Utilizing the Behavioral System Model for Adolescent Depression in the School Setting

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Utilizing the Behavioral System Model for Adolescent Depression in the School Setting

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N501: Theoretical Foundations of Advanced Nursing

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The Problem

Richie is a twelve-year-old transgender male who suffers from major depressive disorder, generalized anxiety, and post-traumatic stress disorder. Six months ago, Richie was sexually assaulted at a sleepover. He recently told his mother and therapist about the assault, which opened wounds Richie thought had healed. As a result, Richie was hospitalized for suicidal ideation twice within four months.

In the United States, anxiety and depression affect 12% of adolescents (Eiraldi et al., 2016), with higher rates of depression, suicidal ideation, and suicide attempts occurring in the adolescent LGBTQ+ population (Perron & Himelfarb, 2017). Nearly 4,900,000, or one in five, adolescents receive mental health treatment every year (Mojtabai & Olfson, 2020), with depression being the most common diagnosis, especially among those 12-18 years of age (Egorova et al., 2018).

The person who assaulted Richie was his classmate. He had to see this person every single day and relive the trauma repeatedly. The aggressor was also a bully, triggering instant fear whenever Richie saw this person. Richie’s mother had worked closely with the school principal to make the school feel like a safe environment, which meant moving Richie from one sixth grade classroom to the other, separating him from his friends. Unfortunately, Richie still encountered his aggressor at lunch, during recess, and walking through the hallways. To Richie, it felt like there was no escape.

Suicide is the second leading cause of death among adolescents. According to a 2019 risk behavior survey, one in five adolescents stated they had seriously considered suicide, one in six claimed they had made a suicide plan, and one in 11 said they had attempted suicide. In all
instances, the prevalence was highest among those who identified as LGBTQ+ (Ivey-Stephenson et al., 2020).

After Richie’s second hospitalization, being at school became unbearable. Richie could no longer make it through the day without having a panic attack or thinking about suicide as an escape. He had developed several coping strategies with his therapist and his mother, but these had stopped working for Richie. Richie reached out to the school nurse feeling completely helpless, suicidal, and desperate for support. Per policy, the school nurse took Richie to the counselor (New Mexico Department of Health, 2018).

Adolescence is a time of transition characterized by rapid and extensive changes, both physical and psychosocial (Ivey-Stephenson et al., 2020). When pairing these typical challenges with mental health issues, such as depression and gender dysphoria, adolescence becomes a minefield. As adolescents spend a significant amount of time at school each week, schools appear to be the ideal environment for intervention efforts (Hellmuth, 2018). Additionally, implementing interventions into the environment where most symptoms are triggered could be beneficial (Eiraldi et al., 2016).

However, as soon as Richie mentioned he was suicidal, the school counselor assessed Richie’s risk using the “General Guidelines for Assessing Suicide Risk” provided in the New Mexico School Health Manual (2018). Upon recognizing Richie’s symptoms, she sent Richie home with a referral for an immediate psychological evaluation. Spending time away from his aggressor in a peaceful environment at home eased Richie’s anxiety and depression. He soon felt prepared to return to school the next day.

Several days later, Richie found himself in the same state of depression and helplessness. He again visited the school counselor only to receive the same response. Rather than
receiving support, he found himself kicked out of the classroom again. When Richie returned to the same facility for a second psychological evaluation, the staff was confused because they already completed the evaluation. There was nothing they could do. Richie had been kicked out of school for the day for no apparent reason.

This cycle repeated for a month. Despite medication and therapy, Richie found himself feeling suicidal every few days. Repeatedly, the school counselor would send him home without performing any other interventions. Richie’s grades began to suffer because he missed so much class. The dwindling grades only added to Richie’s depression. School counselors have several responsibilities that are generally prioritized ahead of student mental health needs, leaving students’ social and emotional needs unmet, which affects their education and general well-being (Hellmuth, 2018). School counselors in poorly funded schools often lack proper training on implementing evidence-based interventions (Eiraldi et al., 2016). Additionally, a 2014 study conducted by Mahdi et al. indicated that New Mexico school counselors felt unprepared to provide safe and supportive care for LGBTQ+ students.

