The Positive Body Image among Adolescents Scale (PBIAS): Conceptualization, Development, and Psychometric Evaluation among Adolescents from Belgium

Chelly Maes[a], Jolien Trekels[a], Tracy Tylka[b], and Laura Vandenbosch[a]*

[a] *School for Mass Communication Research, Faculty of Social Sciences, KU Leuven, Leuven Belgium*

[b]*Department of Psychology, The Ohio State University, Ohio, United States of America*

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Abstract

In this study, we aimed to offer a conceptualization of positive body image during adolescence and psychometrically examine a new scale developed to measure this conceptualization. A literature review on positive body image and adolescence was conducted, which shaped the development of the Positive Body Image among Adolescents Scale (PBIAS). In Study 1, four focus groups (totaling 14 adolescents) from Belgium explored the content, clarity, and applicability of the PBIAS items. In Study 2, an exploratory factor analysis (N = 565; M_{age} = 14.9, 63.8% girls) revealed 4 factors: body self-appreciation, body other-appreciation, resilience against media body ideals, and resilience against negative appearance feedback. This 4-factor structure was confirmed in Study 3 (N = 718; M_{age} = 15.2, 50.4% girls), and gender invariance was upheld. The test-retest reliability of the PBIAS scores was partially supported in Study 4 (N = 309, M_{age} = 15.3, 66.3% girls). Across studies, internal consistency was supported and construct validity (convergent and incremental) evidence was garnered. Further, the PBIAS was translated from Dutch to English to offer researchers an option for collecting data in English-speaking countries. Overall, the PBIAS is a brief measure with psychometric support that assesses four dimensions of adolescent positive body image.

Keywords: adolescence, positive body image, scale development, measurement invariance, psychometrics

1. Introduction

Over the last two decades, body image scholars have called for the adoption of a positive psychology framework within body image research, whereby attention is given to positive body image and its links to well-being (Avalos et al., 2005; Tylka, 2018). While researchers have responded to this call by developing a multidimensional conceptualization of positive body image among adults (e.g., Tylka & Wood-Barcalow, 2015a), positive body image among adolescents has remained understudied—even though the formation of positive body attitudes and perceptions is a significant developmental task during adolescence for both girls (Wertheim & Paxton, 2011) and boys (Ricciardelli, 2012). Because adolescents experience distinct developmental challenges that differ from adults (Halliwell, 2015), scales developed to measure distinct components of positive body image for adults may not reflect the entirety of the positive body image experience for adolescents. Therefore, in this study, our aim was to address this gap by establishing a conceptualization of positive body image for adolescents and developing a scale that measures this conceptualization.

1.1. Body Image Development during Adolescence

Body changes experienced during adolescence clearly distinguish adolescence from any other life stages (Markey et al., 2010). When children reach adolescence (i.e., between 8-12 years old for girls and 9-14 years old for boys), biological, psychosocial, and cognitive changes affect their growth and may pose challenges in terms of developing and/or maintaining positive body image (Abreu & Kaiser, 2016). For instance, *biological* changes include the development of primary and secondary sex characteristics, rapid growth spurts in height and weight (girls gain body fat, while boys lose body fat and gain muscle strength; Shirtcliff et al., 2009), and the formation of acne (Gebauer, 2017). *Cognitive changes* include adolescents' increased ability to reflect on their own and their peers' changing bodies (that may facilitate thoughts on their own maturing body and appearance, their acceptance of

other's bodies, and how their bodies may compare with others' bodies) (Carey et al., 2014; Hurrelmann & Quenzel, 2019) as well as regulate their emotions and behavioral impulses (that could stimulate goal-directed behavior such as engaging in mindful self-care) (Cook-Cottone & Guyker, 2018; Yurgelun-Todd, 2007). *Psychosocial changes* may include adolescents moving toward peers and media as socialization agents, which may imply an increased exposure to and engagement with media body ideals, appearance-related comparisons and remarks (e.g., body talk), and sexually objectifying encounters (Grogan, 2017; Jones & Crawford, 2006; Piran, 2015).

Collectively, these changes increase the salience of body image during adolescence, as adolescents are positioned to embrace or reject their maturing body, engage in mindful self-care or harmful behaviors (e.g., excessive exercise, disordered eating), resist or internalize negative appearance-related messages and body ideals, and engage in body acceptance or self-/other-objectification (i.e., treating the self and/or others as objects of gaze) (Fredrickson & Roberts, 1997; Piran, 2016). The more they embrace their maturing body, engage in mindful self-care, resist destructive appearance-related messages and body ideals, and engage in body acceptance, the greater their positive body image (Cook-Cottone & Guyker, 2018; Halliwell, 2015; Piran, 2015, 2016; Tylka & Wood-Barcalow, 2015a).

Furthermore, these biological, cognitive, and psychosocial changes tend to be more prominent and abrupt during adolescence when compared to adulthood (Markey et al., 2010). Adults' bodies tend to change more gradually. For example, adults are less likely than adolescents to experience any significant and remarkable growth spurts and penis or breast growth. Instead, their body changes include the gradual greying of hair, wrinkling of skin, loss of muscle and bone mass, and loss of energy (Harman, 2001). Emotion regulation strategies, impulse control, and relationships also tend to be less variant in adulthood as compared to adolescence (Ong & Löckenhoff, 2016), which may transfer to more stability in

terms of adults' body image (Tiggemann, 2004). Indeed, research evidence points to stability or even slight improvement in positive body attitudes across adulthood (e.g., Karazsia et al., 2017), whereas it is less stable during adolescence (Holmqvist Gattario & Frisén, 2019). Throughout adulthood, other factors of one's identity (e.g., intelligence) gradually gain importance, and appearance-related factors may become less important (Tiggemann & McCourt, 2013). In contrast, appearance is underscored during adolescence, and studies have revealed that body satisfaction is at its lowest during adolescence compared to other developmental stages (e.g., Calzo et al., 2013; Yu, 2016). This distinction between adulthood and adolescence highlights the importance of understanding the meaning of positive body image during adolescence.

1.2. Positive Body Image

Positive body image has been conceptualized as a multidimensional construct that represents individuals' love and respect for, acceptance and appreciation of, and comfort with their bodies regardless of their actual physical appearance, as well as their ability to interpret messages in a body-protective manner (i.e., internalize positive messages, reject or reframe negative messages) (Tylka & Wood-Barcalow, 2015a; Wood-Barcalow et al., 2010). Yet, this conceptualization has been generated from the research findings of adults and does not include factors that are unique to adolescents' developmental context (Halliwell, 2015). Given the body-related biological, cognitive, and psychosocial changes that occur as well as the relative importance of appearance during adolescence, tailoring the existing conceptualization of positive body image to fit the experiences of adolescents – and to have a scale that measures this conceptualization – is especially relevant and important to understand their positive body image (Halliwell, 2015).

Much of what is known about positive body image among adolescents has been based on the qualitative research of Frisén and Holmqvist (2010). These researchers conducted

semi-structured interviews with 30 early adolescent Swedish girls and boys who reported the highest level of body esteem at two waves (at age 10 and 13) in a large longitudinal sample. Via thematic analysis, they determined that adolescents' positive body image was characterized by their: acceptance of their bodies (including the imperfections that they perceived they had), appreciation of the functionality of their bodies, and engagement in joyful physical activity. While most adolescents in this study perceived that important others accept their bodies, roughly a third received negative appearance feedback but were able to not let this feedback affect their self-image. In a follow-up qualitative study with semi-structured interviews about beauty ideals and the perception of beauty, the same 30 Swedish early adolescents with high scores on body esteem indicated that they defined beauty widely and flexibly. They stressed the importance of looking like 'oneself' and that the perception of beauty is subjective. Also, they were critical of the narrow standard of beauty portrayed by media appearance ideals, describing these ideals as unnatural and unrealistic (Holmqvist & Frisén, 2012).

Considering the body-related changes and meaning of appearance during adolescence (Markey et al., 2010), previous conceptualizations of positive body image among adults (Tylka & Wood-Barcalow, 2015a), and qualitative interviews with adolescents who hold a positive body image (Frisén & Holmqvist, 2010; Holmqvist & Frisén, 2012), we formed a conceptualization of positive body image for the adolescent developmental context. We propose that their positive body image is a multidimensional construct encompassing (1) body self-care, (2) body appreciation, and (3) resilience against messages that threaten one's body image. Each dimension shares similarities with conceptualizations based on body image during adulthood, but is further described in the context of adolescent development.

1.2.1. Body self-care

Body self-care has been repeatedly identified as a key expression of positive body

image (Cook-Cottone, 2015; Cook-Cottone & Guyker, 2018; Frisén & Holmqvist, 2010; Wood-Barcalow et al., 2010). For instance, self-care practices such as exercise and intuitive eating have previously been linked to positive body image and well-being in adults (Linardon, et al., 2021; Wood-Barcalow et al., 2010). Mindful self-care, which involves acknowledging, valuing, and responding to the body's physiological and psychological needs appropriately, has been studied with adults (Cook-Cottone & Guyker, 2018), but the breadth of this research has yet to be extended to adolescents.

Indeed, body self-care may differ between adolescents and adults given the rapid biological, cognitive, and psychosocial changes that occur during adolescence (Frisén & Holmqvist, 2010). The extent to which adolescents have developed positive body image may be connected to the degree to which they are attuned to their bodily changes (e.g., rest when they feel tired) and have developed emotional regulation skills and social support networks. Of note, adolescents with a positive body image in Frisén and Holmqvist's (2010) qualitative study indicated that they engaged in joyful physical activity on a regular basis.

1.2.2. Body appreciation

Body appreciation is the central aspect within adult conceptualizations of positive body image (Tylka, 2018; Tylka & Wood-Barcalow, 2015a; Wood-Barcalow et al., 2010). The current study conceptualized body appreciation as a twofold concept. Specifically, body appreciation captures the acceptance and appreciation of one's body (i.e., body self-appreciation) and others' bodies (i.e., body other-appreciation).

Body self-appreciation refers to an intentional choice to appreciate one's unique beauty, accept and respect one's body, and protect one's body from narrow beauty standards (Avalos et al., 2005; Tylka & Wood-Barcalow, 2015a). During adolescence, girls and boys may be challenged to appreciate their body during a time when they experience physical changes at a rapid pace, appearance pressures among peers, and have a newfound ability to

reflect on their appearance and body functionality (Jones et al., 2004; Lerner et al., 2010). Adolescents higher in body self-appreciation are likely able to cope with these developmental changes in a positive way. For example, an adolescent girl who experiences weight gain might not conform to the dominating beauty ideal for girls and women but does appreciate and love her developing body and its unique features. Indeed, Frisén and Holmqvist (2010) noted that adolescents with a positive body image accepted their bodies as they matured, including any perceived imperfections, and appreciated their body's functionality.

Body appreciation among adolescents may also include appreciating others' bodies. This concept builds on the broad conceptualization of beauty construct identified by Tylka and Iannantuono (2016), whereby women consider a wide variety of looks, appearances, and body sizes as beautiful. Body-other appreciation may be more challenging for adolescents than adults, as their peers may be maturing at a different pace (Carey et al., 2014). Given the diversity of bodies in adolescence, appreciating and respecting others' (diverse) bodies and appearances is especially significant. The gradual increase of reflective skills allows adolescents to adopt more diverse appearance norms (Lerner et al., 2010), which can stimulate adolescents to reflect more in depth about their changing body and those of others. Adolescents with a positive body image may appreciate appearance-related changes in others and contextualize them within a diversity perspective (e.g., "all bodies are beautiful bodies"). In this view, participants in Holmqvist and Frisén's (2012) qualitative study defined beauty widely and flexibly and believed that beauty was subjective.

