Body Image Trends among Icelandic Adolescents:

A cross-sectional national study from 1997-2009

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Formáli

Rannsóknin er lokaverkefni í meistaranámi í lýðheilsufræðum (Master of Public Health) í Kennslufræði- og lýðheilsudeild Háskólans í Reykjavík. Lokaverkefninu er skilað á formi fræðigreinar sem send verður til birtingar í viðurkenndu erlendu vísindatímariti. Rannsóknin byggir á gögnum úr gagnagrunni ,,Rannsókna og greiningar“ (R&G). Gögnin eru svör unglinga í 9. og 10. bekk við spurningum um líkamsímynd úr könnununum ,,Ungt fólk“. Spurningakannanirnar voru lagðar fyrir ungmenni í öllum grunnskólum landsins á fjórum tímapunktum að vori til árin 1997, 2000, 2006 og 2009. Leiðbeinendur mínir vegna framkvæmdar rannsóknarinnar voru dr. Bryndís Björk Ásgeirsdóttir og dr. Inga Dóra Sigfúsdóttir og þakka ég þeim fyrir gott samstarf.

Reykjavík, þann 1.júní 2011,

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Útdráttur

Markmið: Tilgangur rannsóknarinnar var að meta breytingar á líkamsímynd íslenskra unglinga á árunum 1997-2009. **Aðferð**: Borin voru saman gögn ,,Rannsókna og greiningar“ frá spurningakönnunum sem lagðar voru fyrir 9. og 10. bekki á landsvísu á fjórum tímapunktum (1997, 2000, 2006 og 2009). Alls tóku 25,203 nemendur þátt í rannsókninni. **Niðurstöður**: Líkamsímynd 14-15 ára unglinga á Íslandi batnaði marktækt á þeim 12 árum sem rannsóknin náði yfir. Stúlkur mældust með neikvæðari líkamsímynd en drengir á öllum tímapunktum en breytingarnar á líkamsímynd stúlkna urðu meiri en drengja á tímabilinu og minnkaði þar með bilið á milli kynja. Á sama tíma hækkaði BMI stuðull beggja kynja en breytingin var meiri hjá drengjum. **Ályktanir**: Þrátt fyrir jákvæða þróun á líkamsímynd unglinga, þá eru margir unglingar enn með neikvæða líkamsímynd. Hvatt er til víðtækra lýðheilsuaðgerða sem leggja áherslu á heilsuhegðun, vellíðan og virðingu fyrir fjölbreytilegum líkamsvexti.

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Abstract

Aim: The aim of the study was to evaluate the trends in body image among Icelandic adolescents from 1997 to 2009. **Method**: Data from four cross-sectional surveys conducted among population-based samples of 9th and 10th graders in Iceland using four time points (1997, 2000, 2006 and 2009) were compared to examine changes in body image. In total, 25,203 students participated in the study. **Results**: Body image among 14-15 year-old adolescents in Iceland improved significantly over the 12-year period. Girls reported more negative body image than boys at all time points but the change was greater among girls than boys over the period under study, resulting in a narrower gap between the sexes. At the same time, BMI increased among both girls and boys, with a greater increase among boys. **Conclusion**: Despite encouraging results in trends in body image among adolescents, a significant proportion of adolescents has negative body image. Multilevel public health actions are needed to further promote healthy behaviors, well-being and acceptance of diverse body sizes and shapes.

Keywords

Body Image, Adolescents, Iceland, Body dissatisfaction, Trends

Introduction

In recent years the topic of body image has gained increased attention and interest, both among professionals as well as the general public (Cash, 2004; Grogan, 2008). Body image is a multidimensional construct which includes self-perceptions and attitudes towards one´s physical appearance (Banfield & McCabe, 2002; Cash, Morrow,

Hrabosky, & Perry, 2004; Pruzinsky & Cash, 2002). Two core components of body-image attitudes are appearance evaluation and appearance investments (Cash et al., 2004; Cash, 2002). Appearance evaluation refers to satisfaction with one´s body and appearance investment is related to the psychological importance one places on one´s appearance (Cash et al., 2004; Cash, 2002).

Sociocultural factors as well as psychological and biological factors have been shown to influence one´s body image (Clark & Tiggemann, 2008; McCabe & Ricciardelli, 2003). Higher BMI has been found to be one of the strongest predictor of body dissatisfaction (Paxton, Eisenberg, & Neumark-Sztainer, 2006; Stice & Whitenton, 2002). Demographic factors such as age, gender and socioeconomic status (SES) are also important. Adolescents are more likely to be dissatisfied with their body than children (Kostanski, Fisher, & Gullone, 2004) and the risk of body dissatisfaction increases from mid- to late adolsecence (Bjarnason, Jonsson, Olafsson, Hjalmsdottir, & Olafsson, 2006; Eisenberg, Neumark-Sztainer, & Paxton, 2006). Adolescent girls in general report more dissatisfaction with their body than adolescent boys (Ata, Ludden, & Lally, 2007; Storvoll, Strandbu, & Wichstrom, 2005) and adolescents of lower SES seem to be more likely to be dissatisfied with their body than those of higher SES (Paxton et al., 2006). Other factors such as communication with parents (Al Sabbah et al., 2009; Barker & Galambos, 2003), social support (Stice & Whitenton, 2002) and peer culture (Jones, Vigfusdottir, & Lee, 2004; Paxton et al., 2006) have also been linked to body image. Finally, exposure to the mass media (Bell, Lawton, & Dittmar, 2007; Grabe, Ward, & Hyde, 2008; Hargreaves & Tiggemann, 2004; Schooler & Trinh, 2011; van den Berg et al., 2007), internalization of the thin-ideal messages from the culture as well as the perceived pressure to be thin are all factors that have been found to increase the risk of negative body image (Stice & Whitenton, 2002).