The school counselor did not have much experience with adolescent depression and lacked the training to bring Richie from a state of overwhelming despair and anxiety to a place of calm that would allow him to return to class the same day. Instead, she followed the instructions in a manual under the tab “Suicidal Ideation” (New Mexico Department of Health, 2018). The school nurse’s only role in cases like Richie’s is making sure the student is never left alone (New Mexico Department of Health, 2018).

Richie was soon transferred to homeschooling as his mother feared he would fail sixth grade because of the excessive absences. Richie could no longer count on the support he received from his friends in the classroom every day. Instead, Richie was isolated and felt even more
alone. Additionally, he felt like a failure because he could not finish the school year with his class. In the end, his aggressor had won. “Investing in support for young people with behavioral and emotional difficulties can help them both achieve academically and may also improve longer-term outcomes such as employment and health” (Stafford et al., 2018).

**Behavioral System Model**

**Background**

Dorothy Johnson was born in 1919 in Savannah, Georgia, where she lived with her mother, father, and seven older siblings. During the Great Depression, Johnson took a year off school to be a teacher, where she developed her passion for nursing, education, and children. In 1942, Johnson graduated from Vanderbilt University School of Nursing as the topmost student and received the Vanderbilt Founder’s Medal, a prestigious honor (Gonzalo, 2021).

She worked as a staff nurse at the Chatham-Savannah Health Council for a year before becoming an instructor and assistant professor of pediatric nursing at her alma mater. In 1948, Johnson earned a master’s degree in public health from Harvard University. With this new degree, she taught pediatric nursing at the University of California for nearly 30 years. The only break in this tenure was a year spent in South India as a pediatric nursing advisor (Gonzalo, 2021).

In 1968, Johnson presented her Behavioral System Model of Nursing, for which she is best known. She received many awards during her career, including the 1975 Faculty Award from graduate students and the 1981 Vanderbilt University School of Nursing Award for Excellence in Nursing. Dorothy Johnson died at the age of 80 in 1999, proud of her accomplishments and the use of her nursing theory in practice (Gonzalo, 2021).
The Behavioral System Model encourages the nurse to focus more on the patient experiencing the illness instead of the illness itself and to view the patient as a behavioral system. She states, “All the patterned, repetitive, purposeful ways of behaving that characterize each person’s life make up an organized and integrated whole - a system” (Johnson, 1980). Johnson believed that a nurse contributes to the well-being of patients by promoting proper behavioral functioning to prevent illness, during an illness, and the period following an illness. Johnson believed that the behavioral system of each person is maintained because it functions effectively in response to the environment, and it changes when it is no longer effective or when the individual perceives a different method of functioning as more desirable (Johnson, 1980).

The system is composed of parts and subsystems, and each has a specific function to help the system work. The subsystems are comprised of behavioral responses, which are developed and modified through maturation, experience, and learning. Johnson identified seven subsystems: (a) affiliative or attachment, (b) ingestive, (c) eliminative, (d) dependency, (e) aggressive, (f) sexual, and (g) achievement. These are described in the relationships section below (Johnson, 1980).

According to Johnson (1980), the behavioral system is affected by the environment, and the subsystems determine response and resiliency to environmental stimuli. A person’s structure (drive, behavior, choices) will react to internal and external stressors. The person’s stress tolerance and flexibility will determine if the person responds with tension, health, or illness. In the state of illness, the nurse enters to nurture, protect, and stimulate the individual. This process is displayed in Appendix A.
Assumptions

The assumptions of the Behavioral System Model are broken into three parts: assumptions about the system, assumptions about structure, and assumptions about function. Johnson (1968) identified four assumptions that aid in understanding the person as a behavioral system, four assumptions that aid in understanding the system’s structure, and three assumptions that describe the system’s function. These are described in Box 1 below.