1.2.3. Resilience against body image-threatening messages

The ability to rationally and positively cope with body image threats (i.e., situations that direct attention to the body and provoke distress or shame) is another important component of positive body image (Cash et al., 2005). Within the literature on coping strategies among children and adolescents, Cracco and colleagues (2017) identified

maladaptive strategies for children and adolescents that include withdrawal, giving up, and aggressive actions, as well as adaptive strategies that include forgetting, distraction, and problem solving. In the body image literature, positive rational acceptance coping (Cash et al., 2005), positive and self-accepting body talk (Rudiger & Winstead, 2013), and body image flexibility (Sandoz et al., 2013) have emerged as concepts that reflect resilience in adults. A person who uses positive rational acceptance coping accepts the distressing message and engages in self-care and rational self-talk (e.g., reminding themselves of their good qualities) to cope with the body image threat (Cash et al., 2005). A person who uses positive and self-accepting body talk disassociates from peers who engage in negative body talk and instead surrounds themselves with others who accept their bodies and/or rarely discuss appearance (Wood-Barcalow et al., 2010). A person high in body image flexibility is able to compassionately respond to their body during a body image threat using mindfulness and acceptance skills, rather than try to avoid, escape, or otherwise alter the content or form of their negative body-related thoughts and feelings (Sandoz et al., 2013).

It is also important to tap into age-appropriate contexts when assessing adolescents' resilience to body image threatening messages, as these contexts may differ from those of adults. We propose three significant contexts in which adolescents experience body image threats (Levine & Smolak, 2002): pubertal changes (i.e., personal context), negative appearance feedback such as teasing and body-related talk (i.e., interpersonal context), and exposure to beauty ideals in traditional and social media (i.e., sociocultural context).

1.3. Existing Positive Body Image Scales

Scales have been developed to assess the aforementioned components of positive body image. In terms of body self-care, Daubenmier's (2005) Body Responsiveness Questionnaire (BRQ) measures women's attunement to their body needs and responsiveness to such needs in an appropriate manner. Relatedly, the Mindful Self-Care Scale (MSCS;

Cook-Cottone & Guyker, 2018) operationalizes the daily practice of being aware of basic physiological and emotional needs and structuring one's life to meeting those needs.

For body appreciation, the Body Appreciation Scale-2 (BAS-2; Tylka & Wood-Baracalow, 2015b) operationalizes men and women's acceptance of, favorable opinions toward, and respect for their bodies. The Functionality Appreciation Scale (FAS) (Alleva et al., 2017) more specifically taps into appreciating what the body can do or is capable of doing, rather than solely focusing on the body's appearance. Further, the Broad Conceptualization of Beauty Scale (Tylka & Iannantuono, 2016) measures women's ability to broadly conceptualize beauty (i.e., perceive a variety of appearances, body sizes/shapes, and inner characteristics as beautiful), which is similar to our concept of body other-appreciation.

In terms of resilience against body image-threatening messages, the positive rational acceptance subscale of Cash et al.'s (2005) Body Image Coping Strategies Inventory (BICSI) assesses the ability to accept body image threats and engage in positive rational self-talk (e.g., reminding the self of good qualities) to cope with the body image threat. Rudiger and Winstead's (2013) preliminary operationalization of self-accepting/positive body talk assesses how often women and their closest female friend engage in self-accepting (i.e., "I feel okay about my body") and positive body talk (i.e., "I really like my body").

While these scales have garnered considerable psychometric support, they were developed for and evaluated with samples of adults (and in some cases, exclusively women) and therefore may not generalize as well to adolescents. Although some of these scales (e.g., BAS-2), have been used in body image research among adolescent samples (Lemoine et al., 2018), they do not comprehensively represent adolescents' experiences regarding positive body image. First, these scales often do not consider important social influences (e.g., peers) within adolescents' body image development, biological changes they experience (e.g., puberty), and their unique developmental tasks (e.g., developing resilience against body

image threatening messages). Second, items of existing positive body image scales are often worded in a complex or abstract manner, such as the item "I appreciate that my body allows me to communicate and interact with others" of the FAS (Alleva et al., 2017), that may not be developmentally appropriate for adolescents. As such, existing measurement tools cannot simply be transferred to the adolescent context. It should be noted, however, that these existing scales helped to inform the content of the scale developed in the current study, although we ensured that its items were appropriate for the age and developmental level of adolescents.

Some existing scales are limited in other ways in terms of their ability to measure positive body image in adolescence. For example, the BCBS and BRQ exclusively focus on the experiences of women and do not consider factors unique to boys and men. Some positive body image items may be interpreted differently due to their gendered experience (e.g., boys may avoid self-care due to it being considered feminine, girls may be expected and pressured to direct their self-care to their appearance; Francombe, 2014; Mahalik et al., 2007). Additionally, only a few existing measures (e.g., BAS-2, FAS) have examined gender invariance. Tests of gender invariance are necessary, as these analyses inform scholars how items of the same scale are interpreted among girls/women and boys/men (Millsap, 2012). Furthermore, all scales reviewed above operationalize only one component of positive body image (e.g., body appreciation, functionality appreciation, body talk)—only if they are examined together would they reflect the multidimensionality of positive body image.

1.4. The Current Study

There is a need for a comprehensive measure of a positive body image designed for adolescents. Therefore, the aim of the current study was to develop the Positive Body Image among Adolescent Scale (PBIAS) which (1) accounts for the unique developmental context of adolescence and includes age-appropriate items, (2) is applicable for both boys and girls,

and (3) assesses the variety of different components of positive body image.

1.5. Overview of Studies 1-4

In order to develop the PBIAS items, we followed three steps. First, we consulted the literature on existing positive body image conceptualizations (e.g., Tylka & Wood-Barcalow, 2015a), adolescent positive body image development, and scales that assessed dimensions of positive body image, and then generated potential PBIAS items. Importantly, we designed these items to be age-appropriate in terms of language used and developmental level (e.g., simple terms, concrete examples) as well as being applicable to both female and male adolescents. Second, we conducted focus group interviews with adolescents (N = 14) to discuss their ideas about positive body image during adolescence (Study 1). We shared the PBIAS items with the focus groups and queried whether these items were age-appropriate in terms of language and reflected what positive body image meant to them. We revised items accordingly. Third, we conducted three studies (Studies 2-4) with adolescent samples to explore and confirm the factor structure of the PBIAS as well as determine the internal consistency, stability, convergent validity, and incremental validity of the PBIAS's scores. Of note, Boateng and colleague's (2018) best practices for developing and validating scales were followed when developing the PBIAS items and conducting the three studies.

2. Scale Development

To generate a pool of items, we first conducted a literature review in November 2018. We searched the scientific databases Web of Science and Google Scholar using keywords such as "positive body image," "measurement," and "adolescents." From this literature review, we identified body self-care, body appreciation, and resilience against messages that threaten one's body image as central aspects of the conceptualization of positive body image for adolescents. We used previously established scales (i.e., BAS-2, FAS, MSCS, BRQ, BICSI, BCBS, and the self-accepting/positive body talk items developed by Rudiger &

Winstead, 2013) as inspiration in the development of age-appropriate items of the PBIAS. We included one BAS-2 item in the PBIAS with the permission of the authors of the BAS-2, as it was determined to be appropriate for the age and developmental level of adolescents. Authors of these existing scales gave their permission for using their items as inspiration for the PBIAS items. (In supplementary materials, an overview of how these existing scales inspired the development of certain PBIAS items can be found.)

The items, which were originally written in Dutch (the native language of three authors), were then discussed and revised by two content experts in adolescent body image; these experts have authored multiple research articles in journals such as *Body Image* and *Journal of Adolescence*. Next, a group of five social science doctoral students informed of the aims of the scale also reviewed the drafted PBIAS items and provided feedback.

This process resulted in 45 items, of which 13 items were written to assess *body self-care* (e.g., "I take care of my body."), 7 items were written to assess *body self-appreciation* (e.g., "I accept all the different features of my body because they make me who I am [e.g., my eyes]."), and 10 items were written to assess *body other-appreciation* (e.g., "It is my hope that everyone is able to love their bodies as they are."). Lastly, 15 items were written to assess *resilience* coping strategies identified as adaptive in adolescents and children (i.e., forgetting and distraction) (Cracco et al., 2017): 5 were written to assess *resilience against pubertal changes* (e.g., "If I [would] feel insecure about body changes [e.g., my breasts change or my voice changes], I [would] try to think about the things I like about my body."), 5 were written to measure *resilience against negative appearance feedback* (e.g., "If I [would] receive negative feedback on my appearance [e.g., from friends], I [would] try to forget about this."), and 5 were written to assess *resilience against body ideals in media* ("If I am confronted with body ideals [e.g., slim or muscular bodies] in the media, I [would] think about these ideals and how those are unrealistic and/or altered [e.g., via Photoshop]."). Five

adolescents between the ages of 12 and 18 were consulted to review the items; they confirmed the readability and clarity of the items.

2.1. Translation of the Items to English

For the purpose of offering the PBIAS to a wider audience of researchers, the Dutch PBIAS was translated to English following the recommendations of Swami et al. (2021) in terms of best practices for translation of body image instruments. First, a forward-and back-translation was adopted by the first, second, and last author of this article to translate the Dutch PBIAS to English. The third author, whose native language is English, then reviewed the items for semantic and grammatical accuracy. Second, a committee (i.e., a multidisciplinary team) reviewed the forward-and back-translations. The committee was implemented to resolve discrepancies between the Dutch and English version of the PBIAS as well as to achieve semantic, idiomatic, experiential, and conceptual equivalence between these two versions. The committee consisted of: (1) two content specialists who have published in the area of body image, (2) a language professional who was not familiar with adolescent body image, and (3) two psychometricians who are experienced in scale development but unfamiliar with body image. All members of the committee were fluent in both Dutch and English. Consensus was reached by all members of the committee for the finalized English version of the PBIAS.

3. Study 1

In Study 1, we conducted focus groups with Dutch adolescents in order to (1) explore whether the three major themes of positive body image as discussed in the Introduction were indeed salient for Dutch adolescents, (2) detect whether there were any additional themes of positive body image that emerge from adolescents' responses to a semi-structured protocol on body image, (3) determine whether adolescents understood the proposed Dutch PBIAS items in terms of content and clarity, and (4) check whether the PBIAS items were a reflection of

themes of positive body image discussed by adolescents in the focus group interviews. We expected that the Dutch PBIAS items, which were developed before the focus group interviews would be related to the themes of positive body image articulated in the Introduction and discussed by adolescents. We also expected that the adolescents would find these items to be clear and understandable.

3.1. Method

3.1.1. Participants and procedure

Four separate focus groups of adolescents between 14 and 16 years old (70% girls) were interviewed in January 2019 in Flanders, Belgium. A total of 14 adolescents were assigned to one of the four focus groups, and some gender diversity was ensured within each group. The first author contacted one of her former schools in Flanders with a request to recruit participants for focus group interviews. After agreeing to participate in the study, this school distributed informed consent forms to parents. Adolescents who provided active consent and whose parents provided consent for their adolescent to participate in the study were included in the focus group interviews, conducted by the first author. Participants were informed about the purpose of the interview (to examine adolescents' thoughts about different body image topics).

