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*In Focus: Using Videovoice to Examine Social and Environmental Influences on Weight Status Among Urban Female Adolescents*

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### Publication Date

2012-04-01

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*In Focus*: Using Videovoice to Examine Social and Environmental Influences on Weight  
Status Among Urban Female Adolescents

By

Elizabeth Virginia Sanseau

A thesis submitted in partial satisfaction of the  
requirements for the degree of  
Master of Science in  
Health and Medical Sciences  
in the  
Graduate Division  
of the  
University of California, Berkeley

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Spring 2012

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Status Among Urban Female Adolescents*

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by Elizabeth Virginia Sanseau

*For Dr. Carlos Alberto Sanseau*



## Table of Contents

### Paper 1: Review of Literature

Introduction .....	1
Obesity epidemic	
Overweight and obesity .....	1
Disparities .....	1
Nutrition .....	2
Physical activity .....	2
Adolescent health	
Adolescent demographic profile .....	4
Adolescent mortality .....	5
Adolescent morbidity .....	5
Adolescent risk behavior and environment .....	5
Adolescent health projections .....	5
Ecological model	
Theory .....	6
Youth resilience .....	6
Environmental contribution to obesity	
Home environment .....	7
School environment .....	8
Neighborhood environment .....	8
Built environment .....	9
Media environment	
Negative effects .....	9
eHealth .....	10
Activism .....	11
Education and information and media literacy .....	11

Video methodologies	
Community-based participatory-research .....	14
Photovoice .....	15
Videovoice .....	15
Visual narratives .....	15
Conclusion .....	16
Figures .....	17
Tables .....	23
References .....	24

Paper 2: *In Focus*: Using Videovoice to Examine Social and Environmental Influences on Weight Status Among Urban Female Adolescents

Abstract .....	34
Introduction .....	35
Background	
Pediatric obesity .....	35
Video in research .....	36
Research Methods	
Phase I: Videovoice project .....	37
Phase II: Health care provider focus group .....	38
Results	
1. Information-gathering tool .....	39
2. Communication tool .....	41
3. Empathy-inducing tool .....	42
Discussion .....	43
References .....	46

## **Acknowledgments**

The Joint Medical Program at the University of California, Berkeley provided the Health and Medical Sciences Thesis Research Grant and the Helen Schoeneman Research Fellowship to fund this study. UCSF PRIME-US provided a community project mini-grant. The Paul Ambrose Scholars Program provided additional funding. Phase I of this pilot project was presented at the 9<sup>th</sup> International Conference on Urban Health. Phase II of this pilot project was accepted to presented at the 2012 Rodnick Colloquium: Innovations in Family Medicine hosted by UCSF and the 2012 AAMC Western Regional WGEA/WGSA/WOSR Conference hosted by the Keck School of Medicine. I would like to thank the health care providers at the Children's Hospital & Research Center Oakland's Healthy Hearts obesity clinic and Aditi Gupta and Tiffany Gee for their administrative support. Most importantly, I am grateful to the 5 young women participants – now certified amateur filmmakers.



## Paper One: Review of Literature

### Introduction

Childhood obesity is on the rise, currently reaching epidemic levels.<sup>1</sup> This is deeply concerning because with a rise in obesity comes a rise in comorbidities of the disease. Children now face diseases that were once considered to be limited to the adult population such as type 2 diabetes mellitus, bone and joint problems, and sleep apnea.<sup>2</sup> There is an increased prevalence of children with clinical signs of metabolic syndrome, which includes central adiposity, insulin resistance, high blood pressure, and abnormally high LDL cholesterol and triglycerides.<sup>3 4</sup> Overweight and obese children and adolescents are more likely to be overweight and obese adults,<sup>5 6</sup> who are at increased risk for cardiovascular disease.<sup>4</sup> In addition, overweight and obese adolescents are more likely to have lower self-esteem and depression, persisting into adulthood.<sup>7</sup> The medical, public health, and economic implications of this epidemic are substantial.

Eating and physical activity behaviors during adolescence have lifelong implications for health and well-being. The environment influences an individual's access to "healthy" foods and opportunities to engage in physical activity. This paper explores the obesogenic<sup>8</sup> nature of the environment by which our children and teenagers are surrounded.

### Obesity Epidemic

#### *Overweight and obesity*

An estimated 32 percent of American children are overweight.<sup>9</sup> This number has more than tripled since 1980.<sup>7</sup> In 2009, the Institute of Medicine reported that in the United States 16.3 percent of children and adolescents between the ages of two and 19 were overweight or obese.<sup>4</sup> This epidemic has risen at an exponential rate over the past three decades. In the last 30 years, among children two to five years old, obesity prevalence increased from 5 percent to 12.4 percent. Among children six to eleven years old, the prevalence increased from 6.5 percent to 17 percent. And among adolescents 12 to 19 years old, it increased from 5 percent to 17.6 percent (figure 1).<sup>4</sup>

This trend is expected to reduce the life expectancy of today's generation of youth. Obesity is estimated to account for 50,000-170,000 deaths per year in the U.S.<sup>10</sup> Obesity will diminish both the quantity of years lived as well as the quality of those years. Obese children rate their quality of life on par with children undergoing cancer chemotherapy.<sup>11</sup> Obese children and adolescents are at an increased risk of high cholesterol, hypertension, type 2 diabetes, and metabolic syndrome.<sup>12</sup> They are more likely to suffer from low self-esteem and depression,<sup>13</sup> and they are also more likely to be obese adults.<sup>14</sup>

#### *Disparities*

Disparities in health outcomes, including disparities in who is affected most by obesity, are well documented.<sup>15 16</sup> The health gap between children of higher and lower

socioeconomic status (SES) parents has remained constant over the past 30 years, despite vast improvements in medicine and healthcare technologies.<sup>17</sup> Included among the myriad factors that contribute to these disparities are poverty, unequal access to health care, poor housing and environmental conditions, educational inequalities, individual behaviors of parents and children, and language barriers.<sup>18</sup>

Studies have shown that low-income youth and adolescents are at higher risk for obesity, depression and suicide than high-income youth.<sup>19</sup> Low SES is a risk factor for unhealthy eating and inactivity, two factors that lead to weight gain. Lower SES is associated with higher fast food intake,<sup>20-22</sup> as well as increased sedentary behavior (figure 2).<sup>23</sup> Individuals living in census block groups characterized by lower income and by high proportions of minorities have fewer nearby parks and other recreational facilities.<sup>24</sup> This lack of access to places for physical activity may play an important role in their risk of being overweight.

There are important disparities in health outcomes across race/ethnicity status.<sup>25</sup> In general, adolescents and young adults who are African American, American Indian, or Hispanic, especially those who are living in poverty, experience poor outcomes in a variety of areas, including obesity, teen pregnancy, tooth decay, and educational achievement.<sup>26</sup> Four in ten Mexican-American and African American youth ages 6 to 19 years are considered overweight or at risk for overweight. Severely obese children and adolescents, particularly African Americans, have a very high risk of developing type 2 diabetes over a short period of time.<sup>27</sup> Furthermore, obesity in childhood and adolescence is more likely to lead to obesity in adulthood among blacks than among whites.<sup>28</sup> The physical, cognitive, emotional, and economic sequelae of obesity may place a child at a further disadvantaged trajectory. Early intervention in addressing health disparities is a priority in *Healthy People 2020*.<sup>29</sup>

### *Nutrition*

The U.S. Department of Agriculture's Nationwide Food Consumption Survey reported that the diet of adolescents was insufficient in the 1970s – lacking adequate intake of key nutrients such as vitamin B<sub>6</sub>, calcium and iron – and that it is far worse now.<sup>30</sup> The Institute of Medicine (IOM) reports that today's teenagers consume more calories, carbohydrates, excessive fat, cholesterol, sodium, and low-nutrient foods than they did 40 years ago.<sup>31</sup> Furthermore, adolescents are not consuming the recommended daily servings of fruits and vegetable.<sup>32</sup> In addition, adolescent females in particular consume inadequate amounts of iron and are more than twice as likely as males to report risky eating behavior. Risky eating includes not eating for 24 hours or more and vomiting or taking laxatives.<sup>7</sup>

### *Physical activity*

Body weight is normally regulated by the integration of food intake and energy expenditure.<sup>33</sup> In humans, energy expenditure is accounted for by assessing three components: 1) resting energy expenditure, which is the metabolic cost of processes such as the maintenance of trans-membrane ion gradients and resting cardiopulmonary activity; 2) the thermic effect of feeding, which is the energy expended in digestion,

transport, and deposition of nutrients; and 3) nonresting energy expenditure, which is all the remaining expenditure of energy, mainly in the form of physical activity (PA).<sup>34</sup> Unlike the resting and thermal energy expenditures, the nonresting energy expenditure is a factor that an individual can control by being active. Regular engagement in PA is associated with enhanced health.<sup>35</sup> Health benefits of regular engagement in PA include reduced risk of obesity, cardiovascular disease, ischemic stroke, metabolic syndrome, type 2 diabetes, colon cancers, osteoporosis, and depression.<sup>36 37</sup>

The American Academy of Pediatrics, Centers for Disease Control and Prevention and the Department of Health recommend that young people should accumulate at least 60 minutes of moderate- and vigorous-intensity physical activity (MVPA) daily.<sup>35 38</sup> This can be achieved through both organized activity (sports teams, physical education classes) or unorganized, everyday activity (walking or biking to school, playing outside).<sup>9</sup> There is growing interest in how to increase activity in our daily lives through active living,<sup>39</sup> incidental (non-exercise or non-purposeful) physical activity and lifestyle-embedded activities (chores and incidental walking).<sup>40 41</sup> Despite the benefits of regular PA, only 27 percent of students (grades 9 through 12) engage in moderate-intensity physical activity (30 minutes or more days per week).<sup>42</sup> More than 80 percent of adolescents do not engage in sufficient aerobic PA to meet the guidelines for youth.<sup>43</sup> A precipitous drop in level of activity occurs during adolescence among both black girls and white girls, with the drop particularly marked among black girls (figure 3).<sup>44</sup> For these reasons, the *Healthy People 2020* agenda prioritizes increasing the levels of PA in the United States.<sup>29</sup> It has been shown that factors positively associated with PA among children ages 4 to 12 include: male gender, belief in one's ability to be active (self-efficacy) and parental support.<sup>45</sup> Factors positively associated with PA among adolescents ages 13 to 18 include parental education, male gender, personal goals, physical education/school sports, belief in ability to be active (self-efficacy), and support of friends and family.<sup>45</sup> Understanding the barriers to and facilitators of physical activity is an important step towards diminishing the obesity epidemic.

