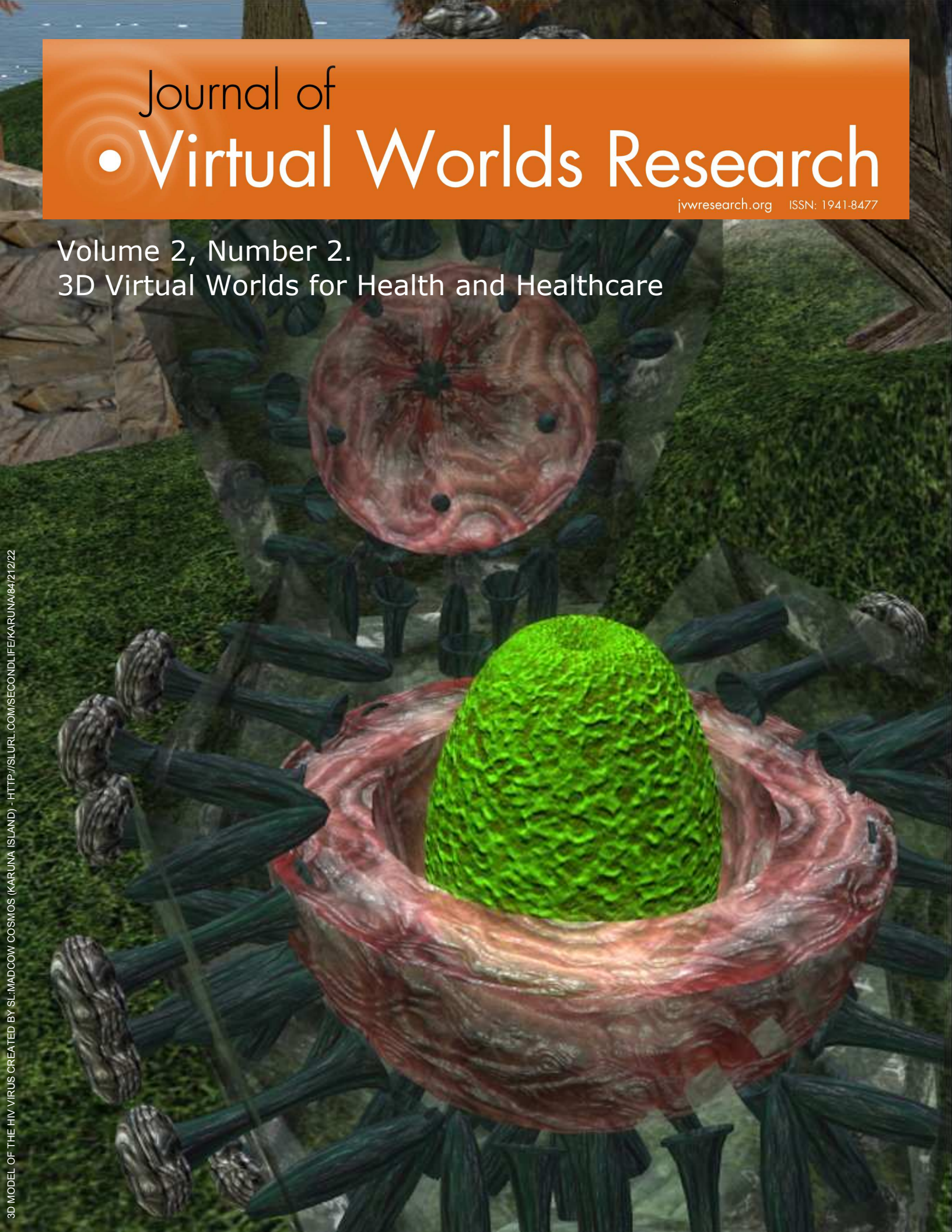

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3D MODEL OF THE HIV VIRUS CREATED BY SL:MADCOW COSMOS (KARUNA ISLAND) - HTTP://SLURL.COM/SECONDLIFE/KARUNA/84/212/22

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Does this Avatar Make Me Look Fat?: *Obesity and Interviewing in Second Life*

By Elizabeth Dean, Sarah Cook, Michael Keating and Joe Murphy, RTI International

Abstract

The Centers for Disease Control and Prevention (CDC) has observed consistently increasing obesity trends over the past 25 years. Recent research suggests that avatar behavior and appearance may result in positive changes to real life individual behavior. Specifically, users may adjust their identity to match that of their avatars.