3.1.2. Semi-structured interview

A semi-structured protocol (see Table 1) shaped from previous qualitative body image research among adolescents (Frisén & Holmqvist, 2010) was used to conduct the interviews. The broad questions about body image and positive body image were asked first, and the three major themes of positive body image were then discussed. Next, groups were shown a list of the PBIAS items and asked for feedback on content and clarity. Along with the main questions presented in Table 1, clarifying and probing questions were asked as necessary. Groups contained 3 to 5 adolescents and were conducted in a comfortable setting. Interviews

lasted no more than 50 minutes and were audio taped.

3.1.3. Analysis

Interviews were transcribed, and a thematic analysis was conducted (Braun & Clarke, 2006). The present analysis was mainly deductive and, therefore, followed a "theory-to-data" process. As such, we followed the pre-existing frame of the positive body image literature. The first author repeatedly read the interview transcripts to get familiar with the content's depth and breadth. The distinctive features in the content were given initial codes. Codes that had similar content and that were prevalent throughout the transcript were combined into the three major themes: body self-care, body appreciation, and resilience against body image-threatening messages. All authors agreed with the construction of these finalized themes. Respondents' reflections on the content and clarity of the PBIAS items were also examined to detect any potential improvements that could be made.

3.2. Results

When analyzing the focus group interviews, we mainly explored whether the indicators of positive body image, which spontaneously (i.e., without prompt) emerged when discussing positive body image, were reflected in the original list of PBIAS items that was shown to the participants after discussing positive body image themes. Below is a brief overview of these indicators and their corresponding PBIAS items. More detailed results of the focus group interviews can be found in the supplementary materials.

3.2.1. Body self-care

When discussing body self-care in general, participants reflected that taking care of one's body is a natural part of life. This indicator can be found in Items 2, 4, and 5 (for item list, see Table 2). Also, participants highlighted the practice of responding to body needs as an important part of taking care of oneself. This indicator of self-care is reflected in Items 1, 3, 6, and 7. Further, finding an appropriate balance between body self-care practices also

emerged when participants discussed body self-care, which is reflected in Items 22 and 27.

Participants referred to having a balanced diet as a specific body self-care practice, which is included in Items 8, 9 and 11. Further, participants identified exercising as another important expression of body self-care, which is included in Item 16. They highlighted hygiene as a way of practicing self-care, which is included in Items 4, 12, and 13. Participants reflected that appearance also can be an expression of identity, which is included in Item 24.

3.2.2. Body appreciation

Participants discussed the gradual nature of accepting one's (changing) body. These reflections come forward in Items 14, 15, 17, 18, 19, and 20. Adolescents also referred to the importance of loving one's own body despite broader societal ideals of beauty, which is included in Items 21, 23, 25, 26, 28, 29, and 30.

3.2.3. Resilience against body image-threatening messages

Three sources of body image-threatening messages were discussed: pubertal changes, negative appearance feedback, and societal body ideals. First, participants indicated that the most effective way to cope with and accept pubertal changes was by viewing them as an expected and inevitable part of puberty. Viewing pubertal changes in this manner is reflected in Items 31, 32, 33, 34, and 35. Second, participants further reflected that it is important that adolescents do not let negative appearance feedback affect them and that they distance themselves from these messages. Participants mentioned that it is best to develop "thick skin" – in other words, forget about these messages and realize that they are not that important. This view is reflected in Items 36, 37, 38, 39, and 40. Participants also highlighted that, in the first place, adolescents need to know their value as a person and know that if they love their body, nothing else matters, which is included in Item 37. Third, many participants emphasized that they knew that idealized bodies and appearances in media are often curated and fake, which is emphasized in Item 42. Of note, Items 41, 43, 44, and 45 reflect additional

coping strategies that adolescents can use to handle societal body ideals—these strategies did not emerge spontaneously in our focus group interviews but were found in previous literature with adolescents with a positive body image (Holmqvist & Frisén, 2012).

3.2.4. Participant feedback on proposed PBIAS items

After discussing the three major themes of positive body image and viewing the proposed PBIAS items, all respondents agreed that the items reflected positive body image. No respondent indicated that they had trouble with understanding the items. Therefore, it was concluded that the proposed PBIAS items are clear and age appropriate.

4. Study 2

The first aim of Study 2 was to explore the dimensionality of the proposed 45 PBIAS items (see Table 2) via exploratory factor analysis (EFA) and retain the items that loaded on their primary factor and did not cross-load on other factors. The second aim was to determine the internal consistencies for the PBIAS subscale scores based on the retained PBIAS items. The final aim was to explore the construct validity of the PBIAS' scores: the PBIAS's subscales were expected to be associated with body image variables and resistance to peer influence. Specifically, the PBIAS subscales were expected to correlate positively with critical processing of beauty images (Engeln-Maddox & Miller, 2008), and body esteem (Mendelson et al., 2001), and negatively with dysfunctional appearance beliefs (Spangler & Stice, 2001), social appearance anxiety (Hart et al., 2008), body surveillance (Lindberg et al., 2006), appearance comparison (Thompson et al., 1991), and internalization of beauty ideals (Thompson et al., 2004). These body image variables have been found to be related to positive body image scales, such as the BAS-2, among adults (e.g., Avalos et al., 2005; Tylka & Wood-Barcalow, 2015b). Similar to adults (e.g., Avalos et al., 2005; Wood-Barcalow et al., 2010), positive body image among adolescents is likely associated with higher body esteem and critical processing of media images as well as lower detrimental beliefs about

appearance. The PBIAS's subscales were also expected to correlate positively with resistance to peer influences (Steinberg & Monahan, 2007), given that having a positive body image is believed to protect individuals from social pressures that run counter to their well-being and goals (Wood-Barcalow et al., 2010). We also explored the relationships between the PBIAS subscales, age, and pubertal timing to determine the connections of these developmental variables to positive body image.

4.1. Method

4.1.1. Participants and Procedure

The study was approved by the ethical commission of KU Leuven, Belgium. A representative sample of adolescents (aged between 12 and 18) from 15 schools in Flanders, Belgium was recruited in March 2019. These 15 schools were randomly contacted by undergraduate students following a seminar on quantitative research. The schools provided their consent to participate in the study. Written informed consent was also obtained from each participant and one of their parents. A total of 606 participants filled in a paper-and-pencil survey at school; all items were in Dutch. Participants were assured that the survey would be processed confidentially and anonymously, and they generally completed the survey within 50 minutes. Researchers were present to answer questions. Respondents were removed from the data set if they were younger than 12 or older than 18 (n = 41). The final sample consisted of 565 participants with a mean age of 14.9 (SD = 1.77) and 63.8% were girls. Based on the Belgian secondary school system division, 83.5% followed the first education level in which they were being prepared for college education, 11.3% followed the middle education level in which they were being taught primarily technical skills, and 1.7% followed the third education level leading to professions (e.g., baker); 4.1% did not know which education level they were in.

4.1.2. Measures

For the scales used to estimate construct validity, items were translated to Dutch by the first, second, and last author of the study; an EFA was conducted to ensure that the translated items loaded on the same factor as in the original scale. If the items failed to load on the primary factor, they were removed from consideration.

4.1.2.1. Demographic variables. Adolescents reported their age, gender (0 = *boy*, 1 = *girl*), and educational level.

4.1.2.2. PBIAS. The 45-item Dutch PBIAS was used and rated along a 7-point Likert-scale (1 = *Strongly disagree*, 7 = *Strongly agree*).

4.1.2.3. Pubertal timing. Pubertal status was measured by using four items from the Pubertal Development Scale (Petersen et al., 1988). In particular, respondents were asked to describe the status of their body growth, body hair growth, and changes in their skin. Girls were asked to describe the status of their breast growth, while boys were asked about their vocal changes. Respondents could answer these items with (1) *not yet started*, (2) *has barely started*, (3) *is still going on*, (4) *seems complete*, or (5) *I do not know*. Given the particular sensitivity regarding such questions among adolescents, respondents were also given to opportunity to not answer this question. Respondents who answered "I do not know yet" were coded as having a missing value ($n = 31$). McDonald's ω (internal reliability) was .66 for boys and .67 for girls (note that these scores were not used in the analyses).

Following Beyens et al. (2015), the average scores of respondents of the same age and gender was subtracted from the score of each respondent. The new variable, pubertal timing, represented the respondent's developmental status relative to that of the same-aged respondents in the sample. Thus, respondents with a positive score on this variable are more advanced in pubertal maturation in comparison to respondents from the same age group and gender. Respondents with a negative score are less advanced in maturing in comparison to respondents from the same age group and gender. Respondents were categorized into "late"

(*n* = 118), "on-time" (*n* = 268) and "early" (*n* = 148) according to their pubertal timing scores with cutoffs at the 25th and 75th percentiles (Skoog et al., 2009).

4.1.2.4. Dysfunctional appearance beliefs. The Beliefs About Appearance Scale (BAAS) was used to measure dysfunctional appearance beliefs (Spangler & Stice, 2001). Participants rated eight statements (e.g., "People would be more interested in me if I looked better") on a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). Mean scores were used, with higher scores representing more dysfunctional appearance beliefs (*M* = 2.80, *SD* = 0.80). Previous research has upheld the reliability and validity of the BAAS's scores among adolescent samples (Lin & Reid, 2009). In the present study, McDonald's ω = .86.

4.1.2.5. Social appearance anxiety. The Social Appearance Anxiety Scale (SAAS) (Hart et al., 2008) was used to measure social appearance anxiety. Participants rated 14 statements (e.g., "I'm afraid that people find me unattractive") on a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). In the present study, two items were deleted because they did not load on the primary factor (i.e., "I feel nervous when having my picture taken" and "I get tense when it is obvious people are looking at me") in the EFA. Mean scores were used, with a higher score representing more social appearance anxiety (*M* = 2.57, *SD* = 0.92). Previous research has upheld the reliability and validity of the SAAS's scores in a sample of adolescents (Levinson & Rodebaugh, 2011). In the present study, McDonald's ω = .95.

4.1.2.6. Body surveillance. The Body Surveillance subscale of the adolescent version of the Objectified Body Consciousness Scale (Lindberg et al., 2006) was used. Participants rated four statements (e.g., "During the day, I think about how I look many times"), using a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). Mean scores were used, with higher scores representing a higher body surveillance (*M* = 3.26, *SD* = 1.05). Previous research has upheld the reliability and validity of this subscale in an adolescent sample (Slater & Tiggemann, 2011). In the present study, McDonald's ω = .89.

***4.1.2.7. Body esteem*.** The appearance subscale of the Body Esteem Scale for Adolescents and Adults (BESAA) was used (Mendelson et al., 2001). Participants rated 10 statements (e.g., "I'm pretty happy about the way I look"), using a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). Mean scores were used, with higher scores representing a higher body esteem (M = 3.40, SD = 0.80). Previous research has upheld the reliability and validity of the BESAA's scores in an adolescent sample (Tiggemann & Miller, 2010). In the present study, McDonald's ω = .92.