## **Adolescent Health**

Adolescence is a significant period of growth and development comprised of physical, cognitive, and emotional changes. When using traditional health status definitions, this period in the lifespan is a healthy one. Mortality rates, incidence of disease, prevalence of chronic conditions, and use of health services are much lower when compared to other developmental periods. The National Survey of Child Health reports that approximately 83 percent of adolescents aged 12-17 are in either excellent or very good health as reported by their parents, regardless of whether they live in urban or rural areas.<sup>46</sup> Data from the Behavioral Risk Factor Surveillance System show that 91 percent of those aged 18-24 consider themselves to be in good, very good, or excellent health.<sup>47</sup>

In recent decades, the older biomedical definition of health as “an absence of disease” has been criticized as a limited one.<sup>48</sup> Rather than simply citing mortality rates, incidence and prevalence of disease in a population to determine its healthfulness, clinical researchers

now define health as a dynamic, multi-factorial, bio-psychosocial phenomenon that influences physical, psychological, and social functioning.<sup>49 50</sup> The European Region of the World Health Organization recently put forth the following definition of health: “[Health] is the extent to which an individual or group is able, on the one hand, to realize aspirations and satisfy needs, and, on the other hand, to change and cope with the environment. Health is therefore seen as a resource for everyday life, not the objective of living; it is a positive concept emphasizing social and personal resources as well as physical capacities.”<sup>51</sup> This broader definition of human health consequently broadens the researcher’s lens to focus on determinants from various domains to explain the origins of disease, health, and well-being. These broader domains include global factors (physical, environmental, socioeconomic), middle-level factors (health care, behavioral interventions), and individual, small-group, and community factors.<sup>48</sup>

The environment that adolescents live in and the behaviors that they adopt during this time affects not only their immediate health, but also their health as adults, because of the persistence of bio-behavioral attributes that are acquired early in life.<sup>31 52</sup> The 1946 British National Birth Cohort Follow-up Study provided extensive evidence of the effect of early life experiences on cognitive functions<sup>53</sup>, physical growth trajectories<sup>54</sup>, menopause<sup>55</sup>, blood pressure<sup>56</sup>, psychotic illness<sup>57</sup>, respiratory health<sup>58</sup>, and a number of serious diseases.<sup>59</sup> Half of deaths among adults are due to health-related behaviors that begin primarily during adolescence.<sup>60</sup> Health-related behaviors that are associated with death include tobacco use, poor diet and physical inactivity, drug and alcohol abuse, risky driving, risky sexual behavior, and use of drugs. These health-compromising behaviors are influenced by socioeconomic status, living circumstances, school environment and quality, and after school care.<sup>7</sup> The social context also contributes to adolescent health, including factors such as income, race/ethnicity, geography and community efficacy. The magnitude of health risks is largely a function of socioeconomic disparities and psychosocial gradients.<sup>61</sup>

#### *Adolescent demographic profile*

The adolescent and young adult population is a diverse and growing one in the United States. Between 1990 and 2006, the population ages 10 to 24 increased from 40.1 to 63.3 million. In 2006, 55.2% were White, non-Hispanic (NH); 16.5% Hispanic; 13.6% Black; 3.9% Asian/Pacific Islander; 0.9% American Indian/Alaskan Native; and 9.9% other. One in 10 15- to 24-year-olds were immigrants or foreign-born in 2006; they were primarily of Hispanic (63.5%) or Asian/Pacific Islander origin (21.2%).<sup>62</sup>

In 2006, 17.0% of U.S. children aged 0 to 17 lived in poverty; for ages 18 to 24, this figure was 17.8%. These figures represent small changes since 1994. For both age groups, rates remain highest among Black-NHs and Hispanics.<sup>62</sup>

School enrollment has increased among adolescents and young adults. High school dropout rates (ages 16-24) decreased from 12.1% in 1990 to 9.4% in 2005. Among 18- to 24-year-olds, enrollment in a degree-granting institution increased from 25.7% in 1980 to 37.3% in 2006.<sup>62</sup>

### *Adolescent mortality*

According to the Center for Disease Control's (CDC) National Center for Health Statistics, 2004, more than 17,500 adolescents aged 10-19 die annually, with unintentional injury being the leading cause.<sup>62</sup> Unintentional injury (such as motor vehicle accidents) is the leading cause of mortality among adolescents. Unintentional injury, homicide and suicide accounted for almost three-quarters of all deaths among adolescents aged 10-19 in 2004.<sup>62</sup> The three leading causes of natural death among adolescents comprises only 10 percent of the total.<sup>62</sup> Figure 4 shows the ten leading causes of death in adolescents aged 10-19, US, 2004.

In general, mortality rates increase with age. As seen in figure 5, those aged 15-19 have a mortality rate more than three times higher than that of those aged 10-14. Males have higher mortality rates than females. Disparities by race/ethnicity are sizeable: rates are highest among NH American Indians/Alaskan Natives and Blacks, and lowest among Asian/Pacific Islander-NHs. These disparities are driven primarily by high motor vehicle accident (MVA) mortality and suicide rates among American Indian/Alaskan Native-NH males and high homicide rates among Black-NH males.<sup>62</sup>

### *Adolescent morbidity*

Teenagers are usually healthy. Adolescents in poor and near-poor families (those at less than 200 percent above the poverty threshold as defined by the U.S. Census Bureau) had substantially higher rates of severe chronic health conditions than adolescents in nonpoor families.<sup>63</sup> Chronic disease impact is much more significant in adulthood, but the rising incidence of diabetes has a non-trivial impact.<sup>64 7</sup> Diabetes diagnosed during adolescence has been linked to a number of poor health outcomes in adulthood, including eye and foot problems; dental, kidney, nerve, respiratory, and cardiovascular complications; reproductive health issues; and stroke.<sup>65</sup> In adolescents, unhealthful and/or risky behaviors, rather than infectious or chronic diseases, are the leading cause of morbidity and mortality.

### *Adolescent risk behavior and environment*

The health problems of adolescents are primarily behavioral and environmental in origin. These include: interpersonal violence, motor vehicle crashes, substance (including tobacco and alcohol) use, problems associated with risky sexual behavior, risky eating behavior, inadequate physical activity, and psychiatric disorders. Not only do these behaviors affect the health of adolescents, but they significantly impact their health as adults. Evidence shows that specific subpopulations of adolescents (low-income, living in an immigrant family, LGBT, or in the juvenile justice system)<sup>7</sup> have higher rates of chronic disease. These teens may engage in more risky behavior, or may live in a social environment that places them at greater risk for poor outcomes relative to the overall adolescent population.

### *Adolescent health projections*

A recent analysis highlights the progress that has been made in the overall health status of adolescents. As part of *Healthy People 2010*, a national consensus panel identified 21 health objectives critical to adolescent health. These objectives span six areas that include:

mortality, unintentional injury, violence, mental health and substance use, reproductive health, and the prevention of chronic disease during adulthood. Indicators in several areas have worsened rather than improved since the objectives were set, including deaths caused by motor vehicle crashes related to alcohol use, obesity/overweight and physical inactivity.<sup>66</sup> Table 1 illustrates that the obesity/overweight incidence has increased by over half and the reported physical activity remains essentially unchanged. Only 4 of the 21 objectives have improved since 2000. These 4 improvements include reductions in unintentional injury, pregnancy and sexually related risk behavior, and tobacco use.<sup>67</sup> Despite progress in these 4 areas, the numbers show that in the prior month, one in four adolescents rode with a driver who had been drinking and more than one in five smoked a cigarette. In addition, more than a third of sexually active teens did not use a condom at last sex.<sup>67</sup> These data indicate that more needs to be done on behalf of the health of our nation's youth. While most adolescents are healthy as defined by the traditional measures of mortality, morbidity and the use of health services, behavioral indicators of health status show less improvement.

## **Ecological Model**

An individual's path from childhood towards healthy development as an adult is not a straight and clear one, but rather a multidimensional and complex journey. Environmental, social, psychological, and biological systems all interact to influence health and developmental outcomes (figure 6).<sup>68 50</sup>

### *Theory*

An all-encompassing view of the influence of social, economic, environmental, and psychological contextual factors on health status was first described by Urie Bronfenbrenner.<sup>69</sup> Bronfenbrenner's theory defines complex "layers" of environment that each have an effect on child development. This theory, that has recently been renamed the "bioecological systems theory", acknowledges that factors in the child's biology (individual level) interact with factors in the peer and family environment (family level) that in turn interact within society at large (community level). Bronfenbrenner's layers range from that of the "microsystem", which refers to the relationship between a developing person and the immediate environment such as school and family, to the "macrosystem", which refers to institutional patterns of culture, such as the economy, customs, and bodies of knowledge.<sup>70</sup>

It is now widely accepted that food and eating environments likely contribute to the increasing epidemic of obesity, in addition to individual factors such as knowledge, skills, and motivation. The ecological model can be used to conceptualize the many food environments and conditions that influence food choices, incorporating structural factors of home, child care, school, work site, retail store, and restaurant settings (figure 7).<sup>71</sup>

### *Youth resilience*

In addition to the documented negative structural factors that potentially expose adolescents to health risks, there is a growing field of research on youth resilience. This

body of research acknowledges that risks and assets both contribute to healthy development, when viewed under the umbrella of a greater ecological framework. Two main pathways toward healthy development have been acknowledged: the protective pathway and the promoting pathway.<sup>72</sup> The protective pathway encompasses the protection, support or intervention that moderates a particular risk. Major protective factors include caring relationships, high expectations, and meaningful participation at home, in the schools and in the community.<sup>73</sup> The promoting pathway describes how individual resilience traits, or internal assets, directly lead to healthy development. Key assets include social competence, autonomy and sense of self, and senses of meaning and purpose (figure 8).<sup>74</sup> Key to this model is the notion that risk is not simply the opposite of protection, but rather there exist multiple levels of reciprocal influences and interactions that lead to healthy behavior (figure 9).<sup>72</sup>

These two pathways that adolescents take towards health development, the protecting and promoting pathways, are part of a larger system of social ecology. The ecological model of human development is driven by the transactions between self, agency and environmental influences. Interventions in optimizing healthy development, therefore, need to focus on these multiple levels of an adolescent's social ecology and not just focus on building disparate individual assets.<sup>72</sup> Attempts to achieve better health development outcomes in adolescents should focus on accentuating the positive in order to simultaneously minimizing the negative.<sup>75</sup>

### **Environmental contribution to obesity**

The research on pediatric obesity has predominantly focused on individual-level determinants of dietary intake, such as attitudes, taste preferences, social influences and perceived behavioral control. More recently, however, it has been acknowledged that the environmental determinants of behavior are also a significant driving force for the increasing prevalence of obesity.<sup>76</sup> The research on childhood obesity is now shifting to explore what environmental factors encourage unhealthy eating and discourage physical activity.

#### *Home environment*

Research shows that youth's eating behaviors are particularly influenced by their social and physical environments.<sup>77</sup> The home and family represents an environmental context in which the child resides. Individual-level behaviors inherent to parenting, education level, and income create more or less healthful environments. Parents and caregivers play a crucial role in teaching children about health, through the modeling of healthy behaviors, and determining the child's physical and social environment.<sup>78</sup> However, positive efforts by parents and caregivers can be undermined by an unhealthy environment. Contextual factors including family, peer group, school, neighborhood, policies, and societal cues can all impact the health and well-being of youth.<sup>79</sup> Aspects of the home environment as well as individuals' knowledge of energy balance are correlated with dietary and physical activity behaviors. The level to which a household understands the concept of balancing diet with exercise correlates with how healthy the home food,

media and physical activity environment is.<sup>80</sup> A more healthful home food environment is related to youth fruit and vegetable intake. Of note, a higher household income is also correlated with a healthier home food environment.<sup>81</sup>

### *School environment*

Children consume a large proportion of their daily diet while at school.<sup>82</sup> The school food environment is often an unhealthy one. The majority of secondary schools in the U.S. sell low-nutrient, energy-dense items in the cafeteria and through vending machines.<sup>83</sup> One study on the quality of food in secondary schools in Minneapolis reported a median number of 12 vending machines per school, with few school food policies in effect.<sup>84</sup> The standards established for federally-subsidized school meal programs like the National School Lunch and School Breakfast Programs provide nutrients that meet dietary guidelines. However, such standards do not exist for foods and beverages sold outside the subsidized meal. The U.S. Department of Agriculture labels these outside options as competitive foods. There is growing concern that nutrition integrity standards should be applied to food in the entire school environment.<sup>85</sup> The availability of healthful foods, beverages and food policies in schools deserves greater attention.

