

Physical & Sporting Activity in Treating Psychological and Organic Diseases in Algeria

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Abstract

This study examines how effective physical and sporting activity is in the prevention and treatment of selected psychological and organic diseases within the Algerian context. The research problem arises from the growing burden of mental disorders and chronic illness in Algeria, a situation that calls for preventive and therapeutic options that do not depend on medication alone. A descriptive and analytical method guides a review of Arabic and international literature on sport psychology, mental health, and the physiology of physical effort. The theoretical findings indicate that regular and moderate physical activity is associated with lower levels of anxiety and depressive symptoms, and with improvement in organic health indicators such as blood pressure, glycemic control, and cardiorespiratory fitness. The review further shows that particular forms of activity, including swimming, outdoor running, and team sports, add psychological and social benefits beyond their physiological effects. The study concludes that integrating physical and sporting activity into public health programs in Algeria is a well supported direction that requires more precise national field data and coordinated action across the health, educational, and sporting sectors. These conclusions remain theoretical and depend on dedicated Algerian epidemiological evidence.

Keywords: physical and sporting activity, mental health, organic diseases, Algeria.

1.Introduction

Physical and sporting activity is bodily movement generated by skeletal muscles that raises energy expenditure beyond the resting state and is organized through rules, objectives, or recreational intent that separate it from incidental daily motion (Rateb, 1997). It spans structured training, school physical education, competitive games, and free recreation, each carrying a physiological load alongside a psychological dimension tied to motivation and experience (Allawi, 1986). Scholarly attention has grown as psychological disorders and chronic organic illness have become heavier burdens across Arab societies, turning researchers toward options that do not depend on medication alone (El-Kholy, 1996). The significance of the field rests on a documented link between movement and health that works on two levels at once: an organic level, where activity acts on the cardiovascular, metabolic, and muscular systems and modifies illness related responses (Al-Suwaidan & Othman, 1999), and a psychological level, where participation improves mood, lowers tension, and strengthens competence (Rateb, 1997). International reviews report lower rates of common mental disorders among active populations (Paluska & Schwenk, 2000), a pattern seen in the European Union (Abu-Omar, Rütten, & Lehtinen, 2004) and in the United States (Goodwin, 2003).

Prior work falls into strands that this study reads together: Arabic sport psychology, which

built the vocabulary of motor activity and development (Allawi, 1986; Rateb & Khalifa, 1999); Arabic mental health scholarship on disorders and wellbeing (Al-Anani, 2000; Radwan, 2009; Al-Dahri, 2004); stress and psychosomatic research linking psychological pressure to organic dysfunction (Selye, 1975; Lazarus & Folkman, 1984; Abu El-Nil, 1994); and international empirical studies of activity and mental health (Dunn, Trivedi, & O'Neal, 2001; Brunet et al., 2013; Kim et al., 2012). A critical reading reveals a recurring limitation: the Arabic theoretical literature rarely connects its concepts to measured clinical outcomes, while the international empirical work seldom addresses the Algerian setting. This gap defines the space of the present article, since Algeria carries a rising load of psychological complaints and chronic organic disease, yet structured activity remains underused as a preventive and therapeutic tool. The central question is therefore how effective the use of physical and sporting activity is in the prevention and treatment of some psychological and organic diseases in Algeria. From it follow four secondary questions: what these activities are and what gives them therapeutic value; what significance they hold for psychological and organic health; which forms, among swimming, small sided games, outdoor running, horse riding, and team sports, are most relevant; and what available statistics and applied models indicate about the Algerian situation.

The study follows a descriptive and analytical method, assembling the conceptual and empirical material on activity, mental health, and organic disease, then interpreting it and relating it to Algerian conditions. This suits a problem whose evidence is dispersed across sport science, clinical psychology, and physiology and whose synthesis depends on conceptual analysis rather than new experimental data (Boudaoud, 2010). The principal sources divide along the same lines: Arabic sport psychology and recreation texts supply the definitions and developmental framing (Rateb, 1997; El-Kholy, 1988; El-Wakeel, 1983; Ben Hadri, 2019); Arabic mental health references supply the account of disorders and wellbeing (Adam, 2010; El-Khaldi, 2009; Abdel-Rahman, 2000; El-Tayeb, 1994; Abu Hajla, 1998); occupational stress and psychosomatic studies connect pressure to organic outcomes (Al-Otaibi, 2007; Bousenna, 1998; Askar, 2000); physiology and training references explain the bodily mechanisms (Al-Suwaidan & Othman, 1999; Abdel-Khalek, 1972; Al-Hamahi & El-Kholy, 1990); and international articles provide the quantitative evidence across the lifespan (Hallal et al., 2006; Ortega et al., 2008; Janney et al., 2008; Jewett et al., 2014; Bamber et al., 2000; Gerber & Pühse, 2009; McCain & Smith, 1994). Read together, they allow a reasoned answer to the central question while marking clearly where Algerian field data are still required.

2. Definition of physical and sporting activity

The term physical activity carries a precise meaning in the sport sciences before it acquires any therapeutic or social sense. It names any movement of the body produced by the contraction of skeletal muscle that raises energy expenditure above the level recorded at

rest (Rateb, 1997, p. 24). Under this definition a wide span of behaviour qualifies, from walking and climbing stairs to formal athletic training, because the common criterion is muscular work and its metabolic cost rather than the setting. Arabic scholarship has retained this physiological core while adding that human movement always unfolds inside a psychological frame, since the person who moves perceives effort, attaches meaning to it, and regulates it through will and motivation (Allawi, 1986, p. 38). A definition that ignored this layer would describe the body as a machine and lose the dimension that makes activity relevant to mental health.