***4.1.2.8. Resistance to peer influence*.** Resistance to peer influence was measured using a previously validated scale from Steinberg and Monahan (2007). Participants rated seven items (e.g., "I go along with my friends just to keep them happy") using a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). We deleted three items (e.g., "I do what my friends want because it makes them happy") as their factor loadings were lower than .40 and they did not load on the primary factor in the EFA. Mean scores were used, with higher scores representing less resistance to peer influence (M = 2.58, SD = 0.97). Previous research has upheld the reliability and validity of the resistance to peer pressure scores in a sample of adolescents (Albert et al., 2013). In the present study, McDonald's ω = .70 for the four retained items (i.e., "I do things which I know are bad to impress my friends," "I say things I don't believe because I think I will gain respect from my friends," "I behave differently around my friends," and "I do more dangerous things when I'm with friends in comparison to being alone").

***4.1.2.9. Appearance comparison*.** Appearance comparison was measured using the Physical Appearance Comparison Scale (PACS; Thompson et al., 1991). Participants rated five items (e.g., "At parties or other social events, I compare my physical appearance to the physical appearance of others"), using a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). Two items were deleted ("To compare your appearance with the appearance

of others is the wrong way to decide whether you are (un)attractive" and "Someone can know if they are too skinny by comparing themselves with the bodies of others"), as they did not load on the primary factor in the EFA. Mean scores were used, with higher scores representing more appearance comparison (M = 2.64, SD = 1.06). Previous research has upheld the reliability and validity of the PACS's scores in a sample of adolescents (Keery et al., 2004). In the present study, McDonald's ω = .87 for the remaining three items (i.e., "At parties or other social events, I compare my physical appearance to the physical appearance of others," "At parties or other social events, I compare how I am dressed to how other people are dressed," "In social situations, I sometimes compare my body to others' bodies").

4.1.2.10. Internalization of appearance ideals. Internalization of appearance ideals was measured using the Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3) (Thompson et al., 2004). Participants rated nine statements (e.g., "I would like my body to look like the people who are on TV"), using a 5-point Likert scale (1 = *Strongly disagree,* 5 = *Strongly agree*). Two items were deleted ("I do not compare my body to the bodies of people who appear in magazines" and "I do not compare my appearance with appearances of TV and movie stars"), as they did not load on the primary factor in the EFA. Mean score were used, with higher scores representing more sociocultural attitudes towards appearances (M = 1.74, SD = 0.63). Previous research has upheld the reliability and validity of the SATAQ-3 scores in a sample of adolescents (Wilksch et al., 2006). In the present study, the remaining seven items had a McDonald's ω = .94.

4.1.2.11. Critical processing of beauty images. Critical processing of beauty images was measured using three items of the Fake subscale of the Critical Processing of Beauty Images Scale by Engeln-Maddox and Miller (2008). Participants were asked to think about instances where they were confronted with attractive media models and rated three statements (e.g., "Nobody looks like that without computer tricks"), using a 5-point Likert scale (1 =

Strongly disagree, 5 = *Strongly agree*). Mean scores were used, with higher scores representing more critical processing of beauty images (M = 3.04, SD = 0.95). Previous research has upheld the reliability and validity of this subscale's scores in a sample of adolescents (McLean et al., 2013). In the present study, McDonald's ω = .89.

4.2. Analytical Strategy

An exploratory factor analysis via SPSS 26.0 was used to explore the factor structure of the PBIAS. Since factors were expected to be correlated, a principal axis estimation procedure was used with an oblique rotation method with delta = 0 (Costello & Osborne, 2005). Parallel analysis was used to determine the number of factors to extract, given that it provides a more accurate estimation of the number of factors in a data set compared to the eigenvalue > 1 and/or examining the scree plot (Brown, 2006). Following existing scale development research (e.g., Eriksson & Humphreys, 2014), items were subjected to several runs of factor analysis. Particularly, items were deleted if they (a) had a communality loading of less than .40, (b) had an item-factor loading lower than .50 on a primary factor, and (c) had high inter-item correlations as indicated by the anti-image correlation matrix (Tabachnick et al., 2007). After omitting items, the exploratory process was repeated until item loadings were satisfactory (factor loadings and structure can change after removing items).

Further, to assess the internal consistency reliability of the PBIAS subscales with three or more items, McDonald's coefficient omegas (McDonald, 1970) were calculated. Pearson *r* correlations for both girls and boys were conducted to assess the relations between the PBIAS subscales and age, pubertal timing, and the construct validity variables (e.g., body esteem). Effect sizes were based on Cohen's (1992) standards: values ≤ .10 were considered weak, ≃ .30 were considered moderate, and ≃ .50 were considered strong.

4.3. Results

4.3.1. Preliminary analyses. A total of 39.3% of the participants had at least one

missing data point across all measures. The count for missing data points ranged from 0.5 to 3.0% (M = 0.76%), which is considered low for each item (Parent, 2013). Therefore, available item analysis was used to handle missing data, whereby mean total scores reflect the average of all available items, but missing items were not imputed with participants' mean scores. Skewness and kurtosis values were below the critical limits; therefore, no item or scale was transformed (Kline, 2005).

4.3.2. Exploratory factor analysis (EFA). The initial EFA resulted in an 8-factor solution explaining 52.11% of the total variance (see Table 2). After this EFA, items were omitted, and the exploratory process was repeated until item loadings were satisfactory. Note that factor loadings, factor structure, and communalities change after omitting items. Therefore, the values in Table 2 are not reflective of values in other EFAs conducted after the first EFA. In total, 28 items were deleted because they had communalities lower than .40, low factor loadings, and/or because they did not load on any factor. Also, two items were removed because they were not conceptually coherent with their primary factor. The final analysis resulted in a 4-factor solution explaining 69.64% of the variance with a KMO of .85 with Bartlett's test of sphericity being significant, $\chi^2(105) = 3564.42$, $p < .001$. The first factor (6 items; 34.13% of the variance), reflected body self-appreciation. The second factor (3 items; 14.11% of additional variance), reflected body other-appreciation. The third factor (2 items; 13.45% of additional variance), reflected resilience against body ideals. The fourth factor (4 items; 7.95% of additional variance), reflected resilience against negative appearance feedback. Table 3 represents the selected items and their factor loadings. Correlations between the factors are shown in Table 4.

4.3.3. Internal consistency reliability. McDonald's coefficient omegas were .89 for body self-appreciation, .81 for body other-appreciation, and .78 for resilience against negative appearance feedback. Regarding the resilience against body ideals, a significant

correlation was found between the two items measuring this factor, $r = .68$, $p < .01$. These findings support the internal consistency of the PBIAS's scores.

4.3.4. Convergent validity. As indicated in Table 5, body self-appreciation correlated moderately to strongly with all validity measures among girls, showing the strongest correlation with body esteem. Among boys, body self-appreciation correlated moderately with the validity measures, except for critical processing of beauty images. Body other-appreciation was slightly associated with dysfunctional appearance beliefs, body-esteem, and critical processing of beauty images among girls but did not correlate with the validity measures for boys. Resilience against body ideals was slightly-to-moderately associated with all validity measures except for social appearance anxiety for girls, but not associated with any variable among boys. Lastly, resilience against negative appearance feedback was slightly-to-moderately associated with all validity measures among girls and boys. Overall, these findings uphold the PBIAS's convergent validity for both boys and girls.

Body self-appreciation was negatively correlated with age among both girls and boys (see Table 5). Resilience against media body ideals was negatively correlated with age among girls. Further, body-other appreciation and resilience against media body ideals were positively correlated with pubertal timing, but only among girls. Significant correlations were mostly weak to moderate in strength.

5. Study 3

A confirmatory factor analysis (CFA) of the PBIAS was conducted to determine whether the factor structure identified in the EFA in Study 2 would be confirmed with another sample of adolescents. We also examined the PBIAS for measurement invariance.

5.1. Method

5.1.1. Participants and Procedure

Study 3 was the first part of a larger, three-wave longitudinal study of the 'Positive

Body & Sex Project'[1], focusing on body image and sexuality. PBIAS data for Study 3 were collected during January 2020 from a representative sample of adolescents (aged between 12 and 18) from schools in Flanders, Belgium. A total of 100 schools were randomly selected from an overview of all existing Flemish high schools provided by the Flemish government. These schools were initially contacted via e-mail and telephone with the request to participate in the study. Of those schools, 16 schools agreed to participate in the study and were included in Study 3's sample. Written informed parental consent was obtained from each participating adolescent one month before the actual data collection. Adolescents were asked for written consent at the moment of the data collection. The study was approved by the ethical commission of KU Leuven, Belgium.

Respondents were removed from the data set if they reported an age below 12 or above 18 (n = 13). The final analytical sample consisted of 718 respondents with a mean age of 15.2 (SD = 1.57) and 50.4% were girls. In terms of education, 40.5% followed the first education level (being prepared for college education), 46.1% followed a middle education level (being taught primarily technical skills), and 11.9% followed the third education level (preparing for other professions). The majority of the respondents reported a middle socioeconomic status (50%), followed by a high socioeconomic status (47%) and a low socioeconomic status (1.9%). Also, most of the respondents reported a Western-European background (84.6%), followed by a non-Western-European background (7%), and a mixed background (5.4%).

5.1.2. Measures

5.1.2.1. Demographic variables. Adolescents' age, gender (0 = *boy*, 1 = *girl*, 2 = *other*), ethnic background (1 = *Western-European*, 2 = *Eastern-European*, 3 = *African or Middle Eastern*, 4 = *North-American*, 5 = *South-American*, 6 = *Asian*, 7 = *Other*), educational

[1] For more information regarding this project, please contact the first author.

level, and socioeconomic status. Socioeconomic status was measured by using the MacArthur Scale of Subjective social status (Goodman et al., 2001). More specifically, a ladder with 10 rungs representing Belgian society was shown. Respondents had to mark which rung the best represents where their family would be on the ladder (1 = *lowest*, 10 = *highest*). It was explained that the top of the ladder represents people who are the best off financially (e.g., they have the most respectable jobs, have the most money, highest amount of schooling) and the bottom of the ladder represents those who are worst off financially (e.g., no jobs or jobs that nobody respects, have little money, have little or no education).

5.1.2.2. PBIAS. The 15-item PBIAS established in Study 2 was used Study 3.

5.2. Analytical Strategy

Mplus version 8.3 was used to conduct the CFAs and test for measurement invariance. Items were specified to load on their primary factor. The model fit was determined via maximum likelihood estimation. Three goodness-of-fit-indices were used: the root mean square error of approximation (RMSEA), the Bentler Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI) (Hu & Bentler, 1999). Generally, CFI and TLI values between .90 and .95 and RMSEA values between .05 and .08 indicate an acceptable model fit, and CFI and TLI values larger than .95 and RMSEA values smaller than .05 indicate good model fit (Kline, 2005).

We further determined whether the factors of PBIAS were invariant across gender. If measurement invariance can be demonstrated, then girls and boys interpret the items, as well as the underlying latent factor, in the same way. To test measurement invariance, we estimated a set of models: (1) configural (i.e., whether similar factors are measured across boys and girls), (2) metric (i.e., whether respondents across gender attribute the same meaning to the latent construct), and (3) scalar (i.e., whether the meaning of the construct [factor loadings] and the levels of underlying items [intercepts] are equal across boys and

girls) (Chen, 2007; van de Shoot, 2012). The configural model was tested by freeing factor loadings, intercepts, and residual variances across boys and girls. Factor means are fixed at zero in the two groups. In the metric model, factor loadings are constrained to be equal across boys and girls, intercepts and residual variances are free across the two groups, and factor means are fixed at zero in the two groups. The scalar model was evaluated by constraining both factor loadings and intercepts to be equal across groups, allowing residual variances to be free across groups, and fixing factor means at zero in both groups. In order to test a statistical comparison between the configural and metric model and between the metric and scalar model, a chi square difference test is normally used. However, given the large sample of Study 3, the chi square difference test will likely indicate significance and, thus, provide an unrealistic criterion on which to base evidence of invariance (e.g., Byrne & Stewart, 2006). As such, practical model fit changes are explored between the models, if: CFI $\geq$ -.10 and RMSA $\geq$ .015 or SRMR $\geq$ .030, then factor loadings are gender non-invariant (Chen, 2007).

