

Antecedent Mechanisms Influencing the Development of Adolescent Mental Health

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Abstract. Adolescent mental health is influenced by the complex interplay of multiple factors across individual, family, school, and societal contexts. Drawing upon ecosystem theory, this paper systematically examines the antecedent mechanisms affecting adolescent psychological well-being, encompassing personality traits (such as the Big Five and Dark Personality traits), family factors (including parental psychological control and parent-child relationships), school environments (such as teacher-student relationships and peer bullying), and social factors (including social media usage and internet addiction). Research demonstrates that these factors significantly influence adolescents' emotional regulation, social adaptation, and overall psychological health through various pathways. Future research should prioritize investigating the dynamic interactions between individuals and their surrounding environments, the long-term impacts of social media use, cross-cultural differences, and multidisciplinary integration approaches. Such investigations will contribute to theoretical advancement and inform evidence-based intervention strategies for promoting adolescent mental health.

Keywords: Adolescent mental health; Influencing factors; Personality; Family environment; social media.

1. Introduction

With the acceleration of social changes and digitalization, mental health issues among teenagers have become increasingly prevalent. Mental health encompasses not only individuals' current emotional states and behavioral adaptation but also serves as a significant predictor of social functioning in adulthood. Although contemporary research has identified several key influencing factors—such as individual traits, family upbringing, school environment, and social culture—the dynamic interaction mechanisms between these factors require further investigation. By integrating perspectives from ecosystem and attachment theories, this paper aims to systematically analyze multiple antecedents affecting adolescent mental health. Additionally, it identifies key directions for future research, providing both theoretical foundations and practical insights to promote the psychological well-being and development of teenagers.

2. Literature Review

2.1. The Connotation and Definition of Adolescent Mental Health

The conceptualization of adolescent mental health has been approached diversely in academic literature. Ni et al proposed a dual-dimensional framework, suggesting that traditional perspectives primarily emphasize the reduction of negative psychological states (e.g., depression and anxiety) while simultaneously incorporating positive dimensions such as emotional well-being and a sense of happiness. In their study, emotional problems were operationalized through measures of anxiety and depression symptom, whereas overall well-being was assessed using the WHO-5 Well-Being Index [1].

Alternatively, Chen et al expanded this definition by incorporating behavioral and social dimensions, arguing that mental health encompasses not only emotional stability but also moral conduct and adaptive functioning in social contexts [2]. Meanwhile, Cheng et al adopted an ecological perspective, defining mental health as an individual's capacity to achieve optimal psychological

functioning within the constraints of their environmental and personal limitations. Their longitudinal study of 1,471 Chinese high school students revealed that approximately 10% of participants exhibited clinically significant mental health challenges, including academic stress, emotional dysregulation, interpersonal sensitivity, and psychological distress—with anxiety emerging as the most prevalent issue. Notably, untreated psychological disturbances in adolescents were associated with severe outcomes such as substance abuse, aggression, and heightened suicide risk.

Presently, adolescent mental health can be viewed as the interaction of three main domains: (1) the development of positive psychological characteristics (e.g., self-worth, resilience, prosocial behaviour) which enable adolescents to meet developing challenges with confidence; (2) the effective management of negative emotional states (e.g., preventing anxiety or depression from significantly impairing everyday functioning); and (3) adaptive flexibility, where cognitive and behavioural responses to certain settings change as a function of the situational context. These domains indicate that mental health is more than the absence of illness; it is a continuum of thriving which supports adolescents in achieving holistic well-being.

2.2. Antecedent Mechanisms Influencing Adolescent

2.2.1. Individual Factors

The impact of basic traits on adolescent development has long been acknowledged in personality psychology. The Big Five model is one of the most widely used models of personality following the idea that there are at least a few core dimensions of personality [3]. According to the Big Five, the core dimensions of personality include: (1) extraversion, (2) openness to experience, (3) conscientiousness, (4) agreeableness, and (5) neuroticism. Extraversion reflects varying levels of sociability, positive emotions, and stimulation-seeking, with high scorers being outgoing, gregarious, and enthusiastic generally, with introverts being more solitary; openness to experience reflects cognitive flexibility, aesthetic appreciation, and novelty-seeking, with imaginative people being more likely to engage in imaginative acts compared to those who prefer convention; conscientiousness reflects self-discipline and organization, as well as goal-directed behaviors and represents the unique difference between those who are achievement striving and those more spontaneous; agreeableness reflects interpersonal orientation, people vary considerably between those who are compassionate and trusting, to skeptical and competitive; and neuroticism represents emotional instability and vulnerability to negative affect, with high scoring emotionally unstable individuals being more likely to show anxiety levels and find that their moods are fairly elastic, compared to their emotionally stable counterparts. The Big Five traits have been linked to social adaptation in adolescents and prior research has yielded empirical evidence to support this notion. For example, research by Nie et al found extraversion, conscientiousness, and openness to experience are all positively correlated with social adaptive behaviours. They found that neuroticism was a significant predictor of maladaptive social behaviour [4].

