

Children's Deviant Behavior in Primary Education: Comparing Physical Educator's Implicit Theory With Diagnostic Criteria

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Abstract

Objective: Physical educators' implicit theory of children's deviant behavior in primary education was investigated and compared with diagnostic criteria. **Method:** A total of 60 physical education (PE) teachers reported deviant behaviors during lessons. Experts sorted these behaviors together with the official diagnostic criteria into categories based on perceived similarity in content. **Results:** Hierarchical cluster analysis on the derived similarity matrix among the behaviors suggested that PE teachers focus more on attention problems, disobedience, and aggressiveness when internalizing behaviors, such as anxiety and low energy, were less reported. **Conclusion:** PE teachers may be important and useful informants on children's behavior in school settings. (*J. of Att. Dis.* 2019; 23(3) 246-256)

Keywords

children, emotional disorders, behavioral disorders, physical education, diagnostic criteria, cluster analysis

Introduction

Implicit Theories in Education

Understanding people's implicit theories is important as these beliefs guide people's attitudes and willingness to be engaged in certain behaviors (Pintrich & Schunk, 2002). Studies focusing on implicit theories on personality examine the belief system that includes the traits or attributes that the person perceives as characteristics of self and others (Rosenberg & Jones, 1972).

It is generally believed that implicit theories play an instrumental role in how teachers perceive their students, and teachers' behavior and attitudes toward their students are influenced by their beliefs about the nature of intelligence (Deemer, 2004; Dupeyrat & Marine, 2005) or about their abilities (e.g., Dresel & Ziegler, 2006).

Implicit theories of teachers are important because they are highly connected with teachers' behaviors during lessons (e.g., Calderhead, 1996; Pajares, 1992). Lynott and Wolfolk (1994) found a relationship between teachers' implicit theories on conceptual thinking and on practical knowledge and the educational goals, they set, when Dupeyrat and Marine (2005) investigated the implicit theory of teachers about pupil's intelligence focusing on its effect on children's behavior in class.

The implicit theories of physical education (PE) teachers have been studied mostly with the focus on achievement

and motivation (e.g., Cury, Da Fonseca, Rufo, & Sarrazin, 2002; Ommundsen, 2003). Cury et al. (2002) assessed the perception of the PE competence, implicit theory about sport ability, and perception of the motivational climate and found that mastery goals were positively associated with perception of PE competence and beliefs about sport ability in students. In addition, the predictive value of implicit theories of ability and achievement goals on affective responses in PE was examined in a sample of secondary students. Hierarchical and moderate regression analyses showed that implicit theories of ability were direct precursors of anxiety and satisfaction in PE, effort regulation, and adaptive help seeking (Ommundsen, 2001).

In general, studies on implicit theory in PE and exercise, aimed to investigate children's ability and self-regulation strategies in PE classes (Ommundsen, 2001), perception of motivational climate, and achievement goals in sports (Cury et al., 2002; Ommundsen, 2003).

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Informants on Children's Behavior

One of the best ways to have a clear view of problematic behavior in middle childhood is to observe what goes on in children's everyday lives. In the absence of advanced verbal skills, observing children's motor-related behavior is the best clue to their emotions (Mol Lous, Wit, De Bruyn, & Riksen-Walrawen, 2002). Interviews with children may indeed provide valuable information about their social life and their emotional development, but they are limited by the level of child's verbal skills. However, when one is interested in young children's behavior, the most valid and reliable information can be gathered by observing the child in different settings to get a clear view of how a child moves, how he or she interacts with others, and how he or she deals with challenging situations or conflicts. Information on children's behavior can be gathered by a number of informants who each have their own point of view. Parents can observe their child in a wide range of situations; nonetheless, information from the parents is not always reliable and tends to follow a pattern of idealized expectations and cultural stereotypes that can affect the reliability of their reports (Mash & Johnston, 1983). Some parents may be very sensitive to or may have a low threshold for certain behaviors and will exaggerate symptoms, whereas other parents may underreport deviant or troublesome child behaviors. The accuracy of parents as raters may vary depending on such factors as education, the amount of stress associated with the child's behaviors, and hidden agendas that parents may have when rating a child (De Los Reyes & Kazdin, 2005).