5.3. Results

5.3.1. Preliminary analysis. A total of 5.3% of the participants had at least one missing data point. The count for missing data points was low, ranging from 0 to 0.4% (*M* = 0.12%) for each PBIAS item. Therefore, available item analysis was used to handle missing data (i.e., mean total scores reflect the average of all available items, but missing items were not imputed with mean scores; Parent, 2013). Skewness and kurtosis values were below the critical limits for the PBIAS items; thus, no item was transformed (Kline, 2005).

5.3.2. Confirmatory factor analysis. All correlations between latent factors were freed. The initial CFA indicated a poor model fit, $\chi^2(84) = 480.430$, $p < .001$, CFI = .898, TLI = .873, RMSEA = .081.

Modification indices (MIs) were then examined to determine whether freeing error covariances would improve model fit. Similar wording or content used within item pairs may

contribute to method effects. Model respecification via correlating error covariances is both common and sometimes essential under these conditions (Bentler & Chou, 1987). The MI between the Items 1 ("I feel content with the way my body looks") and 2 of body self-appreciation ("I love my body") indicated shared variance. When these item error terms were allowed to covary, the model fit of the PBIAS improved, $\chi^2(83) = 381.832$, $p < .001$, CFI = .923, TLI = .903, RMSEA = .071. Another MI indicated that Items 15 ["If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) try to distract myself and think about something positive"] and 13 ["If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) try to forget about this"] of resilience against negative appearance feedback shared variance. Therefore, error terms of these two items were allowed to covary, which improved the model fit of the PBIAS, $\chi^2(82) = 329.378$, $p < .001$, CFI = .937, TLI = .919, RMSEA = .065. As such, the factor structure of the PBIAS obtained in Study 2 was confirmed in Study 3. Table 6 includes the model fit indices of the 15-item PBIAS and Figure 1 includes the item-factor loadings, the two estimated correlated errors, and the correlations between latent variables.

5.3.3. Internal consistency reliability. The internal consistency reliability for the 15-item PBIAS was upheld. The coefficient omegas were .91 for body self-appreciation, .83 for body other-appreciation, and .83 for resilience against negative appearance feedback. Significant correlations were found between the two items measuring resilience against media body ideals, $r = .70$, $p < .01$.

5.3.4. Tests of measurement invariance. Table 6 shows that the configural invariance model fit the data well (see Table 6). Thus, the PBIAS items formed similar latent factors for adolescent girls and boys. The factor loading invariant model provided a good fit to the data and the changes in fit indices did not meet Chen's (2007) criteria for non-invariance. The changes in fit indices also did not meet Chen's criteria for intercept non-invariance. As such,

the PBIAS items are invariant among adolescent girls and boys.

With the PBIAS demonstrating measurement invariance across gender, average PBIAS scores can be meaningfully compared between girls and boys (see Table 6). Girls and boys differed significantly (i.e., $p \leq .001$, .01, or .05) on nine PBIAS items. In each case, except for Item 10 (e.g., "If I am confronted with body ideals [e.g., slim or muscular bodies] in the media, I [would] try to distract myself by other things I like about the media"), boys' mean item scores were higher. Regarding the average subscale scores, girls and boys differed significantly on three subscales (i.e., body self-appreciation, resilience against beauty ideals, and resilience against negative appearance feedback). For body self-appreciation and resilience against negative appearance feedback, boys' mean scores were higher. For resilience against media beauty ideals, girls' mean scores were higher.

6. Study 4

The first aim of Study 4 was to estimate the 5-month temporal stability of the PBIAS to determine the extent its subscales are stable over time for adolescents. The second aim was to determine the PBIAS's associations with other body image measures (i.e., appearance-related body esteem and body image self-discrepancy) (to obtain further evidence of construct validity) and whether the PBIAS uniquely contributed to self-esteem above and beyond the contributions by other body image measures (to obtain evidence of incremental validity). Positive body image has been found to be uniquely linked to many indices of positive psychological well-being (for a review, see Tylka, 2018), such as self-esteem, even after controlling for measures of negative body image (Avalos et al., 2005; Tylka & Wood-Barcalow, 2015b). The analysis of incremental validity will further reveal which components of positive body image may be more strongly connected to well-being.

6.1. Method

6.1.1. Participants and Procedure

Data from Study 4 were part of Wave 2 from the longitudinal 'Positive Body & Sex Project.' These data were collected in June 2020, five months after the collection of Study 3's data (i.e., Wave 1 from the longitudinal study) from the same representative sample of adolescents in Flanders, Belgium (aged between 12 and 18).

School visits were originally planned in order to collect data through paper-and-pencil surveys. However, due to social distancing measures implemented to prevent the spreading of the COVID-19 virus, participants were contacted by the school principals to fill in an online survey at home. Active or passive parental consent for the three waves was already obtained in Wave 1 from parents whose adolescents were, respectively, younger than 16 years old or older than 16 years old. Parents were asked to give an additional passive consent for Wave 2, given the change in the data collection method and in order to give parents the opportunity to opt-out their children. Participants were assured that the survey would be processed confidentially, and active consent was obtained at the beginning of the online survey. They were rewarded with coupons worth 5 euros after completion of the online survey. The study was approved by the ethical commission of KU Leuven, Belgium.

Participants were able to contact the first author of the study at any time via e-mail or Whatsapp if they had any questions or concerns. Their data were removed if they did not answer the validity check items correctly (whereby they were instructed to respond a certain way in order to gauge their attention). Also, their data were removed if they reported an age below 12 or above 18 (n = 10). Only participants who completed both Wave 1 and Wave 2 were included in the analyses for the purposes of estimating the test-retest reliability of the PBIAS's scores. The final analytical sample consisted of 309 respondents with a mean age of 15.3 (SD = 1.82), and 66.3% were girls. Of the total sample, 51.1% followed the first education level, 41.7% followed a middle education level, and 5.8% followed the third education level. The majority of the respondents reported a middle socioeconomic status

(51.1%), followed by a high socioeconomic status (47.6%) and a low socioeconomic status (0.6%). Also, most of the respondents had a Western-European background (85%), followed by a non-Western-European background (6%) and a mixed ethnic background (5.3%).

6.1.2. Measures

For the validity measures, scale items were translated to Dutch by the first, second, and last author of the study. For body esteem, an EFA was conducted to ensure that the translated items loaded on the same factor as in the original scale.

6.1.2.1. Demographic variables. Adolescents' age, gender, ethnic background, education level, socioeconomic status were measured using the same scales as Study 2 and 3.

6.1.2.2. PBIAS. The 15-item PBIAS was used.

***6.1.2.3. Self-esteem*.** Self-esteem was measured using a previously validated single-item from Robins et al. (2001), "I have a lot of self-esteem." Item responses are recorded along a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Higher scores represent higher self-esteem (M = 2.74, SD = 1.11). Previous research has upheld the reliability and validity of this item within a sample of adolescents (Orth et al., 2008).

6.1.2.4. Body esteem. A shortened version of the Appearance Subscale of the BESAA (Mendelson et al., 2010) was used. Participants rated 5 statements (e.g., "My appearance makes me sad" [reverse scored]), using a 7-point Likert scale (1 = *Strongly disagree*, 7 = *Strongly agree*). Mean scores were used, with higher scores representing a higher body esteem (M = 4.14, SD = 1.22). Previous research has upheld the reliability and validity of the BESAA's scores in a sample of adolescents (Tiggemann & Miller, 2010). In the present study, all items loaded on the primary factor in the EFA, and McDonald's ω = .89.

6.1.2.5. Body image self-discrepancy. Adolescents were shown the gender-appropriate version of Stunkard's (1983) 9-figure contour scale and were asked to select (1) "Which figure represented their body the most" and (2) "Which figure represented the body

they want to have." The discrepancy between the actual and ideal figure of adolescents was calculated by subtracting the response on the first question (i.e., actual figure) from the second question (i.e., ideal figure) (M = 0.48, SD = 1.15). Scores of zero indicate body size satisfaction, while negative scores indicate the desire to gain weight and positive scores the desire to lose weight. Previous research has upheld the validity of the discrepancy scores in a sample of adolescents (e.g., Simmons et al., 2002).

6.2. Analytical Strategy

Intraclass correlation coefficients (ICCs) and paired sample *t*-tests were used to estimate the 5-month stability of the PBIAS scores. PBIAS subscales were further related to appearance-related body esteem and body image self-discrepancy in order to test convergent validity. Finally, to test incremental validity, a hierarchical regression analysis was used to determine whether the subscales of the PBIAS would predict self-esteem above and beyond the variance accounted for by existing measures of body image (i.e., appearance-related body-esteem and body image self-discrepancy). Specifically, appearance-related body-esteem and body image self-discrepancy were entered at Step 1, and the PBIAS subscales were entered at Step 2 in the prediction of self-esteem.

6.3. Results

6.3.1. Preliminary analysis. No participant had missing data. Skewness and kurtosis values were below the critical limits; hence, no item or scale was transformed (Kline, 2005).

***6.3.2. Internal consistency reliability*.** McDonald's coefficient omegas were .92 for body self-appreciation, .88 for body other-appreciation, and .89 for resilience against negative appearance feedback. The two items measuring resilience against media body ideals were correlated r = .79, p < .01. Once again, these values uphold the internal consistency of the PBIAS's scores.

***6.3.3. Test-retest reliability*.** The ICC of the body self-appreciation subscale was .81;

this score did not change over time, $t(304) = 1.03$, $p = .30$. Similarly, the ICC of the resilience against negative appearance feedback subscale was .71; this score neither increased nor decreased over time, $t(300) = -0.21$, $p = .22$. The ICC for body other-appreciation was .62; this score decreased slightly over time, $t(305) = -2.15$, $p = .03$. The ICC for resilience against media body ideals was .52; this score increased moderately over time, $t(301) = 3.42$, $p < .001$. These findings support the test-retest reliability of body self-appreciation and resilience against negative appearance feedback over a 5-month period.

6.3.4. Construct and incremental validity. For boys and girls, body self-appreciation, body other-appreciation, and resilience against negative appearance feedback were moderately to strongly positively related to appearance-related body esteem (see Table 8). Among girls, body self-appreciation, body other-appreciation, and resilience against negative appearance feedback were inversely related to body image self-discrepancy to a moderate degree. For boys, only body self-appreciation was inversely related to body image self-discrepancy, and this link was moderate in strength. Resilience against media body ideals was not related to either appearance-related body esteem or body image self-discrepancy for girls or boys.