**Box 1**

<table>
<thead>
<tr>
<th><strong>System</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The organization, interaction, interdependency, and integration of the parts combined with behavior make up the system.</td>
</tr>
<tr>
<td>2. A person as a behavioral system strives to maintain balance with automatic adaptations and adjustments to the environment and seeks new experiences that may require small or large behavioral modifications to regain balance.</td>
</tr>
<tr>
<td>3. A balance in the behavioral system is essential to functionality.</td>
</tr>
<tr>
<td>4. Even if observed behaviors do not coincide with cultural norms, behavioral system balance reflects successful adjustment and adaptation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Structure</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Each subsystem is comprised of groups of behavioral responses and responsive tendencies reacting to a drive or goal.</td>
</tr>
<tr>
<td>2. A set is the predisposition to act in certain ways and not act in other ways.</td>
</tr>
<tr>
<td>3. The complete behavioral profile available to achieve a goal forms the individual’s choices.</td>
</tr>
<tr>
<td>4. The scope of action is the organized and patterned behavior that can be directly observed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Function</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A disturbed behavioral system can be threatening to the integrity of an individual.</td>
</tr>
<tr>
<td>2. It takes much energy to maintain behavioral system balance when forces are constantly creating imbalance.</td>
</tr>
<tr>
<td>3. When it requires minimal energy to maintain behavioral system balance, more energy is available to aid in biological processes and recovery.</td>
</tr>
</tbody>
</table>

*Note.* Information from Johnson (1968).
Concepts and Subconcepts

Johnson adopted concepts from other disciplines, such as behavioral science, animal ethnologists, and biological scientists, and modified and defined them specifically for nursing. She developed these concepts over many years throughout her writings. These concepts, subconcepts, and their definitions are in Table 1 and Table 2 below.

Note. (Gonzalo, 2021; Holaday, 2017; McEwen & Willis, 2019)
Table 2: Subconcepts of Behavioral System Model

<table>
<thead>
<tr>
<th>Subconcept</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boundaries</td>
<td>The delineation between the internal system and the external</td>
</tr>
<tr>
<td>Function</td>
<td>Reason behind actions</td>
</tr>
<tr>
<td>Homeostasis</td>
<td>The process by which the system maintains stability</td>
</tr>
<tr>
<td>Instability</td>
<td>State where system energy output exceeds the energy required to maintain system stability</td>
</tr>
<tr>
<td>Set</td>
<td>Predisposition to act in certain ways and not act in other ways</td>
</tr>
<tr>
<td>Stability</td>
<td>Balance or steady state</td>
</tr>
<tr>
<td>Stressor</td>
<td>An internal or external stimulus that causes stress or instability</td>
</tr>
<tr>
<td>Structure</td>
<td>Parts of the system that make up the whole</td>
</tr>
<tr>
<td>Tension</td>
<td>A positive or negative response to disruptions in the system</td>
</tr>
<tr>
<td>Variables</td>
<td>External factors that influence system behavior but are unchangeable by the system</td>
</tr>
</tbody>
</table>

Note. (Gonzalo, 2021; Holaday, 2017; McEwen & Willis, 2019)

Relationships

Johnson (1980) described the application of the model to seven subsystems of the behavioral system. These subsystems are considered linked and open, meaning a disruption in one subsystem will likely disrupt others. The subsystems are:

1. **attachment or affiliative subsystem**: the most critical subsystem as it is the foundation for all social organization affecting inclusion, intimacy, and the building and maintenance of a person’s significant social bonds

2. **dependency subsystem**: promotes helping behavior involving approval, attention, or recognition

3. **ingestive subsystem**: promotes need-fulfillment surrounding food and fluids and affects an individual’s specific eating habits, whether they are positive or negative
4. **eliminative subsystem**: promotes need-fulfillment surrounding excreting wastes and affects an individual’s specific elimination habits

5. **sexual subsystem**: promotes procreation and gratification beginning with the development of gender identity and includes sex-role behaviors

6. **aggressive subsystem**: promotes defensive responses for protection and preservation of the environment and self

7. **achievement subsystem**: promotes manipulation and control of the environment or self with behaviors affecting intellect, physical body, creativity, mechanics, and social skills

Johnson (1980) also names three functional requirements of individuals: (1) nourishment from the environment, (2) protection from harmful influences in the environment, and (3) stimulation to encourage growth.