A finer distinction separates physical activity in general from exercise in the narrow sense. Exercise is the planned, repeated, and structured subset of physical activity whose declared purpose is the maintenance or improvement of one or more components of fitness, such as cardiorespiratory endurance, muscular strength, flexibility, or body composition (Abdel-Khalek, 1972, p. 51). The defining features are intention and organisation: a person who jogs three times a week to lower resting heart rate performs exercise, whereas the same steps taken incidentally during errands count as ordinary physical activity. This matters because therapeutic and preventive programmes almost always prescribe exercise in the structured sense, with controlled dose, progression, and monitoring, rather than diffuse daily movement whose volume cannot be measured or reproduced (Al-Hamahi & El-Kholy, 1990, p. 33).

Sport occupies a further position within the same conceptual family. It is physical activity institutionalised through codified rules, formal competition, governing bodies, and recognised techniques, so that the movement is no longer free but governed by an external normative order (El-Kholy, 1996, p. 47). Sport therefore adds a social and regulatory layer to the physiological and psychological ones, since the athlete trains within a discipline that prescribes how the body should move, how performance is judged, and how the participant relates to opponents, teammates, officials, and spectators. Arabic sport sociology has stressed that this regulatory character turns sport into a social institution with its own values and forms of belonging, and that its health effects cannot be separated from this social embedding (El-Kholy, 1996, p. 62). When this article speaks of physical and sporting activity as a single object, it refers to that layered reality in which a physiological base, a psychological experience, and a social structure act at once.

Recreation forms the fourth concept that the literature ties to physical activity. Recreational activity is movement undertaken in free time for restoration, enjoyment, and the renewal of capacity for work, without the competitive obligation that defines sport in the strict sense (El-Kholy, 1988, p. 29). The recreational frame matters for a therapeutic argument because it lowers the threshold of participation: a person who would not join a competitive club may readily take part in a walk, a swim, or an informal game, and the benefit follows from the movement regardless of whether a score is kept. Arabic writing on recreation has argued that organised leisure carries a protective psychological function, offering a

legitimate outlet for tension and a setting for social contact that buffers the individual against isolation (El-Wakeel, 1983, p. 41). The reasoning developed later draws on both the structured exercise tradition and this recreational tradition, because prevention at the population level depends on accessible and enjoyable forms rather than competitive performance alone.

Beyond these distinctions, the definition includes a set of measurable parameters that determine the effect of activity on body and mind. The first is intensity, the rate of energy expenditure, graded as light, moderate, or vigorous. The second is duration, the length of a single bout. The third is frequency, the number of bouts across a period such as a week. The fourth is type, since endurance, resistance, and flexibility work act on different systems (Abdel-Khalek, 1972, p. 58). These are not academic refinements but the variables a clinician or physical educator manipulates when activity is used for prevention or treatment, and the same disorder may respond to one configuration while failing to respond to another. A definition that stops at the word movement is therefore insufficient for a study of treatment, which requires the language of dose.

The developmental and physiological literatures add two further dimensions. From the developmental side, motor activity in childhood is the medium through which the growing person acquires coordination, body awareness, and the regulation of emotion and impulse, so that activity is woven into psychological formation from the earliest years (Rateb & Khalifa, 1999, p. 35). The child who plays builds the perceptual and emotional structures that later support mental health, and developmental psychology for the sports educator treats guided activity as an instrument of growth rather than a mere expenditure of surplus vitality (Allawi, 1997, p. 44). From the physiological side, activity is defined by its effects on the organ systems: muscular work increases cardiac output, raises ventilation, recruits metabolic pathways that mobilise fuel, and triggers adaptations in the cardiovascular, respiratory, and endocrine systems when repeated over time (Al-Suwaidan & Othman, 1999, p. 72). These adaptations form the mechanistic bridge between movement and organic health that later sections examine.

A final element concerns the difference between activity used for prevention and activity used for treatment. In the preventive frame, physical and sporting activity is a habitual practice maintained across the lifespan to reduce the probability that a disorder will appear, and its defining feature is regularity rather than clinical supervision (Ben Hadri, 2019, p. 27). In the therapeutic frame, activity becomes a prescribed intervention introduced after a disorder is present, with parameters set against a clinical goal and progress measured against a baseline. School sports activity illustrates the preventive frame, because the educational system uses regular movement to build durable habits before any pathology emerges, its value lying in its reach across a whole age cohort (Ben Hadri, 2019, p. 31). The methodological literature insists that any claim about the effect of activity must specify which frame is intended, since evidence on prevention does not transfer

automatically to treatment (Boudaoud, 2010, p. 49). The present study keeps the two frames distinct throughout.

Taken together, these elements yield a working definition. Physical and sporting activity is muscular movement that raises energy expenditure above rest, that may be free or structured, recreational or competitive, and that carries at once a physiological cost, a psychological experience, and, in its sporting form, a social and regulatory order. Its effect on health depends on measurable parameters of intensity, duration, frequency, and type, and its relevance to disease must be read separately in the preventive and the therapeutic frames. This definition fixes the vocabulary used in the sections that follow and aligns the Arabic conceptual tradition with the physiological and developmental accounts on which the later analysis depends.

3.The significance of physical and sporting activity

The significance of physical and sporting activity for health rests on evidence that links regular movement to better psychological and organic functioning across the lifespan. The connection is not incidental: it follows from the way muscular work alters the internal environment of the body and from the way participation reshapes mood, self perception, and social experience. Arabic sport psychology treated this dual effect as the foundation of the discipline, arguing that activity acts on the person as a single system in which body and mind are not separable (Rateb, 1997, p. 31). The discussion below sets out the psychological, physiological, developmental, and social dimensions of this significance and relates them to the preventive and therapeutic uses that define the research problem.

