



UNIVERSITY OF PADOVA

Department of Developmental Psychology and Socialisation

**Master Degree
in Developmental and Educational Psychology**

Final dissertation

**The Role of Social Media Social
Comparison in Self-Esteem and Emotion
Regulation: A Study on Italian High
School Students**

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Academic Year 2024/2025

Abstract

This study investigates the role of social media social comparison in self-esteem and emotion regulation on Italian high school students, aged from 14 to 19 who participated in two online sessions, completing anonymous questionnaires. Participants completed validated scales, including the Rosenberg Self-Esteem Scale, the Difficulties in Emotion Regulation Scale-Short Form and Iowa-Netherlands Comparison Orientation Measure.

The results reveal a negative correlation between social media social comparison and self-esteem, with ability-based comparisons having a stronger impact than opinion-based ones. A positive correlation was found between social media social comparison and emotion regulation difficulties, with ability-based comparison showing a stronger link to emotional dysregulation. Additionally, self-esteem was negatively associated with difficulties in emotion regulation, with a stronger effect in females across all subscales. Regarding physical self-esteem, the findings confirmed a negative relationship with social media social comparison, particularly for ability-based comparisons, except for one subscale where no significant association was observed.

These findings underscore the potential impact of social media social comparison on adolescents. Given the limitations of self-reported data and sample attrition, future research should employ diversified methodologies and further explore the role of social media social comparison in adolescent body image and regulation of emotions.

Keywords: adolescent, self-esteem, social media, social media social comparison, gender differences, emotion regulation.

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CHAPTER 1

SELF- ESTEEM

1.1 THE CONCEPT OF SELF-ESTEEM

Self-esteem is a broad concept that has been extensively studied over the years. Its meaning has evolved, and its origins trace back to the 15th century (Bailey, 2003). It is one of the oldest constructs in scientific psychology. Self-esteem is the subjective assessment of one's worth (Donnellan et al., 2015), it contains all the judgments that a person can make about themselves. These judgments can pertain to one's being, actions, possessions, qualities, appearance and to whom one is attached, all of which can be perceived positively or negatively. Whether self-esteem is high or low depends on the balance between these positive and negative perceptions. If the positives outweigh the negatives, this leads to high self-esteem; conversely, if the negatives prevail, low self-esteem results (Bailey, 2003).

Given that self-esteem refers to a subjective evaluation, it does not reflect a person's objective talent or how others perceive them. Self-esteem is commonly associated with the feeling of being "good enough", but it does not imply necessarily feelings of superiority. Instead, it involves self-acceptance and self-respect (Orth & Robins, 2014). Evidence suggests that self-esteem tends to increase from adolescence to middle adulthood, peak at about age 50 to 60 years, and decline in old age (Orth et al., 2012; Orth & Robins, 2014).

Regarding gender, evidence suggests that men have higher level of self-esteem than women; this variable, though, does not seem to have any effect on the developmental trajectory of self-esteem, since both men and women show increases from adolescence

to middle adulthood and the declines in old age (Orth et al., 2010; Erol & Orth, 2011; Orth et al., 2012; Wagner et al., 2013).

While moderately stable, self-esteem is not immutable. Moreover, high self-esteem is considered a good predictor of success and well-being, significantly influencing life outcomes. Findings also suggest that high self-esteem fosters better social relationships and academic performance (Orth & Robins, 2014). Conversely, low self-esteem predicts antisocial behavior, eating disorders, depression and suicidal ideation (Ero & Orth, 2011).

To better understand the broad construct of self-esteem, it is important to distinguish between its level and stability. Self-esteem level refers to people's general or global sense of self-worth, which is typically assessed in laboratories or other formal settings. It reflects how people generally perceive themselves. Although these representations can change, such changes often occur gradually and over extended periods. In contrast, self-esteem stability refers to short-term fluctuations in self-worth that arise in response to life events. The stability of self-esteem is characterized by remaining unaffected by positive or negative occurrences, reflecting secure and well-anchored self-worth (Kernis, 2005). People with higher self-esteem stability tend to have a fairly stable sense of self-worth and to be less likely to encounter significant changes in their self-esteem in response to life events (Kernis et al., 2000; Kernis, 2005; Joshanloo, 2024). On the other hand, individuals with lower self-esteem stability encounter more fluctuations in their self-esteem, experiencing self-worth that changes based on success, failure and social interactions (Kernis et al., 2000; Joshanloo, 2024). Evidence shows that having a stable self-esteem has important influences on a better mental health and well-being, and less distress than people with unstable self-esteem (Kernis

et al., 2000; Kernis, 2005; Joshanloo, 2024).

1.1.1 Global and specific self-esteem

According to the literature, two types of self-esteem are recognized: global self-esteem (Brown & Marshall, 2006) and specific self-esteem (Harter, 2012).

Global self-esteem is the most commonly studied construct. These two forms of self-esteem are neither equivalent nor interchangeable. Since self-esteem can be considered an attitude, it is important to note that individuals may have distinct attitudes toward their general self-worth and toward specific facets of it (Rosenberg et al., 1995).

According to the self-determination theory (Ryan & Brown, 2006), global self-esteem results from satisfying fundamental psychological needs: autonomy, competence and relatedness.

Global self-esteem refers to a broad self-evaluation of one's worth, independent of specific contexts or domains (Sorjonen & Melin, 2024).

One of the most widely used measures of global self-esteem is the Rosenberg Self-esteem Scale (RSES) developed by Rosenberg (1965). Originally designed for high school students, it is now applied to people of all ages (Whiteside-Mansell & Corwyn, 2003). This 10-item scale includes an equal number of positively (e.g., feeling satisfied with life) and negatively (e.g., feeling like a failure) worded item. A study by Schmitt and Allik (2005) translated the scale into 28 languages across 53 countries, demonstrating its cross-cultural applicability despite some cultural variations (Park & Park, 2019).

Specific self-esteem, in contrast, relates to self-evaluations within specific domains. For instance, someone might have low academic self-esteem but high self-esteem in athletic

competence. This type of self-esteem tends to fluctuate based on successes or failures in particular domains (Gadbois & Bowker, 2007).

Shavelson et al. (1976) proposed four domains of specific self-esteem: (i) academic self-esteem (referring to performance and competence in work or school); (ii) social self-esteem (referring to social skills and acceptance by others); (iii) emotional self-esteem (favourable or unfavourable general evaluations of the self) and (iv) physical self-esteem (regarding one's physical appearance or abilities) (Rentzsch & Schröder–Abé, 2018). Studies reveal reciprocal effects between global and specific self-esteem (Sorjonen & Melin, 2024).

The construct of self-esteem has been conceptualized by unidimensional and multidimensional, hierarchical models. The unidimensional global self-esteem models see self-esteem as a one-dimensional construct (Rosenberg, 1965), while specific self-esteem is seen as a multidimensional construct encompassing various specific domains of self-esteem such as social, academic and physical self-esteem (Rentzsch & Schröder–Abé, 2018; Gong et al., 2024). The relationship between domain-specific and global self-esteem have been conceptualized according two theoretical perspectives. The multidimensional perspective of self-esteem suggests that individuals' perceptions of competence in specific domains shapes their global self-esteem (James, 1890; Gong et al., 2024). Consequently, individuals who feel more confident in relevant domains tend to have higher global self-esteem, whereas experiencing failure in important domains leads to lower global self-esteem due to negative domain-specific self-evaluations. This perspective highlights a bottom-up relationship between global and domain specific-self-esteem (Shavelson et al., 1976; Rentzsch & Schröder–Abé, 2018).

In contrast, affective models of self-esteem development (Brown et al., 2001) propose

that once established, global self-esteem remains stable and can influence domain-specific self-evaluations. It does so by amplifying or mitigating the impact of external feedback on these self-evaluations. According to these models, the relationship between global and domain-specific self-esteem follows a top-down approach (Gong et al., 2024).

Rentzsch and Schröder–Abé (2018) found in their study no support for neither the bottom-up approach nor the top-down approach since there was no trend where domain-specific self-esteem predicted global self-esteem or the opposite (Rentzsch & Schröder–Abé, 2018).

1.1.2 Implicit and explicit self-esteem

Implicit and explicit self-esteem are two key dimensions of self-esteem, differing in terms of awareness, measurement, and theoretical implications. Explicit self-esteem refers to a person's deliberate evaluation on their own worth. It involves the ability to make self-judgements based on experiences, beliefs and perceptions of their identity. Explicit self-esteem is typically measured through self-report questionnaires (e.g.; agreeing or disagreeing on a statement like "I feel good about myself") (Tafarodi & Ho, 2006). What makes self-esteem explicit is its conscious accessibility, meaning individuals can easily articulate their self-evaluations when asked. However, explicit self-esteem is susceptible to biases, like the social desirability bias, where individuals may present themselves more positively than what they truly feel due to personal insecurities and societal pressures.

Implicit self-esteem, on the other hand, is a more automatic and less conscious self-evaluation. Individuals may not be fully aware of these self-assessments, as they operate

at a subconscious level.. Implicit self-esteem is measured through indirect methods. Valid and reliable implicit measures of self-esteem are essential for self-esteem research; over the years various implicit measures have been developed, including priming techniques (Spalding & Hardin, 1999), word stem completion tasks (Pelham & Hetts, 1999), the evaluation of self-related objects (i.e., name letters, birth date numbers; Koole et al., 2001), and the Implicit Association Test (IAT) (Greenwald & Farnham, 2000; Gebauer et al., 2008), which assesses automatic associations between the self and positive or negative traits. For example, a person with high implicit self-esteem would associate themselves with positive words more quickly than with negative ones.

A notable implicit measure of global self-esteem, developed by Gebauer et al. (2008) and inspired by the Name-Letter Task, is the Name-liking measure. This measure is based on the mere-ownership effect, which is the tendency to evaluate self-related objects more positively than self-unrelated objects. This effect enables the implicit assessment of self-esteem because individual with high self-esteem tend to extend their positive self-evaluation to the evaluation of objects representing the self, without being aware that self-esteem is influencing these evaluations. The Name-liking measure consists of a single item in which participants are asked how much they like their own name. This measure has been found to be brief, easy to administer and score, and to demonstrate good reliability and validity (Gebauer et al., 2008).

Among researchers, there is an ongoing debate regarding the concept of implicit self-esteem. Some question whether it truly represents a distinct form of self-esteem, while others argue that it merely reflects unconscious attitudes about the self that may differ from one's explicit self-esteem (Tafarodi & Ho, 2006).

These two kinds of self-esteem are often correlated but can also diverge. For example,

an individual may consciously express high self-esteem (explicit) while unconsciously harboring negative self-association (implicit). This discrepancy can lead to inner conflict and people may experience self-esteem instability.

The distinction between implicit and explicit self-esteem highlights the complexity of self-worth as a psychological construct, suggesting that it exists at multiple levels of consciousness. Understanding the interaction between these two forms of self-esteem is crucial for comprehending how individuals perceive their own value and identity (Tafarodi & Ho, 2006).

