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A longitudinal study investigating positive body image, eating disorder symptoms, and other related factors among a community sample of men in the UK

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ABSTRACT

Emerging research suggests that *positive body image*—an overall love and respect for one's body— may be a protective factor for eating disorder (ED) symptoms. This study aimed to explore the relationships between positive body image, ED symptoms, and related factors among men across time. A community sample of 440 British men completed questionnaires at Time 1 and Time 2 (1 year later). Linear models showed that, unexpectedly, positive body image at Time 1 did not predict change in ED symptoms at Time 2, and ED symptoms at Time 1 did not predict change in positive body image at Time 2. However, positive body image at Time 1 did predict increased appearance satisfaction and decreased appearance-ideal internalisation at Time 2. Increased positive body image at Time 2 was only predicted by appearance satisfaction at Time 1. Although no evidence for a longitudinal relationship between positive body image and ED symptoms was found, positive body image did predict change in established risk factors for disordered eating among men. Future research on positive body image and eating behaviour among men could be improved by including assessments of muscularity-oriented and adaptive eating behaviours.

1. Introduction

Positive body image is a multifaceted construct that captures an overall love and respect for one's body, regardless of whether it meets societal standards for how a body "should" look or function (Tylka & Wood-Barcalow, 2015b). Scholars have called for more research on positive body image because it can provide an important complement to the wealth of research on facets of negative body image (e.g., appearance dissatisfaction; Tylka & Wood-Barcalow, 2015b; Tylka & Piran, 2019; Webb, Wood-Barcalow, & Tylka, 2015). Indeed, positive body image is not merely the opposite of negative body image; it is uniquely associated with aspects of well-being (e.g., self-esteem, optimism) even after accounting for negative body image (Avalos, Tylka, & Wood-Barcalow, 2005; Tylka & Wood-Barcalow, 2015a), and individuals can experience facets of positive and negative body image concurrently (Tiggemann & McCourt, 2013).

One particularly valuable contribution of this emerging research is that positive body image appears to be important with respect to eating behaviour. Qualitative research among women, and adolescent girls and boys, who endorse a positive body image has shown that these individuals value healthy eating behaviours as a means to take care of their body (Frisén & Holmqvist, 2010; Holmqvist & Frisén, 2012; McHugh, Coppola, & Sabiston, 2014; Wood-Barcalow, Tylka, & Augustus-Horvath, 2010). Further, cross-sectional studies among women and men have shown that positive body image is inversely associated with eating disorder symptoms and positively associated with *intuitive eating* (e.g., Alleva, Tylka, & Kroon Van Diest, 2017; Alleva, Paraskeva, Craddock, & Diedrichs, 2018; Avalos et al., 2005; Gillen, 2015; Tylka & Homan, 2015; Tylka & Wood-Barcalow, 2015a), an adaptive eating style guided by attunement to one's bodily cues (e.g., hunger, satiety) rather than by emotional or external cues (e.g., sadness, dietary rules) to largely determine what, when, and how much to eat (Tylka, 2006). A wealth of research has highlighted negative body image as a key risk factor for the

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development and maintenance of some eating disorders (e.g., Goldschmidt, Wall, Choo, Becker, & Neumark-Sztainer, 2016; Goldschmidt et al. 2018; Sharpe et al., 2018). The emerging findings on positive body image are important because they suggest that positive body image might be a *protective* factor against eating disorders. Cultivating positive body image could thus be important for strengthening the prevention and treatment of eating disorders (Cook-Cottone, 2020; Piran, 2017).

Notably, the majority of research on positive body image in relation to eating behaviour is derived from female samples and has used a cross-sectional design (Halliwell, 2015). The studies that have included male samples (described below) have mainly concerned adolescent boys and young men at emerging adulthood. The aim of the present study was to extend and complement the prior literature by examining the relationships between positive body image, eating disorder symptoms, and other factors pertinent to eating disorders, among adult men and within a longitudinal study design. Investigating positive body image and eating disorders among men is important, because although eating disorders are more common among women, men still represent 8–31% of people with Anorexia and Bulimia Nervosa, and up to 43% of people with Binge Eating Disorder (Hay, Girosi, & Mond, 2015; Udo & Grilo, 2018), and rates of eating disorder symptoms are increasing more rapidly among men compared to women (Mitchison, Hay, Slewa-Younan, & Mond, 2014). Moreover, longitudinal designs could enable firmer conclusions about the potential impact of positive body image on eating disorder symptoms and other pertinent factors, as they allow one to test for *temporal precedence* (i.e., whether a proposed cause is temporally antecedent to the proposed effect) whereas cross-sectional designs do not (Andrew, Tiggemann, & Clark, 2016).

1.1. Positive body image and eating disorder symptoms among men

As stated above, cross-sectional research has shown that positive body image is inversely associated with eating disorder symptoms among men (e.g., Alleva et al., 2017, 2018; Avalos et al., 2005; Gillen, 2015; Tylka & Wood-Barcalow, 2015a). To our knowledge, no longitudinal studies have investigated whether positive body image predicts lower eating disorder symptoms among men across time. In fact, only one longitudinal study has investigated the relationship between positive body image and eating behaviour, and this study was conducted among a female sample. In particular, Andrew and colleagues (2016) showed that, among adolescent girls in Australia, positive body image predicted lower levels of dieting and higher levels of intuitive eating one year later.

We proposed that positive body image would predict a reduction in eating disorder symptoms among men across time. Men with a positive body image appreciate and respect their bodies, and so they should be less likely to harm their bodies via disordered eating behaviours (Holmqvist Gattario & Frisén, 2019; Tylka & Wood-Barcalow, 2015b). Similarly, men with a positive body image appreciate the functionality of their body, more so than its physical appearance, and are critical of societal appearance ideals and the sacrifices to their health that would be required to achieve them (Holmqvist Gattario & Frisén, 2019; Tylka & Wood-Barcalow, 2015b). Therefore, men with a positive body image should be less likely to engage in disordered eating behaviours, as these are often motivated by appearance-related or performance-oriented goals and internalisation of societal appearance ideals (Lavender, Brown, & Murray, 2017; Murray, Griffiths, & Mond, 2016).

For completeness, we also explored whether the reverse was also true: Namely, whether lower eating disorder symptoms would predict increases in positive body image. Men with lower levels of eating disorder symptoms may be better able to appreciate their bodies—for example, because their bodies feel and function better, or because they do not view their body as an external "threat" and are thus more likely to experience a positive body-self connection that is fundamental to developing positive body image (Cook-Cottone, 2020; Piran, 2017). Therefore, though our primary interest was the impact of positive body image on later eating disorder symptoms, it is plausible that there is a bidirectional temporal relationship between the two variables.