Preliminary results of survey interviews in Second Life support our hypotheses that individuals whose avatars engaged in healthy behaviors were more likely to engage in physical activities in the real world than individuals with less physically active avatars. Furthermore, thinner-looking avatars were associated with lower BMI in real life.

One unique feature of interviewing with avatars in Second Life is that researchers have the ability to manipulate environmental factors and interviewer characteristics with a consistency that is absent in the real world. In our preliminary results, respondents were more likely to report higher BMI or weight to a heavier-looking avatar than to a thinner-looking avatar.

Keywords : avatars; survey methodology; Second Life; obesity.

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Does this Avatar Make Me Look Fat?:
Obesity and Interviewing in Second Life

By Elizabeth Dean, Sarah Cook, Michael Keating and Joe Murphy, RTI International

A Potential Relationship Between Obesity Research and Virtual Worlds

The Centers for Disease Control and Prevention (CDC) has observed a consistent rise in obesity trends over the past 25 years (Behavioral Risk Factor Surveillance System, 2009). At first glance, increased use of the Internet, virtual worlds, and online gaming are likely to have a negative impact on the obesity epidemic because users are seated and sedentary in real life while they interact virtually. Furthermore, in a virtual world environment such as Second Life (SL) where users can customize their digital self-representations, or avatars, to be as thin and fit as they want to be, there may be less motivation for the users to be fit or lose weight in real life.

However, it is possible that self-representation by a fit, healthy avatar can have a positive impact on real life health behaviors. Yee and Bailenson (2007) use deindividualization and self-perception theory to suggest that virtual reality users may adjust their identity to match that of their avatars. They suggest that "users in online environments may conform to the expectations and stereotypes of the identity of their avatars. Or more precisely, in line with self-perception theory, they conform to the behavior that they believe others would expect them to have" (p. 274). This is called the Proteus Effect.

Through two different experiments, Yee and Bailenson (2007) found evidence to support the Proteus Effect. In one experiment, 32 students were assigned virtual avatars and were told to interact with a partner. Students who had more attractive looking avatars (as rated by a different group of students in a previous session) moved them closer to the partner and revealed more information than those students who were assigned unattractive avatars. In the second experiment, in a money-splitting game, the researchers manipulated avatar appearance using height. Two avatars had to agree upon a way to split a sum of money. If they agreed, they received the money, but if they disagreed, neither of them received anything. Though no significant differences were found in the first round of the game, taller avatars were more likely to suggest a split in their favor in the second round of the game. Also, shorter avatars were more likely to accept an unfair split than the taller or normal-sized avatars were. Yee and Bailenson (2007) propose that in the first study avatar attractiveness impacted the level of intimacy people were willing to reach with strangers, and in the second study, avatar height affected people's confidence.

In Proteus Effect research, avatars' interactions with other avatars are influenced by their own and other avatars' physical characteristics. In further research, Fox and Bailenson (in press, 2009) found that humans' real world behavior is influenced by their own self-representing avatars' behavior. Their experiment was an application of social cognitive theory, which states that humans can learn behaviors from observing others. They found that people who watched self-representing avatars (i.e., designed to replicate their own physical characteristics) running on a treadmill were more likely to engage in voluntary exercise within the subsequent 24 hours than those who watched either another person's avatar using a treadmill or an avatar doing nothing.