**Why Behavioral System Model**

This nursing theory applies to the problem because there are disruptions in Richie’s behavioral system. Richie is unable to cope with external and internal triggers. The school’s environment has become toxic for Richie, and when he seeks out support, he is sent home without nourishment or protection. His opportunity to grow through stimulation has been taken away. Applying this theory to Richie’s situation could illuminate interventions that increase Richie’s resilience, provide safety within the toxic environment, and help Richie grow.

According to Johnson (1968), behavior changes when the system is no longer functioning effectively in response to the environment or when the system perceives a different method of functioning as better. Richie has adapted his behavioral responses to achieve a goal that he believes is better: leaving the school and going home. He has learned that going to the school counselor with suicidal ideation means he can leave the toxic environment and return to the
safety of his home. This theory looks at what is going on inside the individual, and in Richie’s situation, that is where the problem starts. The Behavioral System Model will address the problem and examine how improper interventions led to more problems for Richie. This theory may also help determine viable options to help Richie without sending him home.

**Applying the Behavioral System Model to the Problem**

Richie’s story is not unique, and the New Mexico public school system is not equipped to handle cases of severe depression in adolescents. While guidelines are in place to address single instances of suicidal ideation, there are no guidelines for repeated complaints (New Mexico Department of Health, 2018). Johnson’s Behavioral System Model offers a different way to approach cases of severe depression in the school setting.

According to the Behavioral System Model, Richie is the behavioral system. Richie has lived with depression and gender dysphoria for over a year. However, with the recent assault and hospitalizations, there is an absence of equilibrium between Richie’s subsystems. His resiliency has decreased significantly, and he no longer finds the functional requirements necessary to survive and develop in the school environment.

The attachment/affiliative subsystem has lost its sense of security through social inclusion and intimacy. Richie no longer feels safe in the school environment where he once enjoyed socializing with his peers and forming social bonds. The behavioral system has learned that the hospital and home are safe environments, but the school is full of stressors that trigger instability. Therefore, to find security, he must leave his primary source of socialization.

The assault has disrupted the homeostasis of the sexual subsystem. What was once a typical journey through adolescence has become dangerous, fraught with potential dangers.
Richie varies between fear of intimacy and over-sexualized behavior in attempts to recreate equilibrium in this subsystem.

The ingestive subsystem is affected by the presence of Richie’s aggressor in the cafeteria. As a result, Richie will often skip lunch, putting his health and mental function at risk. The eliminative subsystem is affected by the fact that Richie is transgender. He does not feel comfortable going into the girls’ restroom, and he is not permitted to use the boy’s restroom. Therefore, Richie does not use the restroom during school hours, causing constipation and putting him at risk for urinary tract infections.

Several subsystems are working together, attempting to create equilibrium, but there is instability in the regulation of the subsystems. Seeing the aggressor every day is a variable out of the system’s control. This variable creates tension within the behavioral system and triggers the self-preservation traits of the aggressive subsystem. The self-preservation then prompts the dependency subsystem to search for help.

The reaction of the aggressive and dependency subsystems tells Richie he needs to escape the stressors of this environment, making him feel like he would rather die than stay in this dangerous environment any longer. He knows these feelings are also unsafe, and he asks for help. Attempting to control the behavioral system and the environment, the achievement subsystem aims to help Richie return to a safe environment (the hospital or the home). The behavioral system knows that the words “I’m feeling suicidal” will help achieve this goal.

At this point, the behavioral system believes the only way to achieve equilibrium and optimal functionality is to escape the toxic school environment, and it will utilize whatever behaviors necessary to accomplish this. A set is created where Richie now has a predisposition to
react to triggers in this particular way because he knows these choices will achieve the goal of safety.

Finally, the three functional requirements of the behavior system are not being met. Within the school, (1) Richie is not receiving nourishment from the environment: he is either being ejected from the environment or triggered by stressors. (2) Richie is not receiving adequate protection from harmful influences: his aggressor is allowed to continue to torment him every day despite the school’s awareness of the situation. (3) Richie is not receiving stimulation to grow: he is continually forced to leave school, so he is robbed of his education and socialization that helps him grow and improve as a person.