Among those children who attend school, educational professionals are in a unique position to facilitate adaptive and social behaviors (Webster-Stratton, Reid, & Hammond, 2004). Teachers and especially teachers in primary education interact with children during many hours a day. For this reason, several behavior checklists have been developed to gather information about children's behavior using teacher's ratings (e.g., Child Behavior Checklist [CBCL] and Teacher Report Form [TRF], Achenbach, 1991; Behavioral and Emotional Rating Scale-2 [BERS-2], Epstein, 2004; Behavior Assessment System for Children [BASC], Kamphaus, 2004). Studies have shown significant associations between diagnoses based on the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association [APA], 2000) or the International Classification of Diseases (ICD-10; World Health Organization [WHO], 1992) and scores on empirically based syndrome scales (Achenbach, Dumenci, & Rescorla, 2002; Hofstra, van der Ende, & Verhulst, 2002).

Although teachers are considered being important informants to detect children with emotional and/or behavioral problems and developmental disorders, research studies indicated that classroom teachers generally do not look at misbehaviors beyond the surface level and focus mainly on

students' problematic behaviors that disturb classroom activities and management (Blakeney & Blakeney, 1990; Kleftras & Didaskalou, 2006). Similar to earlier studies in classrooms (e.g., Borg, 1998), Goyette, Dore, and Dion (2000) looked at what kinds of misbehaviors occur in Canadian schools, and they distinguished three levels of misbehavior. In all, 23% of misbehaviors was at the first level, including pupils being distracted, talking during the lessons, or arriving late at school. A total of 42% of misbehaviors was at the second level and included behaviors such as pupils clowning around, quarreling, or harassing. Finally, 35% of misbehaviors was at the third level and included pupils criticizing, destroying material, or being aggressive. Although the most common behaviors (e.g., talking, giggling) are relatively mild and happen so often, their potential disruptive influence on the class should not be dismissed. Similarly, the fact that some behaviors (e.g., bullying, threatening behavior) happen less frequently does not make them unimportant.

In an interesting study in Greece, Kleftras and Didaskalou (2006) found that emotional difficulties, and especially depressive symptomatology, which constitute a serious and relatively frequent childhood problem, are often overlooked. The study estimated the proportion of pupils displaying depressive symptomatology, examined teachers' readiness and ability to identify those pupils, and investigated teachers' perceptions concerning the causation of pupils' behavioral and/or emotional problems including depression. The results indicated that approximately 30% of the students indicated a high level of depressive symptoms, whereas their teachers seemed to lack readiness and skills for identifying this; they reported more often behavior problems and tended to attribute students' difficulties to factors lying outside the school context.

Despite the usefulness of rating instruments, the relatively modest agreements among rating sources raise questions about the validity of the information as the frequency, base rate, and conspicuousness of behaviors may affect the degree of concordance among informants (Kolko & Kazdin, 1993). Considerable literature addresses issues of method effects in cross-informant studies, and there are many explanations for rater disagreement (e.g., Drabick, Gadow, & Loney, 2008; Efstratopoulou, Simons, & Janssen, 2013; Gadow et al., 2004). In general, concordance has been found to be higher when informants have similar relationships with the children being rated than when raters represent different roles (Achenbach, McConaughy, & Howell, 1987; Greenbaum, Dedrick, Prange, & Friedman, 1994).

The Role of PE Teachers in the Assessment Procedure

Several studies suggest that evidence for the presence of externalizing behaviors like aggression, delinquency, and hyperactivity and/or internalizing behaviors like being anxious

or afraid, being nervous, or feeling sad and depressed can be obtained in multiple active situations, and a number of behavioral symptoms can be observed during PE classes, team games, and standardized play procedures (Kashani, Allan, Beck, Bledsoe, & Reid, 1997; Mol Lous et al., 2002).

Disruptive behavior disorders (DBDs), specifically ADHD and conduct disorder (CD), and learning disabilities are the most common reasons for referral in special education settings and mental health clinics. The *DSM-IV-TR* criteria for ADHD (APA, 2000) include several items that are related to motor characteristics, including fidgeting, running about or excessive climbing (possibly linked to subjective feelings of restlessness), difficulties in playing, and acting as if “driven by a motor.” During physical activities, children with ADHD exhibit age-inappropriate features of hyperactivity, excessive impulsivity, problems in lateralization, and are often left-handed (Reid & Norvilitis, 2000). In addition, many motor behavior characteristics can be observed in children with conduct problems at educational settings. These children deviate from school and social principles, rules, and regulations; they also display delinquent behavior, motor aggressiveness, combustible disobedience, and anger (Dodge, 1993).

