Connections Between Depression & Physical Activity

By Abby Verigin

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Douglas College

**Introduction:**

Childhood depressive disorders continue to be a significant, growing issue in Developmental Psychopathology today. Finding effective prevention methods for this problem is a vital goal for researching within the field of Psychology and Kinesiology. Physical activity is becoming increasingly popular as a prevention and as an intervention method for depression if done effectively. Through an extensive literature review, I have found significant information portraying the profound connections between depression and physical activity in children and youth. Previously, research on this has focussed on the adult population, creating an opportunity for scholars to now explore this topic in even more depth. Throughout this research process, the main theme apparent to me is how depression, depressive disorders and depressive symptoms can be lessened by taking part in physical activity for life with an emphasis of its importance throughout the developmental stages. As someone who is graduating with a Bachelors of Physical Education, I feel passionate towards creating healthy youth who will be active for life, overall lessening their risk of experiencing depression, depressive symptoms and disorders or syndromes. The following paper will cover depression, depressive disorders and symptoms along with how physical activity is an efficient way of preventing these mental health issues in youth and children.

**Depression in Youth**

Before any analysis of the literature, I would like to discuss depression in childhood and youth, it’s prevalence, comorbidity and outcomes. Depression in young people is common as most youth will experience it at one time or another for either short or prolonged periods of time. This becomes a larger issue when the depressive symptoms begin to impair with daily life functioning (313). To go on further, we must distinguish the differences between depression as a symptom, syndrome or disorder (314). A symptom of depression can be experienced by many and is usually temporary following a traumatic or stressful event. A depressive syndrome is much more than a sad state of mind and can be portrayed on a dimension of severity. Finally, depression as a disorder hinders daily life functioning for an extended period of time, most commonly seen as Major Depressive Disorder (MDD). Although not all youth are diagnosed with MDD, it is necessary to pay attention to all depressive symptoms to prevent them from worsening. Once introduced to depression, children and youth are at a higher risk to self-medicate with drugs and alcohol, leading them to higher risks of suicide (313).

Major Depressive Disorder can be seen in 2-8% of youth each year (317). Development between childhood and adolescence is a common time for this to arise due to “biological maturation at puberty interacting important developmental changes during this tumultuous period”(Mash & Wolfe, pg. 317, ). Once a child is diagnosed, they may be placed among others in a mild, moderate or severe category based on a variety of factors including length of episode, number of symptoms and ruling out other medical conditions (315). Mash & Wolfe, authors of Abnormal Child Psychology, state that “many children who just barely fail to meet the diagnostic criteria for MDD still show significant impairments in their social competence, cognitive attributions, coping skills, family relations and experience of stress” portraying how statistics can underestimate this problem (pg. 317, ). Since not everyone has access to medical clinics and psychologists, it is often understood that depression shows up more than the statistics say. In addition, a youth who has MDD is at a high risk for co-morbidity with anxiety, conduct problems, attention-deficit/hyperactivity disorder or substance-use disorder (317).

As children progress in life, they can carry this depression with them throughout adulthood resulting in a higher risk of suicide and other psychiatric disorders (318). Depressive episodes can be re-occurring resulting in long-term consequences for “later delinquency, tobacco use, substance-use disorder, suicidal behaviour, impairment, school dropout, poor work record, marital problems and health-service use” as stated by Mash & Wolfe (pg. 318). By helping youth create social competency and self-regulatory skills before adulthood, physical activity can be seen as an effective prevention method to aid in depression among the lifespan. Puberty is a time of change and confusion among youth, with a significant opportunity to help them in as many ways as we can. One way I believe we can help them is to introduce and expand the importance of physical activity throughout the lifespan, I will discuss this more below along with presenting the evidence.

**Physical Activity & it’s Connection**

Physical activity, defined by the World Health Organization, is “any bodily movement produced by skeletal muscles that requires energy expenditure” or in other words, any movement that increases your heart rate (WHO, 2020). This could be walking, gardening, taking the stairs or even cleaning the house. This is different than exercise which can be defined as “a subcategory of physical activity that is planned, structured, repetitive, and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is the objective” (2020). Throughout the articles I have chosen, most authors place physical activity and exercise together while others focus more on the individual type of activity and the intensity needed to see benefits. It is okay to place these terms together however, it is also important to understand their differences.