### *Neighborhood environment*

The nutritional intake of schoolchildren is affected not only by what is consumed at school but also by what is available in food outlets near schools. Many urban corner stores sell snack foods that are nearly entirely unhealthy.<sup>86</sup> Corner stores that sell this inexpensive junk food are ubiquitous in low-income, high-minority communities. Food stores near high-income schools sell healthier beverages and snacks when compared to those outlets near lower-income schools.<sup>87</sup> Epidemiologic studies have shown that energy dense/nutrient poor “junk food” is cheaper than healthier options.<sup>88</sup> Purchases made in these corner stores contribute significantly to energy intake among urban school children.<sup>89</sup>

In addition to the urban corner stores, fast food restaurants are overrepresented in poorer neighborhoods, where healthy alternatives are more difficult to find.<sup>90,91</sup> An estimated one-third of U.S. adults will eat fast food on a given day.<sup>92</sup> There is a geographic density of 2.5 fast food restaurants per square mile in poor neighborhoods vs. 1.5 per square mile in affluent ones, meaning that residents living in poor areas are more likely to pass by the unhealthy temptation.<sup>90</sup> Fast food consumers have a high intake of fat, soft drinks and sodium, and a low intake of fruits and vegetables.<sup>22,93-95</sup> The link between fast food intake and obesity in all age groups is well documented in the literature.<sup>96-98</sup>

In addition to corner stores and fast food outlets, mobile vendors cluster around schools and therefore contribute to after-school snacking patterns in children. One study showed that an average of more than 5 mobile vendors are stationed within ¼ mile of public elementary and middle schools in Oakland, CA at the end of the school day.<sup>99</sup> Children made purchases primarily at the ice cream trucks, followed by *paleteros*, shaved ice vendors, whole fruit vendors, *fruterros*, and taco trucks.<sup>99</sup> The ubiquity of unhealthy foods and beverages surrounding schools and targeting children contribute to an obesogenic environment.



### *Built environment*

It is well documented that attributes of the overall structure of the physical environment, referred to as the “built environment”, are associated with activity, eating, and obesity.<sup>9</sup> As a result of increased suburbanization, homes, schools, and buildings in communities designed in the Post-World War II period are not as densely-knit together as communities designed prior to suburbanization (figure 10).<sup>9</sup> Therefore, the physical structure of neighborhoods makes it more difficult to achieve incidental activity in our daily lives. Some people resort to automobiles for transportation to navigate the suburban sprawl. Communities that are designed to promote safe walking and biking transit, with open park spaces for communal enjoyment, would enhance the possibility of achieving the recommended sixty minutes of daily physical activity.<sup>9</sup> The proximity of schools and workplaces to residential communities also plays a role in determining the quotidian method of transportation. Environmental influences positively associated with physical activity among children and adolescents include: presence of sidewalks, having a destination/walking to a particular place, access to public transportation, low traffic density, and access to neighborhood or school play area and/or recreational equipment.<sup>100,101</sup>

In addition to the structural layout of community, the presence (or absence) of supermarkets and fresh fruit stands is inconsistent across neighborhoods. Certain neighborhoods simply lack access to fruit and vegetable vendors.<sup>102</sup> People who have access to local stores that offer fresh and healthy foods are more likely to eat more healthful foods.<sup>103</sup>

### **Media environment**

Children engage in numerous sources of media on a daily basis. A study by researchers at the Program for the Study of Media and Health at the Kaiser Family Foundation report that the amount of time American children and teens spend watching TV, playing video games or accessing the Internet has increased to almost eight hours a day.<sup>104</sup> Radio, television, video games, movies, mobile devices, and computers indeed have a central role in children’s lives. With the explosion of mobile multimedia devices performing multiple functions, such as cell phones and iPods, kids can access media quickly and easily. Media is pervasive in the home, as well. The Kaiser report cites that in 64 percent of homes, the TV is on during meals, and in 45 percent of homes, the TV is on most of the time even when no one is watching it.<sup>104</sup> The same study reports racial/ethnic disparities, with black and Hispanic youth spending a daily average of four and a half hours more using media than white youth.

### *Negative effects*

Media can have positive as well as negative effects on children’s cognitive, social and behavioral development. It is accepted that media significantly influences child health, including violence, obesity, tobacco and alcohol use, and risky sexual behaviors.<sup>105 106</sup> Children living in neighborhoods disproportionately affected by crime spend more time indoors watching television, where they will be exposed to fast food advertisements

directed at youth.<sup>107</sup> Increased screen time predicts higher BMI, development of type 2 diabetes mellitus, poor lipid profiles,<sup>108</sup> and lower physical activity in children.<sup>109</sup> One study notes a strong dose-response relationship between the prevalence of overweight and hours of television viewed. The odds of being overweight were over four times greater for youth watching more than five hours of television per day compared with those watching for zero to two hours.<sup>108</sup> Studies in multiple populations show that kids eat what they see on TV<sup>110,111</sup> and that those who watch more TV eat more fast food.<sup>22,112</sup> One study showed a prospective increase in fast food intake related to TV viewing where each additional hour of television was associated with an increase of 167 kcal/d.<sup>111</sup>

Additionally, of utmost serious concern are the deleterious effects of social networking site use (such as cyberbullying) on psychological well-being.<sup>113</sup> Half of all young people have been the target of some type of digital abuse, including spreading lies, violation of trust, and digital disrespect. Roughly one-third of youth have engaged in sexting activities (“sexting” is the act of sending sexually explicit messages or photographs, primarily between mobile phones). Furthermore, technology opens new avenues for manipulation and control among young people in relationships.<sup>114</sup>

Partaking in social media web sites is among the most common activities of children and adolescents today.<sup>115</sup> “Social media” is defined as: forms of electronic communication (as Web sites for social networking and microblogging) through which users create online communities to share information, ideas, personal messages, and other content (such as videos).<sup>116</sup> About 74 percent of teens now have a social-networking page on Facebook or a similar site.<sup>104</sup> Social networking sites (SNSs) such as YouTube, Facebook, Myspace and Twitter combine media production and distribution with social networking features, thereby making them an ideal venue to create, connect, collaborate, and circulate.<sup>117</sup> A great deal of social life occurs in networked public spaces, meaning that a great deal of formerly private information is being shared and recorded in potentially public spheres. We need to better understand how youth are engaging with SNSs in this digital era, and how they think about the concepts of public and private.

Not all media use has negative health consequences. Given the explosion of the digital world and the paralleling rise in obesity, researchers have focused on analyzing causal relationships between the two phenomena. Yet much research also documents the potential health benefits (such as weight loss, diabetes management, smoking cessation, psychosocial treatment and reproductive health education) resulting from social networking, blogging, vlogging (video-blogging) or use of online patient community sites. The impact of new media on today’s world cannot be underestimated; from the topic of health to social and political activism to education, it is inescapable, and here to stay. Efforts should therefore focus on protecting youth from the negative aspects of the media environment while promoting its use for health promotion and enjoyment.<sup>118 119</sup> Media, and in particular social media, will likely continue to influence our culture in ways that are currently unimaginable.

*eHealth*

In the past decade, the use of technologies and the Internet to motivate behavior change has been a quickly expanding field of research.<sup>120</sup> The combined use of electronic communication and information technology in the health sector is termed ‘eHealth’.<sup>121</sup> The use of eHealth communications can help patients master behaviors related to nutrition, physical activity, and weight management.<sup>122 123 124</sup> Via the Web, patients can receive individualized and tailored care that includes appropriately timed reinforcement of educational messages, social support, and increased engagement that has shown to significantly improve health outcomes in patients with diabetes.<sup>125 126</sup> Computer-delivered treatment may represent a successful and cost-effective method to treat uncomplicated substance use and smoking cessation.<sup>127 128</sup> There is potential value of self-help, Internet-based resources designed for use by at-risk individuals who may be disinclined to access formal mental health services.<sup>129</sup> A growing body of research suggests that Internet-based interventions produce results that are comparable to clinician-administered interventions for anxiety and depression.<sup>130 131</sup> Thus, computer, web-based interventions can contribute to positive health outcomes in patients.

### *Activism*

Technology and social media can be used as a vehicle for social and political activism. Mobile Internet devices and the population of Internet-savvy individuals with access to large social networks with the simple click of a button are ubiquitous and only continue to grow around the world. Activists living under authoritarian and oppressive governments have successfully organized for freedom and democracy by communicating with their vast social networks via SNSs. For example, the revolutionary wave occurring in the Arab world, termed the Arab Spring,<sup>132</sup> involved strikes, demonstrations, marches, and rallies largely organized via SNSs such as Facebook, Twitter, YouTube, and Skype. Governments around the globe are grappling with how and whether to control this communication tool. Some heavy-fisted governments deeply fear the power of SNSs and have censored the country’s access to the Web.<sup>133</sup> Even democratic governments are discussing ways to limit the use of social media to combat crime and periods of civil unrest in their country.<sup>134</sup> This has spurred the debate on whether censoring social media communication undermines the democratic principal of freedom of speech.<sup>135</sup> The availability and accessibility of different forms of media – from the Internet to open television stations to traditional newspapers – enables an environment that is empowering to individuals to stand up for their social and political rights. This tool can be used to educate, organize, and empower.

### *Education and information and media literacy*

Additionally, the Internet has positive effects on education. Research by the Pew Internet & American Life Project shows that teenagers use the Internet as an essential study aid outside the classroom and that the Internet increasingly has a place inside the classroom.<sup>136</sup> Ninety-four percent of surveyed youth (ages 12-17) who have Internet access say they use the Internet for school research and 78 percent say they believe the Internet helps them with schoolwork. Eighty-seven percent of their parents believe that the Internet helps students with their schoolwork and 93 percent believe the Internet helps students learn new things.<sup>136</sup> In fact, media literacy is commonly referred to as the new hidden curriculum in education today.<sup>137</sup> The term “hidden curriculum” refers to

outcomes or by-products of schools or of non-school settings, particularly those outcomes which are learned but not openly intended.<sup>138</sup>

The notion of media literacy in today's education curriculum might not be as "hidden", or unintended, as some think, however. As new technologies emerge, the nature of literacy is rapidly changing.<sup>139</sup> Literacy is no longer simply defined as having the ability to read and write, but includes the ability to learn, comprehend, and interact with technology in a meaningful way.<sup>137</sup> The International Reading Association states: "The Internet and other forms of information and communication technology (ICT) such as word processors, Web editors, presentation software, and e-mail are regularly redefining the nature of literacy. To become fully literate in today's world, students must become proficient in the new literacies of ICT. Therefore, educators have a responsibility to effectively integrate these technologies into the curriculum in order to prepare students for the literacy future they deserve."<sup>140</sup> Howard Rheingold, critic on the implications of modern communication media, writes about information and digital literacy.<sup>141</sup> Rheingold underscores the importance of applying our human capacity to think critically while using new media in order to safely and effectively navigate the vast amount of information on the Internet.<sup>142</sup> The current term for this concept is information and media literacy (IML).