Problematic motor-related behaviors can also be observed in children with developmental disorders and autism. These behaviors include physical aggression, self-injury, property destruction, stereotyped behaviors, and tantrums that are highly disruptive to classroom, community, and home environments, and without intervention these behaviors are more likely to increase than improve (Horner, Carr, Strain, Todd, & Reed, 2002). During physical activities, children with autistic spectrum disorders (ASD), indicate stereotyped and repetitive motor mannerisms, impairments of facial expression, postures, and gestures, and are often characterized as clumsy and as having problems in motor coordination (Berkeley, Zittel, Pitney, & Nichols, 2001; Piek & Dyck, 2004).

PE lessons and group play situations provide a unique opportunity to observe a child moving, interacting with his or her peers, cooperating or just being on his or her own. The importance of examining the interaction of peer relationships and other social relationships in the physical activity context and the value of using the physical activity setting to promote quality peer relationships have been established in studies with children (Smith, 2003). PE teachers spend a lot of time with the children and have the flexibility to work with them and observe their motor-related behaviors in several ways (e.g., structured lessons or free-play situations) and several different settings (inside or outside the classroom, at the playground or at the school-yard). PE teachers have the knowledge and the skills to focus on the “warning signs” of abnormal motor-related behaviors. The fact that they can observe children within a peer group and work with them, allowing them to distinguish between maladaptive and typical age-related behaviors. Studies in

educational settings found that evidence for the presence of externalizing and/or internalizing symptoms in children can be obtained in multiple active situations, and a number of behavioral symptoms can be observed during PE classes and team games (Kashani et al., 1997).

Despite the fact that physical educators have a privileged position in observing children in many settings and can be important informants for children’s deviant behavior, there is a lack in the existing literature concerning the investigation of physical educator’s beliefs about student’s emotional and/or behavioral problems in school settings and the impact of these beliefs on their teaching efficacy and behavior.

The Current Study

To investigate whether information provided by PE teachers can be useful in screening children for attentional, emotional, and/or behavioral disorders, we examined the PE experts’ implicit theory of children’s deviant behaviors and to what extent these beliefs coincide with the official diagnostic criteria on children psychopathology.

The present study included three different phases. In the first phase, primary school PE teachers were asked to report the full spectrum of deviant motor-related behaviors they can observe during teaching hours and to describe the most frequent and troublesome behaviors. In the second phase, diagnostic criteria that describe observable motor-related behaviors that can occur in school settings were selected from the *DSM-IV-TR* (APA, 2000) and the ICD-10 (WHO, 1992), by a team of experts in adapted physical activity and psychomotor therapy. In a third phase, the diagnostic criteria combined with the physical educators’ reports of deviant behavior were entered in a sorting task (Rosenberg & Jones, 1972; Rosenberg & Kim, 1975) in which a separate sample of 50 PE experts participated. Participants were asked to sort all items in groups on the basis of the perceived similarity in content among the items. In this study, a cluster analysis was used to analyze the main categories of deviant behavior discerned by the PE teachers and to investigate the overlap between educators’ beliefs in children’s emotional and/or behavioral disorders and the official diagnostic criteria in children’s psychopathology.

Method

Phase I: Developing the Physical Educators’ List

To investigate PE teachers’ view on pupils’ problematic behaviors during PE lessons in primary education, an open-ended questionnaire was developed. Primary school PE teachers were asked to describe in words the children’s deviant motor-related behaviors they were able to observe among their pupils during their lessons. More specifically,

they were asked to describe the atypical motor-related behaviors they observe. The questionnaire was administered to 60 physical educators: 32 males and 28 females. These educators had an average 10.2 years of working experience ($SD = 3.4$ years) in teaching at public elementary schools in four different cities in Greece. The study is part of a research approved by the Ethics Board of the Pedagogy Department of Greek Ministry of Education and is in line with the guidelines given by the research Ethics Board of the KU Leuven University. The procedure was conducted during educational seminars for problematic children's behaviors in primary education, in which PE teachers voluntarily applied to participate. The participants were informed in details about the study by the research team, their reports were anonymous and consent forms were obtained. Physical educator's descriptions were screened by three experts in adapted physical activity to formulate items of observable motor-related behaviors. Items similar in content were reduced into one item. Some of the items represented behaviors unique to PE settings.