Health professionals are starting to use virtual worlds to conduct research and even treatment based on the idea that people will emulate or be influenced by their avatars. For example, the University of Houston's Texas Obesity Research Center (TORC) has begun an online program in SL—the largest online virtual world not specifically oriented toward gaming—for the purpose of fighting obesity. It is no secret in SL that many residents prefer their avatars to be thin. *The Alphaville Herald* writer, Alessandra Narayan (2009), wrote an article exploring the reasons for the lack of curves on most female avatars in SL. At the TORC facility, SL avatars exercise and eat healthy foods in order to be rewarded with Linden dollars (the SL currency). The researchers hope that this program will result in participants losing weight in real life (Colliver, 2008).

In order to better understand the connection between SL and real life obesity, health attitudes and behaviors, we conducted a survey of SL residents. In this article, we discuss our hypotheses, methods, and preliminary results and conclude with thoughts on the future application of surveys in SL and issues to be explored.

Conducting Virtual Interviews about Fitness in Second Life

To examine the relationships between Second Life and real life health behaviors, appearance, and perceptions, we conducted survey interviews of SL residents (see Appendix 1). For years, survey researchers have been faced with a dilemma regarding survey administration modes. Though interviewers are useful in administering questionnaires, respondents are less comfortable responding to sensitive questions and tend to provide less honest answers when another person is present in the interview situation (Tourangeau and Smith, 1996; Turner, Forsyth, O'Reilly, Cooley, Smith, Rogers, and Miller, 1998). Self-administered modes, such as Web surveys or mailed paper-and-pencil surveys, give respondents more privacy, but the absence of an interviewer requires greater reliance on the respondent's ability to navigate the survey correctly and to stay interested and motivated enough to complete the survey. With the advancement of new virtual world technologies, survey researchers are beginning to explore the realm of virtual interviewing and the use of avatars as interviewers. Researchers call this type of survey mode "In-Avatar Interviewing."

In-Avatar Interviewing

Because they so closely mimic real world social surroundings, virtual worlds easily lend themselves to a virtual interviewing environment. An avatar, guided by a researcher at a computer, can conduct interviews with other avatars just as a real life interviewer would do face-to-face. The main differences are that the interaction takes place in a virtual room instead of a real room, and the interviewer and respondent are represented by avatars. Their avatars are speaking or typing to each other using chat software to talk to each other instead of the individuals speaking "in the flesh." In-avatar interviewing may provide the benefits of an interviewer (e.g., motivating survey completion, probing unclear answers, clarifying question meaning) without the disadvantages of negative interviewer effects (e.g., dishonest or reduced reporting of sensitive behaviors, lack of privacy, unintended effects of interviewer characteristics or behaviors).

To an extent, some people treat avatars as social entities (Nass, Moon, and Green, 1997; Krysan and Couper 2003). One of our research questions in this study explored to what extent avatar respondents react to differences in avatar interviewer characteristics. Previous studies have experimented with real world interviewer effects related to race and gender and have found that these types of characteristics affect responses to questions about race and gender beliefs and attitudes (Anderson, Silver, and Abramson, 1988; Davis and Silver, 2003; Finkel, Guterbock, and Borg, 1991; Hatchet and Schuman, 1976; Kane and Macaulay, 1993; Summers and Hammonds, 1966; Tourangeau, Couper, and Steiger, 2003). Real world research has shown that manipulating even a seemingly insignificant variable can have a measurable impact on survey responses. In a study of Nicaraguan political preferences researchers used the same interviewers and same questionnaires to ask party affiliation questions, but they used different color pens on different days (Bischoping and Schuman, 1992). When interviewers used a red pen (i.e., the color associated with the country's major political party), affiliations leaned toward that party. When interviewers used a blue pen (i.e., the color of a group of opposing parties), the affiliations were reversed. Considering the visual context in which avatars are used, it is not surprising that avatars' physical traits, like human physical traits, may play a role in avatar-to-avatar interactions. Therefore, avatars' physical traits may have unintended effects on survey responses.

