THE IMPORTANCE OF CHILDREN'S ATTITUDES TOWARDS PHYSICAL ACTIVITY

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Sažetak

Istraživanje je provedeno na uzorku od 46 djece školskog uzrasta (9 do 11 godina starosti). Primijenjeni su CATPA popis, te TRA i FDR upitnici. Osnovna statistika, regresijska i diskriminativna analiza primijenjeni su kako bi se kvantitativno analizirali rezultati testova.

Utvrden je odnos i ponašanje djece prema tjelesnoj aktivnosti. Razvijanje pozitivnog odnosa kod djece može imati pozitivan utjecaj na razinu njihove tjelesne aktivnosti.

Potrebno je daljnje istraživanje koje će se koristiti ovim i drugim sredstvima, većim uzorcima i više dobnih skupina.

Ključne riječi: *tjelesna aktivnost, djeca, psihički odnos*

Abstract

THE IMPORTANCE OF CHILDREN'S ATTITUDES TOWARDS PHYSICAL ACTIVITY

The study was conducted on a sample of 46 school childredn aged 9 to 11. The CATPA inventory, TRA and FDR quesionnaries were applied. Basic statistics, regression analysis and discriminant analysis were performed to quantitatively analyze the test results.

An attitude vs. physical activity behaviour relationship in childredn was identified. Fostering positive attitudes in children may have a positive influence on their physical activity levels. Further research using these and other instruments, larger samples and a number of different age group is needed.

Key words: *physical activity, children, psychological attitude*

Zusamenfassung

BEDEUTUNG DER STELLUNGNAHME VON KINDERS ZUR KÖRPERLICHEN TÄTIGKEIT

Diese Forschung wurde auf dem Muster von 46 Schulkinder im Alter von 9 bis 11 Jahren durchgeführt. Es wurden das CATPA Verzeichnis und die TRA und FDR Umfragen verwendet. Es wurden sowohl die Elementarstatistik als auch die Regressions- und Diskriminanzanalyse verwendet, um die Testergebnisse quantitativ zu analysieren. Es wurden die Stellungnahme und das Benehmen zur körperlichen Tätigkeit positiv beeinflussen.

Die weitere Forschung mit Hilfe von anderen Mitteln, umfangreicheren Mustern und größerer Anzahl von Altersgruppen sind erforderlich.

Schlüsselwörter: *körperliche Tätigkeit, Kinder, psychische Stellungnahme*

Introduction

Researches have shown that children exhibit low levels of physical activity (Cale & Almond, 1992) and do not engage in activity of sufficient intensity, frequency and duration believed to be associated with health benefits (Sleap & Warburton, 1992). In order to address this issue, researchers have sought to identify the psychological factors which affect physical activity participation (Godin, 1993.) If these factors can be identified, then strategies for changing physical activity behaviour may be developed (Riddle, 1980).

Attitudes toward physical activity have been acknowledged as likely to influence physical activity behaviour (Biddle, 1987) and have deen identified as precursors of physical activity participation in children (Foy & Biddle, 1988, Haywood, 1991).

Attitudes may therefore be important to exercise promoters and teachers involved in Ph.E. Curriculum development (Biddle, 1987). A number of social psychological models have used attitude constructs as predictors of behaviour and have been adopted by exercise psychologists for the promotion of exercise for healtih benefits (Brawley, 1993).

Two models which use the construct of attitude are Kenyon's (1968) conceptual model for characterising physical activity and the Theory of Reasoned Action (Fishbein & Ajzen, 1975) Kenyon's model characterises' the concept or domain of physical activity into specific components or subdomains. Simon and Smoll (1976) adapted this model for use with children and from it developed the Children's Attitudes Towards Physical Activity (CATPA) inventory.

The inventory assesses general or "global" attitudes towards physical activity which are measured on semantic differential scales. The subdomains include: physical activity for social growth, for social continuation, for health and fitness, as the pursuit of vertigo, as an aesthetic experience, for catharsis and as an ascetic experience. The instrument has been shown to have construct validity and test-retest reliability with children (Carre, Mosher & Schutz, 1980; Schutz et al., 1985).

Many researches on attitude have focused on the construct's ability to predict exercise intention rather than behaviour (Godin & Shephard, 1990) and intent to exercise has been shown to correlate highly with exercise behaviour (Riddle, 1980). The Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975) aims to predict volitional behaviour in humans and is based on the assumption that intention is the best predictor of behaviour. Intention to perform a behaviour is a function of two basic determinants: the attitude towards the act (Aact) and the subjective norms (SN). Further, Aact and SN can be indirectly measured from two other constructs, the Outcome Evaluations (OE) and the Normative Beliefs (NB) respectively. The different variables of this model can be measured by means of the questionnaire constructed in a standard manner (Ajzen & Fishbein, 1980). The Aact variable has been used alone to predict intention and behaviour (Ajzen & Timko, 1986) and is considered a "specific" measure of attitude (Theodorakaris, Doganis, Bagiatis & Gothas, 1991).