1.2. Positive body image and other factors related to eating disorders among men

We also investigated the longitudinal relationships between positive body image and several factors that are pertinent to eating disorders: appearance satisfaction, appearance-ideal internalisation, drive for muscularity and leanness, upward appearance-based social comparisons, perceived appearance pressures, media consumption, conformity to masculine norms, and physical activity. Cross-sectional research has shown that positive body image is associated with each of these factors among men (i.e., positive correlations with appearance satisfaction and physical activity, and inverse correlations with the other named factors; Alleva et al., 2017, 2018; Gillen, 2015; Kroon Van Diest & Tylka, 2010; Swami, Hadji-Michael, & Furnham, 2008; Tylka & Homan, 2015; Tylka & Wood-Barcalow, 2015a). This study will be the first to investigate these relationships among men within a longitudinal study design.

We proposed that positive body image would predict increased appearance satisfaction and decreased appearance-ideal internalisation, upward appearance-based social comparisons, drive for muscularity and leanness, appearance pressures, and media consumption across time. These findings would align with qualitative research on adolescent boys and young men with a positive body image, which has shown that they accept their body and do not try to change their appearance in any way, they are sceptical of societal appearance ideals, and they use strategies to protect their positive body image, including minimising social comparisons and exposure to body image-related "threats" (e.g., appearance-ideal media or appearance-focused peers; Frisén & Holmqvist, 2010; Holmqvist Gattario & Frisén, 2019; Holmqvist & Frisén, 2012). Similarly, men with a positive body image may be critical of gender roles more broadly, beyond societal standards for their appearance (Tylka & Wood-Barcalow, 2015b), and so they may experience reduced conformity to masculine norms across time. Last, we anticipated that men with a positive body image would report increased levels of physical activity across time. This is based on qualitative findings that have shown adolescent boys and young men with a positive body image engage in joyful physical activity to take care of their body's functionality (Frisén & Holmqvist, 2010; Holmqvist Gattario & Frisén, 2019; Holmqvist & Frisén, 2012).

We also explored whether these factors could predict positive body image across time as it is plausible that such relationships are bidirectional. Men who are satisfied with their appearance, perceive fewer appearance pressures, and consume less media might be better positioned to feel love and respect for their body. Scholars have proposed that having family and peers who express unconditional body acceptance is crucial to developing positive body image (Kroon Van Diest & Tylka, 2010; Tylka & Homan, 2015). Further, media consumption, social comparison, and appearance-ideal internalisation are causal factors in the development of negative body image (Myers & Crowther, 2009); men who minimise these practices might be more likely to develop positive body image as well. In addition, men who do not strive toward muscularity, leanness, and masculine norms may feel freer to engage in practices that promote positive body image, which sometimes conflict with gender expectations for men (Alleva et al., 2018). Last, physical activity could encourage men to appreciate their body's functionality, more so than its physical appearance, which is important for fostering positive body image (Tylka & Wood-Barcalow, 2015b).

1.3. The present study

This study investigated the relationships between positive body image, eating disorder symptoms, and other factors pertinent to eating disorders, among adult men within a longitudinal study design. We hypothesised that positive body image at Time 1 would predict decreased eating disorder symptoms at Time 2 (1 year later). We also hypothesised that positive body image at Time 1 would predict increased appearance satisfaction and physical activity, and decreased appearance-based social comparisons, appearance-ideal internalisation, drive for muscularity and leanness, appearance pressures, media consumption, and conformity to masculine norms at Time 2. Last, we tested whether levels of eating disorder symptoms and the other pertinent factors at Time 1 would predict positive body image at Time 2.

2. Method

2.1. Participants and procedure

The ethics committee at the University of the West of England approved this study (data are available via the University of the West of England Research Data Repository, upon request and for non-commercial purposes). We recruited men via the YMCA[1] in the UK and other media (e.g., the university's website). Recruitment criteria were identifying as male and age ≥ 18 years old. The study was completed online. At Time 1, participants provided informed consent and then completed the demographic items and questionnaires. Participants were invited to complete the questionnaires 12 months later, at Time 2. They were debriefed via email and entered into a lottery to win an iPad. Cross-sectional analyses on data from Time 1 have been reported as part of a separate manuscript with separate aims (see Alleva et al., 2018; Time 2 data were not reported). In total, 440 participants completed the survey at T1 and 202 completed it one year later at T2, with 185 matched cases (42.0% retention). Demographic characteristics are summarised in Table 1.

Table 1
Participants' demographic characteristics at Time 1 and Time 2.

	Time 1		Time 2	
	M (SD)	Range	*M (SD)*	Range
Age	39.13 (13.76)	18.00–85.00	43.56 (14.33)	20.00–80.00
Body mass index	25.74 (4.39)	14.96–46.68	26.09 (4.79)	16.98–43.25
	n	%	*n*	%
Sexual orientation				
Heterosexual	301	68.41	130	66.70
Gay	114	25.91	56	28.70
Bisexual	14	3.18	7	3.60
Other	3	0.68	0	0.00
Rather not say	7	1.59	2	1.00
Did not respond	1	0.23	0	0.00
Ethnicity				
White	399	90.68	184	94.50
Asian	17	3.86	4	2.00
Black	4	0.91	1	0.50
Mixed	8	1.82	2	1.00
Other	9	2.05	2	1.00
Rather not say	2	0.45	2	1.00
Did not respond	1	0.23	0	0.00
Education level				
GCSE	59	13.41	23	11.80
A-Level	80	18.18	31	15.90
Diploma	68	15.45	31	15.90
Undergraduate	143	32.50	62	31.80
Graduate	84	19.09	45	23.10
Rather not say	4	0.91	3	1.50
Did not respond	2	0.45	0	0.00

2.2. Measures

We measured *positive body image* using the Body Appreciation Scale (Avalos et al., 2005).[2] This scale comprises 13 items that assess "acceptance, respect and attention toward bodily needs, favourable opinions toward one's body and rejection of media messages depicting narrow beauty ideals" (Andrew et al., 2016, p. 1).

We measured eating disorder symptoms with the *Eating Disorder Examination Questionnaire* (Fairburn & Beglin, 2008), which comprises 28 items that assess eating-related thoughts, feelings, and behaviours over the past 28 days. In line with prior research (e.g., Jankowski et al. 2017), only the 12 items considered diagnostic of eating disorders were administered to reduce participant burden.