IML enables people to interpret and make informed judgments as users of information and media, as well as to become skillful creators and producers of information and media messages in their own right.<sup>143</sup> The term Information Literacy has traditionally referred to research skills, while the term Media Literacy has traditionally referred to the analysis on delivery of information through various forms of media.<sup>144</sup> IML combines the two fields, with the purpose of being literate in today's digital society. In the 21<sup>st</sup> Century, the ability to communicate competently in all media forms as well as to access, understand, analyze, evaluate and participate with powerful images, words and sounds that make up our contemporary mass media culture is necessary.<sup>144</sup> To participate in IML includes contributing to the media conversation by creating new knowledge in a collaborative and ethical manner.<sup>144</sup> The potentially empowering environment of the Web has the potential to be just as negative as it can be positive, however. Some of it is central to our sense of equity and justice, while some of it is unhealthy and even dangerous. The long-term implications of being socialized into a culture that is rooted in networked public space are unknown. However, what is known is that we live in a society whose public life is rapidly changing, and that IML is crucial to healthy navigation of today's growing Internet-centered world.

While considering the potential benefits of using social media in health promotion, behavior change, politics, and education it must be acknowledged that the digital divide of unequal access to communication technologies and Internet persists. That is, despite recent improvements, Americans' access to the Internet – and to the growing body of health information there – remains uneven. The current digital divide consists of an age divide and a race divide. The computer revolution does not appear to be reaching current retirees and Medicare enrollees directly, and lower-income blacks use the Internet significantly less than other low-income racial groups.<sup>145</sup> However, the digital divide is narrowing with teenagers. There is less of a disparity between teenagers of different

socioeconomic classes and race/ethnicity. This is due to the different types of media, such as cell phones, that are less disparate across the divide (figure 11).<sup>146</sup> A recent Pew Internet & American Life Project reports that black teens were more than twice as likely as whites to go online with their mobile phones, at 44 percent versus 21 percent.<sup>146</sup> Hispanic teens were also relatively active on the mobile Web.<sup>146</sup> As the number of computers in public places grow, and new technologies emerge, computer ownership may be less important in determining who is able to access the Internet. More people may be able to gain access to virtual health information in the years to come.<sup>145</sup> As Web use becomes ever more pervasive in education curriculum and more easily-accessible with mobile devices, the concept of the digital divide becomes less relevant. Teaching media literacy, however, must be a priority in the digital era.<sup>147</sup>

The etiology of obesity is complex, involving genetic susceptibility and behavioral components primarily related to dietary habits and physical activity. Postulated behavioral risk factors include diets with a high energy density, high consumption of sugar-sweetened beverages, large portion sizes, eating patterns, high levels of sedentary behavior and low levels of physical activity.<sup>148</sup> The mechanism of overweight and obesity as disease can be understood best by using a multilevel ecological model (figure 12). Such a model weaves together the individual factors (genes, hormones, metabolic rate, stress, body image beliefs, inactivity, age, gender) with the societal/environmental factors (SES, food availability, activity access, cultural norms beliefs, stress). The combination of these individual factors and societal/environmental factors affect eating behavior, body weight, and overall health.<sup>149</sup>

Similarly, interventions should target individuals, social environments and physical environments in the four domains of active living: recreation, transport, occupation and household. Transdisciplinary approaches should be utilized to research and intervene with this disease.<sup>150</sup> As stated by Rothschild, the likelihood that an individual will engage in a healthy behavior is largest when someone is motivated to act healthily, has the abilities to engage in the healthy behavior and the environment offers the right opportunities to engage in the healthy behavior. Motivation and abilities can be regarded as individual determinants of health behavior, whereas opportunities depend on environmental factors.<sup>151</sup> The rapidly growing body of research indicates that strategies to improve diet, physical activity and obesity should be implemented at the environment and policy levels.<sup>152</sup>

## **Video methodologies**

Researchers have explored the innovative methodology of video. Watching video can inspire communication and cross-cultural dialogue about issues important to communities. Video is unique in that the threads of audio (dialogue, music, background sounds) and visual (protagonists, antagonists, scenery) are woven together with the purpose of telling a fictional or non-fictional story. The final product can invoke powerful

and often moving sentiments in both the video-maker and audience.<sup>153</sup> Video is, after all, a form of art.

Art has the power to open the eyes of both the artist and the art viewer anew. In the book Community Organizing and Capacity Building For Health, Dr. Meredith Minkler includes a chapter entitled: “Using the arts in community building and community organizing.”<sup>154</sup> The authors describe the notion that if the act of producing art has the power to change perceptions, it likely has the power to change the person’s belief in her or his ability to change. The acts of introspection, creation, and exhibition can be powerful in heightening both personal and community awareness around a theme. This theme can be political, social, beautiful or ugly. This theme can be health. Explicit to the act of making art is that a final product is ultimately created. The act of creating increases feelings of well-being and can facilitate feelings of belonging. Furthermore, the creation of art does not depend on language or educational level but can be accomplished by anyone with will and desire. The power of art for community organizing, then, lies in the power of the arts to communicate a message and elicit an emotional response as well as in the creation of art itself. The arts can “be redemptive and restorative, critical and empowering.”<sup>154</sup>

There is a legacy of using arts to invoke social change. Art provides a means to express one’s reality and culture. In other words, it gives voice. Brazilian educator Paulo Freire’s philosophy and practice stem from the belief that “change in human communities involves an interactive process between individuals and society: awareness begins in the person’s own thinking and develops from that person’s reflected-upon experience in a collective context.”<sup>155</sup> Freire, in his work promoting adult literacy programs, sought to break down the traditional power dynamics between teacher and student. He encouraged a more egalitarian and participatory approach to learning through communal introspection and critical dialogue.<sup>155</sup> He used photographs to encourage this introspection, with the goal for people to reflect and be moved to social action. Freire termed this concept *praxis*. The concept of *Freirian praxis* means that it is not enough for people to come together in dialogue in order to gain knowledge of their social reality, but they must also act together upon their environment in order to critically reflect upon their reality and so transform it through further action.<sup>155</sup>

#### *Community-based participatory research*

Video as a tool in community-based participatory research (CBPR) has the potential to promote health in a culturally appropriate way, especially among visual learners.<sup>153</sup> CBPR is a collaborative approach to research that equitably involves community members, organizational representatives, and researchers as partners in all aspects of the research process.<sup>156 157</sup> The methodologies of CBPR, Photovoice and Videovoice value the *community development approach*<sup>158</sup> to research that “views health in the broader context of socioeconomic improvement and views individual and community empowerment as vital to improvement in health status. Better health, in large part, is seen as the result of improvements in social and educational levels and involves improved quality of life as well as access to and control of medical and preventive programs and services”.<sup>158</sup> The community development approach strongly emphasizes the direct

participation of the participants, who are acknowledged as the experts regarding their community's assets and needs, in the decision-making process. This grassroots decision process trumps the more traditional "top-down" health planning approach to determining the community's health promotion agenda and new initiatives.<sup>158</sup> This "bottom-up" approach allows community members the opportunity not only to be involved, but to take ownership of a community health project. Through involvement in the study process, organization members can develop awareness and "ownership" of the program and build a commitment to local action. This can be an empowering experience.<sup>158</sup>

### *Photovoice*

Using video as a research tool is a natural descendant of Photovoice, a process by which people can identify, represent, and enhance their community through a specific photographic technique.<sup>159 154</sup> The theory of Photovoice is based in Freirian praxis, whereby participants take photographs with three main goals: (1) to record and reflect on the community's strengths and concerns, (2) to trigger dialogue and exchange knowledge about issues in group discussions, and (3) to reach policymakers to invoke change. The method is a useful tool in public health promotion.<sup>153</sup> Inspired by the successes of Photovoice, Videovoice came to fruition.

### *Videovoice*

Videovoice is "a research and advocacy approach through which people, who are usually the subjects or consumers of mainstream media, get behind video cameras to research issues of concern, communicate their knowledge, and advocate for change."<sup>160</sup> The VideoVoice Collective is one group that has successfully employed Videovoice to promote social justice.<sup>161</sup> By putting video cameras in the hands of those living in marginalized communities, the Collective assists them in effectively communicating their ideas and visions. This concept essentially turns documentary film on its head, turning the research subjects into the researchers, and the researchers into the learners and facilitators.

The innovative methodologies of Photovoice and Videovoice can be implemented to obtain a greater understanding of how certain environmental characteristics of neighborhoods and communities have meaning for people.<sup>162</sup>

### *Visual narratives*

The visual narrative is another method of better understanding illness as a social construct. Studies utilizing patient visual narratives, including the use of video narratives, demonstrate potential for the method to broaden a physician's understanding of their patients' lives given the additional visual contextualization.<sup>163</sup> A broader context and deeper understanding of the patient ultimately implies the delivery of superior patient care. The creation of visual illness narratives is also associated with improved quality of life for children and adolescents.<sup>164</sup> Video intervention methods have been used to investigate the experiences of children and adolescents living with chronic diseases such as asthma, obesity, spina bifida, and diabetes mellitus.<sup>165</sup> This research demonstrates the benefits of using visual technologies to better understand the patient's understanding of and experience living with chronic disease. This, in turn, can help the health care provider to more effectively help patients manage their illness.<sup>166</sup> The use of "imagery as

data” has been implemented for patient learning and reflection.<sup>167</sup> Imagery as a health tool has also been shown to effectively help diabetics reflect on their health practices.<sup>126</sup> Visual narratives hold the potential not only to deepen the physician’s perspective of their patient, but also the perspective of the very participant documenting their own, unique experience.

## **Conclusion**

Contextualizing youth within their socioecological contexts includes attending to family, school, and community in addition to individual factors. In order to truly understand the interacting systems contributing to an adolescent’s health it is necessary to visualize the ecological context unique to that specific patient. This research project, *In Focus: Using Videovoice to Examine Social and Environmental Influences on Weight Status Among Urban Adolescents*, puts video cameras into the hands of overweight and obese adolescents in an attempt to better illuminate the myriad factors contributing to their specific disease. The audio-visual and creative components of the medium may be well suited to shine a new light on this complex, multi-factorial illness. Furthermore, video has the potential to transcend provider-patient barriers. By literally shifting the lens from the too short, often hasty clinical encounter into the patient’s home, school or community environment, patients might feel more comfortable revealing intimate factors at play contributing to their illness.

Today’s youth were born into a multi-media world. This is a generation that is already creating videos on a day-to-day basis to communicate with peers via Facebook and to express themselves publicly on sites such as YouTube. Adolescents might find the task of using video to explore healthy and unhealthy behaviors to be particularly engaging and illuminating. In doing so, such videos have the potential to deepen our understanding of complex pathologies such as obesity, and to facilitate the provision of superior patient care.

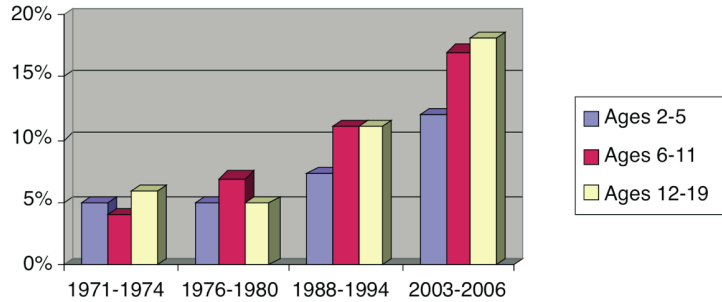
This project asks female teenagers living with overweight or obesity in an urban setting to tell researchers what the most important health issues are in their lives. The adolescents are the true experts regarding their disease, and they therefore deserve an opportunity to deliver a message about what is going on in their world. The participants will be challenged with the task of assuming the role of investigative reporters, sent into their homes, neighborhoods and schools with video cameras to report on what is contributing to teenage obesity. Ultimately the participants will compile and edit the video footage into a final film to share with their friends, families, communities and health care providers. The artistic medium of video will serve as the patients’ voice to enlighten the health care providers about their own lives.



