation; length of membership; age; gender; home language; years of exercise experience; estimation of wellness improvement or the type, amount, duration and intensity of exercise. Thus it may be concluded that the major reason for the improvement in wellness was regular exercise of at least two months duration.

Multivariate analysis revealed the following significant independent variable effects: the influence of age on satisfaction with life ($F=6.56$) and stress ($F=5$), language on satisfaction ($F=7.6$) with life and coping ($F=5.1$) and estimate of wellness on stress ($F=5$). These effects are explained as follows. Satisfaction with life was found to stabilize and improve with age. Stress scores were higher in the twenties and thirties, lower in the teens and over forty age group. Zulu language speakers scored higher on satisfaction with life and coping scales, then English and Afrikaans speakers respectively. Participants who estimated their wellness improvement conservatively, at approximately 50 to 60%, scored higher on mood than those who estimated their wellness improvement lower or higher. As we are dealing with small numbers in this multivariate analysis, these latter findings and interpretations should be regarded with caution.

DISCUSSION

The results confirmed the research hypotheses and emphasized the importance and value of models of public health and positive health such as those of Seeman (1989), Tannahill, (2000) and Edwards (2001b). Taken together the results also provide strong argument for the promotion of mental health through regular exercise in general and membership of a health club in particular, for those members of society who are able to afford such membership. Many large companies and institutions have in fact instituted health clubs on their premises. In view of findings as to decreased work absenteeism and increased productivity and general wellness (Corbin & Lindsey, 1997; Fox, 2000) this trend is likely to continue. Health professionals in general and mental health workers in particular should routinely consider referrals of persons with mental health and/or stress related problems to health clubs as well as recommending regular exercise.

Randolfi (2002) has suggested the following reasons as to why an activity such as exercise that is physiologically almost identical to the physiological response of psychological stress is helpful as a coping technique: detoxification of stress related compounds, outlet for anger and hostility, a form of moving meditation, enhanced feelings of self- esteem and self- efficacy, periodic solitude and introspection, opportunities for social support, the power of human touch, reduction of muscular tension, endorphin theories, increased somatic awareness, training for competition, improvement in sleep and rest, fitter to fight stress and disease.

This research has been limited to a psychosocial perspective on stress, with special reference to the perceptions and/or experiences of life events and coping with the stress of such events. Stress itself is an extraordinarily diverse phenomenon with biochemical, physiological, psychological, social and spiritual concomitants with different effects on different people at different times and contexts (Selye, 1976; Lazarus, 1993). In view of the many unanswered questions about the stress response, with its extensive physiological and psychological concomitants, Scully (1998) has argued that the role of exercise is probably best described as preventive rather than corrective.

The results support previous qualitative studies on the value of the exercise experience in enhancing positive mood states and satisfaction with life (Berger, 1996 & 2001; Stelter, 2000 & 2001; Edwards, 2001a & 2001b). These findings provide clear support for the public health benefits of regular exercise in terms of this association with improved mood and satisfaction with life. Health club members were participating in physical activities of various types including aerobic activities, circuit training and other weight training activities, which included free weights and resistance machines. The study revealed the value in what are extremely brief assessments of mood and satisfaction with life in clinical research studies where some form of standardized quantitative measures is needed. Most persons can complete both scales in less than five minutes.

The findings do not exclude sources of wellness, health and strength beyond the physical, particularly social. They simply provide further argument for the taking care of the human, lived body as mediator for such sources of wellness, energy, health and strength (Stelter, 2000; Edwards, 2001b) and support earlier qualitative studies on mental health promotion, fitness and the exercise experience (Fox, 2000; Edwards, 2001a). As also revealed in earlier research, participant observation and qualitative interviews with health club participants indicated various aspects of the exercise experience and many reasons why people exercise. Particular dynamics that revealed themselves in relation to improved health and strength were the intrinsic 'feel good', nature of the bodily experience and the social support derived from exercising with others in the gym environment. In a related yet more extensive, sociologically orientated study with 401 participants, Hayes & Ross (1986) found that exercise and good physical health improve psychological well being (as negatively assessed in terms of absence of symptoms of depression and anxiety) through mediation by internal mechanisms rather than through interactions or evaluations by others. While this effect was a general finding, it was more apparent in lower and middle rather than upper income groups.

