

The influence of mediated and interpersonal sources on attitudes toward nonmedical use of prescription drugs among young adults

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Abstract

The aim of this study is to investigate how attitudes toward nonmedical use of prescription drugs are influenced by interpersonal and mediated sources. Young adults (N=268) were surveyed regarding where they learn about prescription drugs, including physicians, parents and other relatives and peers. The research also investigated mediated sources of learning regarding prescription drugs including television, movies and magazines, as well as direct to consumer prescription drug advertising. The research was also interested in young adults' use of newer digital media as a source of learning about prescription drugs. While young adults learn about prescription drugs from their parents, they expressed uncertainty regarding nonmedical use of prescription drugs. There is a positive relationship between young adults' ambivalence toward nonmedical use of prescription drugs and social media. The relationship is mediated by the amount of time they spend on social media and the extent of social media use.

Key Words: DTCA, young adults, non medical drug use, consumer socialization, popular culture, social media

The problem of nonmedical use as well as the abuse of prescription drugs is part of a national trend affecting all age groups, but nonmedical use of prescription drugs, including stimulants as well as depressants, is of particular concern for young adults (Mackey, et al. 2013; Quintero, 2012; McCabe, 2008). Over their lifetime young adults, sometimes referred to as Generation Rx, have been socialized into a medicalized worldview, like no other generation, in which prescription drugs may be seen as a panacea for all that ails us and into a pharmaceuticalized worldview in which prescription drugs are routinely and casually used, misused and abused (Lexchin & Mintzes, 2002).

Research conducted by Fortuna, et al. found a significant trend in prescription drug use among young adults in which prescriptions obtained through legitimate sources like emergency rooms, ambulatory clinics and physician offices doubled since 1994 (2010). In addition to obtaining prescription medications from legitimate sources, university students, at least until 2008, are known to have casually shared their Ritalin, especially around test-taking time when mental concentration is of utmost importance (Bernstein, 2008); however, by 2010 the ADHD medication Adderall had become the drug of choice (Johnston et al., 2010). Kadison maintains that prescription drug advertising is at least partially to blame for the rise in prescription drug use among university students who he describes as "overextended" and "stressed" (2005, p. 1089).

Several studies link nonmedical prescription drug use to direct to consumer prescription drug advertising and other drug marketing tactics. For example, An's study provides evidence that antidepressant prescription drug advertising is associated with attitudes regarding the "perceived prevalence of depression" (2008, p. 504). McCabe's study of medical and nonmedical use of prescription drugs concluded that approximately 20 percent of college students take prescription drugs to get high, and he contends that prescription drug promotion, among other factors, leads to increased use of "abusable medications" (2008, p. 225). Nonmedical use of prescription drugs by "young adults (ages 18-25) showed the greatest use overall and the largest increases in past month, past year, and lifetime use between 2002 and 2006, compared to all other age groups" (Office of Applied Studies, 2007). Data from the University of Michigan Monitoring the Future survey supports the findings of these and other researchers regarding the prevalence of prescription drug use among adolescents and young adults (Johnston et al., 2014).

Nonmedical use of prescription drugs, popular culture

While young adults may become socialized into a world in which prescription drugs are prevalent by association with friends or perhaps as caretakers of family members, fictionalized tales of nonmedical use of

prescription drugs are quite prevalent in popular culture. Television, movies, as well as news media contribute to the view that casual prescription drug use is rampant among teens and young adults, which is reflective of trends in recreational use of prescription drugs among young adults (Quintero, 2012). Movies like *Charlie Bartlett*, about a young man who sells prescription drugs in his high school in order to become popular illustrates the generalized view regarding casual prescription drug use. Television programs including MTV's *Skins* (first aired in Great Britain) and the CW network's *Gossip Girl* series, among others, depicted pharm or pharma parties, as they are referred to, where celebrants casually share prescription drugs obtained from their families' medicine cabinets. Such depictions reinforce the false belief that, unlike illicit drugs, prescription drugs are safe, and they are legal to share (Leinwand, 2006).

