



Impact of Recreational Activities on Mental Health of Primary School Students in Enugu State

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ABSTRACT

Background. Mental health problems often begin in childhood, yet primary schools in Nigeria rarely treat recreation as a mental health resource.

Objective. This study examined the impact of four types of recreational activity (physical or sport play, creative-expressive activities, outdoor or nature play, and social or traditional games) on the mental health of primary school pupils in Enugu State, Nigeria.

Methods. Guided by self-determination theory, the broaden-and-build theory of positive emotions and attention restoration theory, the study used a correlational survey design. A multistage sample of 671 pupils in Primary 4 to 6 (M age = 10.02 years; 346 girls) was drawn from 24 public primary schools in six local government areas. Pupils completed the Recreational Activities Participation Questionnaire, the Stirling Children's Wellbeing Scale and the anxiety and depression subscales of the RCADS-25 (Cronbach's $\alpha = .70-.88$; McDonald's $\omega = .71-.88$).

Results. Overall recreational participation correlated positively with wellbeing, $r(669) = .34$, 95% CI [.27, .41], $p < .001$, $r^2 = .12$. Pupils with high participation reported fewer anxiety symptoms ($d = 0.48$) and fewer depressive symptoms ($d = 0.64$) than those with low participation. After gender, age and school location were controlled, the four dimensions explained an additional 11.9% of the variance in wellbeing, $\Delta F(4, 663) = 22.70$, $p < .001$, $f^2 = .14$. Outdoor or nature play, physical or sport play and creative-expressive activities were significant unique predictors; social or traditional games were not.

Conclusions. Break time, outdoor play spaces and creative arts should be protected within the Universal Basic Education timetable as low-cost mental health promotion strategies.

Keywords: recreational activities, mental health, wellbeing, primary school pupils, play, Enugu State

1. Introduction

Childhood is a formative period for mental health. Globally, a substantial share of mental disorders begin before adolescence, and untreated emotional problems in the primary years predict poorer school achievement, weaker social relationships and continued difficulty later in life (Kieling et al., 2011). In sub-Saharan Africa, a systematic review estimated that about one in seven children and adolescents has significant psychological difficulties (Cortina et al., 2012). Nigeria has very few child and adolescent mental health specialists, and services concentrate in tertiary hospitals far from most families (Omigbodun, 2008). Under these conditions, schools are among the few institutions that reach almost every child, which makes school-based, low-cost promotion strategies especially important.

Recreational activities are freely chosen, enjoyable pursuits undertaken for their own sake, including active play and sport, singing, dancing and drawing, outdoor exploration, and group or traditional games. Paediatric authorities describe play as essential to children's cognitive, physical, social and emotional wellbeing (Ginsburg, 2007; Yogman et al., 2018). A large international literature links children's physical activity to fewer depressive and anxiety symptoms and higher self-esteem (Biddle & Asare, 2011; Rodriguez-Ayllon et al., 2019). Parallel evidence connects arts participation and contact with nature to resilience and emotional wellbeing (Tillmann et al., 2018; Zarobe & Bungay, 2017).

In Nigerian primary schools, recreation competes with pressures that push it aside. Physical and health education is part of the basic education curriculum (Federal Republic of Nigeria, 2013), but crowded timetables, extra lessons, limited playgrounds and a strong focus on examinations often reduce break time and cancel games periods. Studies from the region suggest that children's activity declines as urban lifestyles spread (Muthuri et al., 2014). Enugu State combines a fast-growing urban centre with extensive rural hinterlands and therefore offers a useful setting for examining whether different forms of recreation matter for children's mental health.

Three gaps limit the use of this evidence in Nigerian educational policy. Most findings come from high-income countries. Nigerian studies focus mainly on adolescents and on physical activity alone (Adeniyi et al., 2011). Few local studies measure both positive wellbeing and symptoms of anxiety and depression, or report effect sizes that would let policymakers judge practical importance. This study addressed those gaps among Primary 4 to 6 pupils in Enugu State.