1.2 SELF-ESTEEM AND ADOLESCENCE

Adolescence is a dynamic and complex phase during which individuals transition from being immature and dependent children to autonomous and socially responsible adults capable of contributing productively to society (Curtis, 2015; Wagner et al., 2024). This period is marked by lifelong changes in perceptions, beliefs, and values, with global self-esteem serving as an indicator of how adolescents navigate these transitions. Self-esteem plays a central role in the mental health of young people, making a healthy self-esteem essential.

A positive self-image and a strong sense of self-worth are more likely to help teenagers feel more content with their bodies. Additionally, self-esteem is considered a protective factor, contributing to better mental health and positive social behavior (O'Dea, 2012).

Self-esteem varies based on age and gender. Marshall (1991) found that females' self-esteem was influenced by health concerns, physical appearance, home and family issues, and school problems, whereas males' self-esteem was significantly affected by social and psychological relationships.

The development of self-esteem begins in early childhood. Coopersmith (1968) demonstrated that when a child is raised with respect, clear boundaries, and strong values, they tend to develop higher self-esteem, proving that environmental factors influence self-esteem formation. The environment, including family, peers, and teachers, plays a major role in an adolescent's life and self-esteem. Their evaluations and feedback help adolescents assess different aspects of themselves (Anderson & Olnhausen, 1999).

According to a meta-analysis by Orth et al. (2018), which included data from 164,868 participants across 331 independent samples, self-esteem levels increased between ages 4 and 11. This rise could be attributed to gains in personal autonomy and a growing sense of mastery, a mechanism also discussed in relation to self-esteem increases during adolescence (Orth et al., 2018).

During adolescence, self-esteem remains stable between ages 11 and 15 before beginning to rise at age 15. However, individual trajectories vary, with some adolescents experiencing decreases in self-esteem due to factors such as puberty, parental conflicts, and mood changes (Orth et al., 2018).

Developmental and sociocultural orientation factors also impact self-esteem, as adolescence is a critical period for identity formation. Labels assigned by peers or self-imposed contribute to self-concept development. Furthermore, adolescence is characterized by significant educational transitions that are crucial for development, such as the transition to secondary school (Scharf et al., 2020; Wagner et al., 2024). Academic performance during this period is a strong predictor of future educational opportunities and career paths (Becker et al., 2020; Wagner et al., 2024).

In a meta-analysis by Harris and Orth (2020) examining self-esteem and social

relationships, various indicators of relationship quality—such as warmth, closeness, support, relationship satisfaction, and social network size—were analyzed. The findings indicated that self-esteem predicted relationship quality, with a standardized regression coefficient of .08 after controlling for prior relationship quality (Harris & Orth, 2020; Orth & Robins, 2022).

Self-esteem and social relationships have been identified as crucial socio-emotional predictors of various life outcomes during adolescence and beyond (Wagner et al., 2024). The impact of self-esteem and social relationships on academic achievement may be primarily mediated by motivational processes and school-related experiences. For example, self-esteem could influence academic outcomes through self-affirmation and self-verification processes (Orth & Robins, 2022; Wagner et al., 2024), whereas a positive feedback loop within the school context could have the opposite effect.

A meta-analysis by Wagner et al. (2024) explored the longitudinal interplay between three developmental domains in adolescence: intrapersonal, social, and academic. The study found reciprocal associations between self-esteem and social relationships as well as between self-esteem and academic achievement. All these associations were positive and aligned with meta-theoretical perspectives, highlighting the longitudinal interdependence between self-esteem, social relationships, and achievement (Wagner et al., 2024).

Family plays a central role in shaping children's and adolescents' self-esteem (Harter, 2012; Krauss & Orth, 2024). Krauss et al. (2020) conducted a study examining the prospective effects of family environment on self-esteem development from ages 10 to 16. The study included 674 Mexican-origin families living in the United States and found that several aspects of the family environment significantly predicted self-

esteem development (Krauss et al., 2020). This study was later replicated and extended by Krauss and Orth (2024), but the original findings did not replicate. One possible explanation is the difference in sample populations: the original study focused on Mexican-origin families in California, whereas the more recent study used data from a White sample in Iowa. This suggests that family environment may play a more significant role in self-esteem development in cultures where family is central. Another possible factor is socioeconomic status, which was higher in the Krauss et al. (2020) study. Furthermore, differences in self-esteem stability may also explain the variation in findings, as higher self-esteem stability can make individuals less susceptible to external influences (Krauss & Orth, 2024).

1.2.1 Physical self-esteem and body image

Adolescents' perception of physical appearance is a strong determinant of self-esteem (Birkeland et al., 2012). The physical self plays a crucial role in self-perception, acting as a medium for social interaction and contributing to global self-esteem (Mañano et al., 2004). Van den Ber et al. (2010) found a strong correlation between body dissatisfaction and self-esteem across diverse adolescent groups. Fox (1990, 1997) introduced the Physical Self-Perception Profile (PSPP), which categorizes physical self-perception into five domains: sports competence, physical condition, body attractiveness, physical strength, and overall physical self-worth. Research identifies physical appearance and body attractiveness as the two primary dimensions of physical self-esteem (Hagger & Stevenson, 2010).

Academic performance, athletic ability, body weight, and body image all contribute to adolescent self-esteem. Body image, closely linked to self-esteem, is a lifelong concern

for many individuals. It is shaped by the gap between one's ideal body and perceived body size, often leading to dissatisfaction. Research indicates that males generally have higher self-esteem and lower body dissatisfaction compared to females (O'Dea, 2012). Adolescents become increasingly aware of bodily changes during puberty, with girls experiencing a significant increase in body fat, making them particularly susceptible to body dissatisfaction (O'Dea, 2012). Western research suggests that declining self-esteem in teenage girls is primarily due to concerns about body image. Media plays a substantial role in reinforcing unattainable beauty standards, often equating self-worth with physical appearance (Clay et al., 2005).

Body esteem, a related construct, refers to self-perceptions of one's body and is assessed using self-report questionnaires, interviews, or reactions to body-related words (Mendelson et al., 2001; Confalonieri et al., 2008). Mendelson et al. (2001) developed the Body Esteem Scale, comprising three subscales: Appearance, Weight, and Attribution. Confalonieri et al. (2008) adapted this scale for Italian adolescents, creating a 14-item version that remains a valid measure of body perception and weight satisfaction.

1.3 HIGH SELF-ESTEEM AND SELF-ESTEEM INTERVENTIONS

Research suggests that high self-esteem enhances adaptability and success in various domains, including relationships, academic and professional performance, mental and physical health, and prosocial behavior (Orth & Robins, 2022). High self-esteem fosters strong social networks and emotional support, leading to positive life outcomes. Given these benefits, self-esteem interventions may improve individual and societal well-being. However, such interventions must be carefully designed, as artificially induced

self-esteem may not yield the same positive effects as naturally occurring self-esteem. There is also a risk of promoting narcissism rather than genuine self-worth. Moreover, interventions should target individuals most at risk for low self-esteem, though these individuals may also exhibit resistance to intervention (Orth et al., 2022).

Recent intervention programs aim not only to enhance self-esteem but also to foster mindfulness and resilience. Krobtrakulchai et al. (2024) examined the effectiveness of an online mindfulness-based self-esteem intervention in Thailand, reporting significant improvements in self-esteem, mindfulness, and resilience. Similarly, Mohamed and Shehata (2023) conducted a successful social skills training program for adolescent girls in Egypt, enhancing self-esteem, emotional intelligence, and happiness. Cathlin and Salim (2024) implemented a self-esteem intervention among Indonesian college students, demonstrating positive outcomes. These studies suggest that well-designed interventions can effectively boost self-esteem across different age groups and cultural contexts, though long-term reinforcement is essential to sustain positive effects

1.3.1 The pursuit of self-esteem

Self-esteem plays a fundamental role in life and is essential for overall well-being. It is particularly important for positive mental health and functioning during adolescence (Moksnes & Reidunsdatter, 2019). Previous research suggests that self-esteem is also linked to better physical health. Individuals with high self-esteem tend to experience greater social inclusion, receive more support, and experience less stress, which in turn may contribute to improved mental health. However, it is also possible that individuals in better health have more control over their lives, achieve greater success, and thus enhance their self-esteem (Erol & Orth, 2011). The study by Moksnes and Reidunsdatter

(2019) highlights the reciprocal relationship between self-esteem and mental health, showing that self-esteem predicts depression, anxiety, and mental well-being, and vice versa.

Given that self-esteem is associated with both improved mental and physical health (Taylor et al., 1988, 2003) and stability in relationships (Murray et al., 2001), it is reasonable to assume that it should be nurtured (Vonk, 2013). However, some researchers argue that the pursuit of self-esteem—specifically, striving to meet personal beliefs about what is necessary to feel worthy—can have temporary benefits when achieved but comes at a high cost when it fails. While excellent performance may be driven by the pursuit of self-esteem, performance itself is not a fundamental human need, and there are other ways to achieve it (Crocker & Park, 2004).

Most psychological theories suggest that self-esteem is a pervasive force in human motivation, generally adaptive and linked to a variety of positive outcomes. The pursuit of self-esteem can encourage a range of prosocial behaviors and achievements, but it may also lead to antisocial behaviors, prejudice, and aggression. Therefore, the pursuit of self-esteem is neither inherently good nor bad but rather a mechanism through which individuals regulate their behavior and cope with existential challenges (Pyszczynski et al., 2004).

CHAPTER 2

EMOTION REGULATION

2.1 THE CONCEPT OF EMOTION REGULATION

Emotion regulation is a dynamic process that encompasses the temporal order of emotions and behavioral strategies (Cole & Hollenstein, 2018, p. 31). Thompson (1994) describes emotion regulation as the process of monitoring, evaluating and modifying emotional reactions to achieve a goal.

During this process, individuals employ strategies aimed at modifying the intensity and duration of emotions. These strategies evolve with age. For example, Kopp (1989) suggests that in infants reflexive actions such as rooting and sucking help regulate emotions. By six months, infants are able to shift their attention, which may allow them to divert it away from a distressing situation (Cole & Hollenstein, 2018, p. 32).

One of the researchers most interested in emotion regulation is Gross (1998), who defines it as a multi-faceted process that involves both automatic and controlled mechanisms, which can be either conscious or unconscious.

Emotions are not always contextually appropriate to the situation we are facing; therefore emotion regulation is essential. Importantly, emotion regulation is not limited to managing negative emotions, it involves regulating both positive and negative emotions (Gross, 1998). The goal of emotion regulation is to align emotional responses with a person's broader goals, social expectations, and situational demands.

2.1.1 Theoretical models of emotion regulation

The literature on emotion regulation is a relatively recent, yet various models have been proposed. These models can be broadly classified into two main categories: ability-based models and cybernetic, strategy-based models (Tammilehto, 2024).