Body image is a public health issue as it may have great effects on health behaviors and health related outcomes. Body dissatisfaction has been linked to lower levels of physical activity (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006), steroid use (Blouin & Goldfield, 1995), smoking (Cawley, 2004; Lopez, Drobes, Thompson, & Brandon, 2008) and dieting (Stice, Mazotti, Krebs, & Martin, 1998). A negative body image also increases the likelihood of eating disorders (Neumark-Sztainer,Wall, Story, & Sherwood, 2009; Stice, 2002), depression (Jonsdottir, Arnarson, & Smari, 2008; Siegel, 2002; Stice & Whitenton, 2002), social anxiety (Cash & Flemming, 2002a),

impaired sexual functioning (Wiederman, 2002), poor self-esteem (Clay, Vignoles, & Dittmar, 2005) and reduced quality of life (Cash & Fleming, 2002b).

Most empirical studies that have examined trends in body image over time have been conducted on the American college population (e.g. Cash et al., 2004; Heatherton, Nichols, Mahamedi, & Keel, 1995; Neighbors, Sobal, Liff, & Amiraian, 2008; Rozin, Trachtenberg, & Cohen, 2001; Sondenhaus, Kurtz, & Strube, 2001). The results from those studies have been somewhat conflicting with regard to changes in body satisfaction and gender differences over time. These contrasting results may perhaps be partly explained by different research and sampling methods as well as different measurement tools of various constructs of body image between studies (Cash et al., 2004). Different cultural factors and social norms between studies may also play a part even though most studies have been conducted in the USA. However, there is consensus between studies that males have in general reported more body satisfaction than females since 1970s (e.g. Cash et al., 2004; Feingold & Mazella, 1998; Rozin et al., 2001). Also, most findings indicate that females‘ body image got worse from 1970s until mid 1990s (Cash et al., 2004; Feingold & Mazella, 1998; Sondenhaus et al., 2001) and males‘ body image remained stable (Cash et al., 2004; Feingold & Mazella, 1998; Heatherton et al., 1995; Rozin et al., 2001; Sondenhaus et al., 2001). The gender gap therefore became more prominent in the period, with females reporting less body satisfaction than males. There is less consensus concerning the results after mid 1990s until 2005 but males‘ average body image seems to have remained quite stable (Cash et al., 2004; Neighbors et al., 2008). Furthermore, some aspects of females‘ body image may have improved during the period (Cash et al., 2004; Neighbors et al., 2008).

Very few studies have examined body image trends in early- and mid-adolescence in recent years. The most recent one found was a cross-sectional study conducted among a sample of the general population of 13-19 year-old adolescents in Norway, comparing data from only two timepoints, 1992 and 2002. The analyses indicated polarized results whereas higher proportion of adolescents had both very positive body image and very negative body image in 2002 than 1992. More negative body image in 2002 than 1992 could partly be explained by increased levels of BMI. Females´ body image was worse than males´ body image both in 1992 and 2002. Females reported a statistically poorer body image in 2002 than 1992 but males reported a statistically better body image in 2002 than 1992. However, the gender differences decreased on some aspects of the

appearance like lower torso and muscle tone (Storvall et al., 2005). To understand recent trends in body image among the early- and mid- adolescent population more research is needed comparing multiple and more recent time points.

Aims

The current study sought to add knowledge to the field by investigating trends in body image among adolescents over a period of 12 years, using data from four time points, all based on the same instruments and methodology. The study examined trends in body image among 14- to 15-year-old adolescent females and males in Iceland using a repeated population based cross-sectional survey design from four time points (1997, 2000, 2006 and 2009). An earlier study indicated that adolescents with higher BMI were more likely to have negative body image and that increases in BMI could partly explain changes in body image over time (Storvoll et al., 2005). BMI was therefore included in this study as a control variable. Furthermore, with regard to previous research on body image predictors (e.g. Eisenberg et al., 2006; Paxton et al., 2006), available background factors such as age, socioeconomic status (parents´education and family structure) and residence were also controlled for in the analysis when investigating recent trends in body image.