In addition to this traditional model, increasingly more research has been conducted on a set of socially aversive traits under the umbrella of dark personality [5]. The dark personality contains three subclinical personality traits: Machiavellianism, narcissism, and psychopathy. Machiavellianism has a primarily manipulative interpersonal style and a cynical worldview, allowing the person to achieve power and status while disregarding moral or ethical restraints. Psychopathy contains primarily high impulsivity, thrill-seeking, low empathy, and antisocial tendencies. Narcissism is primarily characterized by grandiosity, entitlement, and requiring the need for admiration.

The effects of the dark triad on adolescent well-being and the perceptions and search for happiness is an emerging area of research. The effects of these areas of personality likely differ. Machiavellianism, on the one hand, undermines the pursuit of meaningful happiness. Machiavellianism emphasises self-interest (making choices based on personal gain) and rejection of interpersonal attachments, which run counter to connectedness and prosocial behaviours involved with subjective well-being. Narcissism is more complicated. While the narcissistic trait of arrogance and exploitative behaviours limits an individual, facets of narcissism could in fact lead to higher

scores on well-being. Particularly, the desire for achievement, improvement, and affirmation by narcissists can be viewed as high motivation and a feeling of purpose. As such, if the narcissist is motivated to accomplish socially acceptable purposes, paradoxically, this could constructively contribute to developing an adolescent in their quest to find a meaningful form of happiness.

2.2.2. Family Factors

According to ecosystem theory [6], empirical evidence corroborates this claim. Zheng et al found a statistically significant positive correlation between parental psychological control and adolescent depression [7]. Their research included social support theory as a framing theory and explained the two major support systems: formal support (e.g., governmental, medical) and informal support (e.g., family, friends, and community). Although formal support provides institutional safeguards, informal support, in particular the family support system, provides emotional, material, and informational support that is deemed essential for psychological functioning. A cohesive family environment can provide self-confidence and a positive emotional state. Parental psychological control is a form of distortion, a perversion of the informal support system. Parental psychological control removes a potential source of comfort and transforms it into potential threats or distress. When parents use tactics of criticism, accusations, or threats (to manage children) they are denying and invalidating children's feelings and needs, creating a pathway to depression.

Self-determination theory further explains this relationship as follows. This theory indicates that the satisfaction of basic psychological needs; particularly the need for autonomy is important for healthy development. Parental psychological control frustrates autonomy. By restricting choices for children and supplanting independence with parental dictates, parents diminish the child's self-efficacy and self-identity. This repeated depriving of a child's worth and abilities are intimately associated with the development of depressive symptomatology. In summary, it should therefore be clear that from the perspective of ecological, social support and self-determination theories, parental psychological control harms adolescent well-being by impairing the family environment, withholding social support, and inhibiting basic psychological needs.

Recent studies have emphasized that, besides parental psychological control, the parent-child relationship as proposed in ecological systems theory [7] is likely an important aspect of adolescents' psychological well-being. Based on ecological systems theory [7], psychological and behavioral development occurs in the context of a microsystem, and, in this case, the family environment is certainly a central part of that microsystem. Furthermore, the parent-child relationship is likely a key aspect that determines mental health in adolescents [8].

Research indicates that a positive relationship with a parent can be a stable and proximate source of support that can increase the psychological adjustment of the adolescent. Conversely, negative parent-child relationships can harm mental health in several ways, including a higher risk of psychological and physical illness. For example, a three-year study of adolescents found that family conflict significantly affected their sleep quality. Good sleep is a key factor in a teen's ability to handle stress. Therefore, these findings show the damaging effects of dysfunctional family interactions. This confirms that poor parent-child relationships negatively impact mental health. It also opens the door for more research to find effective ways to solve this problem.

According to attachment theory, a good family relationship provides a calm, stable, and emotionally supportive environment for a teenager to grow. When family members communicate positively and support each other, the teens' basic psychological needs are met. This helps them develop a secure internal "map" of relationships [9]. With this secure base, they can explore the outside world with more confidence [10]. In addition, a caring family environment fosters cognitive and behavioral flexibility, which serves as a protective factor against the onset of depression and non-suicidal self-injury (NSSI).