Cybernetic models describe the temporal process of emotion regulation, explaining when and how individuals use different strategies to adjust their emotions, in terms of quality, intensity, duration, and expression. Ability-based models, on the other hand, take a broader perspective, focusing on how skills such as understanding and accepting emotions are critical for effective emotion Regulation (Tammilehto, 2024).

One well-studied ability-based ER model is the acceptance-based model, which posits that individuals' abilities to identify and label emotions are essential components of emotion regulation. This model evaluates difficulties across six meta-skills: emotional acceptance, emotional awareness, emotional clarity, access to effective ER strategies, control of impulsive behaviors, and engagement in goal-directed behaviors (Gratz & Roemer, 2004).

Another ability-based model is the integrative ER model, which emphasized that accepting both positive and negative emotions is essential for effective emotion regulation (Roth et al., 2019). This model highlights how emotions guide individuals in understanding their situations and choosing appropriate actions. It identifies three main ER styles: integrative ER, controlled ER, and emotion dysregulation (Roth et al., 2019). The first style, Integrative emotion regulation, entails adopting a respectful and receptive stance toward both positive and negative emotions without minimizing or ignoring them. The second style, controlled ER, involves using various strategies to regulate, suppress, or avoid emotions in response to perceived emotional pressure or

threats. The third style, emotion dysregulation, refers to a perceived inability to effectively manage emotions, leading to chaotic, overwhelming, and disorganized emotional experiences (Roth et al., 2019).

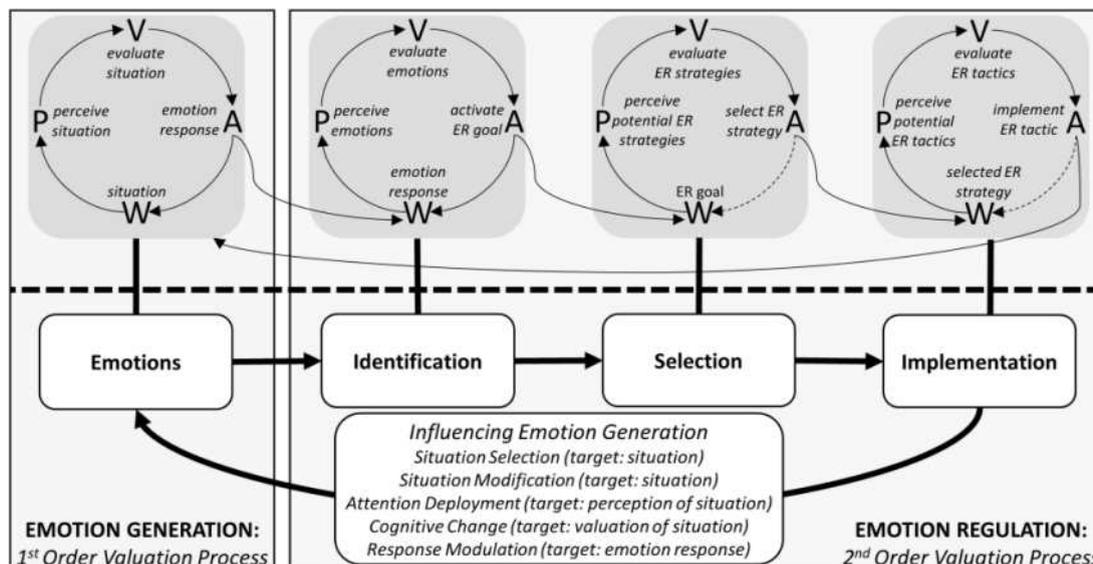
Cybernetic models of emotion regulation, in contrast, suggest that individuals compare their current emotional state to a desired state. These comparisons often lead to adjustments through the selection and implementation of regulation strategies to reduce discrepancies. Integrating cybernetic principles into the studying of emotion regulation provides a comprehensive framework (Tammilehto, 2024).

The most impactful cybernetic model of ER is the extended process model (Gross, 2015a, 2015b) which originates from the original process model (Gross, 1998). This version explores the temporal nuances of ER, emphasizing its dynamic and sequential nature. The extended process model of emotion regulation (see Picture 1) provides a detailed structure for understanding how emotion regulation occurs through three interconnected stages: identification, selection, and implementation (Gross, 2015a). Each stage is guided by a dynamic cycle comprising four components: world, perception, valuation, and action. Emotions are initially generated when an emotion-eliciting situation (world component) activates the first-order valuation process. This situation is then perceived and evaluated. Emotions become the input for the next stage, represented as the current emotional state and compared to a desired goal state in the perception component. The valuation component assesses whether regulation is required. If a significant discrepancy exists, an emotion regulation goal is activated.

In the selection stage, potential strategies to achieve the regulation goal are identified and mentally represented. These strategies are evaluated based on factors such as the situation's controllability, available cognitive resources, and the type of emotion being

regulated. The most appropriate strategy is then selected.. In the implementation stage, specific tactics for the selected strategy are identified and executed. These tactics are evaluated for their effectiveness in regulating emotions, and the most suitable one is executed to achieve the desired goal state.

These stages operate as valuation cycles, which continue until the discrepancy between the current emotional state and the desired state is resolved. If discrepancies persist or new emotional challenges arise, the cycle adjusts and restarts as needed (Gross, 2015a; Tammilehto, 2024).



Picture 1. Illustration of extended process model of emotion regulation

(Gross, 2015a)

2.1.2 Emotion regulation strategies

In line with the original and extended process model, emotion regulation strategies are categorized based on the component of the emotion generation process in which they occur (Gross, 1998, 2015a; Tammilehto, 2024). strategies are classified as antecedent-

focused when they modify emotions before the full experiential response emerges. Conversely, when emotions are modified after the full experiential response, the strategies are labeled as response-focused. Three common ER strategies are reappraisal, suppression, and rumination. Reappraisal involves modifying one's mental perceptions of situations that trigger emotions. Suppression, or expressive suppression, is a prototypical response modulation strategy, in which individuals suppress and hide the outward expressions of their emotions from others. Finally, rumination is an attention deployment ER strategy, where individuals consistently focus on negative thoughts, events, emotions, and stimuli (Gross, 2015a; Tammilehto, 2024).

2.1.3 Behavioral strategies in implicit and explicit emotion regulation

Emotion regulation can be differentiated in explicit and implicit processes. Explicit emotion regulation involves deliberate effort, whereas implicit emotion regulation occurs automatically, without conscious intent (Mulyati & Supriatna, 2020).

Braunstein, Gross and Ochsner (2017) propose a multi-level framework for implicit and explicit emotion regulation, organized along two orthogonal psychological dimensions: the nature of the regulation goal (implicit vs. explicit) and the nature of the emotion change process (automatic vs. controlled). These dimensions create a two-dimensional space that outline four classes of emotion regulation strategies, emphasizing how different combinations of goals and processes result in distinct strategies, characterized by unique behavioral, psychological, and neural features. The regulation goal dimension differentiates between implicit and explicit goals. Implicit goals are initiated without conscious awareness. Three types of implicit goals are identified; (i) primed goals, activated by external cues; (ii) chronically active goals that

are always active and essential for survival; and (iii) incidental goals that occur when a task unrelated to emotion regulation alters emotional responses as a side effect. While it can be challenging to determine which implicit goal drives emotion regulation, they share the characteristic of supporting regulation without requiring conscious decision-making.

Explicit goals, on the other hand, are consciously held and involve a deliberate intention to change one's emotional state, such as deciding to feel happier (Braunstein, Gross & Ochsner., 2017).

The emotion change process dimension distinguishes between automatic and controlled processes. Automatic processes operate without conscious effort, require minimal cognitive resources, and often result from gradual, experience-based changes. Controlled processes, by contrast, demand cognitive effort and involve top-down mechanisms such as attention, working memory, and deliberate decision-making.

By combining these two dimensions, the framework distinguishes four different classes of emotion regulation strategies: explicit-controlled, implicit-controlled, implicit-automatic and explicit-automatic (see Picture 2).

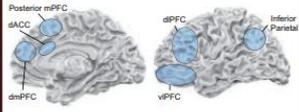
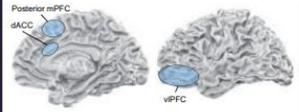
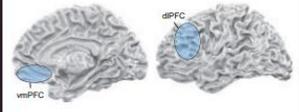
Explicit-controlled strategies, involve a conscious goal to regulate emotion and rely on intentional, effortful processes. Examples include selective attention, distraction and reappraisal. Reappraisal involves intentionally altering how one interprets a stimulus to alter individual's emotional response to it. This strategy can adjust the intensity, quality or duration of emotional responses in accordance with regulation goals (Gross, 2015).

Implicit-controlled strategies involve unconscious goals but require controlled processes. Two types of strategies are identified: strategies where the regulatory goal is

incidental and regulation occurs as a byproduct of top-down control for another task (e.g., emotional Stroop, affect labeling) and strategies driven by implicit goals that are externally-generated (e.g. through priming) or internally-generated (e.g. by a chronically active goals).

Explicit-automatic strategies involve an explicit goal to change emotion, but rely on automatic processes. An example is the placebo effect, where the expectation of treatment efficacy alters emotional responses without ongoing conscious effort or on top-down control processes. Implicit-automatic strategies rely on unconscious goals and automatic processes. Two main strategies are extinction and reinforcer revaluation. Extinction is learning through experience that a conditioned stimulus is no longer associated with an unconditioned stimulus. Reinforcer revaluation occurs when a stimulus previously associated with a certain outcome is reinterpreted to predict a different outcome.

This framework enhances our understanding of variability in emotion regulation across individuals and contexts, offering a comprehensive perspective on the science of emotion regulation (Braunstein et al., 2017).

Emotion regulation	Neural systems	Strategies	Representative paper	Review (if available)
Explicit-Controlled		Reappraisal	Ochsner et al., 2002	Ochsner et al., 2012
		Selective attention	Critchley et al., 2000	Ochsner and Gross, 2005
		Distraction	Van Dillen et al., 2009	Ochsner and Gross, 2005
Implicit-Controlled		Affect labeling	Lieberman et al., 2007	
		Emo. Go/no-go & Stroop	Hare et al., 2008; Etkin et al., 2006	Buhle et al., 2010
		Automatic goal pursuit	Mauss et al., 2007 (behavioral study)	
Implicit-Automatic		Reversal learning	Rygula et al., 2010	
		Extinction	Phelps et al., 2004	Dunsmoor et al., 2015
Explicit-Automatic		Reinforcer reevaluation	Pickens et al., 2003	Pickens and Holland, 2004
		Placebo	Wager et al., 2004	Wager and Atlas, 2015

Picture 2. Four classes of emotion regulation, their neural systems, and behavioral strategies. (Braunstein et al., 2017)

2.1.4 Emotion regulation measures

Developed within Gross’s process model, the Emotion Regulation Questionnaire (ERQ) is a widely used tool to assess individual differences in emotion regulation.. It primarily focuses on two specific strategies for regulating emotional experiences: reappraisal and suppression (Gross, 1998; Ruan et al., 2023).