On the psychological level, the most consistent finding in the international literature is an inverse association between physical activity and the common mental disorders. A review of the field reported that active individuals show fewer symptoms of depression and anxiety than sedentary individuals, across age groups and both sexes (Paluska & Schwenk, 2000, p. 169). A study of adults in the United States found that regular activity was associated with a lower prevalence of major depression, panic, and other anxiety disorders, with the association strongest at moderate levels (Goodwin, 2003, p. 700). Work drawing on national survey data reported that higher activity coincided with better general mental health and lower distress (Kim et al., 2012, p. 461), and a longitudinal study following young adults across a decade found that sustained activity predicted fewer depressive symptoms over time, which supports a directional rather than purely concurrent relationship (Brunet et al., 2013, p. 28). These findings give the preventive argument an empirical base that the older Arabic literature asserted on theoretical grounds alone.

The strength of the psychological effect depends on dose, a qualification central to any therapeutic use. A controlled examination of the dose response relation found that the antidepressant and anxiolytic effects of exercise increased with energy expenditure up to a level consistent with public health recommendations, while very low doses produced little

benefit (Dunn, Trivedi, & O'Neal, 2001, p. S593). The same literature warns that the relation is not linear without limit, since excessive and compulsive training can itself become a disorder in which the person loses control over participation (Bamber et al., 2000, p. 428). The significance of activity for mental health is therefore conditional on regularity, moderate intensity, and a healthy motivational structure, a point the Arabic developmental literature made when it tied the psychological value of activity to its being guided rather than excessive (Allawi, 1997, p. 47).

The mechanisms behind these effects connect the mind to the organic systems and explain why a single behaviour reaches both. Physiological accounts describe how sustained muscular work modifies neuroendocrine activity, improves the regulation of arousal, and alters the bodily response to threat (Al-Suwaidan & Othman, 1999, p. 88). The stress tradition supplies the theoretical frame: the general adaptation account treated stress as a nonspecific bodily response to demand that, when prolonged, exhausts the organism and opens the way to disease (Selye, 1975, p. 54), while the cognitive account placed appraisal and coping between the stressor and its effect, so that the same event harms one person and not another according to how it is interpreted and managed (Lazarus & Folkman, 1984, p. 19). Physical activity intervenes at both points, lowering the physiological load of the stress response and providing an active coping resource that strengthens the sense of control, which is why reviews of the protective role of fitness against stress related complaints report consistent benefit (Gerber & Pühse, 2009, p. 814).

This mechanism gives activity its significance for organic disease through the pathway documented in the psychosomatic literature. Psychosomatic illness names organic dysfunction in which psychological pressure plays a causal or aggravating part, and Arabic scholarship described how chronic tension translates into disorders of the cardiovascular, digestive, and other systems (Abu El-Nil, 1994, p. 36). Field studies in Arab work settings reported associations between occupational stress and both psychosomatic complaints and the physical health of managers, locating the pathway in concrete populations rather than theory alone (Al-Otaibi, 2007, p. 44; Bousenna, 1998, p. 61). The study of life stress and coping strategies argued that the resources a person can mobilise determine whether pressure becomes pathology, placing active behavioural coping among the more effective resources (Askar, 2000, p. 73). A holistic framework grounded in psychoneuroimmunology showed how stress, coping, and immune function form one regulatory loop, so that an intervention that improves coping and lowers physiological load can plausibly affect organic resistance to disease (McCain & Smith, 1994, p. 224). Within this logic the organic significance of activity is not a separate claim from its psychological significance but the same claim followed through the body.

The organic significance also has a direct physiological face that does not pass through the mind. Regular endurance activity strengthens the heart, lowers resting heart rate and blood pressure, improves the handling of blood glucose and lipids, and raises the efficiency of the

respiratory and metabolic systems (Al-Suwaidan & Othman, 1999, p. 95). The training literature describes how these adaptations accumulate at sufficient dose and reverse when activity stops, which establishes both the promise and the fragility of the benefit (Abdel-Khalek, 1972, p. 64). Evidence on younger populations adds that physical fitness in childhood and adolescence is a powerful marker of current and future health, predicting cardiovascular and metabolic outcomes well into adult life (Ortega et al., 2008, p. 8), and a broad review of adolescent activity reported associations with healthier body composition, bone development, and cardiovascular profile (Hallal et al., 2006, p. 1026). These findings give the preventive use of activity a clear organic rationale that complements its psychological one.

The developmental significance deserves separate emphasis because it explains why early exposure matters. Motor activity in childhood builds the coordination, body awareness, and emotional regulation on which both physical competence and psychological stability rest, and Arabic developmental work treated guided movement as a formative rather than merely recreational experience (Rateb & Khalifa, 1999, p. 41). A study following participants from adolescence into early adulthood found that school sport participation predicted better mental health years later, which suggests that activity in the formative years leaves a durable trace (Jewett et al., 2014, p. 643). The mental health of the child is shaped by the opportunities for active play and structured movement that family and school provide, and the literature warns that their absence carries psychological cost (Adam, 2010, p. 52). This layer is the reason the school setting recurs in the applied literature as the primary site of prevention.

The social significance completes the picture. Sport and organised recreation create belonging, structure free time, and offer a legitimate channel for the discharge of tension, and Arabic sociology of sport treated these functions as part of the health value of activity rather than a side effect (El-Kholy, 1996, p. 68). Writing on recreation in its cultural setting argued that organised leisure protects psychological balance by countering isolation and giving the person a constructive use of time (El-Wakeel, 1983, p. 47), a view echoed in the broader recreation literature (El-Kholy, 1988, p. 34). Survey evidence from the European Union supports the social reading by showing that the activity and mental health relationship holds at the population level across diverse national contexts (Abu-Omar, Rütten, & Lehtinen, 2004, p. 306). The significance of activity is therefore not confined to the individual body; it extends to the social conditions that make participation possible.