Phase 2: Selection of Official Diagnostic Criteria

To select official diagnostic criteria for children's psychopathology, the Greek editions of the *DSM-IV-TR* (APA, 2000) and *ICD-10* (WHO, 1992) were used. The same three experts in adapted PE that screened the PE teachers' items screened these diagnostic manuals for criteria that refer to motor-related behaviors that are easily observable within a school environment. Given the fact that research in children psychopathology indicates high rates of symptom overlap (Klassen, Miller, & Fine, 2004), there were many criteria that coming from different diagnoses but describing the same motor-related behavior. These criteria were used only once in the final list. In a same way, when more than one behavior included in a diagnostic criterion, the behaviors were divided into different items.

Phase 3: Sorting Task and Derived Similarity Matrix

The item descriptions derived from Phase 1 and 2 were included in a sorting task. To investigate physical educators' perceptions of children's deviant behaviors and how they perceived these different forms of deviant motor behaviors as parts of a specific category, a sample of 50 physical educators participated. The PE teachers who were invited to participate in this study, came from a list of participants who were interested to attend educational seminars about children's problematic behaviors in primary school settings. The participants were contacted at their work address at schools by mail. After accepting to participate, they received a letter with written instructions. Among the participants 29 were males (58%) and 21 were females (42%).

They had on average 7 years of teaching experience in primary education ($SD = 4.2$). With respect to their educational training, 30 of them (60%) had a bachelor's degree, 17 (35%) had a master's diploma, and 3 (5%) had a PhD in school PE. Before contacting the study, written consents from each of the physical educators were obtained. Data were anonymous, and the study was in line with the guidelines given by the Research Ethics Board of the KU Leuven.

For the sorting task, each item from the diagnostic criteria and the PE list was written on a separate card. Participants were asked to sort the cards into different categories based on their perceived similarity in content using their own personal criteria, their experience, and their theoretical knowledge for this delineation. There were no limitations as to the number of categories or the number of items within each category.

A similarity matrix of the sorted items was derived by counting the number of times participants sorted a pair of items in the same group. The similarity matrix was submitted to a hierarchical cluster analysis (using IBM SPSS 15.0, 2006) to delineate subsets of similar items (called clusters) and the hierarchical structure among these clusters. Cluster analysis is a classification technique for forming homogeneous groups within complex data sets, which has grown rapidly in applications in many scientific disciplines, and has potential for wider use in psychology research (Borgen & Barnet, 1987). The complete linkage method that leads to fewer, but more homogeneous clusters (e.g., Finch, 2005), was preferred over the single linkage method as it gave a better interpretation of the data.

Results

Phase 1: Reported Children's Deviant Behaviors During PE

Participants were asked to describe children's deviant behaviors observed during PE lessons in school settings. The number of behaviors reported varied between 4 and 12, with an average of 8 items per rater. Based on these reports, 65 different behaviors were formulated into items describing deviant children's behaviors (see appendix).

A content analysis of the list, derived from psychical educators' reports, revealed that 44 of the 65 items (68%) were statements about children's behavioral problems as disobedience, negative reactions to rules, aggressive behaviors, and bullying tendency toward classmates. In addition, 13 out of the 65 items (20%) were statements describing lack of concentration, attention deficits, careless mistakes, and impulsive motor-related behaviors. Finally, only eight statements (12%) referred to problematic social behaviors. These items were describing lack of communication with peers and/or teachers, inability of the child to cooperate and interact with others and child's anxiety, mainly connected with lack of self-confidence.