Another widely used self-report measure of emotion regulation is The Difficulties in Emotion Regulation Scale (DERS), developed by Gratz and Roemer (2004). Originally designed to assess clinically relevant emotional difficulties, the DERS has also been used to examine developmental processes such as identity development, procrastination, social participation, academic motivation and performance. This measure demonstrates good reliability and validity with adolescents (Kaufman et al., 2016).

The DERS comprises 36 items across six subscales (Gratz & Roemer, 2004). The first subscale is the nonacceptance of emotional responses which indicates a predisposition toward negative secondary responses to negative emotions and/or to deny experiencing distress. The second subscale is the difficulties engaging in goal-directed behavior scale which reflects challenges in focusing and completing tasks when experiencing negative emotions. The third subscale is the impulse control difficulties subscale that indicates difficulties to regulate behavior during emotional distress. The fourth subscale is the lack of emotional awareness scale which reflects inattentiveness to emotional states. The fifth subscale is the limited access to emotion regulation strategies scale that assesses beliefs about the inability to manage emotions effectively when upset. Finally, the sixth and last subscale is the lack of emotional clarity which reflects uncertainty about one's emotional experiences (Kaufman et al., 2016).

The use of this more context-dependent measure of emotion regulation difficulties offers advantages over more limited examinations of specific emotion regulation strategies (Ruan et al., 2023).

While the DERS provides a context-dependent assessment of emotion regulation difficulties, its items can feel repetitive, potentially leading to participant fatigue. To address this, Kaufman et al. (2016) developed the DERS-SF, a shorter version that maintains the psychometric properties of the original measure while reducing the number of items by half.

2.2 EMOTION REGULATION IN ADOLESCENTS

Adolescent emotional experiences differ significantly from those of children and adults, with emotion regulation playing a critical role in navigating developmental changes and

new emotional challenges.. Major developmental tasks in adolescence entail significant regulatory challenges, as emotion regulation influences social relationships, well-being, psychopathology and maladaptive behaviors (Fombouchet et al., 2023).

Adolescents experience varying changes in the intensity and lability of emotions, depending on the specific emotion in question. For example, Maciejewski and colleagues (2015, 2017) identified negative quadratic patterns in the intensity of anger, sadness, and anxiety throughout adolescence. They found that anger peaked in mid-adolescence, while sadness and anxiety were more intense in late adolescence. The lability of anger and sadness decreases steadily over the course of adolescence. In contrast, the lability of anxiety follows a cubic trajectory, reaching its highest point in early adolescence and its lowest point in late adolescence (Macejewski et al., 2015, 2017; Fombouchet et al., 2023)

The development of emotion regulation is closely linked to executive functions, which include higher cognitive processes that control thoughts and actions to achieve goal-directed behaviors (Fombouchet et al., 2023; Miyake & Friedman, 2012).

During adolescence functions such as inhibition and set-shifting continue to mature into adulthood, enabling adolescents to use appropriate strategies in each situation and expanding the range of available strategies. However, the heightened intensity of emotions in social contexts may temporarily impair adolescents' ability to regulate emotions effectively Evidence highlights the sensitivity of neural circuits involved in affective responses to contextual factors, particularly during adolescence (Guyer et al., 2016; Fombouchet et al., 2023)

There are several factors influencing emotion regulation such as age, so that older adolescents report experiencing less anger than younger teens (Blanchard-Fields &

Coats, 2008; Mulyati & Supriatna, 2020). Another important factor that has a big influence on emotion regulation is family. Both parents and peers play significant roles in shaping adolescents' emotion regulation through mechanisms like emotion socialization. This process involves social, verbal and embodied practices through which caregivers model and reinforce typical ways of understanding and expressing emotions (Cekaite & Ekström, 2019; Fombouchet et al., 2023)

As adolescents gain autonomy, the parent-child relationship evolves, with adolescents relying more on intrinsic emotion regulation rather than parental guidance (Cole et al., 2004; Morris et al., 2007; Fombouchet et al., 2023).

Parent-adolescent relations reorganize themselves as the autonomy of the adolescent increases. Parental emotion socialization happens through parental general practices, emotion specific practices and through the emotion regulation of the parent itself (Morris et al., 2007; Fombouchet et al., 2023).

Reducing the significance of adolescents' emotions (override) and disapproving or criticizing adolescents' emotion (punitive) are parental responses to negative emotions that result in the adolescents' emotion regulation abilities to increase. Conversely, mirroring and amplifying adolescents' emotion (magnification) and neglect predict a decrease in adolescents' emotion regulation abilities. (Miller-Slough & Dunsmore, 2019; Fombouchet et al., 2023)

Overall, evidence demonstrates that the emotion regulation of both parents and adolescents influences one another, emphasizing the adolescent's active role in emotional socialization.

Besides family, peers are also a major influence on the adolescent's emotion regulation processes. Research has shown peer influences as something negative for adolescents,

such as peer pressure and its consequences related to rejection and disapproval (Sahi et al., 2023).

Peer relationships can be more than that, these relations are a vital source of social support across life, particularly during adolescence, where they can help modify reactions, perceptions and physiological responses. Positive peer interactions are linked to reduced cortisol levels and diminished neural activity in brain regions associated with social distress (Eisenberger et al., 2007; Masten et al., 2009; Sahi et al., 2023).

However, gender differences exist. For example, adolescent girls perceiving punitive reactions from friends report more emotion regulation difficulties than boys. They also perceive a decrease in friends' punishment and an increase in supporting reactions to negative emotions. Instead, adolescent boys perceiving magnification and overriding reactions from their friends show fewer emotion regulation difficulties (Miller-Slough & Dunsmore, 2019; Fombouchet et al., 2023).

2.3 EMOTION REGULATION AND SELF-ESTEEM

Self-esteem plays a vital role in increasing well-being and in reducing negative affect (Bajaj, Gupta, & Pande, 2016). A strong connection exists between emotion regulation and self-esteem, with adaptive emotion regulation serving as a buffer for individuals with low self-esteem (Bajaj, Gupta, & Pande, 2016; Gomez et al., 2018).

Many studies have shown how there is a link between emotion regulation and self-esteem. Starting from the evidence that men and women differ in their emotion regulation (Kwon et al., 2013), these differences should also emerge in the relation between emotion regulation and self-esteem. For example, Gomez et al. (2018) aimed to discover any differences in emotion regulation relating to self-esteem in young adults.

This study also examined the role of gender hypothesizing that men would have higher self-esteem than women and that women would show better emotion regulation than men. Furthermore they looked at the link between emotion regulation and self-esteem, expecting this relation to be stronger for women than for men (Gomez et al., 2018). Self-esteem was assessed with just one question resulting in being one of the limits of the study. Emotion regulation was measured with DERS. The results reported that men had significantly higher self-esteem than women, but conversely to the hypothesis there were no gender differences in emotion regulation. Despite this lack, there were differences in how emotion regulation was related to self-esteem for men and women, in fact from the correlations by gender was noticeable how the clarity, strategies, and goals subscales were significantly correlated with self-esteem for men, instead self-esteem was significantly associated with nonacceptance, awareness, strategies, and clarity for women. (Gomez et al., 2018).

Another study by Shafir et al. (2016) examined the relationship between self-esteem and emotion regulation choice in an evaluative context. This study hypothesized that individuals would choose emotion regulation strategies calibrating first costs and benefits. The sample of the study included 41 college students, 16 men and 25 women. The participants, with different levels of self-esteem, gave an impromptu speech, rated their performance using various evaluative dimensions (e.g. likert scale), this evaluation was used as an index to measure the level of perceived failure: where lowest scores meant higher perceived failure.

Later participants chose between disengaging attention from emotional processing (distraction) and engaging with emotional processing by changing its meaning (reappraisal), waiting also to receive a feedback on their performances (Shafir et al.,

2016). The main goal of the study was to evaluate the moderating role of self-esteem in the relation between self-perceived performance and emotion regulation choice.

Previous studies (Campbell et al., 1996) suggested that individuals with high levels of self-esteem are more able to accept their negative emotion, whereas those with low level of self-esteem refrain from the engagement with self-evaluation information because it would involve a painful confrontation with their self-concept.

Based on these evidences, Shafir et al. (2016) predicted that participants with lower levels of self-esteem would not be enough able to balance the cost and benefits of distraction and reappraisal when regulating negative emotions that emerge from poor perceived performance. In particular they expect that those with lower levels of self-esteem would prefer the short-term benefits of distraction rather than long-term adaptation effects that are inherent in reappraising negative feedback (Shafir et al., 2016). After implementing emotion regulation strategies, participants completed the Rosenberg Self-Esteem Scale (RSES) to evaluate their levels of self-esteem. Overall, participants reported their performance as neutral and chose more to reappraise than distract, participants also reported a moderate level of self-esteem.

Sharif et al. (2016) also investigated if the self-esteem was a moderator in the perceived performance on choosing of the regulation strategies. The results found that the interaction between self-esteem and perceived performance was significant.

Results showed that individuals with low self-esteem were more likely to choose short-term regulatory strategies (e.g., distraction) over long-term adaptive strategies (e.g., reappraisal) when confronted with perceived failure. This suggests that individuals with lower self-esteem prioritize immediate relief from emotional discomfort, while those with higher self-esteem are better equipped to engage in strategies that yield long-term

benefits (Shafir et al., 2016).

During adolescence, factors such as social isolation, lack of affection, dysfunctional family environments, and unhappiness often drive adolescents to distance themselves from their families, often leading them toward delinquent, aggressive, and rule-breaking behaviors (Ho et al., 2015; Khatami et al., 2023). One prominent characteristic found in adolescents in correctional institutions is emotion regulation.

Khatami et al. (2023) examined the relationship between emotional regulation, anger control skills, and self-esteem in adolescents at the Correctional Center of Tehran. The sample included 123 adolescents, aged 12 to 17 years. The results revealed that anger and self-esteem were significant predictors of emotion regulation in the adolescents at the juvenile correction and education center in Tehran. The study also showed that as emotional regulation increased, anger control skills improved, and self-esteem heightened. Adolescents who were better at regulating their emotions had higher self-esteem and were more skilled at controlling anger. These findings support the idea that the relationship between emotional regulation and self-esteem in adolescents is bidirectional rather than unidirectional (Khatami et al., 2023).

Another study investigating emotion regulation, self-esteem and aggression in adolescents was conducted by Uzun et al. (2023) on a sample of sexually abused adolescents. Previous research has established a link between mistreatment and emotion dysregulation in children who are victims of interpersonal trauma (Ulman et al., 2014; Uzun et al., 2023). Uzun and colleagues' study included 104 adolescents who had been sexually abused and 91 adolescents in a control group with similar characteristics to the experimental group. The results showed that abused adolescents used more dysfunctional emotional regulation strategies and had lower self-esteem compared to the

control group, though there was no significant difference in anger levels. Additionally, dysfunctional emotion regulation strategies were associated with higher levels of aggression (Uzun et al., 2023). These findings emphasized the importance of functional emotional regulation and highlight how personal traumas, such as sexual abuse, can severely impact self-esteem (Kim et al., 2017 ; Uzun et al., 2023).