Material and methods

Participants

Survey data were analyzed from four cross-sectional nationally representative population-based samples of 14- and 15-year-old students, attending the compulsory 9th and 10th grades of the Icelandic secondary school system. In Iceland, schooling is mandatory for adolescents in these grades and all secondary schools in the country participated in the studies. The questions used to measure body image, sampling procedures and data collection were identical at each time point, which enables comparison. The sample in one of the study, i.e. in 1997, consisted of a randomly selected sample, based on half of the population but the studies from 2000, 2006 and 2009 consisted of all 9th and 10th graders in Iceland who were present in class during the days of the surveys. The study sample size (*N*) and percentage of male and female students for each survey year was as follows: In 1997, *N*=3,913 students (51.8% males and 48.2% females), in 2000, *N*=6,346 (48.6% males and 51.4% females); in 2006, *N*=7,430 (49.9% males and 50.1% females) and in 2009, *N*= 7,514 (49.2% males and

50.8% females). The response rates were 90.2% in 1997, 82.4% in 2000, 81.4% in 2006 and 83.5% in 2009. A total of 25,203 students participated in the current study.

Procedure

The studies were a part of the National Survey of Icelandic Adolescents, "Youth in Iceland", a series of cross sectional surveys, which aim to improve knowledge and understanding of lifestyles, various health behaviors and outcomes as well as social background and well-being of Icelandic adolescents. The data were collected in accordance with the Privacy and Data Protection Authority in Iceland in March of 1997, 2000, 2006 and 2009 by and under the direction of the Icelandic Centre for Social Research and Analysis (ICSRA) at the School of Health Education at Reykjavik University. After gaining informed consent, anonymous questionnaires were administered to students who were present in class during the days of the surveys. Teachers and research assistants distributed the questionnaires and students placed and sealed them in blank envelopes upon completion of the survey.

Instruments

Demographic variables

The demographic variables in the study included gender (1= "males", 2= "females"), age (with a higher score indicating older age), family structure (0="Living with both parents", 1="Living in other family arrangements"), parents´ education (combined on a scale ranging from 2-10, with a higher score indicating more education) and residence (0="Living outside the capital area", 1="Living in the capital area").

Independent variables (Body mass index (BMI) and year)

The Body mass index (kg/m^2) was calculated on the basis of the adolescents' self-reported weight and height. BMI was treated as a continuous variable and in order to clean the data of outliers, BMI scores lower than 13 and higher than 45 were excluded from the analysis. In total, 22,634 BMI scores were included in the analysis but 2,569 cases were either missing or outliers. The five questions measuring body image satisfaction were identical at all four time points in 1997, 2000, 2006 and 2009.

The dependent variable (body image)

Five questions regarding body image appearance evaluation were used to measure some aspects of body image attitudes. The questions were originally derived from the body image subscale of the Offer Self-Image Questionnaire (OSIQ). The OSIQ instrument

has been used widely in adolescent research and has high reliability (Patton & Noller, 1994) and moderate discriminant validity (Laukkanen, Peiponen, Aivio, Viinamäki, & Halonen, 1999). In the current study, the response scale that was used consisted of a four-point response scale instead of a six-point response scale as used in the OSIQ. The participants were asked how well the following statements applied to them: "I feel good when I think about how I´ll look in the future", "I feel ugly and unattractive most of the time", "I feel good about my body", "I feel good about the physical changes which I have experienced in recent years" and "I feel strong and healthy". The items were rated on the four-point scale as follows: 0=does not describe me at all, 1=does not describe me well enough, 2=describes me fairly well and 3=describes me very well. The statement "I feel ugly and unattractive most of the time" was an exception whereas it had a reverse rating. The items were combined into a scale ranging from 0-15, with satisfactory internal consistency with Chronbach´s alpha= 0.74 for the 1997 data, 0.76 for the 2000 data, 0.75 for the 2006 data and 0.77 for the 2009 data. A higher score on the scale represented more satisfaction with one´s body.

Analysis

The mean scores of the body image scale between years were compared and ANOVAs and Scheffe´s post-hoc tests were used in order to find out if the differences between years in mean levels of body image among males and females separately were statistically significant. The ANOVAs were followed up by three multiple linear regression models for males and females respectively, with the body image scale serving as the dependent variable. All the necessary underlying assumptions of linear regression models were quite well met. The first model included the year of study as a predictor variable, in the second model demographic variables were added and in the third model the BMI was added. Finally, to test for a linear trend in BMI among males and females, linear regression was conducted with the year of the study (coded into four categories according to year) as a predictor variable and BMI as the dependent variable.

Results

Table 1 shows the trends in body satisfaction among males and females between the years 1997, 2000, 2006 and 2009. The mean levels on the body image scale increased significantly between 1997 and 2009, resulting in a more positive body image in 2009 than 1997 for both genders. The mean level of body satisfaction was higher for males

than females at all time points. It is worth noting that the overall change was greater for females than males in the period, resulting in a narrowing gap between the sexes.