In-avatar interviewing offers survey researchers a new level of experimentation that has never before been possible. Avatars allow researchers to have complete control over the appearance, words, actions, and inactions of the interviewer. Not only can a few clicks of a mouse produce a dramatically different interviewer appearance, but researchers can also control the reactions the interviewer has to the respondents' answers. It is as if the interviewer is given a mask, and the respondent sees and hears only what the interviewer wants the respondent to see and hear.

Though previous studies have shown that there is an effect of interviewer attributes on responses, in order to manipulate interviewer traits in real life interview settings, multiple interviewers are needed. This increases costs and logistical complexity. Researching in-avatar allows one interviewer to appear with any combination of physical characteristics imaginable. The researcher also has the ability to manipulate just one attribute, if desired. For example, the exact same avatar can appear white in one interview and black in the next, but with the same clothes, face, and body both times. The only difference between the two interviewers would literally be the color of the avatar's skin. Any type of single variation can be tested this way when in-avatar interviewing. Controlling environmental and social variables in order to manipulate a single element in real world interviewing situations is a constant challenge to social research, but in virtual worlds, these environmental and social factors are under the designer's control.

Hypotheses

In our current study, we tested hypotheses about the relationship between SL behaviors and real life behaviors related to physical health and activity. We also examined the relationship between self-reported SL body shape and size and real life body mass index (BMI). Finally, we assessed the impact of avatar-interviewer characteristics on the report of real life characteristics by manipulating the appearance of the avatar-interviewer. We tested three hypotheses:

1. Individuals with avatars who engage in physical activities in SL are more likely to engage in physical activities in real life.
2. Individuals with thinner avatars are more likely to be thinner in real life.
3. Avatar-respondents are more likely to report a heavier SL body size and higher real life BMI to a heavy avatar than to a thin avatar, since a heavy avatar conveys that a higher BMI is more socially acceptable.

Methods

For this study, we conducted interviews of SL residents in our facility in SL. Avatar respondents were recruited through a notification sent to all members of the facility's Survey Group in SL. The facility's Survey Group is free for any avatar to join by signing up at a kiosk in the facility in SL; by joining, residents expressed interest in learning about participating in the facility's surveys. Interested participants were asked to notify one of our staff avatars via Instant Message (IM) to schedule an appointment.

Once contact was made via IM, our staff avatar screened the respondent for eligibility. In this study, our only eligibility requirement was that the respondent live in the United States in real life, so we asked respondents, "Do you currently live in the United States?" This requirement was stipulated for future comparisons of these data with those from nationally representative surveys. If the respondent indicated that he/she lives in the United States, then an appointment was made for the avatar to come to the facility for an interview. Respondents were assigned to one of two groups: interview by heavy avatar and interview by thin avatar. Each interview took about 10 minutes. Respondents were paid 500 Linden dollars (the equivalent of approximately $2) for their time. All interviewing was done using the private text chat feature in SL that allows for privacy, as well as easy transcribing. Voice chat was not used.

Preliminary Results

As of March 1, 2009, we conducted 29 interviews in SL. Of these, a random 15 were with the heavy interviewer, and 14 were with the thin interviewer. Preliminary results related to our hypotheses follow and appear in Table 1 at the end of this section.

Hypothesis 1: Individuals with avatars who engage in physical activities in SL are more likely to engage in physical activities in real life.

About half (15) of the respondents reported that their avatars in SL participated in vigorous or moderate physical or leisure activities (e.g., running, playing a sport, dancing) at least once a week. The remaining 14 (48.3%) reported their avatars participated in such activity occasionally or not at all. Most respondents (69.0%) reported that in real life, they participated in vigorous physical activities at least once a week. Of those who reported high levels of physical activity for their SL avatars, 80.0% also reported participating in high physical activity in real life. This compares to only 57.1% of those who do not participate in physical activity weekly or more often in SL. These results suggest preliminary support for Hypothesis 1.

Hypotheses 2: Individuals with thinner avatars are more likely to be thinner in real life.