The remaining factors were assessed using the Body Areas Satisfaction Subscale (*appearance satisfaction*; Brown, Cash, & Mikulka, 1990; Cash, 2000), Internalisation General and Internalisation Athlete Subscales (*appearance-ideal internalisation*; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004), Drive for Muscularity Scale (*drive for muscularity*; McCreary & Sasse, 2000), Drive for Leanness Scale (*drive for leanness*; Smolak & Murnen, 2008), Upward Physical Appearance Comparisons Subscale (*upward appearance-based social comparisons*; O'Brien et al., 2009), Perceived Sociocultural Influences on Body Image and Body Change Questionnaire (*perceived appearance pressures from media, peers, and one's romantic partner*; McCabe & Ricciardelli, 2001), and Conformity to Masculine Norms Inventory (*conformity to masculine norms*; Mahalik et al., 2003). Individual items were used to assess *media consumption* (television, magazines, internet; Hatoum & Belle, 2004; Slater & Tiggemann, 2006) and frequency of *physical activity* (Prichard & Tiggemann, 2008). *Demographic items* were asked at both time points and concerned self-reported age, height and weight (to calculate body mass index; BMI), education level, sexual orientation, and ethnicity.

The questionnaires/items have demonstrated acceptable psychometric properties in prior research among men (Berg, Peterson, Frazier, & Crow, 2012; Bucchianeri, Serrano, Pastula, & Corning, 2014; Cash, 2000; De Jesus et al., 2015; Lavender, De Young, & Anderson, 2010; McCabe & McGreevy, 2011; McCreary, Sasse, Saucier, & Dorsch, 2004; O'Brien et al., 2009; Swami, Hadji-Michael et al., 2008), including acceptable internal reliability in this study (see Table 2). Only the internal reliability for perceived appearance pressures from peers (Cronbach's α = 0.65 and.65) and one's romantic partner (Cronbach's α = 0.52 and.52), was low at both Time 1 and Time 2. Therefore, these data were excluded from the analyses. For each of the questionnaires/items, higher scores reflect higher levels of that construct. For additional details about the measures, see Alleva et al. (2018).

3. Results

3.1. Data preparation and analytical strategy

All statistical analyses were conducted using R v 3.4.3 (R Core Team 2017), using the tidyverse suite of packages (Wickham et al., 2019) for data preparation and the mice package v. 2.25 for missing data imputation. Little's MCAR test indicated that data were Missing Completely At Random (MCAR; Chi-Square = 18,660.638, *df* = 18,361,

[1] The YMCA was founded in 1844 as a Christian charity for young men. Since the 1960 s it has broadened its focus to include young women and men, regardless of faith, culture, or background. In the UK, the YMCA is the largest voluntary provider of physical activity programmes and services that promote healthy communities, in addition to providing accommodation and support to young people and their families.

[2] Data for the present study were collected prior to the publication of the BAS-2 (Tylka & Wood-Barcalow, 2015a).

Table 2
Participants' scores for each variable and Cronbach's alphas for the respective measures, and correlations with positive body image.

		Time 1					Time 2				
	Range	*N*	*M* (*SD*)	α	*r*	*p*	*N*	*M* (*SD*)	α	*r*	*p*
Positive Body Image	1–5	422	3.47 (0.76)	.92	–	–	195	3.46 (0.75)	.93	–	–
Eating Disorder Symptoms	1–7	427	2.88 (1.86)	.67	-.410	<.001	200	2.73 (1.82)	.80	-.453	<.001
Appearance Satisfaction	1–5	430	3.29 (0.70)	.85	.741	<.001	198	3.29 (0.70)	.87	.715	<.001
Internalisation (General)	1–5	400	2.92 (0.55)	.92	-.123	.014	192	2.88 (0.51)	.94	-.252	<.001
Internalisation (Athlete)	1–5	416	2.86 (1.10)	.86	-.143	.004	194	2.71 (1.17)	.90	-.207	.004
Drive for Muscularity	1–6	421	2.42 (1.11)	.94	-.152	.002	189	2.23 (1.01)	.94	-.158	.031
Drive for Leanness	1–6	431	3.72 (1.10)	.91	-.063	.195	193	3.50 (1.11)	.92	-.164	.023
Appearance Comparisons	1–5	420	2.80 (1.18)	.95	-.316	<.001	195	2.78 (1.15)	.95	-.394	<.001
Appearance Pressures (Media)	1–5	417	1.94 (0.86)	.74	-.178	<.001	193	1.83 (0.77)	.71	-.257	<.001
Media Consumption (Television)[a]	1–8	418	4.16 (1.59)	–	-.123	.013	195	4.19 (1.61)	–	-.151	.036
Media Consumption (Internet)	1–8	420	5.16 (1.71)	.73	-.129	.009	195	4.98 (1.62)	.74	-.199	.006
Media Consumption (Magazines)	1–8	419	1.63 (0.96)	.73	.095	.057	194	1.45 (0.68)	.66	-.033	.651
Conformity to Masculine Norms	0–3	410	2.35 (0.38)	.81	-.195	<.001	188	2.32 (0.41)	.86	-.326	<.001
Physical Activity[a]	1–7	439	5.09 (1.75)	–	.288	<.001	202	5.04 (1.70)	–	.319	<.001

Note. Range = possible range of scores for the questionnaire/items used to assess each variable; α = Cronbach's alpha for the questionnaire/items used to assess each variable; *r* = Pearson correlation coefficient for the correlation with positive body image within the same time point; *p* = alpha corresponding to the Pearson correlation coefficient; [a] = Cronbach's alphas could not be calculated because this variable was assessed using a single item.

p = .06). Multiple imputation using the fully conditional specification method was applied to complete the dataset, with 100 imputations (Schafer, 1999). All variables included in the analyses (described below) were used for the imputation of missing data on the other variables; categorical variables were treated as categorical (vs. continuous) variables in the imputation models.

To test the hypotheses, a series of linear models were conducted; predictors (Time 1) and outcomes (Time 2) differed by hypothesis and are described below. To account for a false discovery rate (Colquhoun, 2014), we used an alpha of.05 for our two main hypothesis tests (the effect of Positive Body Image at Time 1 on Eating Disorder Symptoms at Time 2 and vice versa) and a more stringent alpha of.01 for all other analyses (Howell, 2009). For all analyses, we included the Time 1 level of the outcome variable as a covariate. All analyses also included age, BMI, and education level as covariates, in line with prior literature on their potential relation to body image and eating disorder symptoms (Murray et al., 2017; Puhl & Heuer, 2009; Tiggemann, 2015). We did not include sexual orientation as a covariate. Though studies find sexual orientation is associated with body image and eating disorder symptoms (Frederick & Essayli, 2016; Murray et al., 2017) we did not expect that it would affect the temporal relationships between variables. Indeed, we investigated sexual orientation in our sample and did not find self-reported changes in sexual orientation over the one-year study period. Given sexual orientation did not vary over time, we opted for a more parsimonious model and hence did not include it as a covariate. We did not include ethnicity as a covariate because there was little variation in the sample.