CHAPTER 3

SOCIAL MEDIA SOCIAL COMPARISON

3.1 THE CONCEPT OF SOCIAL MEDIA SOCIAL COMPARISON

The process of comparing oneself with others is known as social comparison (Festinger, 1954). This phenomenon can be categorized into two forms: social comparison of ability and social comparison of opinion. Social comparison of ability refers to comparing achievements and performances; it entails judgements and competition. It focuses on establishing how well one is doing compared to others (Festinger, 1954; Suls et al., 2002; Yang et al., 2018). An example of this social comparison is the grade comparison that happens among students to affirm their academic performances.

On the other hand, social comparison of opinion involves the comparison of thoughts, attitudes, values, and beliefs, without the judgments and competition found in social comparison of ability. This social comparison has the goal to learn new facts and social norms, constructing one's value system and regulating behaviors. An example could be when an individual is confronted with a problem, social comparison of opinion helps to understand how another person would act in that same situation (Festinger, 1954; Suls et al., 2000; Yang et al., 2018).

Social comparison is becoming increasingly relevant in this era, as the digital age evolves. Social media platforms (e.g. Facebook, Instagram, etc.) give easy access for people to share their lives, creating numerous opportunities for social comparison.

The existing literature provides few insights into social media social comparison, especially in social comparison of opinion. Many studies, though, show negative relations between online social comparison and various psycho-emotional outcomes (de

Vries & Kühne, 2015; Feinstein et al., 2013; Lee, 2014; Lim & Yang; 2015; Vogel et al., 2014; Weinstein, 2017; Yang et al., 2018).

In the study by Yang et al. (2018), the scale used to measure social comparison activities on social media is the nine-item Iowa-Netherlands Comparison Orientation Measure by Gibbons and Bunk (1999) readapted. Originally it was developed to measure an “orientation”, but since this construct is correlated with online social comparison behavior (Lee, 2014), the scale can be used as a measure of online social comparison activities after modification. To each item, “when using social media” or “on social media” was added. With this scale, participants had to understand to what extent they tend to compare themselves with other people when using social media and had to indicate how well the item applied to them on a 5 point Likert scale (1 = Not at All, 5 = Very Well). An item of the social media social comparison of ability scale was “On social media, I compare what I have done with others as a way to find out how well I have done something” and an item of social media social comparison of opinion scale was “On social media, I try to know what others in a similar situation would do” (Yang et al. 2018).

Social comparison can be defined in two ways: as a stable motivation of an individual, where some people have a tendency (trait-level social comparison) to monitor their status and position within social networks (Strahan et al., 2006; Want, 2009); or as a contextual mechanisms through which people engage in upward, downward, or lateral comparison with a target (Tiggemann et al., 2009). These contextual mechanisms include state-level social comparison and alterations of the environment that affect self-other comparison (Want, 2009; Pan & Peña, 2024). People differ in the way they engage in social comparison and Social comparison Orientation is an aspect that reflects these

differences (Gibbons & Buunk, 1999; Vogel et al., 2015).

Social media are the perfect space in which social comparison can take place. Vogel et al. (2015) suggest that individuals high in SCO (social comparison orientation) could be more likely to use social media and be more affected by the comparisons that one makes there. The reason for the use might be the abundance of comparisons that happen; moreover, people with higher SCO could experience negative effects from upward social comparisons on social media. This study addressed two research questions: the first was to study the relationship between SCO and Facebook use; the second was to investigate the different effects of social comparison on Facebook for people with different SCOs.

The research was conducted with college students and the results showed, to answer the first research question, that students with high SCO used Facebook more than those with low SCO. Concerning the second research question, results demonstrated that participants with high SCO who used Facebook and probably engaged in social comparison, reported poorer trait self-perceptions, lower self-esteem and poorer affect balance than participants low in SCO who also had the opportunity to use Facebook and visit others' profile (Vogel et al., 2015).

3.1.1 Social comparison theory in social networking sites

Festinger (1954) was the first to propose the Social comparison theory. This theory has two different focus areas. The first area is Selection, choosing a comparison target; the second area is Reaction, the effect of the comparison on affect and self-evaluation (Gerber et al., 2018; Tandon et al., 2024). Social comparison theory indicates that there are two directions of comparing oneself to others: upwards, when comparison happens

with people viewed as higher in the social hierarchy as objects of longing, and downwards, with people viewed as lower in the hierarchy. An extension of social comparison theory adds another direction in which people can make comparisons, which is lateral. Lateral comparisons are those in which individuals compare to others whom they perceive to be at their same level in that particular field of interest (Wills, 1981; Fardouly, 2016).

In Social networking sites (SNS) environments, social comparisons seem to be upward comparisons (Gerber et al., 2018; Meier & Johnson, 2022; Tandon et al., 2024). A reason for this could be attributed to people's ability to recreate online only the best version of their lives, focusing on joyous moments (Latif et al., 2021; Tandon et al., 2024).

Excessive upward social comparison can lead users to experience more envy (Meier & Johnson, 2022), where envy can be defined as “an unpleasant, often painful emotion characterized by feelings of inferiority, hostility, and resentment caused by an awareness of the desired attribute enjoyed by another person or group of persons” (Smith & Kim, 2007, p. 46; Tandon et al., 2024).

Moreover, envy is defined as a dispositional emotion, since it can be experienced by individuals differently (Wu & Srite, 2021; Tandon et al., 2024).

According to the study of Latif et al. (2021) upward comparisons can create two types of envy: benign or malicious. Benign envy can inspire people to take on challenges and work on self-improvement by enhancing their own skills or advantages (Van de Ven, 2016; Van de Ven et al., 2009), while malicious envy can lead to a threat-focused response, such as spreading negative gossip about an SNS friend (Tariq et al., 2019; Van de Ven, 2016; Van de Ven et al., 2009; Weng et al., 2020).

Both types of envy are feelings of inferiority but benign envy results in desiring the same advantage of comparison target, whereas malicious envy results in a wish for the comparison target to lose the advantage (Lange & Crusius, 2015; Van de Ven et al., 2009; Latif et al., 2021).

Other than experiencing envy based on others content, SNS users may want to provoke envy in other with their own content. “Expected envy of others” is defined as the expectation of the SNS user that the other will feel envious for their contents (Tandon et al., 2024). However, the literature on this topic is still very small, studying both experienced and expected envy will allow to understand the role of envy set in motion by social comparison processes on SNSs.

These platforms are used by people for the only purpose of making social comparisons specifically while viewing others' posts and photos (Lee, 2014). Research suggests that people tend to present themselves in their profiles on SNSs in a more favorable way (e.g., Nadkarni & Hofmann, 2012; Rosenberg & Egbert, 2011). This means that this social comparison would be biased and done more in an upward direction and that these upward social comparisons on social media would have negative consequences. In fact, evidence shows that chronic and temporary upward social comparisons on SNSs are associated with negative consequences such as changes in depression (Feinstein et al., 2013), self-esteem (Kalpidou, et al., 2011; Lee, 2014; Vogel et al., 2014), self-evaluations (Haferkamp & Kramer, 2011), and well-being (Kross et al., 2013; Vogel et al., 2015).

Although, not all social comparisons on social media affect users equally, this was proved by the study of Ozimek et al. (2023) which investigated how different types of social comparisons on Instagram—specifically ability-based versus opinion-based

comparisons—affect users' subjective well-being. Given the widespread use of SNSs, this study sought to determine whether comparing abilities (e.g., achievements, skills) leads to lower well-being than comparing opinions (e.g., personal beliefs, preferences). The findings revealed that the exposure to ability-based social comparisons led to lower subjective well-being compared to opinion-based comparisons. The study aligned with previous research (Park & Baek, 2018) and suggested that ability-based comparisons increase negative emotions such as envy and decrease life satisfaction. Conversely, opinion-based comparisons appeared to have a less harmful impact, potentially allowing for more constructive engagement with social media (Ozimek et al., 2023).

3.1.2 Social media and adolescents

Nowadays, social media is a fundamental part of everyday life. Photo and video-based platforms are growing in the number of registered users and daily active users (Pew Research Center, 2021; Pan & Peña, 2024).

Social media have drastically impacted the adolescence experience. Over the years, adolescents have been the first adopters and most enthusiastic users of social media.

Recent data reports that social media use is almost universal among adolescents, with 95% having access to a smartphone, 94% using the internet multiple times a day, and 46% being online "almost constantly" (Vogels et al., 2022; Weigle & Shafi, 2024).

On average, teenagers use social media for 1 hour and 27 minutes per day as part of 7 hours and 22 minutes per day of entertainment screen time (Rideout & Robb, 2022).

The most popular social media platforms among teenagers are Tiktok, Instagram, and Snapchat (Vogels et al., 2022; Weigle & Shafi, 2024). A rapid rise in depression and anxiety (Lebrun-Harris et al., 2022) led to questions about the effects of social media

use on the mental health of youth.

The link between social media use and adolescent mental health has been extensively studied through numerous correlational studies in recent years. Most research indicates that increased time spent on social media is associated with poorer mental health among youth, though some studies have found no correlation, and a few have reported the opposite. Meta-analyses of existing studies suggest a significant negative association between social media use and adolescent well-being, with an effect size ranging from small to moderate (Valkenburg, et al., 2022; Weigle & Shafi, 2024).

Users who experience higher levels of social comparison induced by social media tend to show a decline in well-being, a pattern consistently observed in cross-sectional, longitudinal, and experimental studies (Verduyn et al., 2020; Weigle & Shafi, 2024).

Jarman et al. (2024) examined in a sample of adolescents direct and indirect effects between social media use and body satisfaction, using thin-ideal and muscular-ideal internalization and social comparison. The adolescents completed three survey over 1 year. They found indirect effects but no direct effects. Social comparison mediated the relationships, whereby higher social media use predicted higher comparisons, which in turn predicted lower body satisfaction (Jarman et al., 2024).

The effects of social media consumption are still debated among researchers. Recent literature has not been conclusive in answering this question. Even though small steps are being made, they seem to be close to reaching a consensus on whether, for whom, and why the usage of social media has damaging effects on aspects of adolescent psychological well-being (Fumagalli et al., 2024).

3.1.3 Appearance social comparison on social media

Studies have shown that social media use, particularly Instagram, is associated with body dissatisfaction and self-objectification since it gives people an opportunity to compare themselves to attractive content creators and models (Cohen et al., 2019; Fardouly & Holland, 2018; Pan & Peña, 2024; Tiggemann & Anderberg, 2019). These appearance-based social comparisons remain an important focus in research on body dissatisfaction because people, particularly women, constantly compare their and others' self-appearance (Leahey & Crowther, 2008).