Phase 2: Selection of Official Diagnostic Criteria

The screening of the *DSM-IV-TR* (APA, 2000) and ICD-10 (WHO, 1992) for motor-related behaviors that are observable at school led to a list of 145 diagnostic criteria. After splitting multiple criteria into single observations, the final list consisted of 187 items. In all, 21% of the selected criteria items came from pervasive developmental disorders. Anxiety disorders, such as social phobia, accounted for 20% of the items and a total of 15% of the items came from mood disorders (e.g. major depressive). Finally, the majority of items (43%) referred to impulse-control disorders, namely, ADHD, oppositional defiant disorder (ODD), and CD. An important observation was that some of the statements obtained in Phase 1 were very similar in content to the official diagnostic criteria derived in Phase 2. For example, when describing motor-related behaviors about disobedience, and the violation of rules, the PE teachers used statements like “the child initiates physical fights,” “the child displays physical violence,” and “the child plays too rough during team games or displays negative reaction to rules.” These observations are comparable with the behaviors proposed as criteria for the diagnosis of CD or ODD. According to the *DSM-IV-TR* (APA, 2000), being physical cruel to people or actively defying or refusing to comply with adults’ requests or rules are criteria for these diagnoses. Moreover, behaviors considering attention problems and hyperactivity were proposed by the physical educators. These behaviors were formulating items as follows: “the child displays difficulties in concentration during lesson,” “the child makes careless mistakes,” or “the child cannot wait his or her turn to perform,” which are very close in content to the criteria proposed by the *DSM-IV-TR* (APA, 2000) for the diagnosis of ADHD in children. Finally, considering problems in the social domain, the physical educators proposed items describing isolation and difficulties in communication using statements like “the child displays isolationist tendencies,” “the child doesn’t hang out with other children and keeps to himself or herself,” “the child is afraid to try new tasks or approaches new tasks with ‘I can’t do it’ response.” These kinds of items are close to the behaviors proposed as diagnostic criteria for the diagnosis of social anxiety disorder. Examples of physical educators’ statements in agreement with diagnostic criteria are presented in Table 1.

Phase 3: Sorting Task

A final list of 252 items was derived during Phases 1 and 2. A sample of 50 PE teachers participated in a sorting task with the request to rate these items into different categories based on their similarity in content. Two participants were excluded from the final data set due to incomplete sorting. For the remaining participants, the number of groups used

in the sorting task varied between 2 and 12 groups. The majority of the PE teachers placed the items into 4 or 6 different groups.

Structure of the Cluster Solution

Figure 1 presents the complete linkage solution of the derived similarity matrix. The leaves of the solution were grouped into nine clusters (labeled “a” through “i” in the appendix). The nine clusters were clustered on the basis of their similarity into three clusters (labeled 1-3 in Figure 1). Cluster 1 contained two clusters. Cluster 2 was consisted of two clusters containing two clusters each. Finally, Cluster 3 contained three clusters.

The similarity among the items in the nine clusters ranged from 75% to 90%, implying that between 36 and 42 out of 48 physical educators sorted these items together in the same group. Hence, these items can be assumed to be homogeneous in content.

Interpretation of the Subclusters

Cluster A contains 23 items describing disobedience. The 16 PE items of this cluster describe violation of rules and disobedience during PE classes. The diagnostic criteria in this cluster came from the ODD. Subcluster B refers to aggressive behavior. Physical educators proposed 16 out of the total 31 items describing aggressive students’ behaviors. The remaining items belonging to this cluster were criteria from *DSM-IV-TR* and ICD-10 for the diagnosis of CD and ODD.

Cluster C contained 22 items describing hyperactive behaviors from which only two were behaviors proposed from PE teachers. The diagnostic criteria came from the ADHD. Cluster D contained 20 items corresponding to impulsive behaviors out of which 9 derived from physical educators’ reports. The other items came from the ADHD disorder and ODD. Cluster E contained 29 items describing stereotyped motor behaviors and motor clumsiness. Cluster F consisted of 10 items describing tiredness and low-energy behaviors. Neither of these two clusters contained items that came from physical educator’s reports. The items from the diagnostic manuals came from the pervasive developmental disorder (PDD) and depression disorder.

Items describing inattention and weakness in concentration were clustered together in Cluster G. Of the 32 items, 9 items were derived from physical educators’ reports. The other items came from the diagnostic criteria of ADHD. Cluster H contained 39 items concerning behaviors connected with problems in the social domain, such as isolation and lack of communication with peers and teachers. Physical educators proposed only 9 of those items. The other 30 items came from the diagnostic criteria of pervasive developmental disorder, social phobia, and stress disorder. Finally, 46 items describing anxiety were sorted together forming

Table 1. PE teachers' Reports in Agreement With Diagnostic Criteria.