A final point concerns the difference between significance for prevention and for treatment, since the evidence supports the two unequally. The preventive case is strong and broad, resting on large populations and consistent associations across psychological and organic outcomes (Goodwin, 2003, p. 701; Ortega et al., 2008, p. 9). The therapeutic case is real but more conditional, since it depends on correct dose, supervision, and the matching of activity type to disorder, and the Arabic mental health literature cautioned that activity

supports treatment rather than replacing established clinical care for severe disorders (Al-Anani, 2000, p. 58; Radwan, 2009, p. 49). Evidence on service use adds that activity levels and the use of mental health services vary by sex, so the benefit is not distributed evenly across a population (Janney et al., 2008, p. 14). The Arabic references on the classification and treatment of psychological disorders reinforce this measured position, treating activity as one component within a broader therapeutic structure rather than a standalone cure (Radwan, 2003, p. 57; Al-Dahri, 2004, p. 44; El-Khalidi, 2009, p. 61; Abdel-Rahman, 2000, p. 39; El-Tayeb, 1994, p. 52; Abu Hajla, 1998, p. 66). The significance of physical and sporting activity, then, is greatest as a preventive practice and substantial but bounded as a therapeutic adjunct, and this distinction governs the analysis of the Algerian situation that follows.

4. Forms of physical and sporting activity

The forms through which physical and sporting activity reaches the body and mind are numerous, and this study limits its attention to five that the task identifies as relevant to prevention and treatment in Algeria: swimming, small sided games, outdoor running, horse riding, and team sports. The aim is not a technical manual but a reasoned account of why each form holds value for psychological and organic health, since the choice of form determines which systems are loaded, which psychological experiences are evoked, and which populations can realistically take part (Boudaoud, 2010, p. 53). Each form carries a distinct profile of physiological demand, accessibility, and social meaning, and a programme selects among them according to the disorder addressed and the resources available.

Swimming is a whole body endurance activity performed in water, and its therapeutic interest lies in combining cardiorespiratory demand with low mechanical load on the joints. Because water supports the weight of the body, swimming allows sustained aerobic work without the impact that limits running for some patients, which makes it suitable for people with musculoskeletal limitation, excess weight, or early organic disease (Al-Suwaidan & Othman, 1999, p. 101). Its aerobic character acts on the cardiovascular and respiratory systems in the manner the training literature associates with reduced blood pressure and improved metabolic regulation (Abdel-Khalek, 1972, p. 67). On the psychological side, the rhythmic, repetitive movement and the immersion in water are linked to reductions in tension and to a calming effect that supports its use against anxiety and stress related complaints (Gerber & Pühse, 2009, p. 810). Swimming therefore suits prevention and the cautious therapeutic loading of patients who cannot tolerate higher impact forms.

Small sided games are modified team activities played by reduced numbers on smaller spaces, and their significance comes from raising participation and enjoyment while preserving the physiological and social benefits of organised play. The reduction in scale increases each participant's involvement, so that the volume of movement per person rises and the activity sustains a moderate to vigorous load suited to fitness development (Al-

Hamahi & El-Kholy, 1990, p. 41). The format lowers the technical barrier to entry, which matters for prevention because it draws in participants who lack the skill or confidence for full competition, an accessibility the recreation literature treats as a condition for reaching the wider population (El-Kholy, 1988, p. 37). Its cooperative, playful structure also carries psychological value, since the experience of mastery and belonging supports motivation and mood in line with Arabic sport psychology (Allawi, 1986, p. 49). For school and community settings in Algeria, this form offers a practical route to regular activity that does not depend on elite facilities.

Outdoor running is the most accessible endurance form, requiring little equipment and no specialised facility, and this gives it particular weight in a preventive strategy. As a weight bearing aerobic activity it loads the cardiovascular system strongly and produces the metabolic and cardiorespiratory adaptations the evidence ties to lower risk of organic disease (Hallal et al., 2006, p. 1023). The antidepressant and anxiolytic effects of aerobic exercise documented in the dose response literature apply directly to running at moderate intensity and regular frequency (Dunn, Trivedi, & O'Neal, 2001, p. S590). The outdoor setting adds a further dimension, since activity in open air and natural surroundings is associated with restoration and relief from mental fatigue, an effect the recreation tradition recognised in its account of the renewing function of outdoor leisure (El-Wakeel, 1983, p. 51). A qualification applies, since the same literature warns that running can become compulsive in a minority of participants, so programmes should monitor for loss of control and overtraining (Bamber et al., 2000, p. 426). Within sensible limits, outdoor running is among the most efficient forms for population level prevention.

Horse riding occupies a distinct place because its benefits arise from the interaction between rider and animal rather than from high energy expenditure alone. The activity demands continuous postural adjustment, balance, and core engagement, which develops neuromuscular control and body awareness in a manner the developmental literature values for the formation of motor competence (Rateb & Khalifa, 1999, p. 47). The psychological dimension is prominent, since the relationship with the animal and the responsibility of handling it are associated with improvements in confidence, emotional regulation, and engagement, which has supported the use of riding in programmes for psychological and developmental difficulties (Allawi, 1986, p. 54). It is less accessible than running or small sided games because it depends on specialised facilities, animals, and supervision, and the methodological literature cautions that the evidence base for riding is narrower than for the mainstream aerobic forms (Boudaoud, 2010, p. 58). Its inclusion in the Algerian context is therefore best understood as a targeted therapeutic option for specific groups rather than a tool for mass prevention, given the country's established equestrian tradition in certain regions.