Participants' scores on the measures across time are reported in Table 2, including their correlations with positive body image. Across measures, missing data ranged from 0.23% to 9.09% for those who took part in Time 1, and from 0.99% to 5.95% for those who took part in Time 2 (see Tables 1 and 2 for the number of participants who provided data for each questionnaire score/demographic item).[3]

[3] We visually inspected missing data patterns and conducted t-tests to examine whether missing data on outcomes and covariates at a given time point were related to the scores on other outcomes and covariates of interest (including for participants who dropped out completely at Time 2). We found that at Time 2 participants with missing data for Positive Body Image were on average 5.7 years younger. This difference was significant (t = 4.46, p < .001, 95% C.I. = [3.2, 8.3]). No other Time 1 data predicted missing data at Time 2. We included age as a covariate in all analyses.

3.2. Testing the study hypotheses

Contrary to our main hypothesis, positive body image at Time 1 did not significantly predict change in eating disorder symptoms at Time 2 (see Table 3). Eating disorder symptoms at Time 1 also did not significantly predict change in positive body image at Time 2 (see Table 4). With respect to the additional factors, as hypothesised, positive body image at Time 1 predicted increased appearance satisfaction at Time 2, and decreased general appearance-ideal internalisation (see Table 3). However, positive body image at Time 1 did not significantly predict change in Time 2 levels of athletic appearance-ideal internalisation, drive for muscularity, drive for leanness, upward appearance-based social comparisons, perceived appearance pressures from media, media consumption, conformity to masculine norms, and physical activity (see Table 3). Last, increased positive body image at Time 2 was predicted by Time 1 levels of appearance satisfaction only (see Table 4).

4. Discussion

The aim of this study was to extend the prior literature on positive body image and eating behaviour, by examining the longitudinal relationships between positive body image, eating disorder symptoms, and other pertinent factors among men. We hypothesised that positive body image would predict decreased eating disorder symptoms one year later. However, this was not the case, and eating disorder symptoms also did not significantly predict change in positive body image one year later. Concerning the additional factors, positive body image predicted increased appearance satisfaction, and decreased general appearance-ideal internalisation. Appearance satisfaction was the only factor to predict increased positive body image one year later. We discuss these findings in turn, below.

4.1. Positive body image and eating disorder symptoms among men

Numerous cross-sectional studies have established a relationship between positive body image and eating disorder symptoms among men (e.g., Alleva et al., 2017, 2018; Avalos et al., 2005; Gillen, 2015; Tylka & Wood-Barcalow, 2015a). Positive body image was also moderately associated with eating disorder symptoms among men in this study at Time 1 (see Alleva et al., 2018) and at Time 2. Taking the findings of these studies together, we can conclude that positive body image and eating disorder symptoms among men are associated with one another, yet do not necessarily predict one another

Table 3
Testing Whether Positive Body Image at Time 1 Predicts Change in Eating Disorder Symptoms and Other Related Factors among Men at Time 2.

Time 2 Eating Disorder Symptoms							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	-0.311	0.772	-0.403	64.136	.688	-1.853	1.231
Time 1 Positive Body Image	-0.112	0.115	-0.977	71.632	.332	-0.342	0.117
Time 1 Eating Disorder Symptoms	0.689	0.046	14.834	73.448	<.001	0.596	0.781
Age	0.003	0.006	0.526	77.12	.600	-0.009	0.015
BMI	0.053	0.018	2.928	84.858	.004	0.017	0.089
Education Level 2	0.007	0.299	0.025	65.688	.980	-0.590	0.605
Education Level 3	-0.021	0.319	-0.065	59.78	.948	-0.659	0.617
Education Level 4	-0.003	0.261	-0.013	70.484	.989	-0.523	0.516
Education Level 5	-0.359	0.288	-1.243	67.311	.218	-0.934	0.217
Time 2 Appearance Satisfaction							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	0.911	0.340	2.680	80.743	.009	0.235	1.587
Time 1 Positive Body Image	0.265	0.074	3.600	64.529	.001	0.118	0.412
Time 1 Appearance Satisfaction	0.492	0.076	6.491	75.693	<.001	0.341	0.643
Age	-0.001	0.003	-0.190	75.525	.850	-0.006	0.005
BMI	-0.004	0.008	-0.536	95.966	.593	-0.020	0.011
Education Level 2	0.076	0.150	0.505	53.147	.616	-0.225	0.377
Education Level 3	-0.172	0.145	-1.190	60.457	.239	-0.461	0.117
Education Level 4	0.036	0.124	0.286	63.188	.776	-0.213	0.284
Education Level 5	0.037	0.13	0.287	68.026	.775	-0.222	0.297
Time 2 Internalisation (General)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	2.010	0.345	5.821	71.232	<.001	1.322	2.699
Time 1 Positive Body Image	-0.106	0.037	-2.911	86.068	.005	-0.179	-0.034
Time 1 Internalisation (General)	0.488	0.064	7.586	50.091	<.001	0.359	0.617
Age	-0.005	0.002	-2.217	78.24	.030	-0.009	0.000
BMI	-0.003	0.006	-0.477	110.467	.634	-0.015	0.009
Education Level 2	0.053	0.106	0.504	68.586	.616	-0.158	0.265
Education Level 3	0.097	0.110	0.881	66.264	.382	-0.122	0.316
Education Level 4	0.136	0.097	1.397	64.208	.167	-0.059	0.331
Education Level 5	0.124	0.105	1.188	65.392	.239	-0.085	0.333
Time 2 Internalisation (Athlete)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.248	0.515	2.424	82.26	.018	0.224	2.272
Time 1 Positive Body Image	-0.037	0.074	-0.503	70.16	.616	-0.184	0.110
Time 1 Internalisation (Athlete)	0.750	0.051	14.64	70.009	<.001	0.648	0.852
Age	-0.007	0.004	-1.678	74.664	.098	-0.015	0.001
BMI	-0.014	0.011	-1.225	111.806	.223	-0.036	0.008
Education Level 2	0.030	0.198	0.154	69.007	.878	-0.364	0.425
Education Level 3	0.123	0.197	0.623	73.841	.535	-0.269	0.515
Education Level 4	0.194	0.175	1.111	71.424	.270	-0.154	0.543
Education Level 5	0.222	0.202	1.098	61.421	.277	-0.182	0.625
Time 2 Appearance Comparisons							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.639	0.552	2.970	66.678	.004	0.538	2.741
Time 1 Positive Body Image	-0.085	0.071	-1.202	68.069	.234	-0.227	0.056
Time 1 Appearance Comparisons	0.682	0.052	13.21	56.505	<.001	0.579	0.786
Age	-0.013	0.004	-3.048	54.138	.004	-0.022	-0.005
BMI	0.002	0.012	0.140	71.342	.889	-0.022	0.025
Education Level 2	0.148	0.173	0.855	73.133	.395	-0.197	0.492
Education Level 3	-0.001	0.169	-0.005	83.066	.996	-0.336	0.334
Education Level 4	0.077	0.153	0.505	75.934	.615	-0.227	0.382
Education Level 5	-0.042	0.170	-0.249	71.744	.804	-0.380	0.296
Time 2 Drive for Muscularity							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	-0.128	0.336	-0.382	60.075	.704	-0.800	0.543
Time 1 Positive Body Image	0.061	0.042	1.457	70.771	.149	-0.022	0.144
Time 1 Drive for Muscularity	0.857	0.029	29.824	78.358	<.001	0.800	0.914
Age	-0.003	0.003	-1.051	63.247	.297	-0.008	0.002
BMI	0.007	0.008	0.906	55.501	.369	-0.009	0.024
Education Level 2	0.044	0.123	0.359	55.936	.721	-0.202	0.290
Education Level 3	0.095	0.112	0.846	72.224	.400	-0.129	0.318
Education Level 4	0.108	0.109	0.991	56.695	.326	-0.111	0.327
Education Level 5	0.095	0.114	0.838	61.891	.405	-0.132	0.322