One study by Fardouly et al. (2015) investigated the relationship between the frequency of Facebook usage and concerns about body image among female university students and studied whether appearance comparisons in general or comparisons to various target groups (i.e., close friends, family, distant peers, celebrities/models) on Facebook account for this relation. This study found that Facebook usage was positively associated with concerns about body image among female university students, and this relationship was mediated by the tendency to compare appearances on Facebook, by the frequency of comparisons to peers (both close friends and distant peers) on Facebook, and by the direction of comparisons to distant peers and celebrities on Facebook (Fardouly et al., 2015a; Fardouly, 2016).

The media often portrays women in a sexually objectifying manner, focusing on their appearances rather than their personality or skills (Aubrey & Frisby, 2011; Baker, 2005). These sexual objectifications, according to objectification theory (Fredrickson & Roberts, 1997), can lead women to view their body as an object to be admired. Objectification theory suggests that self-objectification can bring negative outcomes such as body shame and anxiety, that can lead to depressive symptoms, sexual

dysfunction and eating disorders (Fredrickson & Roberts, 1997).

Another study by Fardouly et al. (2015) investigated the relationship between the usage of different types of media and self-objectification in young women; it also explored whether appearance comparisons are mediator to any relationships between media usage and self-objectification. Furthermore, it studied if appearance comparisons to specific target groups on Facebook mediate any relationship between Facebook usage and self-objectification. The results showed that both Facebook and magazine usage were positively associated with self-objectification among young women and the tendency to compare appearance in general mediated these relationships. Moreover, the frequency of appearance comparison to peers mediated the relationship between Facebook usage and self-objectification (Fardouly et al., 2015b). Both studies of Fardouly et al. (2015a, 2015b) suggest that important appearance comparison targets on Facebook are peers.

The directions and the intensity of social comparison can be measured explicitly or implicitly (Gerber et al., 2018). Explicit social comparisons involve direct contact with the participant where, for example, a researcher could ask to compare themselves with a target or could provide an explicit comparison question. Implicit social comparisons, instead, involve more steps where the participants are provided with a comparison target but the participant is not told to compare with them. (Lin & Kulik, 2002; Pan & Peña, 2017, 2020). A study that used explicit social comparison, is the study by Pan and Peña (2024), which examined whether explicit social comparison interacted with the exposure to models, that differed in attractiveness and weight status, in influencing behaviors to lose weight in women and men. This study showed that the physical attractiveness of online models consistently influenced observers' planned behaviors and self-efficacy for weight loss through social comparison effects. Furthermore, among

women, exposure to lower-weight models resulted in the highest self-efficacy for weight loss, whereas among men, exposure to higher-weight models had the same effect. Notably, women who were not given explicit social comparison instructions exhibited greater planned behaviors for weight loss, suggesting a boomerang effect in women but not in men.

In conclusion, the impact of social comparisons differed between genders, and explicit instructions on social comparison continued to produce unintended consequences. Therefore, the study suggests that health practitioners should exercise caution when developing media messages promoting body positivity and designing body acceptance campaigns, as these may influence planned weight loss behaviors in unforeseen ways (Pan & Peña, 2024).

3.2 SOCIAL MEDIA SOCIAL COMPARISON AND SELF-ESTEEM

To discuss social comparison and self-esteem, it is necessary to mention the connection between downward and upward comparison to self-esteem. Will (1981) suggested in his theory of downward comparison that downward comparisons are produced by threat in order to restore self-esteem. Will declared that social comparison are usually upward, but when self-esteem is being threatened, comparisons change direction to downward to restore self-esteem (Hakmiller, 1966).

Wills also suggested that individuals with low self-esteem would be especially likely to engage in downward comparison when their self-esteem is challenged. In sum, Wills' theory has two parts, one predicting downward selection (when threatened) and one predicting a positive effect after downward comparison (Gerber et al., 2018).

Collins (1996, 2000), instead, suggested that people may enhance their self-evaluation

by comparing themselves to those who are better off. His ideas were influenced by earlier research on comparison choices using the rank-order paradigm (Thornton & Arrowood, 1966; Wheeler, 1966), which found that individuals tend to compare themselves to those who are more successful. Collins argued that upward comparison can make a person feel more similar to a higher-status target, boosting their self-worth by mentally placing themselves in the same category. This effect is most likely to occur when the person already expects to be similar to the target, making any perceived differences seem minor or insignificant. In contrast, downward assimilation is unlikely because people neither expect nor want to resemble those who are worse off, so they do not perceive the differences as small. According to Collins, two key factors associated with upward assimilation are high self-esteem and a sense of shared distinctiveness with the comparison target (Brewer & Weber, 1994; Gerber et al., 2018).

On SNSs people express their personal traits through pictures, videos, and posts, which can become targets for upward or downward social comparison (Vogel et al., 2014). Chronic or temporary exposure to upward social comparison, in particular, can negatively impact self-evaluation and self-esteem. Given the significant role of social networking sites in modern daily communication and the self-presentation biases they involve, it is crucial for researchers to understand how these platforms contribute to upward social comparisons and their impact on users' well-being (Vogel et al., 2014).

Vogel et al. (2014) examined whether people who are more exposed to upward social comparisons on SNSs have lower trait self-esteem, and also determined whether temporary exposure to social media social comparison would have an impact on self-esteem and self-evaluations. The studies involved a sample of college students and the results showed that people who were more chronically exposed to Facebook (i.e., used it

most) had lower trait self-esteem. Furthermore, upward social comparison on Facebook occurred more frequently than downward social comparison. Additionally, the extent of upward (but not downward) social comparison through Facebook significantly mediated the relationship between Facebook use and trait self-esteem.

Results also demonstrated that participants after being exposed to a target with a high activity on social network had lower state self-esteem. Moreover, visiting social media profiles with positive content (e.g. health and fitness, active social network) was associated with poorer relative self-evaluation and poorer self-esteem (Vogel et al., 2014).

Nowadays, individuals who gain a significant number of followers on social media become social media influencers (SMIs), who have become an integral part of SNSs. The curated, positivity-biased content shared by these influencers can have a profound impact on their audience's self-perception and self-esteem. In this regard, Rütter et al. (2023) investigated how exposure to idealized images of female SMIs influences the state self-esteem of female participants, focusing on the role of social comparison processes as mediators and individual resilience as a moderating factor.

The study was done on a sample of 231 female university students. The results suggested a significant mediating effect of social comparisons on the relationship between image type and state self-esteem. However, when examining the direct impact of image type on state self-esteem, they found that exposure to positively biased SMI images surprisingly resulted in higher overall levels of state self-esteem compared to the control group.

There is a lack of research relating Instagram image exposure and self-esteem and body-esteem, especially considering Instagram growing popularity. The study of Taylor and

Armes (2024) focused on social comparison on Instagram and its relationship with levels of self-esteem and body-esteem. Particularly, the study aimed to explore if when an Instagram page posts target images causes similar rating of both self-esteem and body-esteem. Self-report questionnaires were used to measure levels of Self-esteem with the State Self-esteem Scale (Heatherton & Polivy, 1991) and body-esteem with the Body-Esteem Scale for Adolescents and Adults (Mendelson et al., 1997) before and after viewing Instagram images that trigger upward, downward, or no comparison, on a sample of university psychology students ranging in age from 18 to 35 year. The results showed that levels of self-esteem and body-esteem significantly increased after downward comparison and no changes if followed by neutral condition. Body-esteem score decreased after upward comparison, whereas self-esteem score did not. These findings highlight the powerful impact that Instagram has on people and how much is important for educators, young people and practitioners to be aware of the risks and to take steps to reduce the potential impacts on social media users. (Taylor & Armes, 2024).

3.3 SOCIAL MEDIA SOCIAL COMPARISON AND EMOTION REGULATION

Browsing on social media is often seen as a trigger of unhealthy social comparison which can negatively affect well-being. While self-presentation on social media is typically positive, this trend may have changed during the COVID-19 pandemic. Empiric evidence shows that people shared more negative experience on social media during the pandemic (Saha et al., 2020; Shen et al., 2020; Zhang et al., 2021) more probably facilitating downward social comparison (Yue et al., 2022). Such comparisons may have also influenced how individuals regulated their emotions, either by

reinforcing negative feelings or by triggering adaptive emotional responses to cope with the changes in social interactions.

Notably, the mechanisms and outcomes of social comparison can depend on personal characteristics and situational factors. For example, people use reappraisal to reduce negative emotional arousal (Gross, 2014). When exposed to positive posts on social media, individuals can use cognitive reappraisal to envision a similar successful future for themselves, which is likely to evoke positive emotions.

Moreover, significant changes in life circumstances can influence different forms of social comparison. During the pandemic, as many individuals were quarantined, they likely depended more on social media for social interaction and information gathering due to limited face-to-face communication. Increased passive browsing may have led to a heightened tendency for social comparison (Yue et al., 2022).

The study of Yue et al. (2022) examined the relationship between passive social media use and social comparison, explored whether this relationship is contingent on individuals' cognitive reappraisal and quarantine status and finally, investigated the relationship between social comparison and perceived stress in the context of the COVID-19 pandemic. The study was done drawing on a survey with 1131 Wuhan residents in China. The results showed that during the pandemic, passive social media use was negatively related to perceived stress through both upward and downward social comparison. Moreover, cognitive reappraisal was negatively associated with unhealthy social comparison and positively related to healthy social comparison. Being quarantined reinforced the link between social media browsing and upward contrast (Yue et al., 2022).

A lot of studies have shown how self-esteem and difficulties in emotion regulation

could explain the different effects of social comparison orientation on undergraduate students' interpersonal problems (see Blanchard-Fields, 2007; He, 2022; Richmond et al., 2022; Yanhong et al., 2021).

The study of Aslan and Demir (2023) investigated the effects of ability-based and opinion-based social comparison on interpersonal problems and explored the mediating roles of self-esteem and emotion dysregulation within these relations. The sample was made of undergraduates from a Turkish university. The results indicated the ability-based social comparison had significant direct and indirect effects on interpersonal problems, whereas opinion-based social comparison had no significant direct or indirect effects on interpersonal problems. Self-esteem and emotion dysregulation significantly mediated the association between ability comparison and interpersonal problems, separately and serially. Specifically, individuals with a greater tendency to socially compare their abilities experienced more interpersonal problems, lower self-esteem, and difficulties in emotion regulation, which partially mediated this association.(Aslan & Demir, 2023).

A study by Mahmud et al. (2023) wanted to determine the contribution of emotion regulation as a moderator on the role of self-esteem on adolescents fear of missing out. Fear of missing out refers to an individual's apprehension about missing valuable experiences, events, or interactions within their social circles or peer groups when not present (Przybylski et al., 2013). The study was conducted on 349 adolescents aged 15 - 18 years who were active users of social media in the past three months.

The result reported a significant impact of self-esteem on fear of missing out, with emotion regulation acting as a moderator. The study showed the importance of adolescents having positive self-esteem combined with adaptive emotion regulation in

reducing their tendency to experience fear of missing out while using social media. Another study exploring the role of emotion regulation as moderator is the study of Tedjawidjaja and Christanti (2022) which aimed to determine the effect of emotion regulation during social comparison in social media on psychological distress.