Team sports are organised competitive activities played between groups under codified rules, combining intense physical demand with a rich social structure, which gives them a

double significance for health. Physiologically, the alternation of effort and recovery that characterises most team sports develops both aerobic and anaerobic capacity and loads the cardiovascular and muscular systems vigorously (Al-Suwaidan & Othman, 1999, p. 108). Psychologically and socially, participation creates belonging, shared purpose, and a structured outlet for tension, functions the sociology of sport treats as central to the health value of organised play (El-Kholy, 1996, p. 71). The developmental evidence reinforces this, since the study that followed adolescents into adulthood found that school sport participation, much of it in team form, predicted better later mental health (Jewett et al., 2014, p. 642). Team sports also carry the strongest cultural resonance among the five forms in Algeria, where football in particular commands wide participation and identification, which raises their potential reach as a vehicle for prevention. The same competitive intensity that produces benefit can, however, generate pressure and risk of injury, so the applied literature stresses appropriate supervision and graded participation, especially for therapeutic use (Paluska & Schwenk, 2000, p. 172).

A comparison across the five forms shows that they differ along three axes that matter for the research problem: physiological profile, accessibility, and social meaning. Swimming and outdoor running deliver the clearest aerobic load and the strongest organic benefit, small sided games and team sports add cooperative and competitive social value, and horse riding offers a specialised psychological and neuromuscular benefit for targeted groups (Abdel-Khalek, 1972, p. 71). Accessibility runs in the opposite direction for some, since running and small sided games demand the least in facilities while swimming and horse riding demand the most, a consideration the recreation literature treats as decisive for population reach (El-Kholy, 1988, p. 40). The selection of a form therefore balances the disorder addressed, the systems to be loaded, and the realistic conditions of access (Boudaoud, 2010, p. 61).

This balance has a particular shape in Algeria. The forms with the lowest resource requirements, outdoor running and small sided games, align with the conditions of most schools and neighbourhoods and carry the greatest promise for broad prevention, while swimming and team sports depend on infrastructure that is unevenly distributed and horse riding remains a regional and specialised practice (Ben Hadri, 2019, p. 35). The school sports framework is the natural site at which several of these forms can reach a whole age cohort, since the educational system already organises physical activity and can extend it through accessible games and running without major new facilities (Ben Hadri, 2019, p. 39). The psychological value common to all five forms, the relief of tension, the building of confidence, and the experience of belonging, links them to the prevention and treatment of psychological disorders, while their aerobic and metabolic demands link them to the organic conditions examined next (Rateb, 1997, p. 58). The forms are thus not interchangeable. Each contributes a specific profile of benefit, and a rational Algerian strategy would deploy the accessible aerobic and game forms for population prevention and reserve the more specialised forms for targeted therapeutic use, a proposition the

statistical picture in the following section helps to ground.

5. Statistics and applied models in the Algerian context

The empirical picture of physical and sporting activity in relation to disease in Algeria must be assembled from national and international health statistics, because the conceptual sources that frame this study were written to explain mechanisms rather than to measure the Algerian population. This methodological separation is deliberate. The analytical literature supplies the reasoning that connects activity to health, while official surveillance data supply the magnitudes that show why the reasoning matters for Algeria (Boudaoud, 2010). The figures presented in this section are drawn from international surveillance bodies and from a peer reviewed survey of Algerian adolescents, and each carries its source so that the statistical claims remain traceable and verifiable.

The organic burden that gives the question its urgency appears most clearly in the data on diabetes. The estimates compiled by the International Diabetes Federation show a steep rise in the number of Algerian adults living with the disease across four decades, from a level near one and a half million at the start of the 2010s to almost five million by the middle of the 2020s, with the projection for 2050 approaching eight million. Figure 1 sets out these values.

Table 1. Number of adults aged 20 to 79 years living with diabetes in Algeria, 2011 to 2050.

Year	Adults with diabetes
2011	1.4 million
2024	4.8 million
2050 (projected)	7.9 million

Source: International Diabetes Federation (2025).

The proportional measure tells the same story, since the IDF places adult diabetes prevalence in Algeria at 17.5% in 2024, a level that ranks the country among the higher burden states of its region (International Diabetes Federation, 2025). Diabetes is relevant to the present argument because it is among the organic diseases most responsive to physical activity, both in prevention and in management, through the effect of muscular work on glucose handling and metabolic regulation that the physiology literature describes (Al-Suwaidan & Othman, 1999). The Arabic training literature adds that these metabolic adaptations depend on regular and sufficient activity and reverse when activity stops, which gives the rising prevalence a behavioural dimension that intervention can address

(Abdel-Khalek, 1972). The diabetes figures therefore mark a point at which the organic statistics and the therapeutic reasoning meet.

Diabetes does not stand alone in the Algerian profile of noncommunicable disease. Population research based on the national STEPS survey of 2016 and 2017 reported that metabolic syndrome, a cluster of cardiovascular and metabolic risk factors that includes raised blood pressure, raised blood glucose, and abnormal lipids, affected about 34.0% of adults aged 18 years and over, while hypertension figured among the most common conditions recorded in Algerian population studies, with estimates placed between 30% and 40% across surveys (World Health Organization, 2018). These conditions share the same behavioural risk structure as diabetes, and they respond to the same aerobic and endurance activity that lowers blood pressure and improves cardiovascular function in the physiological accounts (Al-Suwaidan & Othman, 1999). The psychosomatic literature draws these organic conditions closer to the psychological question, since sustained stress contributes to cardiovascular and metabolic dysfunction through identifiable pathways, and activity acts on both the stressor load and the organic outcome at once (Abu El-Nil, 1994; Al-Otaibi, 2007). The organic statistics, in other words, describe diseases that are at the same time partly behavioural and partly stress linked, which places physical activity at the centre of any preventive response.

Against this burden of disease stands the level of physical activity in the population, and the data here reveal the core of the problem. Surveillance based on the methods of the World Health Organization places the prevalence of insufficient physical activity among Algerian adults at about 33.6%, meaning that roughly one adult in three does not reach the minimum weekly activity associated with health protection (World Health Organization, 2024). Figure 2 places this national value in relation to the threshold that defines sufficient activity.

Table 2. Insufficient physical activity among Algerian adults aged 18 years and over.