Table 9 shows that, as a group, the PBIAS subscales predicted unique variance in self-esteem. The significant ΔR^2 value at Step 2 was a large effect size according to Cohen's (1992) criteria. Of the subscales, body self-appreciation (positively) and body other-appreciation (inversely) made unique contributions to self-esteem above and beyond appearance-related body esteem and body image self-discrepancy. Therefore, the incremental validity of body self-appreciation and body other-appreciation was upheld.

7. Discussion

The current study uniquely contributed to the body image literature by offering a conceptualization of positive body image for adolescence as well as a theoretically based and

psychometrically sound measure that captures this conceptualization. More specifically, we examined previous definitions and components of positive body image found in the literature (albeit generated for and studied among adults), integrated the different developmental processes characterizing adolescence that could impact positive body image experiences, and conducted focus-group interviews with adolescents to develop and cross-validate our conceptualization. The conceptualization that resulted from these efforts suggests that positive body image among adolescents encompasses three broad domains: (1) body self-care, (2) body appreciation (including body self-appreciation and body other-appreciation), and (3) resilience against body image-threatening messages (including resilience against pubertal changes, media body ideals, and negative appearance feedback).

We developed the PBIAS to measure this conceptualization, and our adolescent focus groups confirmed that its items are clear and age appropriate. We then examined the psychometric properties of the PBIAS within three studies. The results of these studies revealed a 15-item four-factor solution: two factors reflecting body appreciation (i.e., body self-appreciation, body other-appreciation) and two factors reflecting resilience against body threatening messages (i.e., resilience against media beauty ideals and resilience against negative appearance feedback). The PBIAS subscale scores were internally consistent and demonstrated measurement invariance between adolescent girls and boys.

Furthermore, PBIAS subscales demonstrated evidence of convergent validity. Both body self-appreciation and resilience against negative appearance feedback were moderately-to-strongly related to nearly all validity measures for girls and boys. Among girls, resilience against media body ideals was slightly related to the validity measures, but unrelated to the validity measures for boys. Body other-appreciation was slightly related to appearance-related body esteem and resistance to peer pressure for girls, and critical processing of beauty images for boys. Overall, body self-appreciation and resilience against negative appearance

feedback appear to be more central components of adolescents' positive body image compared to the other two components. In the incremental validity analysis, only body self-appreciation uniquely contributed to self-esteem in a positive direction, further highlighting that body self-appreciation is a prominent and unique component of positive body image among adolescents. Unexpectedly, body other-appreciation uniquely contributed to self-esteem in an inverse direction. For adolescents, body other-appreciation in the absence of body self-appreciation[2] (i.e., where adolescents would appreciate diverse body appearances in others but cannot extend that appreciation to their own bodies) is likely detrimental to well-being, as it is for adults (Tylka & Iannantuono, 2016).

The test-retest reliability of the PBIAS's scores was partially supported. Scores on both body self-appreciation and resilience against negative appearance feedback did not increase or decrease over time, suggesting that they are stable constructs for adolescents. However, adolescents' appreciation of others' unique beauty decreased and their ability to be resilient against media body ideals increased over the 5-month period. Overall, this instability may not be surprising, given that developmental changes in positive body image may be expected among adolescents as they are gradually obtaining self-reflective and media literacy skills while, at the same time, are still experiencing bodily changes and witnessing their peers' body changes (Lerner et al., 2010). A 5-month length between administrations is typically longer than the 2- or 3-week length of time in other studies examining positive body image with adults, which also could result in lower estimates of stability (e.g., Tylka & Iannantuono, 2016; Tylka & Wood-Barcalow, 2015b). Additionally, unlike the first administration, data collected at the second administration was unusual due to COVID-19. Media messaging during this time emphasized avoiding weight gain (i.e., the "quarantine

[2] Given that body self-appreciation was included in the analysis, its contribution to the variance of self-esteem was partialled out.

15") (Rodgers et al., 2020). With increased reflective skills, adolescents may have become more skeptical about messages to worry about their weight during a time when they need to worry about the health of their loved ones. Yet, these messages strongly emphasized the harms to health and survival of being high weight when diagnosed with COVID, which may have decreased their body other-appreciation.

Importantly, body self-care and resilience against pubertal changes were removed as factors of adolescent positive body image because their item-factor loadings and/or communalities were too low. These findings were unexpected, as adolescents in Frisén and Holmqvist's (2010) qualitative study as well as the current study's focus group interviews, specifically referred to exercise and taking care of their body as a healthy part of life and their body image. Yet, body-related self-care may not have been detected as a central component of adolescents' positive body image because it may be multidimensional (indeed, it has been conceptualized as such in adults; Cook-Cottone & Guyker, 2018). Eleven of the 13 PBIAS body self-care items tap into quite diverse behaviors (e.g., listening to hunger and exhaustion cues, caring for the self during illness, drinking water after soda, drinking alcohol moderately, using contraceptives during sex, snacking moderately, brushing teeth, wearing clean underwear), and these behaviors individually do not come together well as a factor or factors. Perhaps researchers could articulate common components of self-care for adolescents and develop a sufficient number of items to represent each component, as has been done when assessing self-care among adults (Cook-Cottone & Guyker, 2018).

Of note, age and pubertal timing may be somewhat important to positive body image for adolescents. Age was inversely related to body self-appreciation among boys and to body self-appreciation and resilience against negative appearance feedback among girls. These findings add incrementally to the research—not only do adolescents gradually adopt more negative attitudes towards their bodies as they mature (e.g., Calzo et al., 2013; Yu, 2016) they

also may have lower appreciation for their bodies and become less resilient to negative appearance feedback. Pubertal timing was not correlated with any of the PBIAS subscales among boys, but it did correlate with higher body other-appreciation and resilience against media body ideals among girls. Perhaps the more adolescent girls' bodies change, the more girls become aware and accepting of such changes and unique appearance in others as well. Moreover, it may be possible that as girls experience more pubertal changes, the more they reflect on media body ideals in a critical way, as they may observe a clear discrepancy between their (and other peers') 'real' bodies and idealized bodies found in the media. Of caution, however, the majority of the relationships between age, pubertal timing, and PBIAS subscale scores were quite small in effect size.

Overall, our findings suggest that the PBIAS is a unique addition to the adolescent body image literature. Its key contributions include (1) attention to the developmental context of adolescence and the inclusion of age-appropriate items, (2) applicability to and usability among samples of adolescent boys and girls, and (3) substantial psychometric support. The PBIAS may be useful for researchers who wish to explore the factors that may bolster and interfere with developing and maintaining a positive body image during adolescence. Additionally, the PBIAS may be useful for clinicians and educators in their endeavors to help adolescents develop and maintain a positive body image.

7.1. Limitations and Future Directions

Limitations of the present study should be noted, and these limitations provide directions for future research. First, the focus group interview content and the reliability and validity evidence of the PBIAS's scores were obtained with samples of Belgian (i.e., Flemish) adolescents. The narrow age range of the focus group participants (i.e., 14-16 years old) may yield different content than would interviews of adolescents who are younger than 14 years old and older than 16 years old. Further, using the PBIAS in other countries and

cultures may reveal different factor structures, such as in non-Western samples where different beauty ideals or attitudes towards bodies prevail. Thus, we encourage researchers to explore the reliability and validity of the PBIAS in diverse samples of adolescents based on, for example, their age, country, culture, and sexual orientations in order to explore the generalizability of its scores.

Second, all factor structure, validity, and reliability evidence for the PBIAS was garnered via the Dutch PBIAS. Although we did translate the PBIAS into English, we have not examined its factor structure, or conducted analyses to determine the reliability and validity of its scores, among English-speaking samples. As a result, we recommend that researchers explore the psychometric properties of the English PBIAS to ensure that its usefulness for assessing positive body image among English-speaking adolescents.

Third, the PBIAS adopts a self-report design, which relies on adolescents accurately and honestly responding to its items. Future research should examine additional variables such as social desirability when investigating the discriminant validity of the PBIAS. Relatedly, the current study did not examine whether the subscales of the PBIAS are indeed distinct from other constructs, such as narcissism, which would further explore discriminant validity.

Fourth, with regard to the scales used to assess construct validity, we removed items with poor item-factor loadings. As a result, these scales may have not fully captured their intended construct (of note, trimming items due to inadequate item-factor loadings is common in scale translation research; Kline, 2005).

Fifth, appearance-related body esteem and body self-discrepancy were included as variables in the convergent and incremental validity analyses. Although used among adolescent samples, these two scales are not positive body image measures. Therefore, future studies are advised to test the convergent and incremental validity of the PBIAS's scores by

using positive body image scales such as the Body Appreciation Scale-2 (Tylka & Wood-Barcalow, 2015b) and the children's version, the BAS-2C (Halliwell et al., 2017).

Sixth, we provided examples in some PBIAS items (e.g., "I feel content with the way my body has changed/is changing during puberty [e.g., my breasts have grown or my penis has grown]). These examples may be adapted or removed. After reflecting on these examples, we recognize that they may not be consistent with the experiences of all adolescents.

Seventh, we recognize that some items are double-barreled (e.g., "If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) remind myself that those remarks are not important and that I love my body") and, therefore, may evoke confusion in adolescents. Of note, no focus group respondent expressed confusion with these items. Double-barreled items are often used in popular measures assessing psychological flexibility, such as the Self-Compassion Scale (Neff, 2003) and the Body Image-Acceptance and Action Questionnaire (Sandoz et al., 2013), as the attitudes and behaviors assessed are tied to how participants respond in specific common situations. Another omission is that we did not include mindfulness strategies in the items designed to assess resilience to negative appearance-related messages, pubertal changes, and media body ideals. Rather, we assessed resilience in terms of other coping strategies (i.e., forgetfulness, distraction, and problem solving). Indeed, mindfulness strategies are especially helpful for children and adolescence during events that prompt strong emotions, as negative appearance-related messages, pubertal changes, and media body ideals can do (Cook-Cottone et al., 2018; Turrell et al., 2016).

Eighth, some items that refer to biological changes during adolescence (e.g., "It is my hope that each teenager is able to feel good about the changes that happen in their body during puberty") may not reflect experiences of adolescents who experience delayed puberty. Delayed puberty can be defined as the clinical absence or incomplete development of secondary sexual characteristics by age 13 in girls or age 14 in boys (Abreu & Kaiser, 2016).

It is likely that items discussing pubertal change need to be removed, and experience-relevant items added, when assessing positive body image among this group.

We encourage researchers to examine the relationship between PBIAS scores and additional well-being outcomes beyond self-esteem, such as self-compassion, intuitive eating, disordered eating, and excessive exercise. Previous studies have examined the protective role of body appreciation to prevent media-induced body dissatisfaction among adults (e.g., Andrew et al., 2015). Experimental research is therefore recommended, e.g., researchers could explore the possible protective role of positive body image (PBIAS scores) among adolescents within different contexts that may threaten their body image-related beliefs and attitudes (e.g., social media, sport participation, physical education classes). Further, it is estimated that 13.7% of adolescents in Belgium report symptoms of disordered eating and excessive exercise (Drieskens et al., 2019). Positive body image among adolescents may predict adolescents' resistance to such maladaptive weight control behaviors as well as their higher engagement in adaptive eating (Tylka & Kroon Van Diest, 2015).