## Figures

**Figure 1: Rising prevalence of obesity in youth**

**FIGURE 1: PREVALENCE OF OBESITY AMONG CHILDREN, 1971-2006**

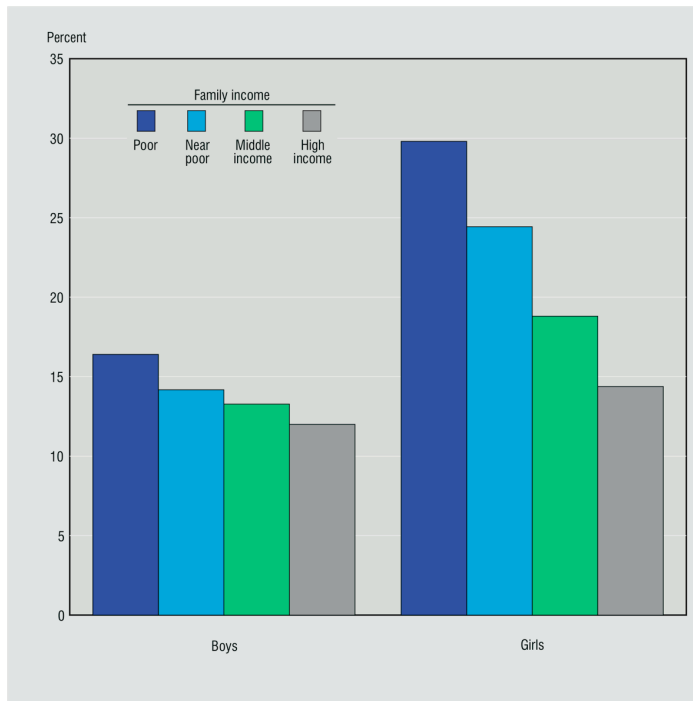


SOURCE: Centers for Disease Control and Prevention, National Health and Nutrition Examination Survey

[Institute of Medicine (IOM): Local Government Actions to Prevent Childhood Obesity. Report Brief: September 2009.]

**Figure 2: Sedentary behavior in youth by SES and sex**

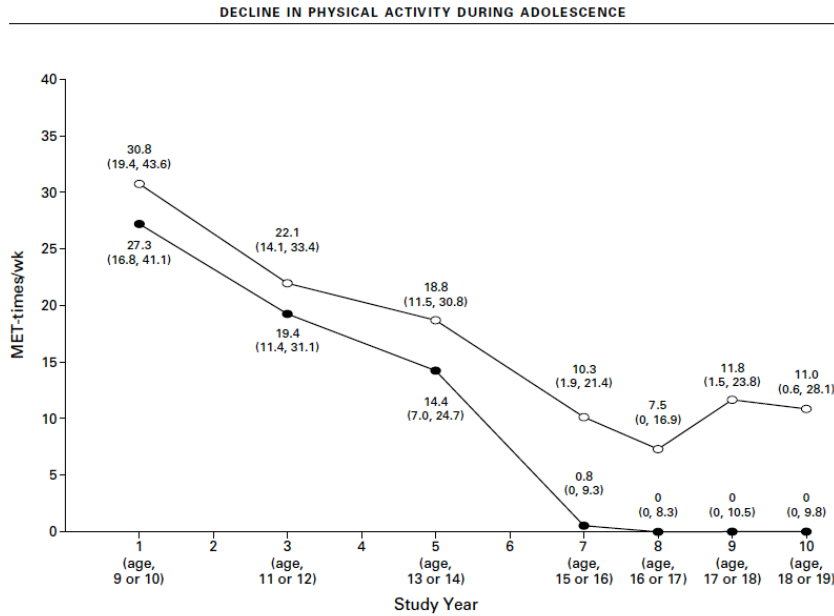
Figure 17. Sedentary lifestyle among adolescents 12-17 years of age by family income and sex: United States, 1992



NOTES: Percents are age adjusted. See [Technical Notes](#) for definition of family income categories, sedentary lifestyle, and age adjustment procedure.  
SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, Youth Risk Behavior Survey, 1992.

[Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Survey, Youth Risk Behavior Survey, 1992.]

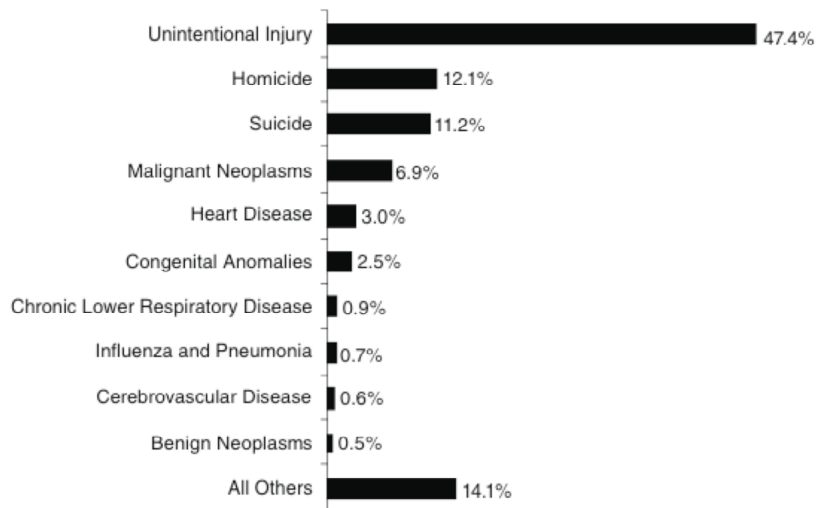
**Figure 3: Decline in PA during adolescence**



**Figure 2.** Median Habitual Activity Questionnaire Scores According to Year of Study and Race. Scores are expressed in MET-times per week. Solid circles represent black girls, and open circles white girls. Values in parentheses are the 25th and 75th percentiles.

[Kimm SY, Glynn NW, Kriska AM, et al. Decline in physical activity in black girls and white girls during adolescence. *N Engl J Med.* Sep 5 2002;347(10):709-715.]

**Figure 4: Leading causes of mortality in adolescents**



**FIGURE 2-2** Ten leading causes of death in adolescents aged 10–19, United States, 2004.

SOURCE: National Center for Injury Prevention and Control (2007).

[Mulye TP, Park MJ, Nelson CD, Adams SH, Irwin CE, Jr., Brindis CD. Trends in adolescent and young adult health in the United States. *J Adolesc Health.* Jul 2009;45(1):8-24.]



**Figure 7: Ecological framework of what people eat**

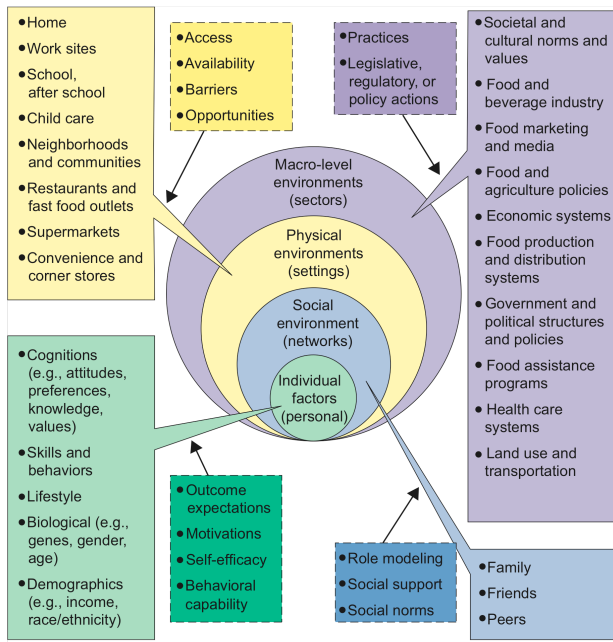
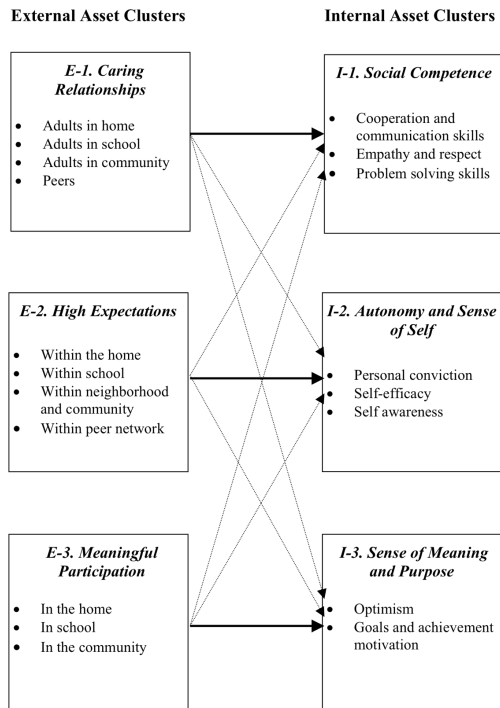


Figure 1  
An ecological framework depicting the multiple influences on what people eat.

[Story M, Kaphingst KM, Robinson-O'Brien R, Glanz K. Creating healthy food and eating environments: policy and environmental approaches. *Annu Rev Public Health*. 2008;29:253-272.]

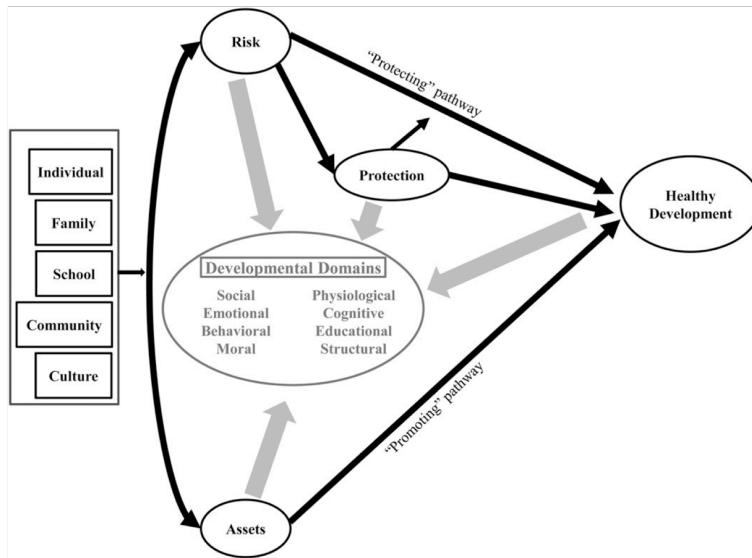
**Figure 8: Youth resilience theoretical framework**

Figure 1. Healthy Kids Resilience Assessment Theoretical Framework



[Constantine NA, Benard, B., & Diaz, M Measuring Protective Factors and Resilience Traits in Youth: The Healthy Kids Resilience Assessment. *Paper presented at the Seventh Annual Meeting of the Society for Prevention Research, New Orleans, LA 1999.*]

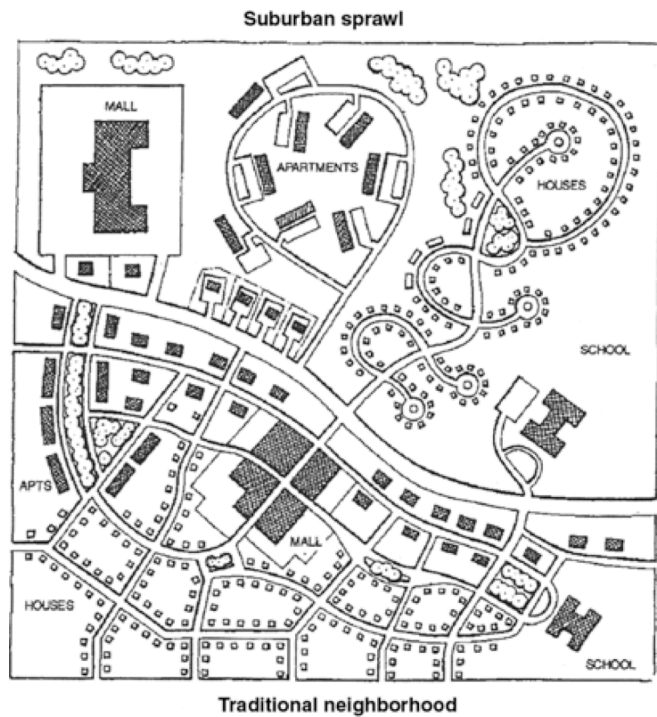
**Figure 9: Pathways towards healthy child development**



**Figure 1.** Integrative model of pathways toward healthy development.

[Kia-Keating M DE, Morgan ML, Noam GG. Protecting and promoting: an integrative conceptual model for healthy development of adolescents. *J Adolesc Health*. 2011;48(3):220-228.]