Table 1. Descriptive statistics for body satisfaction with results from ANOVAs (standard errors in parentheses) for males and females, 1997-2009.

Body satisfaction								
Gender	Year	N	Mean	SD	Difference X_{97}-X_{00}	Difference X_{00}-X_{06}	Difference X_{06}-X_{09}	Difference X_{97}-X_{09}
Males	1997	1949	9.79	2.74	-0.20 (0.83) Sig.=0.12	-0.12 (0.71) Sig.=0.43	-0.32 (0.68) Sig.=0.00	-0.64 (0.08) Sig.=0.00
	2000	2904	9.99	2.89				
	2006	3453	10.11	2.83				
	2009	3405	10.43	2.84				
Females	1997	1841	7.78	3.07	-0.42 (0.09) Sig.=0.00	-0.39 (0.07) Sig.=0.00	-0.44 (0.73) Sig.=0.00	-1.25 (0.09) Sig.=0.00
	2000	3141	8.20	3.12				
	2006	3527	8.59	3.07				
	2009	3630	9.04	3.01				

Figure 1 shows the mean scores on the body image scale for each of the four years under study for males and females, respectively.

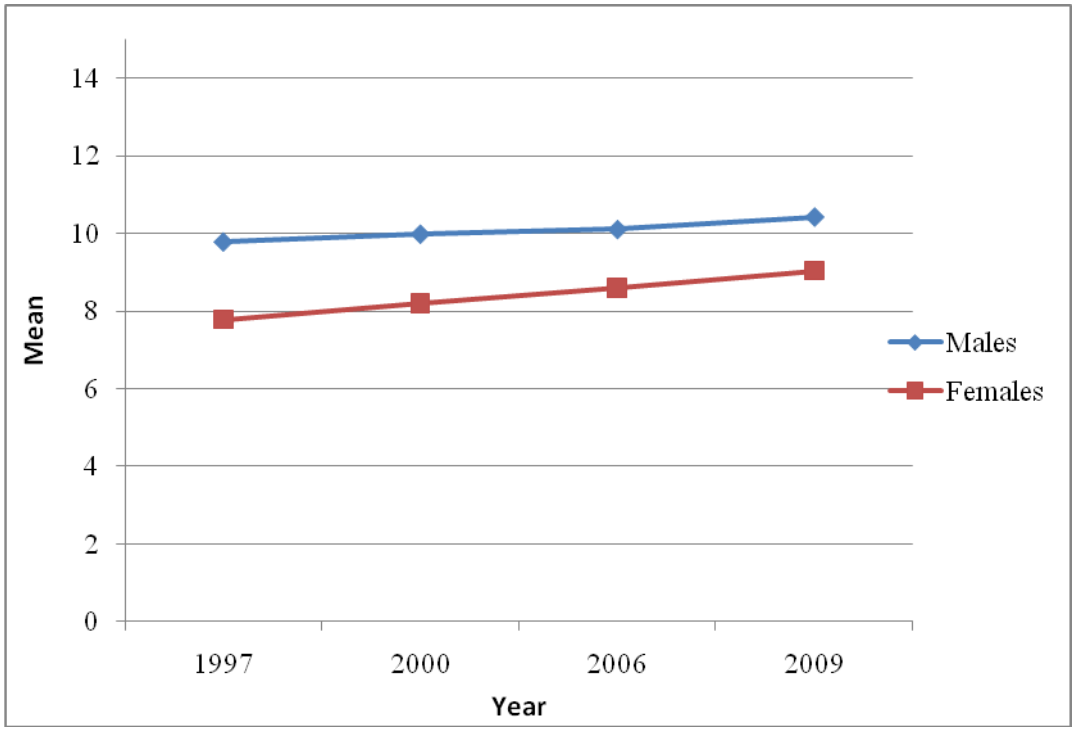

Figure 1. Mean score for body image among 14-15 year old males and females, 1997-2009.

In Table 2 multivariate linear regression models are presented, predicting body satisfaction among boys. There was a significant linear trend towards increased level of body satisfaction from year 1997 to year 2009 among males (β=.074, p< .001, see Model 1). The trend remained significant after controlling for demographic variables (β=.080, p< .001, see Model 2) and BMI (β=.093, p< .001, see Model 3). Model 3 shows that living with both parents (β=.045, p< .001), increased parents‘ education (β=.030, p< .05) and lower BMI (β=-.116, p< .001) significantly predicted more body satisfaction among males.

Table 2. Multivariate linear regression models, predicting body satisfaction for males.