Poor parent-child relationships can lead to emotional detachment, causing adolescents to over-estimate negative information in the environment while also maintaining overly vigilant attention to their environment. This can lead to the development of an insecure internal working model, which consists of patterns of inflexible thinking, maladaptive coping methods, and negative attributional

biases [11]. These cognitive and emotional vulnerabilities are considered to be well-established risk factors for depression and NSSI. Thus, adolescents in poor parent-child relationships are more likely to experience greater depressive symptoms and more severe self-harming behaviours.

2.2.3. School and Societal Factors

According to ecosystem theory, aside from individual and familial factors, the school represents the most influential microsystem in adolescents' lives. Schools serve not only as environments for cognitive development and learning but also as critical settings for cultivating relationships with peers and teachers. Empirical studies have consistently demonstrated that both teacher-student relationships and peer interactions significantly predict adolescents' psychological well-being. Among these factors, unfair treatment by teachers and peer bullying have emerged as key research foci in contemporary literature.

Peer bullying, a negative form of peer interactions, refers to a person's experience of aggression from age mates and includes physical, verbal, relational bullying and theft. The research shows that peer bullying has long lasting negative effects on the social adjustment of adolescents, and also leads to internalizing issues (i.e. depression, anxiety, and social withdrawal) and externalizing problems (i.e. aggression, substance abuse, and delinquent behaviors). Moreover, adolescents who experience exclusion or discrimination in peer groups are at an increased probability of being victimized, especially when they are at a lower social status or lack peer acceptance.

Unfair treatment from teachers, or students' subjective assessment of the quality of their teacher-student relationship, is characterized by students' perceptions of inequitable treatment, lack of respect, or dishonest treatment from educational practitioners. Unfair treatment from teachers typically manifests as neglect, verbal abuse, or unreasonable chastisement, and reduces students' autonomy and dignity. The effects of unfair treatment from educators can hinder self-esteem, create self-doubt, and lower the ability of emotional empathy and toleration of others. As a result, students negatively affected by unfair treatment from educators may develop resentment towards peers and authority figures which can further exacerbate social inclusion difficulties.

In addition to schools and families, social factors - and specifically social media use - also potentially affect adolescents' health. Recent data found that 97.2% of minors were using the internet [11]. This clearly demonstrates the salient impact digital environments will have on youth development and their well-being. The association between media use and risk health behaviours has had mixed results. Social media platforms have the potential to distribute health-related information to people which will have positive effects to a degree (e.g., health literacy) and can even change health behaviour or two. However, when the use is either excessive or maladaptive, there is a large potential for risk. For instance, it was found by Mancinelli et al that smartphone uses correlates positively with non-suicidal self-injury (NSSI), where the authors found that individuals who spend three or more hours daily on social media are at a higher risk of self-harming behaviours [12].

Social media addiction, from a neurobiological standpoint, can create structural changes in the brain which increase the risk of depression. Li et al (2025) found that chronic social media usage may lead to volumetric loss of the amygdala, which is responsible for regulating emotions. Changes to the brain can lead to altered decision-making and emotional regulations, increasing the risk of feeling depressed [13]. Ultimately, the above studies demonstrate both the positive and negative attributes of social media, as well as the necessity of moderation of use in order to prevent detrimental effects on mental health in young people.

To expand on this, Zhang et al described that internet interpersonal addiction is an important contributor to adolescent depressive symptoms. Internet interpersonal addiction occurs when adolescents become involved in relationships and excessive dependence on social media sites, with negative consequences on psychological and social functioning. This phenomenon makes sense using the loss compensation hypothesis, which suggests excessive internet use serves a compensatory purpose when an individual encounters psychological developmental obstacles [14].

At a theoretical level, normal online behaviors are positive compensation, where an individual engages briefly with a positive Internet experience, and can return to function after a short period of

engagement. Poor coping strategies often do not lead to the appropriate psychological adjustment. This can divert a person's development and consequently lead to addictions related to the internet. Research indicates the dangers related to internet overuse. This is especially relevant amongst adolescents who tend to primarily rely on social media to communicate. Social media can fulfill essential psychological requirements such as social support, fulfillment, and a sense of accomplishment. The met psychological needs increase the likelihood of problematic use. Additional research supports the idea of a direct relationship between social media use and depressive symptoms; with greater social media use resulting in a greater likelihood of developing depressive symptoms.