Viewing Richie as a behavioral system allows the school counselor or school nurse to identify what may be exacerbating the disturbance in subsystem equilibrium. The school can intervene in the behavior set that is causing Richie to be sent home from school. The aggressive, dependency, and achievement subsystems are working to keep Richie safe, but these subsystems need to believe that safety can exist at school.

Assessing Richie’s emotional status and suicidality at the beginning of the day will provide a baseline for later comparison and should take no more than five minutes. The current protocol for any statement of suicidality, from low to severe risk, involves ejecting the student from the school (New Mexico Department of Health, 2018). After checking a baseline status at the beginning of the day, the counselor or nurse can discuss what has caused Richie to stray from the baseline. Understanding that stressors in the school environment have triggered imbalance in these subsystems is key to helping Richie find equilibrium.

Adolescents have difficulty judging their levels of distress due to developmental factors such as lack of forward-thinking, poor impulse control, and problems creating coping strategies.
BEHAVIORAL SYSTEM MODEL AND ADOLESCENT DEPRESSION

(De Luca, Lim, & Yuegi, 2019). With that in mind, Richie’s reports of suicidality may be hyperbolic, especially with reports occurring daily and varying significantly from the morning baseline. However, high levels of unmanaged stress can exacerbate anxiety and depression, decrease self-efficacy and resiliency, and affect academic success and healthy decision-making (Lindsey & Lindsey, 2018). According to the assumptions of behavioral system function, maintaining balance in the face of constant negative forces requires much energy (Johnson, 1968). Therefore, reducing Richie’s stress during moments of exacerbation is crucial and could help restore the balance between the subsystems.

Rather than immediately sending Richie home, the school counselor or school nurse can intervene and provide the functional requirements the behavioral system is lacking: nourishment, protection, and stimulation. Allowing Richie quiet time in the counselor’s or nurse’s office offers protection from the aggressor and stressors of the school environment. That may be all required to calm the reactions of the subsystems and reduce Richie’s stress. According to the assumptions of behavioral system function, more energy is available to aid in recovery when minimal energy is required to maintain balance (Johnson, 1968).

Creative therapy empowers individuals to be more active in treatment and assists with self-discovery, healing, and change (Lindsey & Lindsey, 2018). Additionally, mindfulness-based stress reduction (MBSR) has been shown to significantly reduce emotional discomfort and stress in adolescents (Lindsey & Lindsey, 2018). While Richie is in the counselor’s or nurse’s office, creative MBSR techniques could help further reduce his stress. Richie can color or draw while discussing what triggered the suicidal ideation, which will help him focus on the present and reduce his stress. In this situation, MBSR affects the system in multiple ways. (1) The system is stimulated to grow by discussing emotions rather than running away from them. (2) The system
is nourished by mindfulness and focusing on the present moment. (3) Stress is reduced by stepping away from stressors. (4) Resiliency is increased because Richie can stay in the school environment despite the subsystem’s urges to escape.

After these interventions, the counselor or nurse should once again assess Richie’s emotional status and suicidality. By offering Richie a safe place within the school, he can regain equilibrium within the subsystems allowing the behavioral system to rewrite the set of behaviors triggering reports of suicidal ideation. Richie may be able to return to class if there is a better balance between the subsystems.

**Strengths and Weaknesses**

Johnson’s Behavioral System Model is congruent with nursing standards, interventions, and therapeutics. It guides nurses to treat the individual, not the illness, and discusses multiple factors contributing to the absence of health. However, it is incongruent with the present school dynamic. This model would force the school to alter its current standards of practice which are reactionary rather than treatment oriented. Implementing this theory in cases like Richie’s would ask the counselor or nurse to pause and be with the student in a time of crisis instead of immediately sending the student home. It offers the behavioral system a chance to find a balance between the subsystems and return to class. However, this policy change could potentially increase liability for the school if a student followed through on an impulse after being allowed to stay at school following a report of suicidal ideation.