Whilst the attitude-exercise intention/behaviour relationship has been investigated quite extensively in adults, little attention has been paid to this relationship in children. Therefore this study is aim to investigate the influence of children's attitudes towards physical activity and zhe effecton their physical activity intention and behaviour.

Method

The study was conducted on a sample of 46 school children aged 9 to 11 in a North Staffordshire School, West Midlands, England. Consent from the cildren, parents and school involved in this study was obtained prior to data collection.

Physical activities were defined for the children as activities which make you "get out of breath" or "huff and puff" during a pretest briefing. This was to ensure the concept of physical activity remained salient to the subjects during testing.

The CATPA inventory was administered according to instructions provided by Schutz et al. (1985). The children completed the inventory simutaneously under the guidance of the researcher. The TRA questionnaire was developed and administered according to the protocol provided by Ajzen and Fishbein (1980). Initially, a preliminary questionnaire with a freeresponse format was administered to the children to elicit their salient outcomes and referent. Statements with semantic differential scales to measure the constructs of TRA model were

subsequently developed based on the responses from the preliminary questionnaire. Attitude towards the Act (Aact) and Subjective norms (SN) were measured using standard questions modified to incorporate the definition of target behaviour in this study (physical activity). The preliminary TRA questionnaire and the TRA questionnaire were administered on a separate occasion to the CATPA inventory.

A self-report measure of physical activity for children, the Four by One Day Recall (FDR) questionnaire (Cale, 1994), was used to assess the children's physical activity behaviour. The FDR is an interviewer administered, one-day recall of physical activity and has been shown to have concurrent validity and test-retest reliability (Cale, 1994). The FDR was administered to each child on two occasions, thus gathering two gathering two days of activity information per child.

Results

The two days fo FDR data provided an estimate of daily energy expenditure (ENGEXP) in kcal. $kg^{-1}.day^{-1}$ and children were classified into four activity categories (ACTCAT) according to their EXGEXP values: very inactive, inactive, moderately active and active. Average ENGEXP values for the sample were 35.40 +- 3.07 (Mean +- SD) and the most freqent ACTCAT value was 2.

The means and standard deviations for the CATPA inventory subdomain scores are shown in table 1. Apart from the vertigo subdomain (VG), mean subdomain scores were greater than 20.00. A one-wax ANOVA revealed no differences between the subdomains.

Table I. Means and Standard Deviations of CATPA Scores for each Subdomain

Subdomain	Mean	Std.Dev.
Aesthetic (AE)	21.66	5.56
Ascetic (AS)	22.41	4.37
Catharsis (CA)	22.94	4.01
Health and Fitness (HF)	24.13	2.16
Social Continuation (SC)	24.06	2.12
Social Growth (SG)	22.98	3.33
Vertigo (VG)	17.28	7.00

Linear multiple regression using the TRA variables in the prediction of intention resulted in a non-significant multiple regression coefficient (R). Correlations between the TRA variables showed that SN correlated with NB ($r=0.49$, $p<0.01$) and NB correlated with Intention ($R=0,46$, $p<0.01$). The correlations using the attitude expressions were non-significant.

Multiple regression analyses used the ENGEXP and ACTCAT variables as measures of PA behaviour and the variables in the CATPA and TRA questionnaires as means of predicting determination adjusted for the interaction between variables

(R^2adj). Multiple regression using the forced entry method for the CATPA subdomains and the TRA questionnaire variables resulted in a non-significant R value of 0.69, which implied that 24% of the variance in ENGEXP was explained by these variables. Subsequent stepwise multiple regression analysis with an entry probability of F set at 0.05 revealed that the VG subdomain ($\beta=0.38$) contributed significantly to the prediction of energy expenditure (R=0.37, $F(1,39) = 6,53$, $p<0.05$) and accounted for 12% of the total variance in ENGEXP. Regression analysis using the forced entry method and ACTCAT as the dependent resulted in a multiple R of 0.75 accounting for 38% of the variance. The regression variables significantly predicted the variance in ACTCAT compared to the residual ($F(12,28)=3.07$, $p<0.01$). Using the stepwise entry method, AE and VG were the significant predictors in the equation ($\beta=0.36$ and 0.31). AE was the most significant predictor (R=0.46, $F(1,38)=10.35$, $p<0.01$) accounting for 18% of the variance, while VG accounted for a further 9% of the variance and increased R to 0.55 ($F(2,38)=8.24$, $p<0.01$). No other variables were entered into the equation.