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Table 3 (*continued*)

Time 2 Drive for Leanness							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.658	0.479	3.458	71.601	.001	0.702	2.614
Time 1 Positive Body Image	-0.131	0.061	-2.147	78.326	.035	-0.253	-0.010
Time 1 Drive for Leanness	0.789	0.043	18.178	71.077	<.001	0.702	0.875
Age	0.000	0.004	-0.110	65.489	.913	-0.008	0.007
BMI	-0.024	0.01	-2.392	99.132	.019	-0.044	-0.004
Education Level 2	0.030	0.195	0.152	52.91	.879	-0.361	0.42
Education Level 3	0.128	0.188	0.682	59.442	.498	-0.248	0.504
Education Level 4	-0.017	0.171	-0.097	54.945	.923	-0.360	0.327
Education Level 5	0.038	0.18	0.210	58.103	.834	-0.323	0.399
Time 2 Appearance Pressures (Media)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.508	0.463	3.257	63.888	.002	0.583	2.434
Time 1 Positive Body Image	-0.146	0.065	-2.242	62.696	.028	-0.277	-0.016
Time 1 Pressures (Media)	0.485	0.064	7.531	49.248	<.001	0.356	0.614
Age	-0.005	0.003	-1.334	81.191	.186	-0.011	0.002
BMI	-0.001	0.011	-0.114	74.522	.910	-0.022	0.020
Education Level 2	0.258	0.17	1.519	65.319	.134	-0.081	0.598
Education Level 3	0.107	0.161	0.666	79.260	.507	-0.213	0.428
Education Level 4	0.180	0.142	1.262	77.499	.211	-0.104	0.463
Education Level 5	0.073	0.148	0.495	87.383	.622	-0.221	0.367
Time 2 Conformity to Masculine Norms							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	0.623	0.259	2.405	60.338	.019	0.105	1.141
Time 1 Positive Body Image	-0.010	0.031	-0.305	56.725	.762	-0.072	0.053
Time 1 Conformity to Masculine Norms	0.759	0.061	12.498	58.259	<.001	0.637	0.880
Age	0.000	0.002	0.284	70.054	.777	-0.003	0.004
BMI	-0.003	0.005	-0.530	75.311	.597	-0.012	0.007
Education Level 2	0.076	0.083	0.915	56.754	.364	-0.090	0.243
Education Level 3	0.011	0.073	0.149	81.309	.882	-0.135	0.157
Education Level 4	-0.012	0.071	-0.163	62.742	.871	-0.154	0.131
Education Level 5	-0.034	0.078	-0.438	61.936	.663	-0.190	0.122
Time 2 Media Consumption (TV)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.642	0.890	1.844	51.402	.071	-0.145	3.429
Time 1 Positive Body Image	-0.026	0.120	-0.215	56.668	.830	-0.267	0.215
Time 1 TV Consumption	0.637	0.054	11.882	73.545	<.001	0.531	0.744
Age	0.010	0.006	1.619	67.275	.110	-0.002	0.023
BMI	-0.004	0.018	-0.223	82.096	.824	-0.040	0.032
Education Level 2	-0.273	0.304	-0.897	66.400	.373	-0.880	0.334
Education Level 3	-0.179	0.330	-0.544	59.955	.589	-0.838	0.480
Education Level 4	-0.455	0.332	-1.372	47.821	.177	-1.123	0.212
Education Level 5	-0.520	0.316	-1.643	60.085	.106	-1.152	0.113
Time 2 Media Consumption (Internet)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.857	0.789	2.355	69.582	.021	0.284	3.430
Time 1 Positive Body Image	-0.076	0.110	-0.694	65.937	0.490	-0.295	0.143
Time 1 Internet Consumption	0.749	0.049	15.428	65.486	<0.001	0.652	0.846
Age	-0.005	0.007	-0.664	54.415	.510	-0.019	0.009
BMI	-0.009	0.017	-0.549	103.796	.584	-0.042	0.024
Education Level 2	-0.035	0.314	-0.112	57.732	.911	-0.664	0.594
Education Level 3	0.094	0.315	0.299	61.696	.766	-0.536	0.724
Education Level 4	0.246	0.254	0.969	73.839	.336	-0.259	0.751
Education Level 5	0.027	0.292	0.094	63.486	.926	-0.556	0.611
Time 2 Media Consumption (Magazines)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	5.656	2.350	2.407	60.108	.019	0.956	10.357
Time 1 Positive Body Image	-0.216	0.325	-0.664	65.705	.509	-0.865	0.433
Time 1 Magazine Consumption	0.559	0.050	11.088	57.686	<.001	0.458	0.660
Age	0.020	0.017	1.165	83.692	.247	-0.014	0.054
BMI	-0.075	0.051	-1.465	91.722	.146	-0.176	0.027
Education Level 2	0.300	0.923	0.325	58.444	.747	-1.548	2.148
Education Level 3	-0.053	0.896	-0.059	65.541	.953	-1.842	1.737
Education Level 4	0.261	0.798	0.327	63.101	.745	-1.335	1.856
Education Level 5	0.332	0.881	0.377	60.853	.708	-1.429	2.093

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Table 3 (*continued*)

Time 2 Physical Activity							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.153	0.796	1.448	71.525	.152	-0.434	2.74
Time 1 Positive Body Image	0.182	0.112	1.626	84.018	.108	-0.041	0.405
Time 1 Physical Activity	0.650	0.049	13.276	77.17	<.001	0.553	0.748
Age	0.000	0.006	0.009	75.927	.993	-0.013	0.013
BMI	0.004	0.017	0.207	116.696	.837	-0.031	0.038
Education Level 2	-0.133	0.334	-0.398	59.969	.692	-0.801	0.535
Education Level 3	-0.413	0.315	-1.312	72.858	.194	-1.04	0.214
Education Level 4	0.022	0.299	0.073	60.128	.942	-0.575	0.619
Education Level 5	0.003	0.316	0.011	63.608	.991	-0.627	0.634

Note. Education levels refer to the following: Level 1 (reference category) = GCSE/O Level or equivalent; Level 2 = A Level or equivalent; Level 3 = Higher education certificate or diploma; Level 4 = Undergraduate degree (BSc, BA); Level 5 = Graduate education (Masters, Professional doctorate, PhD).

across time. One possibility is that the effect of positive body image on eating disorder symptoms may be indirect. For example, in this study positive body image predicted decreased appearance-ideal internalisation one year later, and this factor promotes eating disorder symptoms among men (Lavender et al., 2017; Murray et al., 2016, 2017). Future research could include additional follow-up measurements to test longer-term mediational relationships between positive body image and eating disorder symptoms.