7.2. Conclusion

The 15-item PBIAS contains four subscales that measure different expressions of positive body image among adolescents: body self-appreciation, body other-appreciation, resilience against beauty ideals, and resilience against negative appearance feedback. Three studies supported its factor structure and gender invariance, as well as the internal consistency reliability and convergent and incremental validity of its scores. Test-retest reliability over a 5-month period was partially upheld and may reflect the normal variability in adolescents' body image as they develop (as well as the impacts of the COVID-19 pandemic). Overall, the PBIAS can be used by scholars who need a brief measure to assess positive body image among adolescents within research, clinical, and prevention settings.

Funding sources

This work was supported by Bijzonder Onderzoeksfonds, grant number C14/18/017.

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Table 1

Questions used to guide the focus group interviews in Study 1

Questions
Body image in general

- Can you tell me which words spontaneously pop up in your head when I mention the words ‘body’ and ‘body image’?
  - Do you only think about appearance? Or also your bodily functions?
- How do you think the average teenager thinks about their body?
  - How do you feel about your body?
- Do you notice any changes about your body during puberty?
  - How did you respond to these changes?
  - How do you experience these changes?
  - Do you talk about this with your peers?
  - Do you talk about this with your parents?

Positive body image

- Can you describe someone of your age who is satisfied with their body?
  - How does this person behave?
  - Which feelings do they have?
  - How do they care for their body?
  - How do they respond to negative messages about appearance (for example on social media)?
  - Are there differences between boys and girls?
  - Or younger and older adolescents?
- Which advice would you give to someone of your age (for example, your friends) to accept or love their body more?
  - Which advise is helpful for you?
- What do you think about the statement “everyone should be able to love their body, despite their imperfections?”

- What do you think about the statement “everyone should take care of their body?”
    - Do you do this?
    - Do your friends do this?

Questions about the proposed items of the PBIAS

After positive body image indicators were discussed, the participants were shown a list of the proposed items of the PBIAS. Participants were asked the following questions regarding these items:

- Do you think these statements reflect a person having a positive body image?
- Do you understand what these statements mean?
    - Are they clear enough?
    - Do some statements or words perhaps confuse you?

Table 2

Study 2 Initial EFA with original items of PBIAS

Items	Communalities	1	2	3	4	5	6	7	8
1. I listen to my body when it indicates it needs something (e.g., if my stomach starts to growl, I eat something).	.395							.437	
2. I take care of my body.	.454				.526			.493	
3. It is important to listen to the signals of my body (e.g., exhaustion).	.388								
4. I think personal hygiene is important (e.g., brushing my teeth).	.539				.677				
5. It is not important for me to have a healthy body. (reverse)	.181								
6. If I feel ill, I usually do nothing about it. (reverse)	.253								
7. If I am busy and my body indicates it needs something, I take care of my body first.	.269								
8. If I drank soda before, I try to drink water afterwards even though my friends may think this is silly.	.460						.689		
9. If I (were to) drink alcohol, I (would) do this moderately regardless of what my friends think.	.270								
10. If I (were to) have sex, and I don't have any contraceptive (e.g., I don' t have a condom or don't take the contraceptive pill),	.163								

I (would) stop because this is unsafe.					
11. I try to snack moderately to keep my body healthy.	.376				.614
12. If I am tired or just don't feel like it, I skip brushing my teeth. (reverse)	.203			-.407	
13. If I cannot immediately find clean underwear, I wear the same underwear again. (reverse)	.241			-.462	
14. I respect my body.	.533	.574			
15. I feel content with the way my body has changed/is changing during puberty (e.g., my breasts have grown or my penis has grown).	.421	.599			
16. I am content with what I can do with my body (e.g., I can run fast or keep my balance).	.411	.618			
17. I love my body.	.815	.861			
18. I accept all the different features of my body because they make me who I am (e.g., my eyes).	.652	.697			
19. I feel content with the way my body looks.	.797	.818			
20. My body, what it looks like, and what it can do are all part of who I am as a person.	.531	.633			
21. Everyone is different, so everyone has a different body shape and I respect this.	.753		.844		
22. Everyone has different physical needs (e.g., exhaustion) and I	.679		.788		

respect this.		
23. I think it's good if different body types (e.g., a plus-size model or a muscular woman) are depicted in the media.	.411	
24. How someone changes their looks is the choice of this person alone (e.g., getting a tattoo).	.330	
25. For me personally, being beautiful has nothing to do with being plus-size, thin, or muscular.	.462	
26. Feeling good about your body does not need to depend solely on the way you look.	.306	
27. It is my hope that everyone has the ability to take care of their body.	.490	.400
28. It is my hope that everyone is able to love their bodies as they are.	.575	.784
29. It is my hope that all teenagers are able to feel good about the changes that happen in their bodies during puberty.	.587	.789
30. It is my hope that everyone is able to view their bodies as a unique part of who they are as a person.	.621	.653
31. If I (would) feel insecure about body changes (e.g., my breasts change or my voice changes), I (would) try to distract myself by doing something pleasant (e.g., practicing my hobby).	.420	
32. If I (would) feel insecure about body changes (e.g., my	.409	

breasts change or my voice changes), I (would) try to think about the things I like about my body.			
33. If I (would) feel insecure about body changes (e.g., my breasts change or my voice changes), I (would) try to forget about it.	.453		.617
34. If I (would) feel insecure about body changes (e.g., my breasts change or my voice changes), I (would) try to distract myself and think about something positive.	.676		.638
35. If I (would) feel insecure about body changes (e.g., my breasts change or my voice changes), it is important to not pay too much attention to this.	.443		.417
36. If I (would) receive negative feedback on my appearance (e.g., from friends), it is important not to pay too much attention to this.	.633	.691	
37. If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) remind myself that those remarks are not important and that I love my body.	.688	.531	
38. If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) try to distract myself and think about something positive.	.593	.582	
39. If I (would) receive negative feedback on my appearance	.501	.539	

(e.g., from friends), I (would) try to forget about this.			
40. If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) try to distract myself by doing something pleasant (e.g., practicing my hobby).	.740		.744
41. If I am confronted with body ideals (e.g., slim or muscular bodies) in the media, it is important not to pay too much attention to it.	.444		
42. If I am confronted with body ideals (e.g., slim or muscular bodies) in the media, I (would) think about these ideals and how they are unrealistic and/or altered (e.g., via Photoshop).	.405	.505	
43. If I am confronted with body ideals (e.g., slim or muscular bodies) in the media, I (would) try to distract myself and think about something positive.	.715	.880	
44. If I am confronted with body ideals (e.g., slim or muscular bodies) in the media, I (would) try to distract myself with other things I like about the media.	.666	.790	
45. If I am confronted with body ideals (e.g., slim or muscular bodies) in the media, I (would) try to forget about it.	.514	.652	

Note. Study 2: $N = 565$ participants, factor loadings of the pattern matrix are reported.

Table 3

Study 2 communalities and factor loadings of the final items of the PBIAS

		Factors			
Items	**Communalities**	**1**	**2**	**3**	**4**
1. I feel content with the way my body looks.	.896	.881			
2. I love my body.	.886	.870			
3. I accept all different features of my body, they make me who I am (e.g., my eyes).	.789	.756			
4. I feel content with the way my body has changed/is changing during puberty (e.g., my breasts have grown or my penis has grown).	.627	.664			
5. I respect my body.	.642	.655			
6. My body, what it looks like, and what it can do are all part of who I am as a person.	.663	.591			
7. It is my hope that all teenagers are able to feel good about the changes that happen in their bodies during puberty.	.684		.821		
8. It is my hope that everyone is able to love their bodies as they are.	.559		.744		
9. It is my hope that everyone is able to view their bodies as a unique part of who they are as a person.	.570		.733		
10. If I am confronted with body ideals (e.g., slim or muscular bodies) in the media, I (would) try to distract myself by other things I like about the media.	.693			.832	
11. If I am confronted with body ideals (e.g., slim or muscular bodies) in the media, I (would) try to distract myself and think about something positive.	.675			.821	
12. If I (would) receive negative feedback on my appearance (e.g., from friends), it is important not to pay too	.584				.738

much attention to this.		
13. If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) try to forget about this.	.421	.631
14. If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) remind myself that those remarks are not important and that I love my body.	.660	.744
15. If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) try to distract myself and think about something positive.	.806	.665

Note. Study 2: N = 565 participants, factor loadings of the pattern matrix are reported.

Table 4

Study 2 zero-order correlations between the factors of PBIAS

	Body self-appreciation	Body other-appreciation	Resilience against body ideals in media	Resilience against negative appearance feedback
Body self-appreciation	1	.17**	.07	.09*
Body other-appreciation		1	.21**	.28**
Resilience against body ideals in media			1	.47**
Resilience against negative appearance feedback				1

Note. Study 2: $N = 565$ respondents. *$p < .05$, **$p < .01$

Table 5

Study 2 PBIAS convergent validity

		Body self-appreciation	Body other-appreciation	Resilience against body ideals in media	Resilience against negative appearance feedback
Age	Boys	-.18*	-.02	.12	-.14
	Girls	-.14*	.07	-.10	-.12*
Pubertal timing	Boys	-.13	-.03	-.03	-.11
	Girls	-.02	.13*	.27**	-.04
Dysfunctional appearance beliefs	Boys	-.41**	-.04	-.11	-.12*
	Girls	-.57*	-.04	-.20*	-.48**
Social appearance anxiety	Boys	-.58**	-.10	-.03	-.34**
	Girls	-.58**	-.03	-.07	-.57**
Body surveillance	Boys	-.48**	-.03	-.10	-.33**
	Girls	-.49**	.06	-.14**	-.54**
Body-esteem	Boys	. 67**	.10	.02	.32**
	Girls	.80**	.15**	.18**	.58**
Resistance to peer pressure	Boys	-.54**	-.04	-.01	-.24**
	Girls	-.71**	-.12*	-.18**	-.54**
Appearance comparison	Boys	-.28**	-.03	-.07	-.22**
	Girls	-.45**	.01	-.18**	-.43**
Internalization of appearance ideals	Boys	-.37**	-.13	-.13	-.19**
	Girls	-.55**	-.08	-.28**	-.48**
Critical processing of beauty images	Boys	.05	.15*	.16	.17*
	Girls	.17**	.07	.31**	.28**

Note. Study 2: N = 565 respondents. *p < .05, **p < .01, ***p < .001.