Shafer (2010) maintains such media-based drug sharing activities have taken on mythic proportion. Amplifying this perception of nonmedical prescription drug use are the research findings of Roberts, et al. that almost half of the music videos they studied included references to substances including prescription drugs (2002). Primack et al. found "The average adolescent is exposed to approximately 84 references to explicit substance use daily in popular songs" (2008, p. 169). And, news media are replete with reports of the escalating number of celebrities who have died as a result of prescription drug misuse or abuse, including Prince, Michael Jackson, Anna Nicole Smith and Heath Ledger; such deaths have added an ominous sign to what many perceive to be an otherwise cavalier attitude toward recreational drug use and self-medication.

Prescription Drug and Health Information on New Media

The Pew Research Center health survey indicates that more than 60% of adults use the Internet and digital technology as tools related to health and healthcare, in particular to look online for health information (Pew, 2012). The survey also indicated that 16 percent of respondents sought others online who might have similar health concerns. As adolescents grow into young adults so too does their role as medical consumer; they are exposed to media portrayals of drug use, the Internet as a source of information, direct to consumer prescription drug advertising, in addition to relying on parents and peers that influence their attitudes. In particular, beginning in adolescence, Montgomery and Chester point to six features of digital media—ubiquitous connectivity, personalization, peer-to-peer networking, engagement, immersion, and content creation—that relate to the newer ways in which young people are seeking health information (2009). Young

adults are likely to rely on newer social media, where the rules are unclear regarding what pharmaceutical marketers can do and say, in which they (young adults) already are heavily invested as a resource for information and opinions regarding many things, including prescription drugs.

Hanson et al. concluded that Twitter has become a platform for discussing prescription drugs with other like-minded individuals, and that such online discussion may reinforce negative social behaviors (2013). New media, ranging from unbranded Facebook pages for particular medications or ailments, individual blogs based on particular health conditions, and dedicated web forums where prescription drug information is shared, support a new social role - "amateur pharmacist." Whether it is offering a "study drug" to a friend, or a tranquilizer to alleviate anxiety, Harmon reports that "For a sizable group of people in their 20's and 30's, deciding on their own what drugs to take — in particular, stimulants, antidepressants and other psychiatric medications — is becoming the norm" (2005, p. A1).

Direct to Consumer Prescription Drug Advertising

Along with creative approaches, regulatory change, and new media venues is the increase in the number of prescription drugs marketed or entering the market for conditions that afflict younger consumers that range from birth control drugs or devices to acne medicines. Ball, Manika and Stout point out, "the incidence rates of seven different health conditions often targeted by direct to consumer prescription drug ads (e.g. allergies, depression, anxiety, etc.) differ only minimally for adults 18-24 compared to other age segments (up to age 65+)" (2008, p. 2). Baca, Holguin and Stratemeyer (2005) concluded that awareness of prescription drug advertising among younger individuals was primarily a function of care giving to an older individual, perhaps a relative, thus treating young adults as a tertiary market. And, An (2008) found young adults' attitudes, whether through direct or indirect means, were cultivated through exposure to direct to consumer prescription drug advertising. The implication is that "the more people watch television, the more likely they will come to view the real world as similar to the world portrayed on television" (An, 2008, p. 500). The same year of that study, 2008, the United States Congress passed the Ryan Haight Online Pharmacy Consumer Protection Act, after the 18-year-old active Internet user died from an overdose of Vicodin that he purchased through an online pharmacy (NABP, 2009).

An, who studied the influence of direct to consumer prescription drug advertising on the college-age population, concluded that "antidepressant ads

influence students' perception of the prevalence of the illness and treatment options" (2007, p. 16). She added, recall of advertisements for antidepressants indicated a belief that medication is a "primary option to treat the medical condition," attributing this to a cultivation of beliefs regarding the efficacy of prescription medications that not only affects young adults' perceptions of illness, but also points to the use of prescription medications as a means to ameliorate their condition (An, 2007, p. 17). Thomas et al. concluded their study of prescription trends stating: "we believe that direct-to-consumer advertising and other marketing strategies are key in encouraging greater use of psychotropic drugs, particularly for the increased use found after 1999 (2006, p. 68). Harmon maintains that direct to consumer prescription drug advertising has "sent the message that pills offer a cure for any ill" (2005, p. A1).