Variables	Model 1			Model 2			Model 3		
	Body satisfaction			Body satisfaction			Body satisfaction		
	B	Std.E	β	B	Std.E	β	B	Std.E	β
Year	.046	.006	.074**	.050	.007	.080**	.057	.007	.093**
Demographics									
Age				-.036	.062	-.006	.044	.064	.008
Family structure				.362	.072	.055**	.294	.075	.045**
Parents' education				.048	.014	.041**	.035	.014	.030*
Residence				.133	.066	.023*	.122	.068	.022
BMI							-.093	.009	-.116**
Adj.R square (%)	0.5			1.4			2.6		
F	64.6**			23.5**			34.0**		

β = Beta, standardized coefficient

* P < 0.05 (two-tailed test)

** P < 0.001 (two-tailed test)

In Table 3 multivariate linear regression models are presented, predicting body satisfaction among females. There was a significant linear trend towards increased level of body satisfaction from year 1997 to year 2009 among females (β=.138, p< .001, see Model 1). The trend remained significant after controlling for demographic variables (β=.127, p< .001, see Model 2) and BMI (β=.148, p< .001, see Model 3). Model 3 shows that younger age (β=-.051, p< .001), living with both parents (β=.039, p< .001), increased parents' education (β=.093, p< .001) and lower BMI (β=-.213, p< .001) significantly predicted more body satisfaction among females.

Table 3. Multivariate linear regression models, predicting body satisfaction for females.

Variables	Model 1			Model 2			Model 3		
	Body satisfaction			Body satisfaction			Body satisfaction		
	B	Std.E	β	B	Std.E	β	B	Std.E	β
Year	.095	.006	.138*	.087	.007	.127*	.101	.007	.148*
Demographics									
Age				-.411	.064	-.066*	-.312	.064	-.051*
Family structure				.274	.073	.039*	.280	.074	.039*
Parents' education				.142	.014	.115*	.115	.014	.093*
Residence				.091	.067	.014	-.046	.068	-.007
BMI							-.199	.010	-.213*
Adj.R square (%)	1.9			4.4			8.9		
F	235.2*			85.6*			139.9*		

β = Beta, standardized coefficient

* P < 0.001 (two-tailed test)

BMI was the strongest predictor of body satisfaction among females and males. Tables 2 and 3 indicate that BMI was a stronger predictor of body satisfaction for females (β = -.213, p< .001) than males (β = -.116, p< .001). Finally, to test whether self-reported BMI levels had increased between year 1997 and year 2009, a linear regression was conducted which showed significant linear trend towards increased levels of BMI between years among both genders, with a more increase in BMI among males (β=.093, p< .001) than females (β=.061, p< .001) (not shown in Table).

Discussion

The study examined whether changes had occurred in the levels of body satisfaction among 14- and 15-year-old adolescents in Iceland over a 12-year period between 1997 and 2009. The findings indicated that levels of body satisfaction had increased significantly from 1997 to 2009 among both females and males but less for males. The results of this study confirm recent trends in body image among college students which indicate a larger increase in the level of body satisfaction among females than males, resulting in a narrower gap between the sexes (Cash et al., 2004; Neighbors et al., 2008). However, the results are not in line with the Norwegian adolescent study referred to before that indicated polarized results with higher proportion of adolescents being

both very satisfied and very dissatisfied with their body in 2002 than 1992 (Storvoll et al., 2005). The current results showed that males in general still report higher levels of body satisfaction than females which is in accordance to earlier studies (e.g. Cash et al., 2004, Feingold & Mazella, 1998; Rozin et al., 2001; Storvoll et al., 2005). Furthermore, it´s worth noting that at the same time as the body dissatisfaction decreased, the level of self-reported BMI increased significantly over the period under study for both genders with a greater change among males than females. A recent study, confirms these trends in increase of BMI among adolescents and young people in Iceland from 1992-2007, resulting in higher prevelance of overweight and obesity, with a greater change among males than females (Eidsdottir, Kristjansson, Sigfusdottir, Garber, & Allegrante, 2010).

The results from this study implied that BMI is a quite strong predictor of body satisfaction which is in accordance with earlier studies (e.g. Paxton et al., 2006; Stice & Whitenton, 2002). Also, the current results implied that BMI is a stronger predictor for body satisfaction among females than males which is in line with an earlier study (Barker & Galambos, 2003). Moreover, the current findings indicated that adolescents who live with both parents are more likely to be satisfied with their body than those who live in another family arrangements. Also, parents‘ education had significant positive linear relationship with body image satisfaction whereas adolescents who have more educated parents are more likely to be satisfied with their body. These results are in accordance with an earlier study, indicating that lower SES predicts less body satisfaction among adolescents (Paxton et al., 2006). Furthermore, the current results showed that 14-year old girls are more likely to be satisfied with their body than 15-year old girls. This is in line with earlier findings, suggesting that body satisfaction decreases as young people move from middle to late adolescence (Bjarnason et al., 2006; Eisenberg et al., 2006).

The current results are interesting given the frequent cultural messages from the media in today´s western society, promoting the thin-ideal and muscular-ideal (Lawrie, Sullivan, Davies, & Hill, 2006; Peixoto Labre, 2002). A recent study in the U.S. indicated for example that even though the average model size had increased over time from 1956 to 2005 in teen magazines, written messages about dieting and exercise had also increased over the period (Luff & Gray, 2009). Recent trends towards more positive body image among Icelandic adolescents may perhaps be partly explained by an increased emphasis on health promotion and prevention of health impairing

behaviors in Iceland in recent years. These efforts have for example resulted in more parental monitoring and time spent with parents as well as decreased rates of alcohol and smoking consumption among adolescents (Sigfusdottir, Thorlindsson, Kristjansson, Roe, & Allegrante, 2009). However, it is beyond the scope of this article to provide valid explanations for recent body image trends and further research is needed.