Indicator	Value
Adults not meeting the minimum activity threshold	33.6%
Minimum weekly target	150 minutes moderate activity, or 75 minutes vigorous activity

Source: World Health Organization (2024).

The significance of this figure is that the protective behaviour examined throughout this study is absent in a large share of the population at the same time that the diseases it could prevent are rising. The international evidence that activity lowers the prevalence of depression, anxiety, and common organic disease implies that a third of Algerian adults

forgo a measurable health benefit (Goodwin, 2003; Paluska & Schwenk, 2000). The dose response evidence sharpens the implication, since the gap between current and recommended activity is exactly the range in which added activity yields the steepest gain in psychological and organic outcomes (Dunn, Trivedi, & O'Neal, 2001). The inactivity statistic thus converts the abstract significance of activity into a concrete national shortfall.

The position among adolescents is more severe and carries consequences for the future burden of disease. A peer reviewed analysis of Algerian adolescents using Global School based Student Health Survey data found that physical inactivity was the most common lifestyle risk behaviour in the sample, present in about 84.6% of the adolescents studied, with closely similar levels in urban and rural areas (Kerkadi et al. , 2021)). Figure 3 reports this distribution.

Table 3. Prevalence of physical inactivity among Algerian adolescents.

Group	Physically inactive
Total sample	84.6%
Urban adolescents	50.9% of the inactive
Rural adolescents	49.1% of the inactive

Source: Kerkadi et al. (2021)

The adolescent figure matters for two reasons grounded in the earlier sections. First, the developmental literature treats childhood and adolescence as the period in which activity habits and the psychological structures that support health are formed, so inactivity at this stage predicts both immediate and later harm (Rateb, 1997). Second, the international evidence shows that physical fitness in youth is a strong marker of adult health and that school sport participation predicts better mental health years later, which means that adolescent inactivity at this scale forecasts a heavier future burden of both organic and psychological disease unless it is addressed (Ortega et al., 2008; Hallal et al., 2006). The near uniformity of inactivity across urban and rural settings indicates that the problem is national rather than confined to one environment, and that any model of intervention must reach the whole school going population rather than selected areas.

The psychological side of the Algerian picture cannot be quantified with the same confidence, and the honest position is to mark the limit rather than to supply a number that the available sources do not support. National epidemiological data on the prevalence of depression, anxiety, and stress related disorders in Algeria are limited and inconsistently reported, which constrains any precise statistical claim about the psychological burden. What the conceptual sources establish is the structure of the relationship rather than its national magnitude. The mental health literature describes how stress and unaddressed psychological pressure translate into both psychological disorder and psychosomatic

organic illness (Abu El-Nil, 1994), and the occupational stress studies in Arab settings show that this pathway operates in working populations comparable to Algeria's (Al-Otaibi, 2007). The protective role of activity against stress related complaints documented in the review literature therefore applies in principle to Algeria, even where the national prevalence of the disorders themselves is not precisely measured (Gerber & Pühse, 2009). This gap is itself a finding, because it identifies where Algerian field research is most needed.

Taken together, the statistics describe a coherent and troubling configuration. The organic diseases that respond to physical activity are common and rising, the protective activity is insufficient in about a third of adults, and inactivity is close to universal among adolescents, while the psychological burden, though structurally linked to the same factors, remains poorly quantified at the national level. This configuration defines the space in which applied models of intervention must operate, and the embedded literature offers several that suit Algerian conditions.

The first applied model is the school sports model, which uses the educational system as the site of population wide prevention. The Arabic literature on school sport activity treats the school as the institution that can reach an entire age cohort and build durable activity habits before disease appears, and it sets out the conditions under which school programmes move from theory to practice (Ben Hadri, 2019). Given the adolescent inactivity figure, this model has the largest potential reach in Algeria, because it addresses the population in which the deficit is greatest and the developmental return on activity is highest (Hallal et al., 2006). The model depends on accessible forms of activity rather than elite facilities, which aligns it with the running and small sided game forms identified earlier as the most feasible in Algerian conditions.

The second applied model is the structured programme model drawn from the foundations of physical education programme design. This literature specifies how activity programmes are built around objectives, graded content, and progression, so that the activity delivered matches a defined health goal rather than being left to chance (Al-Hamahi & El-Kholy, 1990). For therapeutic use with organic conditions such as diabetes and hypertension, this model supplies the framework for prescribing activity at the correct intensity, duration, and frequency, in line with the parameters that the training literature identifies as determining effect (Abdel-Khalek, 1972). The structured programme model converts the general finding that activity helps into a specific, reproducible intervention that clinicians and physical educators can apply.

The third applied model is the dose response model from the international evidence, which provides the quantitative logic for matching activity to outcome. The finding that the psychological benefit of activity rises with energy expenditure up to the level of public health recommendations gives Algerian programmes a target to aim for, while the warning that very low doses produce little benefit cautions against token activity that cannot

achieve a health effect (Dunn, Trivedi, & O'Neal, 2001). Applied to the national inactivity figure, this model suggests that moving inactive adults toward the recommended weekly threshold would capture the largest share of the available benefit, since they occupy the steep part of the dose response relation (Paluska & Schwenk, 2000). The same model, read with the evidence on fitness as a marker of health, supports an emphasis on sustained aerobic activity in both prevention and management (Ortega et al., 2008).

A realistic synthesis of these models for Algeria places the school sports model at the centre of prevention, given the adolescent data, and the structured programme and dose response models at the centre of treatment, given the organic disease burden among adults. The statistics show where the need is greatest and the models show how activity can be delivered to meet it, but both rest on data that remain incomplete on the psychological side. The figures presented here are sufficient to establish the organic and behavioural case, and they justify the conclusion that physical and sporting activity has a substantial preventive and therapeutic role to play in Algeria, while they also mark the national psychological data as the principal gap that future research must close. The interpretation throughout has stayed within the limits of the verifiable evidence, citing the conceptual sources for mechanism and the surveillance sources for magnitude, so that the analysis of effectiveness rests on documented findings rather than on assumption.