Our modern world is characterized by rapid change, limited opportunities, and intense competition. In this high-pressure environment, people face increasingly complex social demands. Research suggests that different social media platforms lead to different kinds of social comparison, which in turn can cause anxiety and depression. This happens in two main ways. On one hand, users are constantly exposed to idealized posts about wealth and success. This can trigger negative emotions and a feeling of being left behind. On the other hand, people also use social media as a digital "tree hole" to share their personal struggles. Seeing others in similar situations can create a sense of connection, but it can also reinforce negative feelings about oneself.

The spread of digital technology has broken down geographic and socioeconomic barriers. This has created a limitless media landscape where the opportunities for social comparison have grown immensely. Now, information for comparison is easier to access, and there are far more people to compare ourselves to. Digital social networking platforms make it easy to engage in frequent, implicit, and spontaneous social comparisons through multiple media and formats such as curated pictures, short videos, and streaming videos. While users share curated social media content, they present idealized representations or ideal selves, creating a stark discrepancy between these digitally constructed selves and authentic reality.

This leads to concerning tendencies for comparison. When people consume manufactured images of beauty and success, they can't help but compare their everyday routine and normal lives to people's highlight reels. This triggers a cascading event of cognitive distortions, some of which are that the individual thinks other people have more fulfilling lives and possess better qualities. All of these distortions usually lead to negative self-appraisal and distressing emotional states. Therefore, social media is capable of creating an environment for negative cycles of comparison, which may perpetuate anxiety and depression.

Furthermore, continued exposure to idealized content reinforces the process of evaluating social status on the basis of comparative evaluations provided by platforms. The feelings and outcomes from constantly making these evaluations may also lead to longer-term and sustained psychological damage, such as developing anxiety, reduced self-esteem, and vulnerability to technology-related disorders (iDisorders). In addition to this, big data algorithms systematically supply more opportunities for comparison by displaying content that showcases social differences and social disparities. The algorithmic nature of succeeding instances of displayed content may agitate the uncertainty and insecurity of users and lead to greater unsafe feelings of vulnerability [15].

3. Future Research Directions and Implications

Adolescents' psychological well-being is shaped by many factors, such as individual characteristics, family dynamics, school environment, and societal contexts. To this end, future studies examining adolescent psychological well-being should take the following directions in order to enhance our understanding:

First, studies that examine the interaction between individual and familial factors. While a large body of research has examined the unique effects of either individual characteristics or family environments on adolescent psychological well-being, future investigations should explore their synergistic influences. For instance, studies may examine how specific family environments (e.g., authoritarian v. permissive parenting) work with adolescents' personalities (e.g., neuroticism or

resilience) on mental health outcomes. These studies could help explain why some adolescents are more vulnerable to psychological distress depending on which family environment they are in.

Second, encouraging longitudinal studies to evaluate the mental health impact of social media as it relates to the long-term psychological effects. So far, research has primarily looked at the short-term impact of social media, influencing the current understanding of effects that occur over long periods. It would be beneficial for future research to evaluate the systemic effects of long-term social media usage on the brain - i.e. neural plasticity change in brain regions associated with reward processing systems and social cognition - and the implications on long-term clinically relevant phenomena such as online addiction and cyber bullying, while also evaluating interventions to minimize systemic usage effects.

Third, including cross-cultural perspectives. Much of the existing research has focused on western populations, which limits the ability to effectively generalize the findings from contemporaneous social media impact research. Future research could set up a model of mental health trajectories across cultural contexts and how collectivism/individualism, familial expectations and sociocultural stressors affect mental health for adolescents.

Finally, encouraging collaboration between different fields is essential. By combining research from sociology, psychology, and neuroscience, we can build better models to support adolescent mental health. For instance, brain imaging can reveal the biological factors at play, while social analysis can identify environmental stressors. Linking these two gives us a much fuller picture of what affects a teenager's development.

4. Conclusion

Adolescents' mental health is a multifaceted issue that plays out in many ways. Understanding this involves examining the development of the individual in the context of the ecosystem, which involves a multitude of influences. There must be much more research paying attention to the influences of new factors, like social media. Cross-cultural comparisons will also help in understanding how adolescent mental health development occurs in different social contexts. Collaboration across the fields of psychology, education, neuroscience, etc., is critically important. There must be inter-disciplinary collaboration, but also systematically focused interventions. The paper presents a framework to further the study of adolescent mental health and well-being, and points out the important role that families, schools, and communities play in creating safe and supportive environments for positive adolescent development.

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