Despite encouraging results with regard to trends in body image, the current findings also showed that many adolescents are still dissatisfied with their appearance. Another population-based Icelandic study confirms these results whereas 45% of boys and 63 % of girls in 10th grade reported dissatisfaction with their weight (Bjarnason et al., 2006). Furthermore, the prevalence of eating disorders is high in the college population in Iceland, whereas approximately 15.2% of females and 1.9% of males meet the diagnoses of an eating disorder (Thorsteinsdottir & Ulfarsdottir, 2008). Further prevention and health promotion efforts are therefore encouraged. It is important to keep in mind that body dissatisfaction does not motivate overweight or obese adolescents to engage in healthy weight management behaviors but on the contrary may predict unhealthy weight control, binge eating, dieting, smoking and less physical activity that put adolescents at risk for weight gain and poorer overall health (Neumark-Sztainer, Paxton et al., 2006; van den Berg & Neumark-Sztainer, 2007). Continuous, broad and multilevel health promotion strategies are therefore encouraged with a focus on well-being, healthy lifestyles and acceptance of all body sizes and shapes (Fenton, Brooks, Spencer, & Morgan, 2010; Neumark-Sztainer, 2009; Neumark-Sztainer, Levine et al., 2006). The current study provides useful information to the field whereas few population based studies have been conducted on the potential change in body image over time in recent years and the authors do not know of any other population study that has examined the trends in body image among adolescents in the period from 1997-2009.

Strengths and limitations

The strengths of the study include the use of extensive data from four time points that came from four student based cross-sectional surveys which used the same methods of data collection and instruments to measure body image between studies, ensuring consistency over time. Also, adolescents in all schools in Iceland participated in the surveys and the response rate was high. It can therefore be assumed that the data well represented the population being studied.

However, some limitations of the study are worth noting. The survey only studied limited aspects of body image appearance evaluation by using five out of nine questions from the Body Image subscale of the Offer Self-Image Questionnaire. Moreover, the response scale used in the surveys was a four-point scale instead of a six-point scale as used in the Offer Self-Image Questionnaire. Finally, the study is based on self-reports from the adolescents with a potential response bias.

Conclusions

The findings indicate that the level of body satisfaction has increased from 1997-2009 among Icelandic adolescent males and females, with females reporting less satisfaction with their appearance than males. However, the gender gap has decreased over the period. Despite promising results, many adolescents are still dissatisfied with their looks and further efforts to promote health behaviors and body satisfaction are encouraged. Also, more research is needed to examine explanation for recent change in body satisfaction among adolescents. Nevertheless, these findings provide useful information to the field. They indicate changes in body image among adolescents in Iceland over the last decade and may apply to other westernized countries as well.

Highlights

- Body image satisfaction increased significantly for both females and males throughout the period from 1997 to 2009. Females reported less body satisfaction than males at all four time points (1997, 2000, 2006 and 2009) but the gender difference decreased over the period.
- BMI increased significantly over the same period for both females and males, but the changes were greater for males.
- The findings indicate that body image among adolescent males and females has improved over the period under study. However, many adolescents are still dissatisfied with their body and continuous multilevel health promoting strategies with focus on health behavior and acceptance of all body size and shapes are encouraged.

References

Al Sabbah, H., Vereecken, C., Elgar, F., Nansel, T., Aasvee, K., Abdeen, Z., Ojala, K., et al. (2009). Body weight dissatisfaction and communication with parents among adolescents in 24 countries: international cross-sectional survey. BMC Public Health, 9(1), 52.

Ata, R., Ludden, A., & Lally, M. (2007). The Effects of Gender and Family, Friend, and Media Influences on Eating Behaviors and Body Image During Adolescence. *Journal of Youth and Adolescence*, *36*(8), 1024.

Banfield, S. S., & McCabe, M. P. (2002). An Evaluation of The Construct of Body Image. *Adolescence*, *37*(146), 373.

Barker, E. T., & Galambos, N. L. (2003). Body Dissatisfaction of Adolescent Girls and Boys: *The Journal of Early Adolescence*, *23*(2), 141 -165.

Bell, B., Lawton, R., & Dittmar, H. (2007). The impact of thin models in music videos on adolescent girls' body dissatisfaction. *Body Image*, *4*(2), 137-145.

Bjarnason, T., Jonsson, S. H., Olafsson, K., Hjalmsdottir, A., & Olafsson, A. (2006). Heilsa og lífskjör skólanema: Landshlutaskýrsla [The Health and Living conditions of Students: a Regional report]. Akureyri: University of Akureyri & The Public Health Institute of Iceland.