The different attitude questionnaires were also subjected to regression analysis individually. Only the CATPA subdomains resulted in a significant regression coefficient in the prediction of ENGEXP (R=0.62, $F(7,36)=3.25$, $p<0.01$) which accounted for 27% of the variance in ENGEXP. Stepwise entry of these variables showed that none of the individual CATPA subdomains contributed significantly to the prediction of ENGEXP.

Discriminant analysis was used to examine whether a linear combination of the attitude variables effectively classified subjects into their appropriate ACTCAT. Two variables significantly contributed to distinguishing between the groups, the AE subdomain (Wilks Lambda=0.73, $F(3,37)=4.36$, $p<0.01$) and the VG subdomain (Wilks Lambda=0.81, $F(3,37)=2.83$, $p<0.05$). The analysis was successful in classifying 63.41% of the cases into their correct ACTCAT level. Table 2 summarises the classification based on the discriminant functions.

Table II. Results of discriminant analysis classification

Actual Group	Number of Cases	Predicted Group Membership			
		1	2	3	4
ACTCAT 1	11	8 72,7%	1 9,1%	2 18,2%	0 0%
ACTCAT 2	25	5 20,0%	13 52,0%	7 28,0%	0 0%
ACTCAT 3	3	0 0%	0 0%	3 100%	0 0%
ACTCAT 4	2	0 0%	0 0%	0 0%	2 100%
Ungrouped Cases	2	1 50,0%	0 0%	1 50,0%	0 0%

Discussion

The CATPA instruments has been used to quantify children's attitudes and changes in attitudes (Birtwhistle & Brodie, 1991). In this study, children exhibited positive attitudes towards PA. According to Barrow, McGee and Tritschler (1989) a score of between 23 and 25 for each aubdomain represents a positive attitude for that subdomain. Despite such positive attitudes towards physical activity, however, the low levels of daily ENGEXP and the corresponding ACTCAT indicate that the children were not very active. This agrees with previous research conducted on British school children (Armstrong et al., 1989).

Multiple regression analysis was successful in predicting PA behaviour in terms of ENGEXP and ACTCAT for all variables from the attitude measures. However, while the resulting equations were significant, only variables from the CATPA inventory contributed significantly to the prediction of physical activity: the VG subdomain in the regression equation for ENERGEXP and AE and VG for ACTCAT. This is converse to the findings of Theodorakaris et al. (1991) who demonstrated that a "general" measure of attitude such as CATPA was a poorer predictor of physical activity levels than a more "specific" measure such as the TRA questionnaire. An examination of the AE and VG variables revealed that these possessed the greatest amount of variability and were visibly lower than the other CATPA scores. Further, correlations between the measures of physical activity and CATPA scores revealed that these variables were the only variables which correlated with significance. Contributing to this were the very high values for the other subdomains and TRA questionnaire variables. The reasons for these differences could be due to the fact that children of this age have a positive outlook with respect to most situations.

A surprising finding was the poor relationship between the attitude variables from the TRA and the measure of physical activity. Further, the TRA variables Aact, intention and OE did not correlate and multiple regression showed that the prediction of interntion was only facilitated by the inclusion of the SN and NB variables. This may again be due to the positive outlook of the children. The CATPA inventory also seems to be a better predictor than the TRA questionnaire in predicting physical activity levels. This was illustrated in the significant regression wquation using ENGEXP as the predicted variable and the CATPA subdomains. While no subdomain was alone responsible for the differences on this occasion, it is important to note that together the subdomains were able to significantly physical activity levels.

Discriminant analysis for the combination of the attitude variables to be tested as to whether individuals could be orrectly classified into their appropriate ACTCAT. The three discriminant functions produced from this analysis were able to correctly classify 64.31% of the cases. Two CATPA subdomains were again largely responsible for the

discrimination between activity categories: AE and VG. Consequently it was estimated that these variables were important to the assessment of children's attitudes towards physical activity.

The reason the Vertigo and Aesthetic subdomains were good predictors and discriminators in this study was perhaps due to their ability to elicit very polarised answers from the children. Further, the poor ability of the other attitude variables in the prediction perhaps lies in the fact that these variables were not sensitive enough to allow for the children to provide positive or negative views towards physical activity.

However, the methods used to measure the attitude and physical activity behaviour may be unsatisfactory in establishing an unequivocal relationship between a measure of attitude and a measure of behaviour. This may be due to the nature of the relationship between attitude and behaviour in children. While children may have a typically positive attitude in some areas towards physical activity it may not be reflected in their behaviour. This may be a reason why children's scores were bigh for some measures of attitude (e.g. HF, SC, SG subdomains, Aact variable), while in others scores were more varied (e.g. VG subdomain).

Conclusion

This study indicates from significant regression equations that there is an attitude vs. physical activity behaviour relationship in children. Further research using these and other instruments, larger samples and a number of different age-groups may reveal the exact nature of this relationship. Nevertheless, the results of this study indicate that fostering positive attitudes in children may have a positive influence on their physical activity levels.

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