Considering that emotion regulation is one of the factors reducing psychological distress (Solbakken et al., 2021) and that it also helps individuals to be aware of negative emotions when comparing themselves on social media (Pang, 2021); this study hypothesized that there would be an influence of emotion regulation on psychological distress in adolescents. Participants in the study were teenagers aged 12-18 years that used social media. The study used Hopkins Symptoms Checklist-10 (HCL-10) (Kleppang & Hagquist, 2016) to measure psychological distress in adolescents, Iowa-Netherlands Comparison Orientation Measure (INCOM) (Gibbons & Buunk, 1999), and the Emotion Regulation Questionnaire (ERQ) (Gross & John, 2003). The results proved that social comparison on social media could predict psychological distress in adolescents but showed that emotion regulation, especially cognitive reappraisal, could not act as moderator in the relationship between social comparison and psychological distress. The findings of this study also showed a positive and significant correlation between emotion regulation and psychological distress in adolescents. Therefore, this study helps adolescents in realizing the negative effects of social media social comparison and it provides benefits on the importance of expressing feelings healthily to avoid psychological distress (Tedjawidjaja & Christanti, 2022).

CHAPTER 4

RESULTS

4.1 HYPOTHESIS

The present study aimed to investigate the role of social media social comparison in adolescents, since they are the primary users of these platforms (Vogels et al., 2022).

In particular, the study's first aim was to examine the association between social media social comparison, self-esteem, and emotion regulation in adolescents. A key aspect of this investigation was understanding the link between social media social comparison and general self-esteem in this age group.

Based on the literature, both ability-based and opinion-based social comparison are negatively correlated with self-esteem, with ability-based social comparison showing a stronger association than opinion-based social comparison (Veleda et al., 2024). Previous studies have also shown that individuals who frequently compare themselves to others on social media tend to report poorer self-perception and lower self-esteem (Vogel et al., 2015). These findings suggest a negative association between social media social comparison and self-esteem.

Another important factor is the relationship between social media social comparison and emotion regulation in adolescents. There are few studies investigating the link between these two variables. According to Aslan and Demir (2023), individuals with a tendency to compare their abilities to others experience greater difficulties in emotion regulation, as indicated by a positive correlation between these variables. In contrast, the relationship between opinion-based social comparison and emotion dysregulation

appears to be weaker. Therefore, it is expected that the association between emotion regulation and ability-based social comparison will be stronger than that between emotion regulation and opinion-based social comparison..

A further aim of the study was to investigate the relationship between self-esteem and emotion regulation in adolescents and to examine potential gender differences. Previous research suggests that adolescents with better emotion regulation tend to have higher self-esteem (Khatami et al., 2023). Moreover, Gomez et al. (2018) found gender differences in how emotion regulation relates to self-esteem. Specifically, for men, the clarity, strategies, and goals subscales were significantly correlated with self-esteem, while for women, self-esteem was significantly associated with nonacceptance, awareness, strategies, and clarity. These findings suggest a negative correlation between difficulties in emotion regulation and self-esteem, and differences in gender regarding the strategies considered.

Finally, the study explores the connection between physical self-esteem and social media social comparison of both ability and opinion in adolescents. Previous literature showed that social media use is positively associated with concerns about body image (Fardouly et al., 2015). A systematic review found that social media use is negatively associated with body image due to increased body dissatisfaction, which is mediated by social comparison and self-objectification (Holland & Tiggemann, 2016). However, while much research has examined the relationship between social media use and body image, little research has directly investigated the link between physical self-esteem and social comparison of ability and opinion.

4.2 PARTICIPANTS

Once the ethics committee gave its approval, high school principals across Italy were contacted and invited to take part in the project.

A total of 1,199 high school students from the second, third, and fourth years were initially approached, and parental consent was obtained for 1,042 of them, accounting for 87% of the sample. Thereafter, 227 students were excluded from the analysis due to absenteeism on one of the administration days, having missing data in key measures, or issues with code matching. As a result, data from 815 students were analyzed. The participants' ages ranged from 14 to 19 years, with an average age of 15 years and a standard deviation of 10 months.

The biological sex distribution in the final sample was as follows: 353 males, 456 females and 6 individuals who preferred to not disclose their sex.

4.3 PROCEDURE

The initial phase involved reaching out to schools and extending an invitation to participate in the project. School directors, teachers, and students were informed that the research aimed to explore the relationship between students' psychosocial well-being and various individual and contextual factors (e.g., emotional regulation, social media social comparison, use of social media and self-esteem).

Informed consent forms were provided to the students, who were required to have them signed by at least one parent or legal guardian to participate. This process also ensured that parents were fully informed about the study. The consent form provided a detailed description of the research objectives and the procedures. The headteacher and teachers were informed orally, while parents were notified through the consent process that the

study would be conducted in two sessions, each lasting approximately 40 minutes (equivalent to one school lesson), with the questionnaires administered in the computer lab. Students without a signed consent form participated in alternative activities.

At the beginning of each session, researchers introduced the study and emphasized the anonymity of the responses. To ensure confidentiality, each school, class, and student was assigned a unique random number.. The initial page included personal questions (e.g., age, gender,) and students were asked to create a nickname to use in the next session.

As this study is part of a larger project, only a selected subset of variables—specifically social media social comparison, emotion regulation, and self-esteem—were analyzed.

4.4 MEASURES

Self-esteem. Global self-esteem was assessed using Rosenberg’s Self-Esteem Scale (Prezza et al., 1997; Rosenberg, M. 1965), a a 10-item scale with five positively worded (e.g., “I feel that I have a number of good qualities”) and five negatively worded (e.g., “All in all, I am inclined to feel that I am a failure”) items. Participants responded using a 5-point Likert scale. The average score of the 10 items was calculated for each student ($\alpha = .86$).

Physical self-esteem was measured using the Body Esteem Scale (Mendelson et al., 2001) adapted for Italian students (Confalonieri et al., 2008). This 14-item scale includes three subscales: appearance, weight and attribution. Responses were given on a 5-point Likert scale (0 = “never” to 4 = “always.”). Example items include: “I worry about my appearance” (appearance), “I’m satisfied with my weight” (weight), and “Others think I’m good-looking” (attribution). Average scores were calculated for the

total scale ($\alpha = .87$) and each subscale: appearance ($\alpha = .84$), weight ($\alpha = .88$), attribution ($\alpha = .72$).

Difficulties in emotion regulation.

Difficulties in emotion regulation were assessed using the Difficulties in Emotion Regulation Scale-Short Form (DERS-SF) (Kaufman et al., 2016), adapted into Italian.. This scale comprises 6 subscales (strategies, nonacceptance, impulse, goals, awareness and clarity) with 3 items each, for a total of 18. The response scale is a 5-point Likert scale, ranging from 1 = “Almost never” to 5 = “Almost always.” Some example items include: “When I am upset, I believe there is nothing I can do to feel better,” “When I am upset, I have difficulty focusing on other things,” and “When I am upset, I lose control over my behavior.” For each student, the average score of the 18 items was calculated ($\alpha = .90$) and for each subscales: lack of strategies ($\alpha = .80$), lack of acceptance ($\alpha = .80$), impulsivity ($\alpha = .90$), lack of goals ($\alpha = .88$), lack of awareness ($\alpha = .85$), lack of clarity ($\alpha = .87$).

Social media social comparison.

Finally, the last variable measured was social media social comparison. To assess this construct, the study used the adapted version by Yang et al. (2018) of the nine-item Iowa-Netherlands Comparison Orientation Measure (Gibbons & Buunk, 1999). This adaptation specifically evaluates online social comparison behaviors. The scale consists of nine items divided into two subscales: social media social comparison of ability and social media social comparison of opinion. Participants rated how frequently they engaged in these behaviors on social media using a 5-point Likert scale (1 = Never, 5 =

Almost always). An example item of the ability-based social comparison subscale is: “On social media, I compare what I have done with others as a way to find out how well I have done something”. For the opinion-based social comparison subscale, an example item is: “On social media, I try to know what others in a similar situation would do” (Yang et al., 2018). For each student, the average score of the items in each subscale was calculated : social media social comparison of ability ($\alpha = .77$) and social media social comparison of opinion ($\alpha = .81$).

4.5 RESULTS

4.5.1 Descriptive statistics and sex differences

The descriptive statistics for the overall sample are reported in Table 1. To check for gender differences in the variables considered in this study, independent samples t-tests were conducted.

The results showed that males scored higher than females in all forms of self-esteem examined, except for the "attribution" subscale of body self-esteem, where no difference was found between boys and girls. In contrast, females, compared to males, exhibited greater difficulties in emotional regulation, both in the global scale and across all six subscales, as well as a higher use of social media to compare their abilities and opinions.

Table 1. Descriptive statistics and sex differences

	Global Sample (N=815)				Boys (N=353)		Girls (N=456)		<i>t</i> (807)
	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>DS</i>	<i>M</i>	<i>DS</i>	<i>M</i>	<i>DS</i>	
General self-esteem	1.30	5	3.55	.74	3.83	.61	3.36	.74	9.52***
Body self-esteem (BSE)_Total	1.14	5	3.14	.74	3.40	.62	2.95	.76	9.15***
BSE_ Attribution	1	5	2.88	.80	2.89	.80	2.89	.78	-0.06
BSE_ Appearance	1	5	3.23	.93	3.53	.79	3.01	.96	8.19***
BSE_ Weight	1	5	3.27	1.14	3.74	.90	2.91	1.17	10.93***
Difficulties in emotion regulation (DERS)_Total	1	5	2.70	.86	2.35	.76	2.97	.83	- 10.98***
DERS_ lack of strategies	1	5	2.35	1.06	1.96	.91	2.65	1.08	-9.56***
DERS_ lack of acceptance	1	5	2.34	1.12	1.98	.96	2.62	1.55	-8.40***
DERS_ impulsivity	1	5	2.55	1.23	2.20	1.12	2.81	1.26	-7.13***
DERS_ lack of goals	1	5	3.05	1.20	2.59	1.08	3.40	1.16	- 10.15***
DERS_ lack of awareness	1	5	3.22	1.11	3.09	1.15	3.34	1.06	-3.19**
DERS_ lack of clarity	1	5	2.69	1.22	2.26	1.07	3.02	1.22	-9.20***
SM Comparison of Abilities	1	5	2.81	.90	2.53	.85	3.03	.89	-8.02***
SM Comparison of Opinions	1	5	3.13	.97	2.89	.94	3.32	.95	-6.27***

Note. ** $p < .01$, *** $p < .001$

4.5.2 Associations among variables

In Table 2 the intercorrelations between the variables considered in this study for the overall sample are reported. As hypothesized, a negative correlation is observed between social media social comparison (both ability and opinion) and self-esteem. Specifically, a moderate negative correlation is found between social media social comparison of ability and self-esteem, while the correlation with social media social comparison of opinion is weaker.