Physical activity is now being understood as a universal prevention for depression in youth (Pascoe & Parker, 2019). Michaela Pascoe & Alexandra Parker explain the increasing awareness of evidence for using physical activity and exercise as a way to improve mood and prevent certain mood disorders. The authors found a gap in the current research where they could expand their knowledge through a systematic review of 11 different studies. As I mentioned above, most research is currently done on adults and we increasingly need more information on youth in regards to these studies. The intervention studies ranged from a single session to 15 weeks long, a large difference. Pascoe and Parker discuss how their systematic review proves physical activity and exercise have “beneficial effects on mental health in young adults” while the results “suggest that regular physical activity and exercise is a protective factor for mental health” among all (pg. 737, 2019). Interestingly, the authors explain the need for appropriate physical activity programs in all education settings. Many public and private school systems are not meeting requirements for the daily recommendation of physical activity per child. In Canada, it is recommended that by the Canadian Society for Exercise Physiology that youth aged 5-17 must have “An accumulation of at least 60 minutes per day of moderate to vigorous physical activity involving a variety of aerobic activities” along with “Several hours of a variety of structured and unstructured light physical activities” throughout the day (CSEP, 2020). As a registered fitness professional and student in Physical Education, I know schools and families are not reaching these guidelines set out to us. I find it disappointing that physical activity is not valued more as it has the ability to create wholesome adults through teaching psychosocial skills such as self-esteem and social competency (2019). CSEP explains, “Following these guidelines is associated with better body composition, cardiorespiratory and musculoskeletal fitness, academic achievement and cognition, emotional regulation, pro-social behaviours, cardiovascular and metabolic health, and overall quality of life” (CSEP, 2020). In regards to developmental psychopathology, CSEP focuses on how physical activity can positively influence cognition, emotional regulation and pro-social behaviours in any child. If the school system put more effort and time into physical activity and education, I am confident our society would see healthier (physically, mentally, emotionally) youth and children becoming self-efficient adults in society. By providing opportunities for distraction from life events, social competency and self-regulatory skills, physical activity can be an effective prevention for depression in the developmental years of youth.

**Evidence**

Firstly, I will begin by analyzing an article by Tomson, Pangrazi, Friedman, & Hutchison who set out to determine “the relationship of being classified as physically active or inactive by a parent or a teacher to depressive symptoms in children 8 to 12 years” (Tomson, Pangrazi, Friedman, & Hutchison, 2003). First, the authors had caregivers or educators classify the participants based on their physical activity levels. Second, the authors then analyzed those levels in relation to the child’s depressive symptoms. The authors provide evidence of how children with depressive symptoms are at a higher risk for developing Major Depressive Disorder within their life (2003). One result of this study is that the relative risk for symptoms of depression for inactively classified children was 2.8-3.4 times higher than the children classified as active by their parent or teacher (2003). To add, the risk was also 1.5-4.0 times higher for children and youth not meeting health related fitness goals set out by the school (2003). Even though this information is from the early 2000’s, it worries me as it represents what we are experiencing in most school settings today. The main results of this research displayed “a strong association between depression and both the level of physical activity and health related fitness status” as well as “children classified as inactive and those not meeting fitness standards have a higher prevalence of depression on almost all measures. On a majority of measures, the differences reached statistical significance” (pg. 426, 2003). Through the data analysis, the authors then recommend how physical activity and exercise interventions have the ability to lower the risk of depressive symptomatology in children and youth (2003). This study is a great starting point for the rest of my research as it portrays the connections between physical activity and mental health (2003).

Major Depressive Disorder has the ability to affect many children and youth’s social competence throughout the lifespan (textbook). McKercher, Schmidt, Sanderson, Dwyer, & Venn set out to better understand the connections between physical activity and mental health in children and youth (2012). Through examining 6070 children, the authors came to discover the importance of social interactions throughout physical activity (2012). Since physical education classes offer more chances for social interaction, they saw more students gaining social support from their peers while creating positive relationships (2012). This can be hard to create in certain PE settings as an educator must first create a community of trust within the classroom while focusing on inclusion of every student. Once established, these social interactions have a way of increasing children’s social competency through learning opportunities (2012). McKercher and others found this to be more significant for females and their psychological well-being. The authors explain “structured leisure activities such as organized sport are thought to promote positive mental health through facilitation of interpersonal skills, positive social norms, membership in prosocial peer groups, contact with networks of supportive adults, and stronger connection with ones’ school” (as cited by Gilman, Meyers, & Perez, 2004) all leading to an increased social competency between youth and the community, especially females (pg. 54, 2012). Additionally, the authors discuss how “moderate durations of school PE were inversely associated with depressed mood in primary girls [because] PE classes tend to emphasize engagement in physical activity rather than fitness” portraying evidence that physical activity can lessen depressed moods among female youth when focused on participation instead of fitness levels (2012). These gender differences will come up later in the paper. McKercher and others state physical activity experiences during developmental life stage has the ability “to reduce the risk of persistence and recurrence of depressive symptoms and alleviate the subsequent morbidity associated with ongoing psychopathology” (pg. 55, 2012) explaining this deep, valuable connection of using physical activity to help depressed youth. To conclude, Mckercher and others explain several mechanisms where physical activity protects against depression in childhood: Central monoamine function, neurochemical pathways, similarities between physical activity and SSRI treatment, genetic factors and psychosocial skills (2014, pg. 1832). Overall, these authors provided imperative information regarding depression in youth and the differences gender and school-level can make (2012).