6.Conclusion

This study set out to determine how far physical and sporting activity can serve as an effective means of preventing and treating some psychological and organic diseases in Algeria. The analysis, built from the conceptual literature on sport psychology, mental health, and exercise physiology and tested against national and international statistics, supports a clear answer. Physical and sporting activity is an effective and well grounded instrument of both prevention and treatment, working through documented psychological, physiological, and social pathways, and acting on exactly the conditions that the Algerian disease profile shows to be common and rising. Its effectiveness is therefore real and substantial, yet largely unrealised, since the protective behaviour is absent in a large share of adults and in the great majority of adolescents.

In answer to the secondary questions, the study established that physical and sporting activity covers a spectrum from everyday movement to structured exercise and organised sport, with the most feasible forms in Algeria being swimming, small sided games, outdoor running, horse riding, and team sports. It showed that activity improves mood, reduces anxiety and depressive symptoms, strengthens self concept, and buffers stress through identifiable mechanisms, the strongest part of the conceptual evidence even where its national magnitude is imperfectly measured. It demonstrated that activity acts on organic health both directly, through cardiovascular and metabolic adaptation, and indirectly, through the stress pathway that links psychological pressure to organic illness, addressing diseases such as diabetes and hypertension that are among the most prevalent in the

country. Finally, it found a coherent and troubling statistical configuration, met by three applied models: a school sports model for population wide prevention, a structured programme model for prescribing activity in treatment, and a dose response model for matching activity to outcome.

On this basis the study recommends treating adolescent inactivity as a national priority through school based activity, integrating prescribed activity into the management of diabetes, hypertension, and stress related conditions, favouring accessible forms that do not depend on scarce facilities, and promoting activity around its psychological and organic benefits together. It also defines three research horizons: national epidemiological data on psychological disorders, Algerian intervention studies that calibrate the international evidence to local populations, and evaluation research on school sport programmes. Pursuing these lines would close the gaps identified here and convert the established potential of physical and sporting activity into measured national benefit.

References

arabic

1. Abdel-Khalek, E. (1972). *Al-tadrib al-riyadi: Nazariyyat wa-tatbiqat* [Sports training: Theories and applications] (2nd ed.). Dar Al-Kutub Al-Jami'iyya.
2. Abdel-Rahman, M. E. (2000). *'Ilm al-amrad al-nafsiyya wa-l-'aqliyya* [The science of psychological and mental disorders]. Dar Quba for Printing, Publishing and Distribution.
3. Abu El-Nil, M. E. (1994). *Al-amrad al-bsikusumatiyya* [Psychosomatic illnesses] (2nd ed.). Dar Al-Nahda Al-Arabiyya.
4. Abu Hajla, N. (1998). *Al-tibb al-nafsi al-hadith* [Modern psychiatry]. University of Jordan, Faculty of Medicine.
5. Adam, H. M. (2010). *Al-sihha al-nafsiyya li-l-tifl* [The mental health of the child] (10th ed.). Iqra' Foundation for Publishing and Distribution.
6. Al-Anani, H. A. (2000). *Al-sihha al-nafsiyya* [Mental health]. Dar Al-Fikr for Printing.
7. Al-Dahri, S. H. A. (2004). *Mabadi' al-sihha al-nafsiyya* [Principles of mental health] (2nd ed.). Dar Wael.
8. Al-Hamahi, M., & El-Kholy, A. A. (1990). *Usus bina' barnamaj al-tarbiya al-badaniyya wa-l-riyadiyya* [Foundations for building a physical and sports education program]. Dar Al-Fikr Al-Arabi.

9. Al-Otaibi, A. (2007). 'Alaqaat dughut al-'amal bi-l-idtirabat al-bsikusumatiyya wa-l-ghiyab al-wazifi [The relationship of work stress to psychosomatic disorders and job absenteeism]. *Journal of Social Sciences*, 25(2). Kuwait University.
10. Al-Suwaidan, H., & Othman, I. (1999). *Al-fisyulujiya wa-waza'if al-a'da'* [Physiology and organ functions]. Dar Shabab Al-Jami'a.
11. Allawi, M. H. (1986). *'Ilm al-nafs al-riyadi* [Sport psychology] (1st ed.). Dar Al-Fikr Al-Arabi.
12. Allawi, M. H. (1997). *Sikulujiyyat al-numuw li-l-murabbi al-riyadi* [Developmental psychology for the sports educator]. Markaz Al-Kitab for Publishing.
13. Askar, A. (2000). *Dughut al-hayat wa-asalib muwajahatiha* [Life stress and coping strategies]. Dar Al-Kitab Al-Haditha.
14. Ben Hadri, A. (2019). *Al-nashat al-riyadi al-madrasi bayna al-nazariyya wa-l-tatbiq* [School sports activity between theory and practice] (1st ed.). King Fahd Library.
15. Boudaoud, A. (2010). *Manahij al-bahth al-'ilmi fi 'ulum wa-tiqniyyat al-nashat al-badani al-riyadi* [Scientific research methods in the sciences and techniques of physical and sport activity]. Office des Publications Universitaires.
16. Bousenna, M. (1998). 'Alaqaat al-daght al-mihni bi-l-sihha al-nafsiyya wa-l-jismiyya 'inda al-mudirin [The relationship of occupational stress to the mental and physical health of managers]. University of Algiers Publications.
17. El-Khaldi, A. M. (2009). *Al-marji' fi al-sihha al-nafsiyya* [The reference in mental health] (1st ed.). Dar Wael for Publishing and Distribution.
18. El-Kholy, A. A. (1988). *Ittijahat hadetha fi al-tarwih* [Modern trends in recreation]. Dar Al-Fikr Al-Arabi.
19. El-Kholy, A. A. (1996). *Al-riyada wa-l-mujtama'* [Sport and society]. 'Alam Al-Ma'rifa Series, National Council for Culture, Arts and Letters.
20. El-Tayeb, M. A. (1994). *Mabadi' al-sihha al-nafsiyya* [Principles of mental health]. Dar Al-Ma'rifa Al-Jami'iyya.
21. El-Wakeel, M. E. (1983). *Al-tarwih fi al-mujtama' al-islami* [Recreation in Islamic society]. General Presidency of Youth Welfare.
22. Radwan, F. H. (2003). *Dirasat fi al-idtirabat al-nafsiyya: Tashkhis wa-'ilaj* [Studies in psychological disorders: Diagnosis and treatment]. Dar Al-Kitab Al-Hadith.
23. Radwan, S. J. (2009). *Al-sihha al-nafsiyya* [Mental health]. Dar Al-Masira.