Table 6

Model fit indices for the confirmatory factor analyses (CFAs) and tests of measurement invariance (MI) of the PBIAS items

Model	**χ^2**	**df**	**CFI**	**RMSEA**	**95% CI**	**SRMR**
Girls and boys	329.378	82	.937	.065	.058, .072	.056
MI						
Configural model	479.720	164	.922	.073	.066, .081	.062
Metric model	490.395	175	.922	.071	.063, .078	.067
Scalar model	516.987	186	.918	.070	.063, .078	.069

Note. Study 3: *N* = 718 respondents

Table 7

Study 3 PBIAS items and means (*SD*s)

	Girls		Boys		
	M	***SD***	***M***	***SD***	***t*(716)**
1. I feel content with the way my body looks.	4.04	1.446	4.83	1.264	7.73***
2. I love my body.	4.08	1.394	4.82	1.263	7.42***
3. I accept all different features of my body, they make me who I am (e.g., my eyes).	4.71	1.413	5.19	1.179	5.01***
4. I feel content with the way my body has changed/is changing during puberty (e.g., my breasts have grown or my penis has grown).	4.56	1.280	5.07	1.126	5.66***
5. I respect my body.	4.95	1.340	5.37	1.117	4.50***
6. My body, what it looks like, and what it can do are all part of who I am as a person.	5.01	1.171	5.40	1.076	4.59***
7. It is my hope that all teenagers are able to feel good about the changes that happen in their bodies during puberty.	5.54	1.078	5.38	1.148	1.99*
8. It is my hope that everyone is able to love their bodies as they are.	5.33	1.225	5.29	1.264	0.39
9. It is my hope that everyone is able to view their bodies as a unique part of who they are as a person.	5.29	1.102	5.22	1.052	0.88
10. If I am confronted with body ideals (e.g., slim or muscular bodies) in the media, I (would) try to distract myself by other things I like about the media.	4.06	1.339	3.80	1.430	2.57**
11. If I am confronted with body ideals (e.g., slim or muscular bodies) in the media, I (would) try to distract myself and think about something positive.	3.82	1.304	3.66	1.392	1.57
12. If I (would) receive negative feedback on my appearance (e.g., from friends), it is important not to pay too much attention to this.	4.28	1.645	5.02	1.488	6.37***
13. If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) try to forget about this.	4.37	1.522	4.66	1.581	2.50*
14. If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) remind myself that	3.99	1.578	4.63	1.446	5.69***

those remarks are not important and that I love my body.					
15. If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) try to distract myself and think about something positive.	4.15	1.456	4.30	1.451	1.45
Factor 1 – total score	4.60	1.09	5.11	.96	7.22***
Factor 2 – total score	5.39	.97	5.29	.99	1.23
Factor 3 – total score	3.94	1.21	3.73	1.31	2.25*
Factor 4 – total score	4.20	1.28	4.66	1.17	4.99***

Note. Study 3: $N = 718$ respondents. PBIAS items were rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). An independent sample *t*-test was conducted to assess whether items and factor scores differed significantly between boys and girls. *$p < .05$, **$p < .01$, ***$p < .001$

Table 8

Study 4 PBIAS convergent validity

		Body self-appreciation	Body other-appreciation	Resilience against body ideals in media	Resilience against negative appearance feedback
Body-esteem	Boys	.78**	.29**	.12	.61**
	Girls	.81**	.36**	.07	.58**
Body image self-discrepancy	Boys	-.29**	-.16	.05	-.18
	Girls	-.44**	-.17*	-.07	-.33**

Note. Study 4: N = 309 respondents. *p < .05, **p < .01, ***p < .001

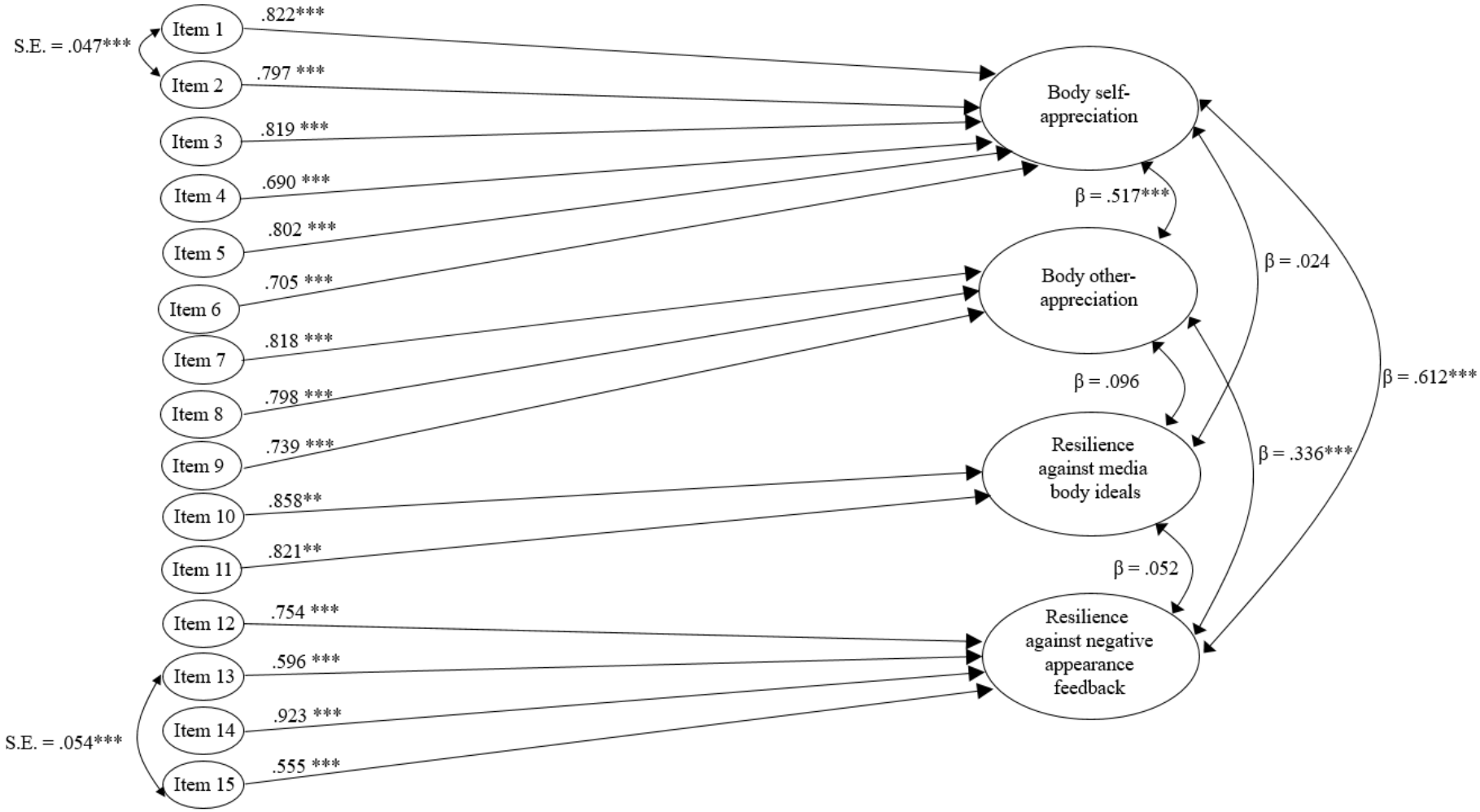
Table 9

Study 3 Positive Body Image among Adolescents Scale (PBIAS) incremental variance in self-esteem

	Total R^2	ΔR^2	ΔF	β	*t*
Criterion: Self-esteem					
Step 1	.25	.25	42.00***		
Body-esteem				.53	8.77***
Body image self-discrepancy				1.27	1.27
Step 2	.58	.32	8.08***		
Body-esteem				.16	1.63
Body image self-discrepancy				.08	1.40
Body self-appreciation				.51	5.38***
Body other-appreciation				-.16	-2.69**
Resilience body ideals				-.06	-1.11
Resilience negative appearance feedback				.01	0.15

Note. Study 3: N = 309 respondents. *p < .05, **p < .01, ***p < .001

Figure 1. CFA item-factor loadings for Study 3.



Note. Study 3: N = 718 respondents. *p < .05, **p < .01, ***p < .001.

Appendix A

Positive Body Image among Adolescents Scale (PBIAS) translated to English by the first, second and last author of the study.

Directions for administration: Check the box (1 = *strongly disagree*, 7 = *strongly agree*) that reflects your attitude towards the following statements.

Body Self-Appreciation (6 items)

1. I feel content with the way my body looks.

2. I love my body.

3. I accept all the different features of my body because they make me who I am (e.g., my eyes).

4. I feel content with the way my body has changed/is changing during puberty (e.g., my breasts have grown or my penis has grown).

5. I respect my body.

6. My body, what it looks like, and what it can do are all part of who I am as a person.

Body Other-Appreciation (3 items)

7. It is my hope that all teenagers are able to feel good about the changes that happen in their bodies during puberty.

8. It is my hope that everyone is able to love their bodies as they are.

9. It is my hope that everyone is able to view their bodies as a unique part of who they are as a person.

Resilience Against Body Ideals in Media (2 items)

10. If I am confronted with body ideals (e.g., slim or muscular bodies) in the media, I (would) try to distract myself by other things I like about the media.

11. If I am confronted with body ideals (e.g., slim or muscular bodies) in the media, I (would) try to distract myself and think about something positive.

Resilience Against Negative Appearance Feedback (4 items)

12. If I (would) receive negative feedback on my appearance (e.g., from friends), it is important to not pay too much attention to this.

13. If I (would) receive negative feedback on my appearance (e.g., from friends), it is important that I forget about this.

14. If I (would) receive negative feedback on my appearance (e.g., from friends), I (would) remind myself that those remarks are not important and that I love my body.

15. If I (would) receive negative appearance feedback (e.g., from friends), I (would) try to distract myself and think about something positive.

Appendix B

Original Positive Body Image among Adolescents Scale (PBIAS) in Dutch used in the study:

Instructies voor gebruik: Duid het vakje aan (1 = *helemaal niet akkoord*, 7 = *helemaal akkoord*) dat overeenkomt met jouw mening over de volgende stellingen.

Lichaam Zelf-Appreciatie (6 items)

1. Ik voel me tevreden over de manier waarop mijn lichaam uitziet.
2. Ik hou van mijn lichaam.
3. Ik accepteer alle verschillende kenmerken van mijn lichaam, ze maken van mij wie ik ben (vb. mijn ogen).
4. Ik voel me tevreden over de manier mijn lichaam aan het veranderen is/verandert is tijdens de puberteit.
5. Ik respecteer mijn lichaam.
6. Mijn lichaam, hoe het eruit ziet, en wat het kan, zijn allemaal deel van wie ik ben als persoon.

Lichaam Ander-Appreciatie (3 items)

7. Iedereen zou van zijn lichaam moeten kunnen houden.
8. Het lichaam van iedere tiener verandert tijdens de puberteit en ze zouden zich hier goed over moeten kunnen voelen.
9. Ik vind dat iedereen zijn lichaam zou moeten beschouwen als een uniek deel van zichzelf.

Weerbaarheid tegen Lichaamsidealen in de Media (2 items)

10. Wanneer ik geconfronteerd wordt met lichaamsidealen (e.g., gespierde of dunne lichamen), probeer ik/ zou ik proberen mezelf af te leiden en aan iets positief te denken.
11. Wanneer ik geconfronteerd wordt met lichaamsidealen (e.g., gespierde of dunne lichamen), probeer ik/zou ik proberen mezelf af te leiden met dingen die ik leuk vind aan de media.

Weerbaarheid tegen Negatieve Uiterlijk-gerelateerde opmerkingen (4 items)

12. Wanneer ik negatieve opmerkingen krijg/zou krijgen over mijn uiterlijk (vb. van leeftijdsgenoten), probeer ik/ zou ik proberen hier niet teveel aandacht aan te schenken.
13. Wanneer ik negatieve opmerkingen krijg/zou krijgen over mijn uiterlijk (vb. van leeftijdsgenoten), is het belangrijk dat ik dit vergeet.
14. Wanneer ik negatieve opmerkingen krijg/zou krijgen over mijn uiterlijk (vb. van leeftijdsgenoten), herinner ik/zou ik mij eraan herinneren dat deze opmerkingen niet belangrijk zijn en dat het enige wat telt is dat ik van mijn lichaam hou.
15. Wanneer ik negatieve opmerkingen krijg/zou krijgen over mijn uiterlijk (vb. van leeftijdsgenoten), probeer ik/zou ik proberen mezelf af te leiden en aan iets positief te denken.