So far, I have explained how youth’s mental health and physical activity are vastly connected including the importance of social competence and wellbeing. Next, I will discuss self-regulatory skills in regards to physical activity and depression in youth. In 2019, Piché, Huỳnh, and Villatte, investigated the outcomes of physical activity (structured and unstructured) on girls’ and boys’ depressive symptoms in Quebec (Piché, Huỳnh, and Villatte, 2019). Structed physical activity refers to organized sports or exercise while unstructured physical activity refers to basic play of youth. The authors use findings from the Quebec Longitudinal Study of Child Development and parent contributions on participation in physical activity at the age of 7 (2019). Next, symptoms of depression were examined at 8 years old through a Social Behaviour Questionnaire which included past family conflicts, socioeconomic status and the possibility of maternal depression as well (2019). Throughout this examination of data, the authors discovered “Structured physical activity was found to be significantly and negatively associated with boys’ depressive symptoms one year later” while “Unstructured physical activity was not significantly related to later boys’ or girls’ depressive symptoms” (pg.114, 2019) showing the significance of structured physical activity on the developing brain. As cited by Piché, Huỳnh, and Villatte in Autry & Monteggia (2012), participating in physical activity “may have a positive biological influence on the child’s maturing brain by increasing levels of neurotransmitters (serotonin, norepinephrine, and dopamine)” as well as “neurotrophic factors such as brain derived neurotrophic factor (BDNF) in the brain, therefore strengthening neurotransmission, improving neuroplasticity, and protecting against stress- induced neural damage, in similar ways antidepressants work” (pg. 115, 2019). Throughout this development, in conjunction with social competencies, children learn self-regulatory skills such as self-efficacy and self-esteem (2019). This can be related to Bandura’s traditional concepts of social learning theory and creating change within the self (as cited by Bandura, 1997 in Piché, Huỳnh, and Villatte, 2019). Behavioural and emotional skills are enhanced throughout structured physical activity and promote self-regulation to be used in other life aspects. Bandura (as cited by Piché, Huỳnh, and Villatte in 2004) explains that high self-regulatory skills, which are developed in structured physical activity “are associated with lower levels of depressive symptoms”. This makes it clear that structured physical activity can be used as an effective prevention for youth when focused on increasing self-regulatory skills through the structure and discipline required in participation (pg. 115, 2019). Overall, the authors conclude how structured physical activities affect psychosocial skills during times of behavioral change throughout a child’s development of depression while unstructured are not as effective (2019). This evidence supports my theme of using physical activity to lessen depressive symptoms and diagnoses in children and youth.

As I continue to research the influence physical activity has on depression, I cannot forget to address the gender issues becoming apparent. It is quite often seen that boys may have more noticeable depressive symptoms than girls and they tend to engage in more physical activity throughout childhood (Piché, Huỳnh, and Villatte, 2019). Mckercher, who is mentioned above, took part in a 20-year cohort study of physical activity patterns and depression risks in young adulthood in 2014. He, among others, found many gender differences. For example, males who “were increasingly and persistently active had a 69 and 65% reduced risk of depression in adulthood” while “females who were persistently active had a 51% reduced risk of depression in adulthood” (Mckercher et. al, pg. 1823, 2014). This intrigued me. Researchers often bring up how depression represents itself differently between the genders as females continue to internalize most feelings and thoughts while males are more outwards. This continues to show up in recent research. As cited by Mckercher and others (2019), Strohle discovered that in comparison to a sedentary lifestyle, “regular physical activity was associated with a 50 % decrease in incidence of major depressive disorder) in males aged 18–24 years, but not females” (pg. 1831, 2019). That is a large statistical difference and it worries me that we may not be investigating female’s development properly. I believe the genders need to be studied differently, using different methods and analyzing styles. Mckercher states how Strohle’s research may have a bias towards males, which may be more common than we think in depression and physical activity research to date. As a female myself, I know what it is like to be compared among males even though our bodies regulate and function quite inversely. This is an important issue that most but not all researchers brought up before beginning their studies.

**What now?**

As depressive symptoms become more apparent to our children and youth in society, this portrays how essential proper physical activity and education are in the development of youth. It is unfortunate that we still see traditionally minded Physical Education teachers who do not yet understand this mental health connection to their activities and continue to exclude children from creating a sense of belonging within sport and exercise. It is necessary and should be mandatory for schools to have a Physical Education Specialist to create and deliver effective, structured physical activity programs within our education system. This will create more fully developed children who know and understand the importance of being active for life. If youth better understood the significance that physical activity has on our emotions, social competencies and self-regulatory skills, maybe they would take part in it more willingly. This also requires educators to provide more alternative physical education opportunities for those who are uncomfortable with structured sports and exercise. Examples of these are yoga, meditation, and hiking. I am confident that my generation of graduates will bring this into the public school system within the upcoming years.

**Conclusion**

To conclude, I am confident that I have proven physical activity is a critical factor used to protect children against Major Depressive Disorder. For it to be as effective as possible, it is necessary to establish structured physical activity throughout schools and the community to offer children a safe place where development can occur. In these significant years of learning, by participating in physical activity, social competency and self-regulatory skills are improving, leading to a large decrease in depressive symptoms and hopefully diagnoses of Major Depressive Disorder. We must understand that high self-regulatory skills are a valuable protection for children experiencing depressive symptoms to further prevent impairments to daily life functioning. In addition to this, we must understand the gender differences present throughout childhood development when analyzing these factors. As someone in the Physical Education field, I feel passionate towards creating fully developed youth who want to be active for life, providing a protection against Major Depressive Disorder.

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