1.1 Purpose, questions and hypotheses

The study sought to determine the extent of pupils' participation in four recreational dimensions, their levels of wellbeing and internalising symptoms, gender differences, the relationship between overall participation and wellbeing, differences in symptoms between high and low participators, and the unique contribution of each recreational dimension after demographic controls.



Three null hypotheses were tested at the .05 level. H01: there is no significant relationship between overall recreational participation and mental wellbeing. H02: there is no significant difference in anxiety and depressive symptoms between pupils with high and low participation. H03: physical or sport play, creative-expressive activities, outdoor or nature play and social or traditional games do not significantly predict wellbeing after gender, age and school location are controlled.

2. Literature and theoretical framework

In this study, recreational activities are voluntary, intrinsically rewarding activities that pupils take part in during break time, after school or at weekends. Physical or sport play covers ball games, running and chasing, skipping and organised games. Creative-expressive activities cover singing, dancing, drumming, drama, drawing and crafts. Outdoor or nature play covers compounds, fields, school gardens and natural settings. Social or traditional games cover ludo, draughts, hide-and-seek, clapping games such as oga, riddles and evening group play. Mental health is treated as more than the absence of disorder: positive emotional functioning together with relatively few internalising symptoms (Liddle & Carter, 2015).

Self-determination theory holds that wellbeing depends on autonomy, competence and relatedness (Ryan & Deci, 2000). Recreation is well suited to all three. The broaden-and-build theory of positive emotions proposes that joy and interest broaden thought and action and, over time, build social bonds, skills and resilience (Fredrickson, 2001). Attention restoration theory adds that natural settings capture attention effortlessly and let classroom-directed attention recover (Kaplan, 1995). Together the theories predict a positive association between overall participation and wellbeing, lower internalising symptoms among highly active pupils, and distinct contributions from physical, creative and outdoor play.

Meta-analyses report small but reliable benefits of physical activity for children's depression, anxiety and self-concept (Ahn & Fedewa, 2011; Dale et al., 2019; Rodriguez-Ayllon et al., 2019). Biddle and Asare's (2011) review of reviews concluded that physical activity is associated with fewer depressive symptoms in young people and has small beneficial effects on anxiety and self-esteem, while noting that many primary studies were weak in design. School-based activity reviews find small positive effects with considerable heterogeneity (Andermo et al., 2020). Hale et al. (2023) reported improvements in several intervention studies, especially for self-esteem and mood, alongside inconsistent findings. On mechanisms, Lubans et al. (2016) found the strongest support for psychosocial pathways, such as improved physical self-perceptions, rather than purely neurobiological ones. Sport participation has been linked to higher self-esteem and fewer depressive symptoms, with team formats showing more benefit than individual ones (Eime et al., 2013).

Arts activities such as music, drama, dance and visual arts are associated with self-confidence, belonging and resilience (Fancourt & Finn, 2019; Zarobe & Bungay, 2017). Nature contact is associated with better emotional



wellbeing and fewer attention difficulties (Tillmann et al., 2018). Brussoni et al. (2015) reported that risky outdoor play, climbing, exploring and rough-and-tumble games, was associated with greater physical activity, social health and positive behaviours. Recess supports classroom attention and social competence (Pellegrini & Bohn, 2005). Gray (2011) argued that the decline in children's free play in high-income countries has paralleled a rise in anxiety and depression among young people.

Regional evidence is limited but growing. Cortina et al. (2012) documented a substantial burden of emotional and behavioural problems among children in sub-Saharan Africa. Kieling et al. (2011) argued that low- and middle-income countries need scalable, school- and community-based promotion strategies. Muthuri et al. (2014) found that rural children in sub-Saharan Africa were generally more active than urban children and that urbanisation was associated with declining activity. In Nigeria, Adeniyi et al. (2011) found an inverse association between physical activity and depression among adolescents, while Ojedoyin et al. (2022) reported lower activity among higher-socioeconomic primary pupils in Lagos. Few studies have compared several recreational dimensions in the same Nigerian primary sample while measuring both wellbeing and symptoms.