Behavior	PE teachers' reports	Diagnostic criteria	Disorder
Disobedience	The child uses physical violence	Has been physically cruel to people	CD (DSM-IV-TR)
	Initiates physical fights	Often initiates physical fights	CD (DSM-IV-TR)
	Displays disobedience for his or her teacher	Displays disobedience	CD (ICD-10)
	Displays negative reaction to rules	Defying or refusing to comply with requests or rules of adults	ODD (DSM-IV-TR)
Inattention	Is aggressive toward leadership figures		
	Displays loss of attention during lesson	Has difficulty sustaining attention in task or play activities Displays a reduced capacity for concentration	ADHD (DSM-IV-TR) ADHD (ICD-10)
Hyperactivity/impulsivity	Makes careless mistakes	Often fails to give close attention to details and makes careless mistakes	ADHD (DSM-IV)
	Can't wait for his/her turn to perform Displays impulsive behavior Has a tendency to be bossy	Often has difficulty awaiting turn The child is impulsive Often interrupts or intrudes on others (e.g., butts into conversations or games)	ADHD (DSM-IV-TR) ODD (ICD-10) ADHD (DSM-IV-TR)

Note: PE = physical education; CD = conduct disorder; ODD = oppositional defiant disorder; DSM-IV-TR = Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.); ICD-10 = International Classification of Diseases, 10th Revision.

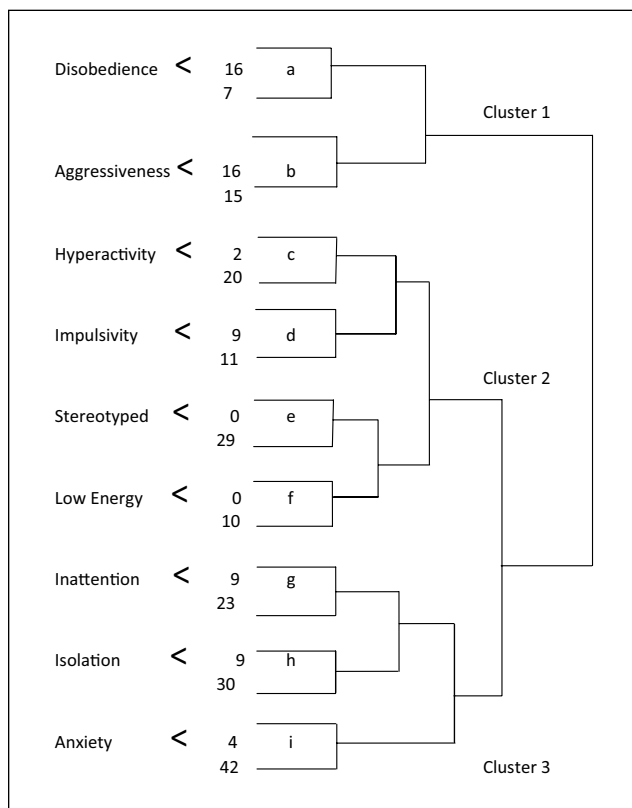


Figure 1. Schematic representation of the complete linkage cluster solution.
 Note: On the left side of the figure, the interpretation of the subclusters is given. The number of items in each subcluster derived from the physical educators' list (top figure) and from the diagnostic frameworks (bottom figure).

Cluster I. Only 4 items of this cluster were proposed by physical educators as deviant motor-related behaviors in school settings.

Distribution of the PE Items in the Cluster Solution

The complete list of items contained 65 PE items and 187 diagnostic criteria; hence, the overall odds ratio of PE items to diagnostic criteria is about 1:3 or 0.33. Looking at the distribution of the PE items in each of the clusters (see Figure 1), one can see that there is a relative overrepresentation of PE items in Clusters A, B, and C with odds ratios of 2.21, 1.1, and 0.8, respectively. However, there is a clear underrepresentation of PE items in Clusters E and F, where the odds ratio equals 0, and in Clusters C and I, where the odds ratio equals 0.1. Finally, for Clusters G and H, the odds ratio of the number of PE items to the number of items coming from diagnostic criteria is in line with what one can expect on the basis of the overall frequency, namely, 0.43 and 0.33, respectively.

Discussion

For many children and parents, the first opportunity for a systematic screening on mental health problems is when children begin school. Teachers are an important source of information, and screening instruments that are based on teachers' ratings have been developed (Achenbach, 1991; Connors, 1997; Gadow & Sprafkin, 2002; Henderson &

Sugden, 2007; Shapiro, 2000). However, physical educators may supplement the observations made by classroom teachers, as they see the children in a wide range of situations differing in the level of structuring (e.g., free-play situations, strict instructions), the type of interactions (e.g., children interacting with their peers or on a one-to-one basis with the PE teacher), and the amount of physical activity involved (e.g., doing tough physical exercises, or listening to the explanation of the rules of a game).