Another potential explanation for the lack of longitudinal relationships between positive body image and eating disorder symptoms among men concerns the type of eating behaviour assessed. In the only other longitudinal study on positive body image, Andrew and colleagues (2016) found that positive body image among Australian adolescent girls predicted increased intuitive eating one year later. Although intuitive eating and disordered eating are antithetical to one another (e.g., intuitive eating is guided by attunement with bodily signals rather than dietary rules or appearance-related goals; Tylka, 2006), and have been inversely associated with one another in prior cross-sectional research among men (e.g., Alleva et al., 2017; Tylka & Wood-Barcalow, 2015a), positive body image may more closely map on to the underlying mindset of intuitive eating compared to disordered eating. Interestingly, Andrew and colleagues (2016) found that positive body image did predict decreases in dieting, which is a form of disordered eating that contributes to eating disorders (Goldschmidt et al., 2016, 2018). So, positive body image is predictive of change in at least some facets of disordered eating, at least among adolescent girls. Future longitudinal research that investigates positive body image, disordered eating, and intuitive eating among men will be valuable.

Another possible reason for the absence of longitudinal relationships between positive body image and eating disorder symptoms among men in this study concerns the measure that we used to assess eating disorder symptoms, the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 2008). Scholars have criticised traditional measures of eating disorder symptoms, including the EDE-Q, for predominantly capturing characteristics of disordered eating that are more salient to women (Lavender et al., 2017; Murray et al., 2016, 2017). In contrast to women, disordered eating among men is often aimed at becoming lean and muscular (vs. thin), and as such may include behaviours such as the use of anabolic steroids and protein supplements (Lavender et al., 2017; Murray et al., 2016, 2017). Although the EDE-Q remains one of the most commonly used measures for assessing eating disorder symptoms among men (Lavender et al., 2017), it does not assess these types of behaviours. Therefore, the present data may not have provided a fully holistic picture of disordered eating among men in our sample. However, we did include measures of drive for leanness and muscularity, which underpin eating disorder symptoms among many men (Lavender et al., 2017; Murray et al., 2016). Nevertheless, future research could include measures that also assess eating disorder symptoms that are especially salient to men, such as the Eating Disorder Assessment for Men (Stanford & Lemberg, 2012) or the Eating Pathology Symptoms Inventory (Forbush et al., 2013)—even though additional psychometric validation of these newer measures is still needed (Murray et al., 2017).

4.2. Positive body image and additional factors related to eating disorders among men

It is promising that positive body image predicted increased appearance satisfaction and decreased general appearance-ideal internalisation one year later. These findings confirm longitudinally the associations that have been established from cross-sectional research among men (e.g., Alleva et al., 2018; Gillen, 2015; Swami, Hadji-Michael et al., 2008; Tylka & Wood-Barcalow, 2015a), and thus enable firmer conclusions about the impact of positive body image on change in these factors. These findings also highlight the value of positive body image as a protective factor with respect to eating disorder symptoms (Cook-Cottone, 2020; Piran, 2017). Although positive body image did not predict change in eating disorder symptoms among men across time, both of the factors that positive body image did predict have been linked to eating disorders (Goldschmidt et al., 2016, 2018; Lavender et al., 2017; Murray et al., 2016, 2017). Thus, fostering positive body image could be valuable as a complement to existing strategies in the prevention and treatment of eating disorders, which typically focus on reducing aspects of a negative body image only (Cook-Cottone, 2020; Piran, 2017). Beyond that, eating disorder prevention and treatment for men warrants attention in its own right, rather than adapting existing approaches that have been developed for women and/or based on research with women (Murray et al., 2017).

It is also noteworthy that the relationship between positive body image and appearance satisfaction was bidirectional. Men who appreciate and respect their body are better able to feel more satisfied with their appearance, *regardless* of whether it meets societal appearance standards; indeed, positive body image also predicted decreased general appearance-ideal internalisation. Conversely, men who are more satisfied with their appearance are better able to view their body in a positive light more broadly. These findings align with the notion that positive body image could create “positive spirals” that elevate or maintain a healthy body image overall, for example with respect to appearance satisfaction or surrounding oneself with accepting peers (Halliwell, 2015).

It is unclear why positive body image did not predict change in athletic appearance-ideal internalisation, drive for muscularity and leanness, upward appearance-based social comparisons, perceived appearance pressures from media, media consumption, conformity to masculine norms, or physical activity—especially considering that these relationships have been established in cross-sectional research among men (e.g., Alleva et al., 2017, 2018; Gillen, 2015; Swami, Hadji-Michael et al., 2008; Tylka & Homan, 2015; Tylka & Wood-Barcalow, 2015a). Potential explanations with respect to additional

Table 4
Testing Whether Eating Disorder Symptoms and Other Related Factors at Time 1 Predict Change in Positive Body Image at Time 2 among Men.