In explicating the main dimensions of fortitude or psychological strength measured in the present research, evidence is provided that people who exercise regularly are psychologically stronger than irregular exercisers. Regular exercisers have more positive appraisals of themselves, their families and support from others. In their greater fortitude they have greater strength to manage stress and stay well. Pretorius (1998) found a similar association between fortitude and stress resistance. Strumpfer (1995), Pretorius (1998) and Wissing and Van Eden (1998) have argued for the broadening of the salutogenic paradigm to a fortigenic paradigm to include not only the origins of psychological health but also the nature manifestations, dynamics and enhancement of psychological health, strength and well-being. This research supports this view. The Fortitude Scale has an additional family and communal emphasis, particularly valuable in more collectively orientated societies where emphasis is on humanization and socialization towards greater social rather than individual contributions and

responsibility. In addition, the present study is an extension of these studies in its specific inclusion of the operational concept of wellness as inclusive of both psychological health and strength. In this sense, emphases on public and mental health, salutogenesis and fortigenesis are best conceptualized in terms of components or perspectives in a new wellness paradigm.

In general the findings support and extend earlier studies on the effect of physical exercise on mental health and psychological well-being (Hayes & Ross, 1986; Stephens, 1988; Pate *et al.*, 1995; Scully, 1998; Biddle *et al.*, 2000; Fox, 2000; Biddle & Faulkner, 2001) and as related to the specific wellness components in the present study (Sinyor *et al.*, 1983 & 1987; Roth & Holmes, 1985; Berger, 1994 & 1996 & 2001; Anshell, 1996; Summers, 1999). Earlier research advocating the validity of the wellness components is also supported in this research (Holmes & Rahe, 1967; McNair *et al.*, 1971; Diener *et al.*, 1985; Antonovsky, 1987 & 1993; Dean *et al.*, 1990; Flannery & Flannery, 1990; Frenz *et al.*, 1993; Noakes & Granger, 1995; Pretorius, 1998).

CONCLUSION

Health club members were found to be more psychologically well and significantly less stressed than students, particularly in terms of their healthier lifestyle and ability to cope with stress. The main reason for this difference was regular exercise. Whether they were members of a health club or not, participants who were regular exercisers were found to be significantly more psychologically well than irregular exercisers. The clear implication for general and mental health practitioners is to routinely consider recommending regular exercise and/or referral to a health club.

Another specific finding of this research was the validation of very significant causal relationships between regular physical exercise of at least two months duration in health clubs and various components of psychological wellness. The significant wellness improvement within the group of 26 exercisers was not significantly influenced by various other independent variables such as particular health club affiliation; length of membership; age; gender; home language; years of exercise experience; estimation of wellness improvement and the type, amount, duration or intensity of exercise.

The development and application of the public health evidence base to improve the health of populations has improved considerably over the past three decades. Education with regard to the benefits of positive health behaviors such as regular exercise in various contexts is internationally practiced in public health promotion campaigns (Repucci *et al.*, 1999; Fox, 2000; Oldenburg, 2001). This research provides further support for this movement.

The concept of psychological well-being and/or wellness has great potential for promoting health in general and mental health in particular in its positive emphasis on survival, health and strength, through managing stress, coping with crises and developing competencies, skills, supplies, and resources such as regular exercise and membership of a health club.

Finally, the research simply provided empirical, experimental, evidence for a causal relationship that has received experiential and cultural recognition for millennia. Physical exercise promotes mental health and wellness. Given the limited percentage of the population

engaged in regular, beneficial exercise, the really challenging task remains to find better and more effective ways to promote such knowledge and behaviour for the benefit of all people.

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