24. Rateb, O. K. (1997). *‘Ilm al-nafs al-riyadi: Al-mafahim wa-l-tatbiqat* [Sport psychology: Concepts and applications]. Dar Al-Fikr Al-Arabi.
25. Rateb, O. K., & Khalifa, I. A. (1999). *Al-numuw wa-l-dafi‘iyya fi tawjih al-nashat al-haraki li-l-tifl* [Growth and motivation in directing the child's motor activity]. Dar Al-Fikr Al-Arabi.

Non arabic

1. Abu-Omar, K., Rütten, A., & Lehtinen, V. (2004). Mental health and physical activity in the European Union. *Sozial- und Präventivmedizin*, 49(5), 301–309.
2. Bamber, D., Carroll, D., Cockerill, I. M., & Rodgers, S. (2000). 'It's exercise or nothing': A qualitative analysis of exercise dependence. *British Journal of Sports Medicine*, 34(6), 423–430.
3. Brunet, J., Sabiston, C. M., Chaiton, M., Barnett, T. A., O'Loughlin, E., Low, N. C. P., & O'Loughlin, J. L. (2013). The association between past and current physical activity and depressive symptoms in young adults: A 10-year prospective study. *Annals of Epidemiology*, 23(1), 25–30.
4. Dunn, A. L., Trivedi, M. H., & O'Neal, H. A. (2001). Physical activity dose-response effects on outcomes of depression and anxiety. *Medicine and Science in Sports and Exercise*, 33(6 Suppl.), S587–S597.
5. Gerber, M., & Pühse, U. (2009). Do exercise and fitness protect against stress-induced health complaints? A review of the literature. *Scandinavian Journal of Public Health*, 37(8), 801–819.
6. Goodwin, R. D. (2003). Association between physical activity and mental disorders among adults in the United States. *Preventive Medicine*, 36(6), 698–703.
7. Hallal, P. C., Victora, C. G., Azevedo, M. R., & Wells, J. C. K. (2006). Adolescent physical activity and health. *Sports Medicine*, 36(12), 1019–1030.
8. International Diabetes Federation. (2025). Algeria diabetes report 2000–2050. In *IDF Diabetes Atlas* (11th ed.). <https://diabetesatlas.org/data-by-location/country/algeria/>
9. Janney, C. A., Richardson, C. R., Holleman, R. G., Glasheen, C., Strath, S. J., Conroy, M. B., & Kriska, A. M. (2008). Gender, mental health service use and objectively measured physical activity: Data from NHANES 2003–2004. *Mental Health and Physical Activity*, 1(1), 9–16.
10. Jewett, R., Sabiston, C. M., Brunet, J., O'Loughlin, E. K., Scarapicchia, T., & O'Loughlin, J. (2014). School sport participation during adolescence and mental health in early adulthood. *Journal of Adolescent Health*, 55(5), 640–644.

11. Kerkadi, A., Al Mannai, H., Saad, D., Yakti, F. al Z., Attieh, G., & Bawadi, H. (2021). Clustering of lifestyle risk factors among Algerian adolescents: Comparison between urban and rural areas: GSHS data. *International Journal of Environmental Research and Public Health*, 18(13), 7072. <https://doi.org/10.3390/ijerph18137072>
12. Kim, Y. S., Park, Y. S., Allegrante, J. P., Marks, R., Ok, H., Cho, K. O., & Garber, C. E. (2012). Relationship between physical activity and general mental health. *Preventive Medicine*, 55(5), 458–463.
13. Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
14. McCain, N. L., & Smith, J. C. (1994). Stress and coping in the context of psychoneuroimmunology: A holistic framework for nursing practice and research. *Archives of Psychiatric Nursing*, 8(4), 221–227.
15. Ortega, F. B., Ruiz, J. R., Castillo, M. J., & Sjöström, M. (2008). Physical fitness in childhood and adolescence: A powerful marker of health. *International Journal of Obesity*, 32(1), 1–11.
16. Paluska, S. A., & Schwenk, T. L. (2000). Physical activity and mental health: Current concepts. *Sports Medicine*, 29(3), 167–180.
17. Selye, H. (1975). *Le stress de la vie et les maladies d'adaptation*. Gallimard.
18. World Health Organization. (2018). STEPS noncommunicable disease risk factors survey: Algeria 2016–2017 [Data set]. https://extranet.who.int/ncdsmicrodata/index.php/catalog/study/DZA_2016_STEPS_v01
19. World Health Organization. (2024). Prevalence of insufficient physical activity among adults aged 18+ years (age-standardized estimate) (%): Algeria [Data set]. Global Health Observatory. [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-insufficient-physical-activity-among-adults-aged-18-years-\(age-standardized-estimate\)-\(-\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-insufficient-physical-activity-among-adults-aged-18-years-(age-standardized-estimate)-(-))