3. Methods

A cross-sectional correlational survey was conducted in Enugu State across Enugu East, Enugu North and Enugu West. Because the design is correlational, impact is interpreted as statistical prediction. The population comprised pupils in Primary 4 to 6 in public primary schools, typically aged 9 to 12 years, who can complete short Likert questionnaires (Liddle & Carter, 2015).

A priori power analysis with G*Power 3.1 for the R^2 increment in H03 (four recreational predictors added to three covariates, $f^2 = .02$, $\alpha = .05$, power = .80) required 602 pupils (Faul et al., 2009; Cohen, 1988). The target was inflated by about 15% to 720. Two local government areas were drawn from each senatorial district (Enugu South and Nkanu East; Nsukka and Uzo-Uwani; Udi and Awgu). Four public schools (two urban, two rural) were drawn from each area, and 10 pupils from each of Primary 4, 5 and 6. Of 720 questionnaires, 688 were returned and 671 were analysed (93.2%). Girls numbered 346 (51.6%). Mean age was 10.02 years ($SD = 0.96$). Urban $n = 331$ and rural $n = 340$.

The researcher-developed Recreational Activities Participation Questionnaire has 20 items in four five-item subscales rated 1 (Never) to 4 (Very often). Subscale and total scores are item means. A mean of 2.50 marked a high extent of participation. Wellbeing was measured with the 12 scored items of the Stirling Children's Wellbeing Scale (range 12–60) (Liddle & Carter, 2015). Internalising symptoms were measured with the RCADS-25 anxiety (0–45) and depression (0–30) subscales (Ebesutani et al., 2012). Items were read in English with standardised Igbo clarifications. Three experts reviewed content. In the main sample α ranged from .70 to .88 and ω from .71 to .88.

The State Universal Basic Education Board and head teachers granted permission. Parents or guardians gave written consent and each pupil gave verbal assent. Questionnaires were anonymous and completed in class with teachers absent. A referral protocol was agreed with guidance counsellors. Research questions 1 and 2 used means and standard deviations. Question 3 used independent-samples t tests. H01 used Pearson correlation. H02 used a median split of RAPQ total scores (median = 2.75) and Welch's t tests with Bonferroni-adjusted $\alpha = .025$. H03 used hierarchical regression with school-level cluster-robust standard errors. Variance inflation factors ranged from 1.03 to 1.27. The school-level ICC for wellbeing was .014.

4. Results

Table 1. Distribution of the analysed sample by senatorial district and location

District and LGA	Urban n	Rural n	Total
Enugu East: Enugu South	58	57	115
Enugu East: Nkanu East	54	56	110
Enugu North: Nsukka	56	57	113
Enugu North: Uzo-Uwani	56	56	112
Enugu West: Awgu	53	55	108
Enugu West: Udi	54	59	113
Total	331	340	671

Note. Twenty-four schools. Primary 4 = 216, Primary 5 = 232, Primary 6 = 223. Girls = 346 (51.6%).

Table 2. Reliability of each construct in the main sample

Construct	Items	α	ω
Physical or sport play	5	.81	.81
Creative-expressive activities	5	.73	.73
Outdoor or nature play	5	.73	.73
Social or traditional games	5	.70	.71
RAPQ total	20	.82	.81
SCWS total wellbeing	12	.88	.88
Anxiety (RCADS-25)	15	.84	.84
Depression (RCADS-25)	10	.80	.81

Note. $N = 671$. All coefficients met the .70 threshold.