This theory has been tested by research in several fields of nursing, including adolescent behavioral health, but has yet to be tested in a school setting. Therefore, the results of the implementation are unknown and potentially dangerous. For instance, the student may feel that their claim was not taken seriously and may choose not to seek help in the future. This model is
supported by research in clinical trials in other settings and appears to be valid based on this information. Research indicates this model is relevant and used in nursing education, research, and administration (Holaday, 2017).

The Behavioral System Model is relevant socially, especially today, where myriad factors affect an adolescent’s well-being. Their dynamic environments have become much more complicated and full of stressors wearing on their resiliency. With social media, there is seldom an escape from those stressors. This model is also relevant cross-culturally, indicating that particular behaviors and sets may be culturally dependent, suggesting consideration of an individual’s culture before determining if one’s behaviors are a sign of imbalance (Johnson, 1968).

Implementing the Behavior System model into the school system would ideally drive the school nurse to take a more active role in care for the suicidal adolescent. The current practice is to take all suicidal students to the school counselor. The nurse’s only role in management is making sure the student is never left alone (New Mexico Department of Health, 2018). The nurse and school counselor should work together to assess and treat students like Richie who require assistance attaining equilibrium. Nurses may also play a role in assessing the physiological signs of stress before and after MBSR treatment. The nurse would also be incredibly helpful in creating a plan of care for students like Richie to assist the counselor in managing treatment for repeatedly suicidal students.

Final Thoughts

Applying Johnson’s Behavioral System Model in the school setting could help keep adolescents like Richie in school and decrease the effects of depression on academic achievement. Modifying school policy regarding reports of suicidal ideation allows students to
recover from toxic environmental stimuli and regain balance within the behavioral system. Utilizing therapeutic techniques in the presence of depression exacerbations does more good for the student and the school than ejecting the adolescent from the school setting.

Viewing students like Richie as a behavioral system allows the school counselor and nurse to identify imbalances causing the subsystems to malfunction. Understanding where the disturbance in equilibrium lies aids staff in addressing the problem and helping the student to restore balance. Interventions, such as creative MBSR, provide the student with time away from stressors to regain balance between the subsystems. Regaining balance within the school environment increases resiliency and helps the behavioral system understand that the school can be a safe place. Creating a plan of care within the Behavioral System Model allows the nurse and counselor to work with students like Richie on an ongoing basis to improve outcomes, increase resiliency, and build stronger coping mechanisms.

The major setback of applying this model to the school setting is that it has not been done before. The outcomes outlined above are only hypotheses, and testing them could result in dangerous consequences, such as suicide attempts, fatalities, and altered help-seeking behaviors. However, the potential benefits of successful intervention are plentiful and encourage the safe implementation of the Behavioral System Model.

A testing method could incorporate the Behavioral System Model into the current practice rather than replacing it entirely. This integration would allow students to participate in creative MBSR with the counselor or nurse before being released from school for an emergency assessment. Levels of suicidality and stress would be evaluated before and after the intervention to determine efficacy. At this point, the student would be released to their guardian for emergency assessment. Once a student goes through this process, the nurse and counselor would
create a plan of care that involves daily morning assessments to determine stress and suicidality levels. These assessments would act as a baseline for later reports of suicidal ideation.

The assessment would cover questions that address the balance of the behavioral system and subsystems directly. Suggested questions utilize “I” statements, a numbered scale, and include:

1. I feel supported in my class.
2. I feel recognized in the classroom.
3. I feel safe at school.
4. I feel prepared to participate in schoolwork.
5. I feel ready to handle stressful situations.

The Behavioral System Model fits perfectly into this picture of adolescent suicidality. However, school nurses are underutilized in schools. Nurses need to take a more active role in the care of suicidal adolescents. Nurses are great resources for school counselors and can develop care plans that benefit all parts of the behavioral system. Applying this model to the school setting would encourage nurses to assess what is taking place behind a student’s complaints, evaluate the behavioral system, and identify imbalances. Working together, the school counselors and nurses could make a lasting impact on adolescents with major depression, leading to improved academic achievements, decreased stress, and healthy decision-making. These impacts will improve life for the adolescent, with effects extending into adulthood.
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Appendix A

Behavioral System Model Diagram

Note: Created with information from Holaday (2017).