Blouin, A. G., & Goldfield, G. S. (1995). Body Image and Steroid Use in Male Bodybuilders. *International Journal of Eating Disorders*, *18*(2), 159-165.

Cash, T. F. (2002). Cognitive-Behavioral Perspectives on Body Image. In T. F. Cash & T. Pruzinsky (Eds.), *Body image, A handbook of theory, research, and clinical practice* (pp.38-45). New York: Guilford Press

Cash, T. (2004). Body image: past, present, and future. *Body Image*, *1*(1), 1-5.

Cash, T. F., & Fleming, E. C. (2002a). Body Image and Social Relations. In T. F. Cash & T.

Pruzinsky (Eds.), *Body image, A handbook of theory, research, and clinical practice* (pp. 277-286). New York: Guilford Press.

Cash, T. F., & Fleming, E. C. (2002b). The Impact of Body Image Experiences: Development of the Body Image Quality of Life Inventory. *International Journal of Eating Disorders*, *31*(4), 455-460.

Cash, T. F., Morrow, J. A., Hrabosky, J. I., & Perry, A. A. (2004). How Has Body Image Changed? A Cross-Sectional Investigation of College Women and Men From 1983 to 2001. *Journal of Consulting and Clinical Psychology*, *72*(6), 1081-1089.

Cawley, J. (2004). Lighting up and slimming down: the effects of body weight and cigarette prices on adolescent smoking initiation. *Journal of Health Economics*, *23*(2), 293-311.

Clark, L., & Tiggemann, M. (2008). Sociocultural and individual psychological predictors of body image in young girls: A prospective study. *Developmental Psychology*, *44*(4), 1124-1134.

Clay, D., Vignoles, V. L., & Dittmar, H. (2005). Body Image and Self-Esteem Among Adolescent Girls: Testing the Influence of Sociocultural Factors. *Journal of Research on Adolescence (Blackwell Publishing Limited)*, *15*(4), 451-477.

Eidsdottir, S. Þ., Kristjansson, A. L., Sigfusdottir, I. D., Garber, C. E., & Allegrante, J. P. (2010). Trends in Body Mass Index among Icelandic Adolescents and Young Adults from 1992 to 2007. *International Journal of Environmental Research and Public Health*, *7*(5), 2191-2207.

Eisenberg, M., Neumark-Sztainer, D., & Paxton, S. (2006). Five-year change in body satisfaction among adolescents. *Journal of Psychosomatic Research*, *61*(4), 521-527.

Feingold, A., & Mazella, R. (1998). Gender differences in body image are increasing. *Psychological Science (Wiley-Blackwell)*, *9*(3), 190.

Fenton, C., Brooks, F., Spencer, N. H., & Morgan, A. (2010). Sustaining a positive body image

in adolescence: an assets-based analysis. *Health & Social Care in the Community*, *18*(2), 189-198.

Grabe, S., Ward, L. M., & Hyde, J. S. (2008). The role of the media in body image concerns among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin*, *134*(3), 460-476.

Grogan, S. (2008). *Body image: understanding body dissatisfaction in men, women, and children*. (2nd ed.) London: Routledge.

Hargreaves, D. A., & Tiggemann, M. (2004). Idealized media images and adolescent body image: "comparing" boys and girls. *Body Image*, *1*(4), 351-361.

Heatherton, T. F., Nichols, P., Mahamedi, F., & Keel, P. (1995). Body weight, dieting, and eating disorder symptoms among college students, 1982 to 1992. *The American Journal of Psychiatry*, *152*(11), 1623.

Jones, D. C., Vigfusdottir, T. H., & Lee, Y. (2004). Body Image and the Appearance Culture Among Adolescent Girls and Boys: An Examination of Friend Conversations, Peer Criticism, Appearance Magazines, and the Internalization of Appearance Ideals. *Journal of Adolescent Research*, *19*(3), 323 -339.

Jonsdottir, S. R., Arnarson, E. Ö., & Smari, J. (2008). Body esteem, perceived competence and depression in Icelandic adolescents. *Nordic Psychology*, *60*(1), 58-71.

Kostanski, M., Fisher, A., & Gullone, E. (2004). Current conceptualisation of body image dissatisfaction: have we got it wrong? *Journal of Child Psychology & Psychiatry*, *45*(7), 1317-1325.

Laukkanen, E., Peiponen, S., Aivio, A., Viinamäki, H., & Halonen, P. (1999). Discriminant validity of the Offer Self-Image Questionnaire in Finnish 13-year-old adolescents. *Nordic Journal of Psychiatry*, *53*(3), 197-201.

Lawrie, Z., Sullivan, E. A., Davies, P. S. W., & Hill, R. J. (2006). Media Influence on the Body

Image of Children and Adolescents. *Eating Disorders, 14*(5), 355-364.

Lopez, E. N., Drobes, D. J., Thompson, J. K., & Brandon, T. H. (2008). Effects of a body image challenge on smoking motivation among college females. *Health Psychology,* Tobacco and health psychology, *27*(3), S243-S251.