A positive correlation, instead, is found between emotion regulation and social media social comparison. In particular, both social media social comparison of ability and opinion exhibit a moderate positive correlation, with the correlation for ability being stronger, maintaining this across all six subscales except the subscale of “lack of awareness”.

Moreover, the correlation between self-esteem and emotion regulation observed is a moderate negative correlation, as hypothesized.

Finally, as hypothesized for the correlation between social media social comparison and physical self-esteem, a negative correlation is observed, with a moderate correlation for the comparison of ability and a weak correlation for the comparison of opinion.

This trend is sustained for all the subscales except the “attribution” subscale.

Table 2. Intercorrelations among variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. General self-esteem	-													
2. Body self-esteem (BSE)_Total	.66***	-												
3. BSE_ Attribution	.33***	.52***	-											
4. BSE_ Appearance	.64***	.89***	.27***	-										
5. BSE_ Weight	.50***	.82***	.16***	.62***	-									
6. Difficulties in emotion regulation (DERS)_Total	-.49***	-.44***	-.04	-.47***	-.40***	-								
7. DERS_lack of strategies	-.54***	-.45***	-.05	-.47***	-.40***	.84***	-							
8. DERS_lack of acceptance	-.50***	-.44***	-.12***	-.45***	-.36***	.82***	.70***	-						
9. DERS_impulsivity	-.29***	-.26***	.05	-.29***	-.28***	.76***	.52***	.56***	-					
10. DERS_lack of goals	-.42***	-.38***	-.04	-.41***	-.33***	.82***	.64***	.59***	.57***	-				
11. DERS_lack of awareness	.09**	.03	.08*	.03	-.03	.37***	.17***	.12**	.14***	.19***	-			
12. DERS_lack of clarity	-.52***	-.45***	-.09*	-.48***	-.36***	.83***	.71***	.71***	.54***	.65***	.09*	-		
13. SM Comparison of Abilities	-.31***	-.30***	.02	-.36***	-.26***	.42***	.41***	.37***	.26***	.38***	.06	.38***	-	
14. SM Comparison of Opinions	-.12**	-.14***	.09*	-.18***	-.16***	.36***	.29***	.27***	.22***	.33***	.24***	.28***	.54***	-

Note. *p<.05, **p<.01, ***p<.00

In Table 3, the correlations are reported separately for males and female. As observed, the results are consistent with those found in the general sample. However, it is noteworthy that the association between self-esteem and difficulties in emotion regulation is stronger for females than for males, maintaining this pattern across all six subscales.

Additionally, the correlation between social media social comparison of ability and physical self-esteem is weaker for males than for females. However, the correlation between social media social comparison of opinion and physical self-esteem is not significant both for either gender.

Moreover, the correlation between difficulties in emotion regulation and both social media social comparison of ability and opinion are slightly higher for males than for females.

Table 3. Intercorrelations among variables for boys (below the diagonal) and girls (above the diagonal)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. General self-esteem	-	.66***	.35***	.65***	.45***	-.47***	-.54***	-.48***	-.29***	-.37***	.18***	-.49***	-.26***	-.04
2. Body self-esteem (BSE)_Total	.57***	-	.50***	.90***	.82***	-.40***	-.41***	-.41***	-.27***	-.32***	.13**	-.39***	-.28***	-.06
3. BSE_ Attribution	.32***	.61***	-	.27***	.14*	.02	0	-.11*	.07	.03	.17***	-.04	.02	.18***
4. BSE_ Appearance	.52***	.85***	.29***	-	.63***	-.45***	-.47***	-.44***	-.31***	-.38***	.12*	-.45***	-.36***	-.11*
5. BSE_ Weight	.39***	.75***	.21***	.49***	-	-.36***	-.37***	-.32***	-.29***	-.28***	.03	-.30***	-.21***	-.12*
6. Difficulties in emotion regulation (DERS)_Total	-.36***	-.32***	-.14**	-.32***	-.22***	-	.84***	.80***	.77***	.79***	.24***	.82***	.33***	.27***
7. DERS_ lack of strategies	-.40***	-.38***	-.13*	-.33***	-.24***	.78***	-	.67***	.53***	.63***	.08	.68***	.35***	.22***
8. DERS_ lack of acceptance	-.39***	-.33***	-.15**	-.33***	-.23***	.80***	.67***	-	.57***	.52***	-.01	.68***	.30***	.17***
9. DERS_ impulsivity	-.14*	-.09	.01	-.11*	-.08	.69***	.41***	.44***	-	.55***	.03	.56***	.18***	.15**
10. DERS_ lack of goals	-.33***	-.28***	-.14**	-.28***	-.17**	.80***	.55***	.57***	.50***	-	.06	.61***	.29***	.27***
11. DERS_ lack of awareness	.04	-.03	-.04	-.01	-.03	.52***	.24***	.25***	.22***	.30***	-	-.05	-.03	.16
12. DERS_ lack of clarity	-.42***	-.38***	-.17**	-.39***	-.25***	.80***	.66***	.67***	.41***	.59***	.20***	-	.32***	.19***
13. SM Comparison of Abilities	-.24***	-.17**	.01	-.22***	-.13*	.38***	.35***	.35***	.23***	.34***	.11*	.31***	-	.48
14. SM Comparison of Opinions	-.09	-.10	-.02	-.13*	-.06	.36***	.27***	.29***	.20***	.28***	.28***	.27***	.57***	-

Note. *p<.05, **p<.01, ***p<.001

CHAPTER 5

DISCUSSION

The present study aimed to investigate the role of social media social comparison on adolescents, since the primary users of these platforms are adolescents (Vogels et al., 2022). More specifically, the study's first aim was to assess the association between social media social comparison, self-esteem and emotion regulation. Based on the literature, a negative association was expected between social media social comparison and general self-esteem, with the relationship between ability-based social comparison exhibiting a stronger association than that of opinion-based social comparison (Veleda et al., 2024). The results were consistent with previous findings. The stronger association with ability-based social comparison may be due to its focus on evaluating performance and competition, as it helps individuals determine how well they are doing in relation to others. In contrast, opinion-based comparison serves to navigate values and behaviors, highlighting the degree of similarity between one's thoughts and those of others. Social media create an environment where individuals frequently compare their abilities. Due to their unique characteristics, such as the centrality of images, they can amplify this effect, making ability-based comparison more influential on self-esteem (Veleda et al., 2024).

Regarding the association between social media social comparison and difficulties in emotion regulation, existing literature shows a positive correlation between the two variables with the relationship between opinion-based social comparison and difficulties in emotion regulation being weaker (Aslan & Demir, 2023). The results obtained confirm prior research; however, the relationship between opinion-based social comparison and difficulties in emotion regulation appeared stronger in one specific

subscale. This may be because the association between ability-based social comparison and the "lack of awareness" subscale of emotion regulation difficulties was not significant. According to Festinger's social comparison theory (1954), individuals have an innate drive to assess their opinions and abilities by comparing them to others. Ability-based comparison might have a greater impact on emotion regulation, as abilities directly affect how we see ourselves and feel about our performance relative to others. On the other hand, opinion-based comparison, being more subjective, may have a lesser impact on emotion regulation, as opinions can be more easily reinterpreted or considered less threatening. This difference may explain why ability-based comparison is more strongly associated with emotion regulation than opinion-based comparison.

A further aim of the study was to examine the correlation between emotion regulation and self-esteem in this sample of adolescents. Previous studies have suggested a negative correlation between these two variables (Khatami et al.,2023). Additionally research identified gender differences for this association in relation to specific subscales. For instance, the clarity, strategies, and goals subscales were found to be significantly correlated with self-esteem for men, whereas for women self-esteem was significantly associated with nonacceptance, awareness, strategies, and clarity (Gomez et al., 2018). The results of this study showed a negative correlation, consistent with the literature. However, the association between self-esteem and difficulties in emotion regulation was stronger for females than for males across all subscales, with no gender-specific differences observed, contrary to what is reported in the literature.

Finally, the study explored the relationship between physical self-esteem and social media social comparison (both ability-based and opinion-based) in adolescents. Although few studies have examined this relationships, existing research suggests that

social media use is negatively associated with body dissatisfaction, a correlation mediated by social comparison. The results confirmed a negative correlation between social media social comparison and physical self-esteem. Furthermore, the results showed a stronger correlation for ability-based comparison than for opinion-based comparison, a trend maintained across all subscales except for “attribution” subscale, in which the associations were not significant. The stronger association between ability-based comparison and physical self-esteem compared to opinion-based comparison could be explained by the fact that ability-based comparisons focus on visible and measurable aspects of oneself, such as appearance and physical abilities. These traits are more directly linked to physical self-esteem and are frequently highlighted on social media platforms like Instagram (Fardouly et al., 2015). Lack of significance in the 'attribution' subscale may indicate that social media social comparison doesn't seem to affect how adolescents attribute their physical self-esteem to external or internal causes.

5.1 LIMITATIONS AND FUTURE DIRECTIONS

The study has some limitations. Firstly, it relied exclusively on self-reporting, meaning that the responses could have been affected by participants' hesitancy to reveal personal information. Additionally, this approach is susceptible to various biases, such as social desirability bias, where participants may offer responses they think will be seen positively by others, rather than providing honest or accurate answers. To mitigate this limitation, future research should incorporate multiple data collection methods, such as interviews and assessments, conducted separately with each student.

Another significant limitation was the attrition of a substantial portion of the sample. Initially, 1199 students were contacted, and parental consent was obtained for 1,042 of

them, which represents 87% of the total. Afterward, 227 students were excluded from the analyses due to absence on one of the administration days, missing data in the measures considered, or the inability to match codes. As a result, data from 815 students were analyzed. The loss of around a third of the participants may reduce the representativeness of the results. A possible solution to the absenteeism could be to implement an incentive system to encourage full participation.

A potential direction for future research is the exploration of the specific variable of social media social comparison in terms of ability and opinion. This particular area has been explored by only a small number of studies (e.g., Yang et al., 2018; Vogel et al., 2014), leaving its connections to other psychological constructs, such as emotion regulation and body image, largely unexplored. Social media platforms provide an easy and accessible environment for individuals to share aspects of their personal lives, thereby creating numerous opportunities for social comparison, which could have significant implications for adolescent development and body image (Yang et al., 2018; O'Dea, 2012). Therefore, it would be valuable for future research to explore the connections between social media social comparison of both ability and opinion and body image in adolescents.

In contrast, much of the existing research has primarily focused on the directionality of social comparison, specifically the distinction between upward and downward comparisons on social media. This dimension was not addressed in the present study, but represents an important area for future investigation. It would be particularly insightful to examine how these types of comparisons—whether upward (comparing oneself to others perceived as superior) or downward (comparing oneself to others perceived as inferior)—relate to critical constructs such as self-esteem and emotion

regulation among adolescents. Understanding these relationships could offer a more comprehensive view of the impact of social media social comparison on adolescents.

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