Interpersonal Socialization

Young adults obtain drugs from a number of sources, including friends, family members, and through what is referred to as doctor shopping, among other interpersonal sources. Marin et al. found in their study of drug misuse among young adults that peer drug associations were positively related to prescription drug misuse (2014). McCabe, who studied prescription drug use among college students, found that the majority of his respondents obtained their prescription drugs from peer sources. However, in his study of adolescent drug behavior, Ford found that those with a strong family bond were less likely to use drugs (2009). Cavalier attitudes may, over time, be passed on from various interpersonal sources encouraging nonmedical use of prescription drugs. The social situations depicted in the television programs, movies and other forms of popular culture described earlier mimic the influence of interpersonal relationships regarding the influence of nonmedical prescription drug use.

Marketing Prescription Drugs to Young Adults

Pharmaceutical marketers historically avoided advertising directly to adolescents, perhaps because most advertised medications are directed toward market segments — the chronically ill and the elderly — that are more likely to use such products (PhRMA Guiding Principles, 2008). It makes sense that most direct to consumer prescription drug marketing is directed toward adult and older consumers, however, others outside those market segments, including teens and young adults, are increasingly exposed to messages from prescription drug marketers, perhaps inadvertently. For example, younger individuals may be exposed, to advertisements for erectile dysfunction medications during professional football games (Feinberg, 2005). In

reference to such incidental exposure, President Barack Obama said, "I wasn't too happy with ads for erectile-dysfunction drugs popping up every fifteen minutes whenever I watched a football game with my daughters in the room" (Obama, 2006, p. 61). One study showed "40 percent of [football] games showed ads for erectile dysfunction drugs" (Common Sense Media, 2009, p. 2). Direct to consumer prescription drug advertising, because it is placed on primetime television, in national magazines, as well as on the Internet, reaches a broad base of consumers, including young adults. An early study that investigated television advertising and children's attitudes toward proprietary drugs concluded that because the advertisements were not aimed at a young audience, there was little interest among young viewers (Rossano and Butter, 1987). Changes in the environment since Rossano and Butter published their research suggests that the likely exposure among young adults, whether as a result of taking care of others and associated incidental exposure or based on direct exposure because of salient interest in prescription drugs across media, makes researching this topic important. And more recently the Internet opened up advertising placement to prescription drug marketers that extends beyond web banners or dedicated web sites to social media. The use of social media for prescription drug promotion, for which regulation is pending, provides new venues to reach out to younger media-savvy audiences (Thomaselli, 2011).

Consumer Socialization Theory: A Framework

Consumer socialization theory refers to "the processes by which young people acquire skills, knowledge, and attitudes relevant to their functioning as consumers in the marketplace" (Ward, 1974, p. 2). In its original conceptualization the theory viewed cognitive development separate from social development. However, Moschis and Churchill (1978) combined the models to create a conceptual framework that views cognitive development and socialization as a social process in which attitudes are influenced by interpersonal relationships and media. As applied to prescription drugs, social structural variables would include direct to consumer prescription drug advertising, Internet based web-platforms, like Facebook, as well as interactions with social agents like friends or family. Interactions with all of these structures and agents have the ability to "transmit norms, attitudes, motivation and behavior to the learner" (Moschis and Churchill, 1978, p. 600).