Eating Disorder Symptoms							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	0.956	0.305	3.136	93.79	.002	0.358	1.554
Time 1 Eating Disorder Symptoms	-0.030	0.019	-1.557	98.931	.123	-0.068	0.008
Time 1 Positive Body Image	0.716	0.046	15.595	105.51	<.001	0.625	0.807
Age	0.002	0.002	0.76	102.261	.449	-0.003	0.007
BMI	-0.001	0.008	-0.091	92.887	.928	-0.017	0.015
Education Level 2	-0.001	0.143	-0.004	58.944	.997	-0.286	0.285
Education Level 3	-0.036	0.134	-0.266	72.133	.791	-0.302	0.231
Education Level 4	0.114	0.113	1.015	80.446	.313	-0.110	0.338
Education Level 5	0.190	0.133	1.429	64.573	.158	-0.076	0.457
Appearance Satisfaction							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	0.231	0.338	0.684	73.054	.496	-0.443	0.905
Time 1 Appearance Satisfaction	0.327	0.082	3.991	57.098	<.001	0.163	0.491
Time 1 Positive Body Image	0.527	0.070	7.509	65.314	<.001	0.387	0.667
Age	0.003	0.002	1.369	98.99	.174	-0.001	0.008
BMI	0.004	0.008	0.576	93.003	.566	-0.011	0.020
Education Level 2	0.032	0.141	0.225	55.378	.823	-0.251	0.314
Education Level 3	0.018	0.133	0.139	66.665	.890	-0.247	0.283
Education Level 4	0.157	0.114	1.374	69.687	.174	-0.071	0.385
Education Level 5	0.216	0.134	1.608	57.886	.113	-0.053	0.484
Appearance-Ideal Internalisation (General)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.259	0.451	2.791	65.320	.007	0.358	2.160
Time 1 Internalisation (General)	-0.099	0.088	-1.120	43.453	.269	-0.276	0.079
Time 1 Positive Body Image	0.731	0.045	16.199	91.366	<.001	0.641	0.821
Age	0.001	0.003	0.421	90.860	.675	-0.004	0.006
BMI	-0.005	0.008	-0.644	107.931	.521	-0.020	0.010
Education Level 2	-0.014	0.145	-0.097	57.382	.923	-0.303	0.275
Education Level 3	-0.056	0.133	-0.422	72.643	.674	-0.322	0.209
Education Level 4	0.095	0.112	0.850	81.754	.398	-0.127	0.317
Education Level 5	0.174	0.134	1.297	63.081	.199	-0.094	0.441
Appearance-Ideal Internalisation (Athlete)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	0.683	0.355	1.922	77.013	.058	-0.025	1.390
Time 1 Internalisation (Athlete)	0.033	0.039	0.852	54.292	.398	-0.045	0.111
Time 1 Positive Body Image	0.749	0.045	16.618	92.029	<.001	0.660	0.839
Age	0.003	0.003	0.979	84.316	.330	-0.003	0.008
BMI	-0.002	0.008	-0.319	103.593	.751	-0.018	0.013
Education Level 2	0.004	0.143	0.025	58.555	.980	-0.283	0.290
Education Level 3	-0.043	0.134	-0.320	71.528	.750	-0.310	0.225
Education Level 4	0.099	0.112	0.885	81.411	.379	-0.124	0.323
Education Level 5	0.173	0.134	1.289	63.517	.202	-0.095	0.441
Appearance Comparisons							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.250	0.387	3.233	79.429	.002	0.481	2.019
Time 1 Appearance Comparisons	-0.060	0.037	-1.633	63.978	.107	-0.133	0.013
Time 1 Positive Body Image	0.710	0.048	14.733	88.948	<.001	0.614	0.806
Age	0.001	0.003	0.203	88.899	.840	-0.005	0.006
BMI	-0.006	0.008	-0.783	102.403	.436	-0.021	0.009
Education Level 2	-0.004	0.142	-0.030	59.171	.976	-0.288	0.280
Education Level 3	-0.046	0.133	-0.345	72.384	.731	-0.311	0.219
Education Level 4	0.115	0.112	1.031	81.523	.305	-0.107	0.337
Education Level 5	0.193	0.132	1.466	65.857	.147	-0.070	0.456
Drive for Muscularity							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	0.961	0.361	2.66	77.639	.009	0.242	1.680
Time 1 Drive for Muscularity	-0.023	0.036	-0.65	70.111	.518	-0.095	0.048
Time 1 Positive Body Image	0.737	0.046	15.88	86.111	<.001	0.644	0.829
Age	0.001	0.003	0.516	96.033	.607	-0.004	0.007
BMI	-0.004	0.008	-0.496	98.051	.621	-0.019	0.012

(*continued on next page*)

Table 4 (*continued*)

Drive for Muscularity							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
Education Level 2	0.005	0.143	0.033	58.918	.974	-0.282	0.292
Education Level 3	-0.043	0.134	-0.322	72.009	.748	-0.311	0.224
Education Level 4	0.107	0.114	0.945	79.041	.347	-0.119	0.334
Education Level 5	0.178	0.134	1.325	63.784	.190	-0.090	0.446
Drive for Leanness							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	0.890	0.343	2.593	89.985	.011	0.208	1.572
Time 1 Drive for Leanness	-0.009	0.031	-0.282	85.423	.779	-0.071	0.054
Time 1 Positive Body Image	0.741	0.045	16.567	93.011	<.001	0.652	0.83
Age	0.002	0.002	0.726	106.86	.469	-0.003	0.007
BMI	-0.003	0.008	-0.427	102.186	.670	-0.019	0.012
Education Level 2	0.000	0.143	-0.002	59.169	.999	-0.286	0.286
Education Level 3	-0.041	0.134	-0.302	72.373	.763	-0.308	0.227
Education Level 4	0.107	0.113	0.942	80.365	.349	-0.119	0.332
Education Level 5	0.177	0.134	1.319	63.855	.192	-0.091	0.445
Appearance Pressures (Media)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.167	0.348	3.356	72.681	.001	0.474	1.860
Time 1 Pressures (Media)	-0.100	0.054	-1.867	45.166	.068	-0.208	0.008
Time 1 Positive Body Image	0.722	0.046	15.782	85.912	<.001	0.631	0.813
Age	0.000	0.003	0.190	88.961	.850	-0.005	0.006
BMI	-0.003	0.008	-0.447	96.708	.656	-0.019	0.012
Education Level 2	0.010	0.142	0.070	58.394	.944	-0.274	0.294
Education Level 3	-0.031	0.134	-0.231	69.646	.818	-0.298	0.236
Education Level 4	0.109	0.113	0.964	77.408	.338	-0.116	0.333
Education Level 5	0.179	0.133	1.345	62.528	.183	-0.087	0.446
Conformity to Masculine Norms							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.003	0.406	2.472	79.892	.016	0.195	1.810
Time 1 Conformity to Masculine Norms	-0.058	0.089	-0.652	93.22	.516	-0.234	0.118
Time 1 Positive Body Image	0.737	0.046	16.091	88.88	<.001	0.646	0.829
Age	0.002	0.002	0.692	103.937	.490	-0.003	0.007
BMI	-0.003	0.008	-0.360	100.813	.720	-0.018	0.013
Education Level 2	-0.003	0.143	-0.018	59.123	.985	-0.289	0.284
Education Level 3	-0.049	0.133	-0.365	73.684	.716	-0.315	0.217
Education Level 4	0.097	0.113	0.861	81.075	.392	-0.128	0.323
Education Level 5	0.167	0.133	1.254	65.557	.214	-0.099	0.434
Media Consumption (TV)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	0.894	0.328	2.723	82.115	.008	0.241	1.547
Time 1 TV Consumption	-0.011	0.025	-0.434	65.965	.666	-0.062	0.04
Time 1 Positive Body Image	0.741	0.045	16.621	94.1	<.001	0.652	0.829
Age	0.002	0.003	0.834	99.815	.407	-0.003	0.007
BMI	-0.003	0.008	-0.358	103.121	.721	-0.018	0.012
Education Level 2	-0.010	0.140	-0.071	64.225	.944	-0.289	0.269
Education Level 3	-0.056	0.128	-0.440	88.755	.661	-0.310	0.198
Education Level 4	0.088	0.114	0.768	89.328	.445	-0.139	0.315
Education Level 5	0.160	0.137	1.166	66.071	.248	-0.114	0.43
Media Consumption (Internet)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	1.038	0.362	2.869	70.206	.005	0.329	1.748
Time 1 Internet Consumption	-0.028	0.023	-1.177	58.983	.244	-0.074	0.019
Time 1 Positive Body Image	0.737	0.045	16.434	91.088	<.001	0.648	0.826
Age	0.001	0.003	0.470	94.598	.639	-0.004	0.006
BMI	-0.003	0.008	-0.342	100.855	.733	-0.018	0.013
Education Level 2	-0.016	0.142	-0.113	60.206	.911	-0.300	0.268
Education Level 3	-0.074	0.133	-0.558	76.499	.579	-0.339	0.190
Education Level 4	0.088	0.113	0.779	80.889	.438	-0.137	0.313
Education Level 5	0.159	0.135	1.181	63.507	.242	-0.110	0.428