Pupils took part in recreation to a high extent overall ($M = 2.76$, $SD = 0.43$). Physical or sport play had the highest subscale mean ($M = 2.93$), followed by social or traditional games ($M = 2.86$), outdoor or nature play ($M = 2.74$) and creative-expressive activities ($M = 2.51$). The most frequent activities were hide-and-seek and group chasing ($M = 3.33$), ball games ($M = 3.23$) and playing outside after school ($M = 3.19$). Four items fell below the criterion: school garden or farming club ($M = 2.08$), musical instruments or drumming ($M = 2.34$), drama or role play ($M = 2.38$) and craft-making ($M = 2.40$). Organised PE games with a teacher were the least frequent physical activity ($M = 2.70$).

Table 3. Descriptive statistics for recreation and mental health ($N = 671$)

Variable	Possible range	M	SD
Physical or sport play	1–4	2.93	0.69
Creative-expressive activities	1–4	2.51	0.66
Outdoor or nature play	1–4	2.74	0.62

Social or traditional games	1–4	2.86	0.60
RAPQ total	1–4	2.76	0.43
Wellbeing (SCWS)	12–60	44.88	7.55
Anxiety (RCADS-25)	0–45	10.48	6.54
Depression (RCADS-25)	0–30	5.16	4.39

Note. RAPQ scores are item means. Criterion mean for participation = 2.50. Higher SCWS scores indicate better wellbeing.

Mean wellbeing was 44.88 out of 60, an average item rating of 3.74, between Some of the time and Quite a lot of the time. Scores ranged from 16 to 60, so a sizeable minority reported low wellbeing. Mean anxiety was 10.48 and mean depression 5.16. Boys took part more often in physical or sport play ($d = -0.18$, $p = .017$) and girls in creative-expressive activities ($d = 0.20$, $p = .011$). Girls reported slightly more anxiety ($d = 0.18$, $p = .022$) and depression ($d = 0.16$, $p = .035$). All gender differences were small.

Table 4. Pearson correlation of overall recreation with wellbeing (H01)

Statistic	r	95% CI	t	p
RAPQ total and SCWS	.34	[.27, .41]	9.44	< .001

Note. $df = 669$. $r^2 = .12$. Partial r controlling for gender, age and location = .34.

H01 was rejected. Every recreational subscale correlated positively with wellbeing ($r = .19$ to $.28$) and negatively with anxiety and depression. High participators reported fewer anxiety symptoms ($M = 8.93$, $SD = 5.92$) than low participators ($M = 12.01$, $SD = 6.78$), $t(659.5) = -6.26$, $p < .001$, $d = -0.48$, 95% CI $[-0.64, -0.33]$. They also reported fewer depressive symptoms ($M = 3.81$ vs 6.48), $t(644.0) = -8.26$, $p < .001$, $d = -0.64$, 95% CI $[-0.79, -0.48]$. Both differences remained significant at Bonferroni-adjusted $\alpha = .025$, so H02 was rejected.

Table 5. Hierarchical regression predicting wellbeing from recreational dimensions (H03)

Predictor at Step 2	β	p	sr^2	
Urban location	-.06	.123	—	
Physical or sport play	.15	< .001	.017	
Creative-expressive activities	.11	.003	.011	
Outdoor or nature play	.17	< .001	.023	
Social or traditional games	.07	.112	—	

Note. Step 1 $R^2 = .012$, $F(3, 667) = 2.79$, $p = .040$. Step 2 $\Delta R^2 = .119$, $\Delta F(4, 663) = 22.70$, $p < .001$, $f^2 = .14$. Cluster-robust SEs, 24 schools. Full-model adjusted $R^2 = .122$.

H03 was rejected. Outdoor or nature play was the strongest unique predictor. A one-point increase in outdoor play frequency was associated with a 2.07-point higher wellbeing score. Social or traditional games did not contribute uniquely. Rural pupils reported more outdoor play than urban pupils ($M = 2.83$ vs 2.64), $t(669) = 3.98$, $p < .001$, $d = 0.31$, and the location effect on wellbeing was no longer significant once recreation was controlled.