Several models of consumer information processing have emerged, linking attitudes toward direct to consumer prescription drug advertising and consumer behavior. These models have focused on exposure,

information seeking behavior, knowledge and awareness of prescription drug advertising as well as brand names as an influence on consumer behavior, and direct to consumer advertising's relationship to health status and prescription drug use (Perri and Dickson, 1988; Williams and Hensel, 1995; Peyrot et al. 1998; Hun and Becker, 2002). Such models do not account for how consumers are socialized to think about nonmedical use of prescription drugs, in particular their focus is not on young adults. Socialization toward nonmedical use of prescription drugs takes place over an extended period of time and it may begin in childhood. Young adults, in particular are at a crossroads in their life stage, because they have the ability to access medications without parental supervision, and they are old enough to seek information on their own from physicians as well as non-professional members of their social circle. Building on these conceptual models it is important to include new media use as a structural agent that may influence awareness and knowledge regarding prescription drugs as well as attitudes regarding nonmedical use of prescription drugs. It is important to include new media use because of its social properties that to some degree mimic or parallel actual social relationships.

As most prescription drug marketing is linked to medicinal use, something young adults because of their life stage may not be salient, it may be that exposure will not be a key determinant in their attitudes toward nonmedical prescription drug use. Furthermore, the issue is complicated, as researchers as well as the media lump together nonmedical use and abuse of prescription drugs with the use of illicit drugs. Young adults, however, differentiate between functional and recreational uses of prescription drugs: they simply do not see prescription drugs in the same light as illicit drugs, like cocaine for example (Quintero, 2012). Young adults' beliefs regarding functional or recreational prescription drug use, may contribute to their ambivalence toward prescription drug use. Therefore, exposure to media portrayals of prescription drug use as well as advertising, the latter of which has been the focus of much research, may not be greater for this demographic group, nor would we expect health concerns, because of their age, to be a moderating factor.

The aim of this study is to investigate how attitudes toward nonmedical use of prescription drugs are influenced by interpersonal and mediated sources. This research is guided by the following research questions:

RQ1: *What is the nature of the relationship between interpersonal sources of communication as a socializing force and attitudes toward*

nonmedical prescription drug use among young adults?

RQ2: *What is the nature of the relationship between mediated sources, including television, radio, movies and magazines as well as newer digital media and direct to consumer prescription drug advertising and attitudes toward nonmedical prescription drug use among young adults?*

Method - Survey Data

In order to examine attitudes toward nonmedical use of prescription drugs among young adults, a survey was conducted at a large public university located in the mid-Atlantic region of the United States with an enrollment of 20,000 students. Fifteen thousand students are undergraduates and 13 percent are minorities. The population of interest was young adults 18 to 24 years of age. Intercept interviews were conducted in the university's Student Center, where trained interviewers administered the questionnaire. The initial version of the questionnaire was pretested with a convenience sample of 30 young adults. Pretesting allowed the researcher the opportunity to adjust questions because of wording or format, to determine ease with which respondents could answer the questions, and to determine the time it took to complete the questionnaire. Based on suggestions provided by the pre-test respondents, minor adjustments in wording and organization were completed. Each interviewer utilized a laptop computer on which respondents were recruited to complete the survey. Surveymethods.com, provided the survey software. Interviewers were scheduled at various times of day and on various days of the week in the Student Center where everyone walking through the Student Center would have an equal chance of being intercepted.

Measures

Respondents indicated "yes," "no," or "uncertain" for each of the items asking about awareness of direct to consumer prescription drug advertising, seeing a prescription drug advertisement, visiting a prescription drug web site, or seeing a prescription drug ad on any website.

Four variables were constructed including media use, of which legacy media and new media were represented as well as interpersonal variables consisting of parents, peers and physicians, attitudes toward direct to consumer prescription drug advertising and prescription drug use. These variables were constructed utilizing multiple items. For example new media use included respondents' use of Internet "channels," and new media time reflected the number of hours spent on the Internet. The legacy media variable was constructed

from respondents' use of television, radio and magazines.

A composite measure of attitudes toward prescription drug advertising was computed by summing the scores of three questions: I actively seek information about prescription drugs through advertising; prescription drug advertising is a beneficial source of information; and prescription drug advertising can educate consumers. Correlations were obtained with attitude variables regarding prescription drug use. Correlations were significant among six variables: it is okay to take prescription drugs to help me study; it is okay to take prescription drugs to solve a problem in life; it is okay to take prescription drugs when feeling depressed or anxious; it's okay to take prescription drugs to get high; prescription drugs are safe to take;

and, I would take a prescription medication, even if not prescribed by physician, if I thought it would help me.