(*continued on next page*)

Table 4 (*continued*)

Media Consumption (Magazines)							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	0.881	0.313	2.812	89.860	.006	0.258	1.503
Time 1 Magazine Consumption	-0.003	0.007	-0.426	80.232	.671	-0.017	0.011
Time 1 Positive Body Image	0.742	0.044	16.779	95.419	<.001	0.654	0.830
Age	0.002	0.002	0.721	103.739	.473	-0.003	0.007
BMI	-0.003	0.008	-0.405	100.583	.686	-0.018	0.012
Education_long2	0.000	0.143	0.002	59.327	.999	-0.285	0.286
Education_long3	-0.040	0.134	-0.299	71.760	.766	-0.308	0.228
Education_long4	0.105	0.113	0.932	79.970	.354	-0.120	0.331
Education_long5	0.178	0.134	1.329	64.146	.189	-0.090	0.446
Physical Activity							
	B	*SE*	*t*	*df*	*p*	*95% CI low*	*95% CI high*
(Intercept)	0.902	0.321	2.806	82.772	.006	0.272	1.532
Time 1 Physical Activity	-0.014	0.020	-0.685	87.408	.495	-0.053	0.026
Time 1 Positive Body Image	0.751	0.047	16.065	89.593	<.001	0.658	0.844
Age	0.002	0.002	0.712	101.957	.478	-0.003	0.007
BMI	-0.004	0.008	-0.481	99.687	.632	-0.019	0.012
Education Level 2	0.006	0.141	0.042	60.819	.966	-0.277	0.289
Education Level 3	-0.034	0.133	-0.258	74.676	.797	-0.299	0.231
Education Level 4	0.109	0.112	0.970	82.377	.335	-0.114	0.332
Education Level 5	0.180	0.133	1.350	64.757	.182	-0.086	0.447

Note. Education levels refer to the following: Level 1 (reference category) = GCSE/O Level or equivalent; Level 2 = A Level or equivalent; Level 3 = Higher education certificate or diploma; Level 4 = Undergraduate degree (BSc, BA); Level 5 = Graduate education (Masters, Professional doctorate, PhD).

mediating factors and different analytical approaches, as discussed above, may apply here. It is also important to note that, in contrast to our findings, Andrew and colleagues (2016) found that positive body image predicted increased physical activity among adolescent girls in Australia. Their findings were in line with prior research showing that people with a positive body image engage in physical activity as a means to take care of their body (Frisén & Holmqvist, 2010; Holmqvist Gattario & Frisén, 2019; Holmqvist & Frisén, 2012). Potentially, the longitudinal relationships between positive body image and other factors might differ between women and men, or between adolescents and adults. Further, although both studies assessed frequency of physical activity, it could be that positive body image among men more specifically predicts increased levels of joyful and adaptive physical activity, rather than overall levels of physical activity. Indeed, physical activity among men is often motivated by drive for leanness and muscularity, which encourage unhealthy behaviours (e.g., steroid use) and disordered eating (Lavender et al., 2017; Murray et al., 2016, 2017). Future research could investigate these nuances.

4.3. Limitations

The following limitations to this study must be mentioned. First, we operationalised positive body image using the Body Appreciation Scale (BAS; Avalos et al., 2005). The BAS assesses body appreciation, the most well researched and central aspect of positive body image (Tylka & Wood-Barcalow, 2015b; Webb et al., 2015). Future research could assess additional facets of positive body image among men, such as functionality appreciation (Alleva et al., 2017). Second, as described above, we assessed eating disorder symptoms using the EDE-Q (the 12 items that are diagnostic of eating disorders; Jankowski et al., 2017). Future research should include measures that also capture muscularity and leanness-oriented eating disorder symptoms among men (Lavender et al., 2017; Murray et al., 2016, 2017). Third, the internal reliability for perceived appearance pressures from peers and one's romantic partner was suboptimal at both time points. Consequently, these data were removed from the analyses. The extent of the relevance of these potential variables to the tested relationships remains unclear; thus, it is important for future research to include more reliable measures of these variables and, as described above, to consider additional variables of interest as well. Last, compared to the majority of research on (positive) body image and eating disorder symptoms, the present sample was relatively diverse in terms of age, BMI, education level, and sexual orientation. However, it was relatively homogeneous in terms of ethnic background, and men were recruited within the UK only. Future studies among men from other ethnic backgrounds and countries is needed.

4.4. Conclusions

Although eating disorders are more common among women, a sizeable proportion of people with an eating disorder are men (Hay et al., 2015; Udo & Grilo, 2018). Much is known about negative body image as a risk factor for disordered eating (Goldschmidt et al., 2016, 2018; Sharpe et al., 2018), but investigating positive body image as a potential protective factor has received much less attention, especially among men. To our knowledge, this was the first study to investigate the longitudinal relationships between positive body image, eating disorder symptoms, and other pertinent factors among adult men. The present findings are valuable because they show that positive body image may be relevant with respect to eating behaviour among men. Although positive body image did not predict decreased eating disorder symptoms across time, it did predict change in some of the factors that are known to impact eating disorder symptoms. The present findings are also valuable because they highlight several important directions for future research among men.

CRediT authorship contribution statement

Jessica M. Alleva: Conceptualization, Data Curation, Formal analysis, Writing – original draft, Writing – review & editing. **Nicole Paraskeva**: Conceptualization, Methodology, Investigation, Writing – review & editing. **Nadia Craddock:** Conceptualization, Methodology, Investigation, Writing – review & editing. **Bobby G. Stuijfzand:** Data Curation, Formal analysis, Writing – original draft, Writing – reviewing & editing. **Phillippa C. Diedrichs**: Conceptualization, Methodology, Investigation, Writing – review & editing.

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Conflict of interest statement

The authors confirm that there is no conflict of interest to declare.

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