In the first phase of the study, the PE teachers generated a wide range of problematic behaviors many of which resembled with diagnostic criteria on children's psychopathology. During the sorting procedure, the PE teachers were able to discern patterns of similar behavior among the items, leading to a meaningful hierarchical cluster analysis. Meaningful clusters were obtained from the cluster solution and the hierarchical structure resembled the well-known distinction between externalizing and internalizing problem behavior.

However, the PE teachers' view on what refers to deviant behavior may be biased. By comparing the number of items generated by the PE teachers to the number of items in the diagnostic frameworks that refer to problematic motor-related behavior at school, one could infer that PE teachers tend to focus more on externalizing than on internalizing problematic behavior. Almost half of the PE items were contained in the clusters on disobedience and aggressiveness. For these clusters, the number of PE items also outnumbered the number of diagnostic indicators. Of course, the latter finding may also be explained by the fact that some of the PE items are referring to very specific situations whereas the diagnostic criteria are formulated at a more abstract level. However, this alternative explanation does not take away the observation that the PE teachers clearly mention more externalizing behavior than internalizing behaviors, and that for some internalizing problem behavior, they did not mention any comparable items. These findings are in line with the study of Kleftharas and Didaskalou (2006) in Greek elementary Schools, who found that although approximately 30% of the students indicated a high level of emotional difficulties including depressive symptoms, their classroom teachers seemed to lack readiness and skills for identifying these problems, and they tend to report more often behavior problems.

Despite their apparent focus on externalizing behavior, it is remarkable that the PE teachers did not mention items that refer to hyperactivity. This may be explained in two ways: Either the PE teacher perceives hyperactive motor behaviors as a form of disobedience or aggressiveness, or hyperactive motor-related behaviors are not considered to be problematic behaviors from the PE teachers' point of view.

With respect to internalizing problem behavior, the PE teachers did not mention items that referred to children having low energy or to children showing stereotyped behavior. The PE teachers also mentioned only few items describing

anxiety disorders; despite the fact that the "anxiety" Cluster I contained by far the highest number of diagnostic criteria, being about one fifth of the total number of diagnostic criteria. The latter is not surprising given that the anxiety disorders refer to a wide range of disorders. The absence of PE observations on depressive, autistic, or anxiety disorders can be related to the fact that PE teachers in Greece have no formal education on children's psychopathology. In addition, the way that questions were phrased in the administered questionnaire could possibly result in the fact that the participants PE teachers were focusing more on the externalizing motor-related behaviors they observe during their lessons in school settings.

One possible explanation why PE teachers tend to focus more on externalizing deviant behaviors rather than on internalizing deviant behaviors is that the former types of behavior are more difficult to deal with as they clearly disturb the class management and, hence, place demands on educators' management skills. In recent years, effective behavior management has become even more challenging with the inclusion of an increased number of students identified as at-risk or with serious behavior problems in general PE classes. PE teachers agree that lack of behavior management skills is the most significant barrier to effective teaching (Siedentop & Tannehill, 2002). In addition, research in this domain suggests that the inability to manage and motivate students' behavior is often the "number one" reason by beginning teachers for leaving the teaching profession (Elam, Rose, & Gallup, 1994; Kullina, Corthan, & Regualos, 2003). However, they did mention problems related to attentional and social interaction problems.

An alternative explanation for the PE teachers' bias toward externalizing in comparison with internalizing problematic behavior may be found in the empirical reality of children's mental health problems. The reported prevalence of externalizing problems (attention and conduct problems) in young children is about 6.8% in typical population when the reported rate is below 2% for internalizing behaviors referring to anxiety and depression symptoms. This is in line with research in children psychopathology (e.g., Klassen et al., 2004) that indicates there are high rates of overlap of behavioral symptoms in children, and externalizing problem behavior is present in most of children's emotional and behavioral disorders.