**Figure 10: Comparison of street networks and land use in sprawled (upper) and traditional (lower) neighborhoods**



[Tester JM. The built environment: designing communities to promote physical activity in children. *Pediatrics*. Jun 2009;123(6):1591-1598.]

**Figure 11: Percentage of teenagers with cell phone**

### Demographics of teen cell phone users

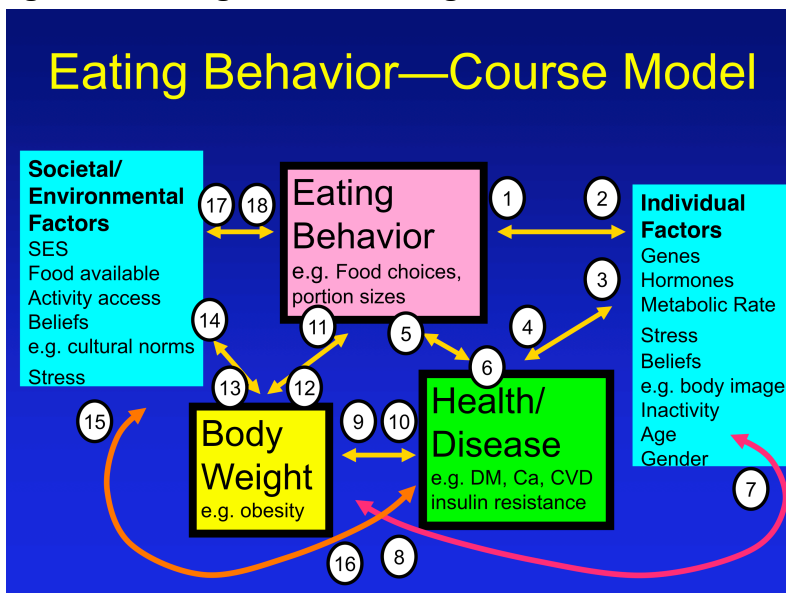
The percentage of teens in each demographic group who have a cell phone

	% of teens
<b>Total teens</b>	<b>75%</b>
Boys	74
Girls	77
<b>Age</b>	
12-13	66%
14-17	80
<b>Race/ethnicity</b>	
White, Non-Hispanic	78%
Black, Non-Hispanic	75
Hispanic (English- and Spanish-speaking)	68
<b>Household income</b>	
Less than \$30,000/yr	59%
\$30,000-\$49,999	76
\$50,000-\$74,999	73
\$75,000+	87

Pew Research Center's Internet & American Life Project, Teens and Mobile Phones Survey conducted from June 26 - September 24, 2009. N=800 teens ages 12-17 and the margin of error is ±4%.

[Lenhart A LR, Campbell S, Purcell K. *Pew Internet & American Life Project: Teens and Mobile Phones: Text messaging explodes as teens embrace it as the centerpiece of their communication strategies with friends.* Apr 20, 2010.]

**Figure 12: Eating behavior: ecological model**



[Printed with permission from Andrea Garber, PhD, RD, Assistant Professor of Pediatrics, Division of Adolescent Medicine, University of California, San Francisco.]

## Tables

**Table 1: Healthy People 2010 Objectives**

330

M.J. Park et al. / Journal of Adolescent Health 42 (2008) 329–334

Table 1

Twenty-one critical health objectives for adolescents and young adults

Healthy People 2010 Objective [Objective #]	Baseline (year)	Current measures (year)	2010 Target
<b>Mortality</b>			
Reduce deaths of adolescents and young adults. [16-03]	<i>Per 100,000</i>	<i>Per 100,000</i>	<i>Per 100,000</i>
20- to 24-year-olds	92.7 (1998)	96.4 (2004)	41.5 <sup>a</sup>
15- to 19-year-olds	69.5 (1998)	66.4 (2004)	38.0 <sup>a</sup>
10- to 14-year-olds	21.5 (1998)	18.7 (2004)	16.5 <sup>a</sup>
<b>Unintentional injury</b>			
Reduce deaths caused by motor vehicle crashes. [15-15] (15- to 24-year-olds)	<i>Per 100,000</i>	<i>Per 100,000</i>	
	25.6 (1999)	25.8 (2004)	[1]
Reduce deaths and injuries caused by alcohol-related motor vehicle crashes. [26-01] (15- to 24-year-olds)	<i>Per 100,000</i>	<i>Per 100,000</i>	
	11.8 (1998) <sup>b</sup>	12.4 (2002)	[1]
Reduce the proportion of adolescents who report that they rode, during the previous 30 days, with a driver who had been drinking alcohol. [26-06] (9th–12th grade students)	33.0% (1999)	28.5% (2005)	30.0%
Increase use of safety belts. [15-19] (9th–12th grade students)	84.0% (1999)	89.8% (2005)	92.0%
<b>Violence</b>			
Reduce homicides. [15-32]	<i>Per 100,000</i>	<i>Per 100,000</i>	
10- to 14-year-olds	1.2 (1999)	1.0 (2004)	[1]
15- to 19-year-olds	10.4 (1999)	9.3 (2004)	[1]
Reduce physical fighting among adolescents. [15-38] (9th–12th grade students)	36.0% (1999)	35.9% (2005)	32.0%
Reduce weapon carrying by adolescents on school property. [15-39] (9th–12th grade students)	6.9% (1999)	6.5% (2005)	4.9%
<b>Substance abuse and mental health</b>			
Reduce the suicide rate. [18-01]	<i>Per 100,000</i>	<i>Per 100,000</i>	
10- to 14-year-olds	1.2 (1999)	1.3 (2004)	[1]
15- to 19-year-olds	8.0 (1999)	8.2 (2004)	[1]
Reduce the rate of suicide attempts by adolescents that required medical attention. [18-02] (9th–12th grade students)	2.6% (1999)	2.3% (2005)	1.0%
Reduce the proportion of persons engaging in binge drinking of alcoholic beverages. [26-11] (12- to 17-year-olds)	10.7% (2002) <sup>b</sup>	9.9% (2005)	3.1% <sup>a</sup>
Reduce past-month use of illicit substances (marijuana). [26-01] (12- to 17-year-olds)	8.2% (1998) <sup>b</sup>	6.8% (2005)	0.7%
Reduce the proportion of children and adolescents with disabilities who are reported to be sad, unhappy, or depressed. [06-02] (4- to 17-year-olds)	31.0% (1997)	27.0% (2005)	17.0%
Increase the proportion of children with mental health problems who receive treatment. [18-07] (4- to 17-year-olds)	60.0% (2001) <sup>b</sup>	64.0% (2005)	66.0%
<b>Reproductive health</b>			
Reduce pregnancies among adolescent females. [09-07] (15- to 17-year-olds)	<i>Per 1,000</i>	<i>Per 1,000</i>	
	67.0 (1996) <sup>b</sup>	44.4 (2002)	43.0
Increase the proportion of adolescents (9th–12th grade students) who: [25-11]			
Have never had sexual intercourse	50.0% (1999)	53.2% (2005)	56.0%
If sexually experienced, are not currently sexually active	27.0% (1999)	27.3% (2005)	30.0%
If currently sexually active, used a condom the last time they had sexual intercourse	58.0% (1999)	62.8% (2005)	65.0%
Reduce the proportion of adolescents and young adults with <i>Chlamydia trachomatis</i> infections. [25-01] (15- to 24-year-olds)			
Females attending family planning clinics	5.0% (1997)	6.9% (2004)	3.0%
Females attending sexually transmitted disease clinics	12.2% (1997)	15.3% (2004)	3.0%
Males attending sexually transmitted disease clinics	15.7% (1997)	20.2% (2004)	3.0%
(Developmental) Reduce the number of new cases of HIV/AIDS diagnosed among adolescents and adults. [13-05] (13- to 24-year-olds)	[2]	[3]	[4]
<b>Prevention of adult chronic diseases</b>			
Reduce tobacco use by adolescents. [27-02] (9th–12th grade students)	40.0% (1999)	28.4% (2005)	21.0%
Reduce the proportion of children and adolescents who are overweight or obese. [19-03] 12- to 19-year-olds	11.0% (1988–1994)	17.0% (2003–2004)	5.0%
Increase the proportion of adolescents who engage in vigorous physical activity that promotes cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion. [22-07] (9th–12th grade students)	65.0% (1999)	64.1% (2005)	85.0%

[1] 2010 target not provided for adolescent/young adult age group.

[2] Data not collected for specific population.

[3] Proposed baseline is shown but has not yet been approved by the *Healthy People 2010* Steering Committee.

[4] Developmental objective—baseline and 2010 target coming soon.

Source: U.S. Department of Health and Human Services. *Healthy People 2010*. Vols 1 and 2. Washington, DC: U.S. Government Printing Office, November 2000. This information can also be accessed at <http://wonder.cdc.gov/data2010/>.

<sup>a</sup> Target has been revised as of 2006.

<sup>b</sup> Baseline has been revised.

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## **Paper Two: *In Focus*: Using Videovoice to Examine Social and Environmental Influences on Weight Status Among Urban Female Adolescents**

### **Abstract**

*Purpose:* To explore the clinical utility of patient-created videos in the context of a pediatric obesity clinic by means of a focus group research approach.

*Methods:* Five clinically overweight or obese adolescent girls (4 Hispanic, 1 mixed race) participated in a 4-week videovoice project in which they produced a film on the topic of health at the individual and community level. The film, which the youth entitled ‘A Day In Our Shoes’, focused thematically on the teens’ experience living with the chronic disease of overweight or obesity. The video was subsequently screened during a focus group of seven health care providers working at the urban pediatric obesity clinic to which these girls had been referred. The session was recorded, transcribed, and qualitatively analyzed to identify the providers’ perspectives on and clinical utility of patient-produced videos in the context of a pediatric obesity clinic.

*Results:* First, the providers acknowledge that patient-produced videos provide additional clinically useful information, including information about the patients’ food environment, hobbies and computer use. Second, the providers believe that the act of producing and viewing video can facilitate more effective and less judgmental patient-provider communication. Finally, by shifting the lens through which the provider observes the patient, the videos can instill empathy in the viewer.