Luff, G. M., & Gray, J. J. (2009). Complex messages regarding a thin ideal appearing in teenage girls' magazines from 1956 to 2005. *Body Image, 6*(2), 133-136.

McCabe, M. P., & Ricciardelli, L. A. (2003). Socioculture Influences on Body Image and Body Changes Among Adolescent Boys and Girls. *Journal of Social Psychology, 143*(1), 5-26.

Neighbors, L., Sobal, J., Liff, C., & Amiraian, D. (2008). Weighing Weight: Trends in Body Weight Evaluation Among Young Adults, 1990 and 2005. *Sex Roles, 59*(1-2), 68.

Neumark-Sztainer, D. (2009). Preventing Obesity and Eating Disorders in Adolescents: What Can Health Care Providers Do? *Journal of Adolescent Health, 44*(3), 206-213.

Neumark-Sztainer, D., Levine, M., Paxton, S., Smolak, L., Piran, N., & Wertheim, E. (2006). Prevention of Body Dissatisfaction and Disordered Eating: What Next? *Eating Disorders, 14*(4), 265-285.

Neumark-Sztainer, D., Paxton, S., Hannan, P., Haines, J., & Story, M. (2006). Does Body Satisfaction Matter? Five-year Longitudinal Associations between Body Satisfaction and Health Behaviors in Adolescent Females and Males. *Journal of Adolescent Health, 39*(2), 244-251.

Neumark-Sztainer, D., Wall, M., Story, M., & Sherwood, N. E. (2009). Five-year longitudinal predictive factors for disordered eating in a population-based sample of overweight adolescents: Implications for prevention and treatment. *International Journal of Eating Disorders, 42*(7), 664-672.

Patton & Noller. (1994). The Offer Self-Image Questionnaire for Adolescents: Psychometric

Properties and Factor Structure. *Journal of Youth and Adolescence*, *23*(1), 19.

Paxton, S. J., Eisenberg, M. E., & Neumark-Sztainer, D. (2006). Prospective predictors of body dissatisfaction in adolescent girls and boys: A five-year longitudinal study. *Developmental Psychology*, *42*(5), 888-899.

Peixoto Labre, M. (2002). Adolescent boys and the muscular male body ideal. *Journal of Adolescent Health*, *30*(4), 233-242.

Pruzinsky, T., & Cash, T. F. (2002). Understanding Body Images. Historical and Contemporary Perspectives. In T. F. Cash & T. Pruzinsky (Eds.), *Body image, A handbook of theory, research, and clinical practice* (pp. 3-12). New York: Guilford Press.

Rozin, P., Trachtenberg, S., & Cohen, A. B. (2001). Stability of body image and body image dissatisfaction in American college students over about the last 15 years. *Appetite*, *37*(3), 245-248.

Schooler, D., & Trinh, S. (2011). Longitudinal associations between television viewing patterns and adolescent body satisfaction. *Body Image*, *8*(1), 34-42.

Siegel, J. M. (2002). Body Image Change and Adolescent Depressive Symptoms. *Journal of Adolescent Research*, *17*(1), 27 -41.

Sigfusdottir, I. D., Thorlindsson, T., Kristjánsson, A. L., Roe, K. M., & Allegrante, J. P. (2009). Substance use prevention for adolescents: the Icelandic Model. *Health Promotion International*, *24*(1), 16 -25.

Sondenhaus, E. L., Kurtz, R. M., & Strube, M. J. (2001). Body Attitude, Gender, and Self-Concept: A 30-Year Perspective. (2001). *Journal of Psychology*, *135*(4), 413-429.

Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin*, *128*(5), 825-848.

Stice, E., Mazotti, L., Krebs, M., & Martin, S. (1998). Predictors of adolescent dieting behaviors: A longitudinal study. *Psychology of Addictive Behaviors*, *12*(3), 195-205.

Stice, E., & Whitenton, K. (2002). Risk factors for body dissatisfaction in adolescent girls: A longitudinal investigation. *Developmental Psychology*, *38*(5), 669-678.

Storvoll, E., Strandbu, A., & Wichstrom, L. (2005). A cross-sectional study of changes in Norwegian adolescents? body image from 1992 to 2002. *Body Image, 2*(1), 5-18.

Thorsteinsdottir, G., & Ulfarsdottir, L. (2008). Eating disorders in college students in Iceland. *European Journal of Psychiatry*, *22*(2), 107-115.

van den Berg, P., & Neumarksztainer, D. (2007). Fat ′n Happy 5 Years Later: Is It Bad for Overweight Girls to Like Their Bodies? *Journal of Adolescent Health*, *41*(4), 415-417.

van den Berg, P., Paxton, S., Keery, H., Wall, M., Guo, J., & Neumarksztainer, D. (2007). Body dissatisfaction and body comparison with media images in males and females. *Body Image*, *4*(3), 257-268.