Practical Implications and Recommendations for Future Research

The present study revealed that there is a great degree of correspondence between the PE teachers' implicit theory of children's problematic motor-related behavior and the official diagnostic criteria on children's psychopathology. PE teachers may be able to provide important and accurate information for detecting children at risk of emotional and/or behavioral problems during PE lessons

in school settings. This is in line with Flanagan, Bierman, and Kam (2003) who suggested that educators observe different aspects of children during their lessons and are able to identify young children at high risk for school adjustment problems related to attention, conduct, learning, and mood with a great deal of accuracy.

Taking into consideration the fact that education research indicates that early identification for emotional and/or behavioral problems can help to minimize the long-term harm of mental disorders and reduce the overall health care burden and costs (Aos, Lieb, Mayfield, Miller, & Pennucci, 2004), the information provided by this study could be used for various educational purposes.

The findings of this study suggested that although PE teachers concern about the deviant behaviors of their pupils, they lack the necessary skills and training to identify internalizing symptoms, including anxiety and depression symptomatology, and to respond to them effectively. The results could help physical educators to better understand

their student's behaviors and the information provided may contribute in developing intervention programs.

In addition, the policy agenda should gradually begin to emphasize (a) the supplementary educational programs for preservice and in-service PE teachers aiming to enable them first to identify and second to respond effectively to students with problems, (b) the establishment of support structures and services within the school context, and (c) the development of effective cooperative schemes and communication mechanisms among the school and community-based mental health and social care provision services.

Future research studies should also investigate the supplementary value of involving PE teachers in the assessment procedure. Based on the results of the present study, a future research may focus on developing a screening instrument for PE teachers to select children at risk of emotional, behavioral, or developmental problems, by observing them during PE lessons in school settings.

Appendix

Items Derived From the Physical Educators' Reports and Their Position in the Cluster Analysis.

Subcluster	Item: The child
A	<ul style="list-style-type: none"> Displays bad behavior toward his or her classmates Actively refuses to comply with adult's rules Displays disobedience to his or her teacher Makes fun of his or her classmates who have less capabilities Does not comply to the rules, especially in a game situation Displays negative reaction to the rules of athletics Shows no respect for the teacher Is not willing to perform and behave himself or herself during the lesson Is cheeky and then fights with his or her classmates Does not follow the rules of the physical education (PE) games Reacts negatively to differences of other children (racism) Makes fun of his or her classmates who are different from him or her Is very cheeky and indifferent to the instructions of his or her teacher Forgets gym clothes on purpose Leaves his or her group during a game Does not take care of sport equipment
B	<ul style="list-style-type: none"> Displays aggressive behavior Blames others for his or her mistakes Displays bullying tendency toward his or her classmates Is aggressive Displays aggressive behavior and then does not participate in the activities Is aggressive toward leadership figures Displays bad language Is jealous and displays complexes which are expressed sometimes in violent behavior

(continued)

Appendix (continued)

Subcluster	Item: The child
	Blames others for his or her misbehavior
	Displays negative feelings toward the PE lesson and at the same time is aggressive
	Initiates physical fights
	Displays difficulty in accepting his or her failures and then expresses his or her disappointment with angry outbursts
	Uses physical violence
	Plays too rough during team games
	Displays bad manners
C	Has difficulty waiting his or her turn to perform
	Displays hyperactivity during the physical activity lesson
D	Annoys his or her classmates in his or her attempts in the physical exercises
	Displays disobedience to his or her teacher
	Interrupts games
	Displays impulsive behavior
	Overestimates his or her capabilities
	Has a tendency to be bossy
	Overestimates his or her capabilities
	Displays weakness in adjusting to the team
	Fails to follow instructions
G	Displays loss of attention during the PE lesson
	Displays weakness in concentration
	Is careless
	Displays lack of concentration
	Displays lack of his attention
	Makes careless mistakes in activities
	Daydreams and displays lessened attention, regardless of the type of exercise
	Displays gaps in his or her attention
H	Displays difficulty in concentration in the beginning of the PE lesson
	Displays lack of interest in the physical activity lesson
	Displays isolationist tendencies
	Is antisocial
	Shows no interest for the PE lesson
	Displays introverted tendencies
	Is isolated by his or her classmate
	Does not hang out with other children and keeps to himself or herself
	Reacts to the instructions of his or her teacher or/and to the advice of his or her classmates
	Displays lack to communicate with his or her teacher/classmates
I	Is afraid to try new movements tasks
	Displays lack of self-confidence
	Approaches new movement tasks with an "I can't do it" response

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