*Discussion:* Video diaries are a unique opportunity for patients to share insight into their lived experiences and environments with their providers, and use of this method can facilitate increased understanding and empathy between patients and their providers. This may have particular value in the clinical setting of management of pediatric obesity, because of the role that surrounding environmental and social factors have on a patient’s capacity to achieve a healthy weight.

## Introduction

While modern physicians diagnose and treat *diseases* (abnormalities in the structure and function of body organs and systems), patients suffer *illnesses* (experiences of devalued changes in states of being and in social function).<sup>1</sup> Due to the innumerable barriers in communication, providers often misunderstand the patient's illness. The creation of a therapeutic relationship requires a sense of trust, openness, curiosity, and mutual respect.<sup>2</sup> Eisenberg in his 1973 Lancet article, *The Future of Psychiatry*, underscores the importance of patient communication in providing effective care: "The sick role provides a sanctioned way of responding to an intolerable life situation. Absent a curiosity about that life circumstance and an attempt to alter it, the physician's activities will be futile...Respectful listening, thoughtful questioning, and sage advice often exorcises the suffering."<sup>3</sup> It is through a sincere desire to listen to and understand a person, via clear and effective communication, that clinicians can begin to understand the life situation in which the patient is making their own autonomous health decisions.

Due to the inherent stigmatization surrounding medical topics, including that of obesity, it can be difficult or uncomfortable for patients to accurately report lifestyle factors that contribute to their disease, such as diet and exercise behaviors.<sup>4</sup> By asking patients to produce video content outside of the clinic, within the familiar contexts of their own homes and communities, patients might feel more comfortable sharing the challenges they experience. In turn, by watching these videos the clinician might gain a deeper understanding of the patient's experience living with their illness. This is relevant when considering that issues of patient autonomy, health, diet and exercise all contribute to managing the chronic disease of obesity.

The purpose of this pilot project was essentially two-fold. In Phase I, we recruited adolescents to participate in a videovoice project with the intent of illuminating their personal experiences living with obesity. In Phase II, we recruited a group of health care providers to watch the patient-produced videos from Phase I. We asked the providers to respond to the video footage in the context of a semi-structured focus group, with the goal of exploring the clinical use of the videos. The qualitative analysis presented in this paper seeks to answer the following question: how do patient-produced videos inform clinicians in the context of pediatric obesity management? The title of this thesis project is referred to as *In Focus* throughout this paper.

## Background

### *Pediatric obesity*

Obesity/overweight and physical inactivity are acknowledged by *Healthy People 2010* as health objectives that have worsened, rather than improved, since the initial goals were set.<sup>5</sup> An estimated 32 percent of American children are overweight,<sup>6</sup> a number that has more than tripled since 1980.<sup>7</sup> This trend is expected to reduce the life expectancy of today's generation of youth.<sup>8</sup> Furthermore, disparities in those affected are well

documented.<sup>9 10</sup> Studies have shown that low-income youth are at higher risk for obesity than high-income youth.<sup>11</sup>

Environmental, social, psychological, and biological systems all interact to influence healthy childhood development.<sup>12,13</sup> The mechanism leading to obesity can be understood best by using a multilevel ecological model. Such a model weaves together individual factors (ie: genes, hormones, metabolic rate, stress, body image beliefs, inactivity, age, gender) with societal/environmental factors (ie: socioeconomic status, food availability, activity access, cultural norms, beliefs, stress). The combination of these individual factors and societal/environmental factors affect eating behavior, body weight, and overall health.<sup>14</sup> Despite a piecemeal understanding of the many factors contributing to obesity, the medical world struggles to understand how these multiple levels of risk interact with one another, and with biology, to contribute to this complex disease.<sup>15</sup> Therefore, in an effort to better understand ways to prevent and treat obesity, we decided to take a step back and ask those individuals living with obesity to express their illness narratives.

### *Video in research*

The study of people and the human condition through images, termed visual anthropology, dates back from cave paintings through television to modern day YouTube and Facebook.<sup>16 17 18</sup> Photography and videography have been used as tools in ethnographic studies.<sup>19 20</sup> One methodology, known as “photovoice”<sup>21</sup>, is defined as “a process by which people can organize themselves to identify, represent, and enhance their community through photographs.” Photovoice gives participants a creative tool of expression to ultimately achieve positive social change.

With the expanding availability and affordability of video technology, researchers are now able to place video cameras into the hands of the very people whose lives are being studied.<sup>20 22</sup> Inspired by photovoice, the methodology videovoice is defined as: “a research and advocacy approach through which people, who are usually the subjects or consumers of mainstream media, get behind video cameras to research issues of concern, communicate their knowledge, and advocate for change.”<sup>23</sup> After basic training on camera technique, editing, and the ethics and safety of using video, participants are easily able to construct first-hand films of their experiences. This concept essentially turns the research subjects into the researchers, and the researchers into the learners and facilitators.

Studies utilizing patient visual and video narratives demonstrate the potential for the method to broaden the physician’s understanding of the patient’s life.<sup>24</sup> Specifically, video as a research tool has been shown to be quite illuminating in regarding the patient experience living with chronic illness. Diseases such as asthma, cystic fibrosis, spina bifida and obesity in children and adolescents have been the focus of the Video Intervention/Prevention Assessment (*VIA*) research methodology.<sup>25</sup> The audio-visual and creative components of the medium may be well suited to shine a new light on complex, multi-factorial illnesses. Furthermore, video has the potential to transcend provider-patient barriers. By literally shifting the lens from the too short, often hasty clinical

encounter into the patient's home, school or community environment, patients might feel more comfortable revealing intimate factors at play contributing to their illness. Given the challenges of understanding complex socio-cultural factors that contribute to disease, this innovative method can be informative. This paper, to our knowledge, is the first to describe the providers' response to patient-produced videos in the context of adolescent obesity management.

## **Research Methods**

### **Phase I: Videovoice project**

#### *Sampling and recruitment*

The *In Focus* pilot study enrolled 5 adolescent girls who were clinically overweight (BMI between 85<sup>th</sup> and 95<sup>th</sup> percentile for age and sex) or obese (BMI  $\geq$  95<sup>th</sup> percentile for age and sex). Two 13-year-olds, one 14-year-old, and two 16-year-olds were recruited from a pediatric obesity clinic at a Northern Californian urban children's hospital. Four youth identified as Hispanic, one as mixed race. All lived in low-income households.

The participants in this study were encouraged to discuss personal issues such as body image, insecurities and other factors that motivate or deter behavior change. Obesity is not limited to a specific gender, age, or ethnicity. However, given the sensitivity of the subject, the researchers decided to limit the cohort to young women in order to provide a more comfortable environment for open and honest discussion of the videos.

#### *Informed consent*

Participant privacy is central to all research. Video data naturally presents unique issues. The pilot protocol was written to minimize risks to the video-producing participants, all of whom were minors. A meeting was designated to discuss issues of ethics and safety of using video, at which specific guidelines were outlined for the participants. During this meeting the participants and their parents consented to the project. The *In Focus* pilot study was approved by the Institutional Review Boards of University of California, Berkeley and Children's Hospital & Research Center Oakland. Upon completion of the 1 month project, the participants were allowed to keep their Flip<sup>26</sup> video cameras, and were given copies of their final edited film.

#### *Data Collection*

*In Focus* collected data in the form of patient-generated visual narratives, personal "video diaries"<sup>25</sup> of living with the medical condition of obesity, and patient-conducted interviews with friends and family, based on both *VIA* and videovoice methodologies.<sup>25</sup> A total of ten two-hour meetings were held over the span of four weeks, during which the participants were given prompts to inspire their filming. These included filming family meals, shopping for food, hobbies and exercise, and interviewing community members on what they believe constitutes a healthy community. The participants were also encouraged to talk freely to the video camera, like they might to a diary, about anything from body image to meals and activities they enjoyed that day. However, the young

women were discouraged from revealing highly emotional experiences on camera in an effort to protect their privacy.

Each of the meetings began with a group check-in, followed by an interactive icebreaker. The girls downloaded their assignments onto the head researcher's computer, then permanently deleted the videos from their individual cameras. Following a mid-meeting snack break, the participants viewed each other's footage and responded in a structured manner using the SHOWED mnemonic: (1) What do you See here? (2) What's really Happening here? (3) How does the relate to Our lives? (4) Why does this problem, concern, or strength Exist? (5) What can we Do about it?<sup>21,27</sup> This group discussion technique, based on Paulo Freire's 1973 conception of praxis, is meant to facilitate the empowerment of community participants.<sup>28</sup>

Between group sessions, the research facilitator edited the disparate video components into one unified film by combining thematically similar material. The facilitator presented the edited video to the participants at each meeting, at which point the young women were encouraged to edit the footage. They freely cut video and selected music until the final product was exactly what they wanted. The newly minted filmmakers entitled their final video *A Day In Our Shoes* and organized a video premiere event for their families and close friends.

## **Phase II: Health care provider focus group**

### *Sampling and recruitment*

*A Day In Our Shoes* was shown to seven health care providers working at the urban obesity clinic from which the participants were recruited. The providers included: 3 pediatricians, 1 nurse practitioner, 1 clinical psychologist, 1 registered dietician, and 1 exercise physiologist. The providers underwent informed consent.

### *Data collection*

The video was screened to the providers. The focus group leader prepared a set of open-ended questions, to which the providers responded during a 90-minute focus group. The session was recorded, transcribed, and qualitatively coded and analyzed to identify the providers' perspectives on the clinical usefulness of patient-produced videos in the context of the pediatric obesity clinic.

### *Data Analysis*

The analysis presented in this paper focuses on the Phase II data, i.e., the providers' response to the patients' videovoice project. The focus group audio recording was transcribed, quotations were organized into themes, and the themes were logged into an organized spreadsheet. Related codes were then linked to capture broad views. Ongoing analysis was shared with key investigators from the specialties of pediatric obesity, adolescent health, anthropology, and videovoice. Each researcher contributed different disciplinary perspectives to enrich and add dimension to the findings.<sup>29 30</sup>

## Results

The videos (1) provided clinically useful information, (2) facilitated patient-physician communication, and (3) instilled empathy in the providers.

### *1. Information-gathering tool*

The providers indicated that patient-produced videos enhance the clinical history. Useful information is embedded within the video that facilitates a deeper understanding of a patient's unique reality. Video, therefore, can be used as an information-gathering aid that augments the providers' understanding and management of patients. We identified three specific areas where the videos were particularly informative: (a) the patients' *food environment*, (b) their *hobbies*, and (c) their *computer use*.

#### *a. Food environment*

A main component of the clinical encounter at the pediatric obesity clinic where the project was based is a discussion of healthy/unhealthy foods, well-rounded meals, and tips on grocery shopping and recipes. Providers routinely take a verbal history from the patient and/or the parent on the landscape of their food environment. After watching the patient-created videos in the context of this focus group, the providers responded with surprise by what they saw. One patient videotaped walking into a local corner store, a scene which one provider responded to:

*That hit me right off the bat emotionally. I was a little shocked at the scarcity of food. I really got like if that's your local grocery store that's very limiting.*

Another patient videotaped going grocery shopping. The providers discovered that this particular patient went shopping for the next meal, while hungry, without a grocery list, all practices not recommended by obesity clinicians. Video has the capacity to audio-visually illustrate the thought process of a patient shopping for groceries:

*The shopping was very illustrative because part of that footage was a little dizzying. They're there, they're shopping for that meal, and it's sort of like they go: oohh...now that looks interesting. The camera goes flying. And you capture all the distractions. And yet in a way that's kind of the experience. You see the zeroing in on what the marketing is capturing you with.*

The providers also commented that they would like to see video of their patient's pantry, an open refrigerator, the 'sinful drawer,' even just the layout of the kitchen. The background picked up on camera can be even more informative than the focused foreground intentionally captured by the videographer.