All respondents described their avatar's body shape as either thin (14) or about average (15). Among those who described their avatar as thin, average real life BMI was 24.7. This compares to a slightly higher average BMI of 27.4 for those describing their avatar as about average. For reference, a BMI of 18.5 – 24.9 is considered normal weight and 25.0 – 29.9 is considered overweight. While there are insufficient cases to draw statistical conclusions at this point, Hypothesis 2 is supported in the preliminary results.

Hypothesis 3: Avatar-respondents are more likely to report a heavier SL body size and higher real life BMI to a heavy avatar than to a thin avatar, since a heavy avatar conveys that a higher BMI is more socially acceptable.

Respondents interviewed by the thin avatar were more likely than those interviewed by the heavy avatar to describe their own avatar shape as thin (64.3% vs. 33.3%).

When asked whether respondents considered themselves in real life to be obese, overweight, underweight, or about right, only 10.3% reported considering themselves obese, 24.1% as overweight, 6.9% as underweight, and 58.6% as about right. By interviewer type, only 33.3% with a heavy interviewer considered their own real life status to be about right, and 64.7% with a thin interviewer considered their own real life status to be about right.

Table 1. SL Survey Preliminary Results

		N	%
Interviewer Type			
Thin		**14**	
	Respondent described own avatar as thin	9	64.3
	Did not describe own avatar as thin	5	35.7
	Considered real life weight/size "about right"	9	64.3
	Did not consider real life weight/size "about right"	5	35.7
Heavy		**15**	
	Respondent described own avatar as thin	5	33.3
	Did not describe own avatar as thin	10	66.7
	Considered real life weight/size "about right"	5	33.3
	Did not consider real life weight/size "about right"	10	66.7
Avatar Participates in Vigorous Activities			
Once a week or more		**15**	
	Real life vigorous activities once or more a week	12	80.0
	Real life vigorous activities less than once a week	3	20.0
Less than once a week		**14**	
	Real life vigorous activities once or more a week	8	57.1
	Real life vigorous activities less than once a week	6	42.9
Average BMI			**BMI**
	Describe own avatar as thin	14	24.7
	Describes own avatar as about average	15	27.4
	Thin interviewer	14	24.8
	Heavy interviewer	15	27.6

Concerning respondents' BMI, we saw a slight difference between those with a thin vs. heavy interviewer. The average BMI for respondents reporting to the thin interviewer was 24.8, and the average BMI for those reporting to the heavy interviewer was 27.6. These preliminary results support Hypothesis 3.

Discussion

This research study is ongoing, and the above results represent only preliminary findings. However, preliminary results without significance testing suggest that our hypotheses are supported. People who are physically active in SL are also physically active in real life, and people with thinner avatars have lower real life BMIs. Our preliminary research implies no causality in either direction, just an association. Therefore, physically fit people could choose to have thinner and more active avatars because that's how they exist in real life. Yet, the consistency suggests a pattern that invites further investigation into causal relationships.

With regard to the effects of the avatar-interviewer, manipulating interviewer size had an impact on results. Respondents interviewed by the thin avatar were much more likely to say their own avatar shape was thin. Most respondents reported that their real life weight was about right, but these numbers decreased with the presence of the heavy interviewer and increased with the thin interviewer. Average BMI was slightly higher for the respondents interviewed by the heavy avatar-interviewer. The avatar may have served as a reference point for what is thin and what is heavy, or perhaps the avatar conveyed what was socially more desirable.

There are two distinctly different reasons these findings are important. First, the growth of virtual worlds for social engagement requires the consideration of virtual reality as the next survey interviewing mode. An examination of the role of avatar-interviewer and the relationship between interviewer and respondent is necessary to compare virtual survey interviewing to other modes. Second, the public health urgency surrounding the issue of obesity means that any intervention that might possibly affect real life health should be considered. Moreover, the ease of manipulating single factors, such as avatar size and shape, in the virtual social environment, gives researchers the opportunity to understand social factors in complex and increasingly value-laden (hence sensitive) issues, such as obesity, body image, and physical fitness.

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