5. Discussion

Overall recreation was moderately related to wellbeing ($r = .34$), somewhat stronger than pooled physical-activity effects alone (Ahn & Fedewa, 2011; Rodriguez-Ayllon et al., 2019). One reason is that the RAPQ captures a broader range of freely chosen activity than physical activity measures do, and self-determination



theory predicts that such activity satisfies autonomy, competence and relatedness at the same time (Ryan & Deci, 2000). A second reason is that the SCWS measures positive wellbeing, which may respond more directly to the positive emotions generated by play (Fredrickson, 2001).

Highly active pupils reported fewer anxiety symptoms ($d = -0.48$) and depressive symptoms ($d = -0.64$). Reviews show that physical activity benefits children's depressive symptoms more consistently than their anxiety (Biddle & Asare, 2011; Dale et al., 2019). The findings extend Adeniyi et al. (2011) from Nigerian adolescents to younger pupils and to a broader definition of recreation.

Outdoor or nature play was the strongest unique predictor, supporting attention restoration theory (Kaplan, 1995; Tillmann et al., 2018). Physical play and creative activities also contributed uniquely. Creative activities were the least frequent category, which points to an under-used school resource (Zarobe & Bungay, 2017). Social or traditional games correlated with wellbeing but not uniquely, likely because their social benefit overlaps with group sport and outdoor play (Pellegrini & Bohn, 2005). Activities that need school materials or adult facilitation, gardening, instruments, drama and crafts, fell below the participation criterion. Organised PE with a teacher was also relatively infrequent, which suggests that structured school recreation is less common than the curriculum intends (Federal Republic of Nigeria, 2013).

The slight rural advantage in wellbeing was accounted for by greater outdoor play, echoing evidence that urbanisation reduces children's activity (Muthuri et al., 2014; Ojedoyin et al., 2022). Small gender differences, with boys favouring physical play and girls creative activities, suggest that a range of activities is more likely to reach all pupils than sport alone.

The results support an integrated reading of the three theories. Consistent associations across dimensions agree with self-determination theory's claim that freely chosen, need-satisfying activity supports wellbeing whatever form it takes (Ryan & Deci, 2000). Recreation was related as strongly to positive wellbeing as to depressive symptoms, and more strongly than to anxiety, which fits the broaden-and-build view that play works mainly by building positive emotion and resources (Fredrickson, 2001). The unique contribution of outdoor play after physical exertion was accounted for through the physical-play subscale fits attention restoration theory (Kaplan, 1995). Future studies should test basic need satisfaction, positive affect and perceived restoration jointly as mediators.

The design is cross-sectional, so pupils with better mental health may also play more. Measures were self-reported, so shared-method variance may have inflated some associations. The median split for H02 simplifies a continuous variable, although continuous analyses confirmed the pattern. The RAPQ is newly developed and needs confirmatory factor analysis and test-retest work in other Nigerian states. The sample was public schools



only, so findings may not generalise to private schools, where facilities and timetables differ. Longitudinal studies and cluster-randomised trials of school recreation programmes in Nigeria are needed.

6. Conclusion and recommendations

Pupils who played, created and explored more often reported higher wellbeing and fewer symptoms of anxiety and depression. Outdoor play, physical play and creative activities each made distinct contributions after demographic controls and school clustering. In a setting where specialist child mental health services are scarce, protecting and enriching recreation in primary schools is an affordable, culturally appropriate promotion strategy.

The Enugu State Universal Basic Education Board should issue guidelines that protect daily break time and weekly games periods. Head teachers should maintain safe outdoor play areas, revive school gardens and nature clubs, and provide low-cost creative materials. Teachers should offer options that appeal to both boys and girls and should include less active pupils. Guidance counsellors can use brief wellbeing and symptom screens to identify withdrawn pupils. Teacher education should prepare staff to facilitate inclusive recreation.

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