*I think there is value in the background, like not necessarily the things that they're choosing to focus on, but when you're in their kitchen with the video you get to see all the things that they just take for granted or just seems like an 'of course' for them.*

The providers furthermore agreed on the utility of asking patients to videotape meals. Doing so would provide useful information to prompt discussion during the clinical encounter. One provider suggested that patients should:

*Show us a week of dinner. I think you probably get good reads on breakfasts and lunch. I think it's rare that people fudge those, unless it's on the weekend. But show me your dinner. Show me why you're not eating a variety of foods.*

#### *b. Hobbies*

The inherent time and physical constraints of the clinical encounter provide a barrier to thoroughly getting to know a patient. Information about a patient's hobbies, interests and other interpersonal dynamics are often missed entirely. The notion of a video diary is a way to add these personal and pertinent data facts to the patient's medical chart. Information about a patient's perceived strengths, weaknesses, aspirations or insecurities can be revealed via the recorded diary.

*I was very touched by how personal that all of them really were able to go into their lives. I thought that was maybe because when you're in a room, you're in a clinic, there is that wall most of the time. I just was really touched by how much more personal it was than just a clinic meeting.*

From within the comfortable setting of the patient's own home, the patient can share with the camera's audience intimate details of her life that would otherwise not be revealed in the clinic. One patient used the video diary as an opportunity to discuss her artistic accomplishments. She explained her passion for drawing while showing numerous portfolio pieces. One provider commented on the power of the video diary as an insightful tool to illuminate skills or qualities the patient is proud of. While the provider might know that the patient is artistic, with the added video diary component the provider can listen to the patient proudly discuss and reflect upon her portfolio.

*If they've come into a weight management program, very few of those people are successful managing their weight and [the video diary] is an opportunity for us to be aware of something they're really good at and be able to then know how to reinforce something positive. That's something of value of getting outside the walls of the clinic that only this video could open.*

#### *c. Computers*

The *In Focus* health care providers were surprised to learn of the level of virtual integration in their patients' lives.

*She's completely cut off. Her world is her computer. That's where she gets it all. Everything. She's not judged. She's able to judge others. No one can hurt her. So how do you work with her to get her out of such an entrenched world? When she has such really deep-set ideas.*



One provider admits to routinely discussing the unhealthy aspects of excessive computer use with her patients in the obesity clinic. After watching the video diary, however, this same provider takes a step back to suggest that it is not that simple.

*We're immediately focused on how do we unplug you, break you from that mold and give you an opportunity to see the other world. And yet that in some sense denies the one place she feels safest and happiest and it's a fine line.*

Another provider suggests that by listening to patients and acknowledging their habits, perhaps innovative solutions to managing pediatric obesity can evolve via their computer world, instead of despite it. Only by watching the patient-produced videos did the providers learn about their patients' deep entrenchment in computers, the internet, and video blogs (aka: "vlogs").

*It's interesting about the vlog-ing. It almost seemed like she was trying to suggest that that was an avenue to sort of motivate. Like, she talks about the guy who loses the weight on his vlog and everything...she was very animated when she was describing.*

*Though she did say that yeah if everyone could actually do that [exercise] for a few minutes, it would help.*

*I'd ask her more about that vlog-ing thing because she seemed just so interested in that. And it was about exercising. I'd almost ask her if she could think of something that would jazz her using that [computer] world instead of despite that world.*

The providers ultimately discovered the importance of computers and the internet in their patients' lives.

## *2. Communication tool*

The *In Focus* providers lauded participatory video as a method to improve patient communication. The patient-created videos can be used as an educational tool to prompt discussion on topics such as shopping for food and family meals.

*It's not so judgmental. You just need to see. You're not saying are you sure the amount of rice is only that much? Insinuating that they're lying. I think this is nicer, and allows a family to really show something. I think it's less judgmental.*

*This [video-making] allows them to tell their story without being embarrassed or covering up or without you having to say you're not telling me something. It's a better place. Instead of 'you're lying'.*

The act of focusing the conversation on the video, rather than the patient directly, takes away a level of judgment; the providers therefore agree this is a more effective way to engage in such conversations.

Much of the adolescent clinical history is taken with a parent or guardian present in the room. While this is often necessary, the presence of a guardian can limit the extent to which an adolescent feels comfortable expressing herself in the encounter. An added video component, where the patient is encouraged to take ownership of the content, might be an effective method to avoid losing the patient's voice in the management of her own disease.

*It was interesting to see her speak so much. Because a lot of times when they come into the clinic, they'll just kind of shut down. And sometimes it feels like we've been talking to the adult or the parent and she's just like: I've had it and I don't want to say anymore. To have this kind of forum where they are talking and no adult in the room, it's all about them.*

Providers like the idea of using video to enhance two-way communication. Too often, physicians feel that they are talking at their patients, rather than talking with them.

*If a family took a video of their food environment to then look at together with them and talk about, it might be much more helpful than just saying to them you should have these things on hand and keep these things out of the house. If you actually looked at the video together, it might be a very good teaching tool.*

*They're making this video and editing it so they're learning some skills and it's much more engaging than sitting and listening to someone just talk to you...I think just the process of thinking about stuff and reflecting upon it through video is fun.*

The providers suggest that the act of producing the videos and using them as a conversation tool within the clinic walls to prompt dialogue about healthy behaviors is potentially useful.

### *3. Empathy-inducing tool*

By watching the videos, the providers learn new information by peeking into their patients' lived experience, beyond the clinic walls. While learning this new information about the patient's food environment and hobbies via the video diaries, the provider gains a new level of empathy for the patient. The following sentiment was shared by the *In Focus* team:

*I liked her a lot more after seeing the video. I felt like I knew a lot more of her world, and that always gets my heart more involved.*

Another provider commented:

*She was so much softer in that video, with what she was presenting, than how she presents in clinic. She's very quiet and there is a little of a, you know, anger with herself. And there she was just a very different person. And I think so many times it helps just being able to see that.*

## **Discussion**

In summary, the *In Focus* providers conclude that clinics that manage chronic illness are an ideal environment to incorporate the use of video both to augment the clinical history and to use as a patient communication tool. We observed that the act of watching the patient-produced videos instilled empathy in the providers and increased provider understanding about their patients' environments.

It is difficult, if not impossible, for providers to visualize a patient's local grocery store, home, kitchen, shopping habits and family meal regimen. Providers believed that asking patients to videotape these potential contributors to obesity offers the power to enhance the clinical history. Furthermore providers learned about the talents that give their patient confidence. Key to adolescent development is the concept of youth resilience. Acknowledging a teenager's individual resilience traits, or internal assets, is part of the promoting pathway of healthy development. Key assets include social competence, autonomy and sense of self, and senses of meaning and purpose.<sup>31</sup> Capitalizing on an adolescent's assets could help establish a connection with the patient and better inform a reasonable personalized therapeutic regimen. Interventions in optimizing healthy development need to focus on building individual assets, in addition to focusing on the multiple levels of an adolescent's social ecology (home, school, community).<sup>32</sup> The concept of a video diary might be a useful tool to help adolescent patients express their internal assets to their health care provider team.

By watching the video diaries, providers learned of their patients' computer habits. Today's youth are immersed in blogs and vlogs and other social media. Participating in social media web sites is among the most common activities of children and adolescents today.<sup>33</sup> "Social media" is defined as: forms of electronic communication (such as Web sites for social networking and microblogging) through which users create online communities to share information, ideas, personal messages, and other content (such as videos).<sup>34</sup> About 74 percent of teens now have a social-networking page on Facebook or a similar site.<sup>35</sup> Social networking sites (SNSs) such as YouTube, Facebook, Myspace and Twitter combine media production and distribution with social networking features, thereby making them an ideal venue to create, connect, collaborate, and circulate.<sup>36</sup> A great deal of social life occurs in networked public spaces, meaning that a great deal of formerly private information is being shared and recorded in potentially public spheres. Understanding how youth engage with SNSs in this digital era should therefore be a priority for health care providers working with youth. The *In Focus* providers' initial reaction to their patients' level of computer use suggests a level of shock at the level of virtual integration in adolescents' lives. The providers believe that entrenchment in this computer world connotes isolation, rather than social engagement. After watching the

video diaries and discussing the topic in the focus group, however, the providers consider the idea of incorporating vlogs or SNSs into pediatric obesity management. This example underscores the importance of really listening to patients in order to meet them where they are.

Providers must find a way to stay connected to and speak the language of their pediatric and adolescent patients in order to effectively communicate important health messages. Participatory video is one solution to staying connected to the ever-changing youth experience. It is crucial to understand the adolescent perspective in order to facilitate healthy behavior change. This being said, gaps in patient-physician communication are well documented.<sup>37 38</sup> This is concerning, since communication can be seen as the main ingredient in medical care. Ong, et al. identified three different purposes of communication in the medical setting: (a) creating a good inter-personal relationship; (b) exchanging information; and (c) making treatment-related decisions.<sup>37</sup> Efforts should constantly be made to update methods of communication in order to provide the best clinical care. The *In Focus* data suggest that videos serve as a means for patients to communicate with providers on their own terms, with less judgment. The act of voicing their experiences and thoughts via the camera empowers the adolescent patient to discover for themselves various factors contributing to their health and disease. Furthermore, by communicating with the teen-parent unit by watching the videos, providers feel like they are *talking with* their patients rather than *talking at* them. And this is a more effective mode of communication.

We propose that patient-produced videos have the capacity to instill empathy in health care providers. In patient-care situations, empathy can be defined as “a cognitive attribute that involves an ability to understand the patient’s inner experiences and perspective and a capability to communicate this understanding.”<sup>39</sup> Physicians’ understanding of a patient’s perspective, as well as their expression of caring, concern, and empathy, are a core objective in providing good patient care.<sup>40</sup> In her book, Jodi Halpern states that the goal of empathy is an “experiential understanding of another person’s distinct emotional perspective,” that is necessary to build patient trust. Trust, in turn, is a key predictor of clinical treatment adherence.<sup>41</sup> This paper introduces the idea that the act of watching patient-created videos stirs emotion in the providers, seeds empathy, and augments the trust and communication that are necessary components of providing excellent clinical care.

### *Limitations*

We conducted one focus group with seven healthcare providers. Given that our data come from this single focus group, the result and conclusions presented here have limited generalizability.

### *Next steps and conclusions*

Art and the humanities are widely used as educational methods in health professional training. Medical training programs routinely incorporate art to stimulate dialogue, discussion and awareness about the experience of living with illness.<sup>42</sup> For example, viewing art and discussing perceptions of loneliness or suffering has effectively helped

providers develop empathy for older adults.<sup>43</sup> This *In Focus* pilot project, designed as an intervention focusing on providers, demonstrates the potential of incorporating the artistic medium of video as a clinical tool. Participatory video can be used to enhance the clinical history and patient-provider communication. The act of a provider viewing and discussing a patient's personal video narrative leads to a heightened awareness of that patient's unique illness experience. The artistic power of video audio-visuals may instill empathy in the medical team. Future studies should focus on studying patient-produced video as an empathogenic tool using standard clinical measures.

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