Results

The sample consists of 268 young adults ranging from 18 to 24 years of age (M = 20). Table 1 presents the demographic characteristics of the respondents. There were more female (58 percent) than male (42 percent) respondents. The sample was predominantly white (71 percent). African Americas were the largest minority (16 percent), while Hispanics comprised four percent of the sample. Table I provides further evidence of the demographic make-up of the respondents.

Table 1 Characteristics of Survey Respondents

	Frequency	Percent
Age		
18	48	19
19	43	17
20	43	17
21	59	23
22	41	16
23	14	6
24	8	3
Total	256	100
(mean value) 20.29		
Gender		
Female	137	58
Male	100	42
Total	237	100
Race		
Black, Non-Hispanic	37	16
Hispanic	9	4
Other	22	9
White, Non-Hispanic	167	71
Total	235	100
Family Income		
Less than 40,000	27	12
41-80,000	68	29
81-160,00	94	40
Over 160,000	45	19
Total	234	100

Almost 54 percent of respondents are uncertain as to whether their physician would be upset if they directly asked for a prescription medication. When asked about seeking information about prescription drugs they are currently taking or those they might consider taking,

41 percent of the respondents do not or would not proactively seek information about prescription drugs, and 33 percent are uncertain, although 25 percent said they would seek out information. About one-third of the

respondents are currently taking a medication prescribed by a physician.

When it comes to sources of information other than a physician, respondents do not believe that prescription drug advertising helps educate consumers (52 percent) and they are uncertain whether prescription drug advertising is a beneficial source of information (54 percent). Respondents learn about prescription drugs

from various sources, both mediated and interpersonal. Table 2 indicates that a majority of respondents learn about prescription drugs from their parents (64 percent), and slightly less than half learn about prescription drugs from their friends (49 percent), however only one-quarter of the respondents said they learned about prescription drugs from siblings or other relatives.

Table 2 *Interpersonal sources of information regarding prescription drugs**

	Percent (yes)	SD
Parents	64	.48
Brothers/Sisters	22	.42
Other relatives	25	.43
Friends	49	.50

Note: N=268

Table 3 reveals that a relatively small number of respondents mentioned mediated sources including radio, television, movies and magazines as the source of information regarding prescription drugs. However, almost 60 percent of respondents said they learned about prescription drugs through direct to consumer

prescription drug advertising. Less than one-third of the respondents indicated Internet advertising and dedicated health websites as the source of information regarding prescription drugs.

Table 3 *Mediated sources where respondents learn about prescription drugs*

	Percent (yes)	SD
Television programs	27	.45
Movies	12	.32
Television advertisements	59	.50
Magazine Advertisements	38	.49
Internet Advertising	28	.45
Internet websites	24	.43

Note: N=268

The majority of young adults in this study, as reported in Table 4, express uncertainty regarding nonmedical use of prescription drugs. Fifty-four percent of respondents are uncertain regarding whether or not it is okay to take prescription drugs in order to help them study for an exam. Respondents are uncertain regarding the efficacy of prescription drugs for solving life's problems (54 percent). The vast majority of respondents, 78 percent, are uncertain regarding the use of

prescription drugs for recreational purposes, in order to get high. And, 53 percent of respondents are uncertain regarding the use of a prescription drug even if it was not prescribed for them. However, approximately one-third of respondents were uncertain regarding the use of a drug if they were depressed or anxious, and this was significant with regard to gender; 52 percent of males ($p = -.019$).

Table 4 Attitudes Toward Nonmedical use of Prescription Drugs

	Percent (Uncertain)	M	SD
Okay to take prescription drugs to help study	54	.02	.681
Okay to take prescription drugs to solve problems	54	.17	.659
Okay to take prescription drugs to get high	78	.13	.446
Okay to take a drug that was not prescribed for me	53	.04	.686
Okay to take a drug if depressed or anxious	34	-.09	.807

Note: N=268

Reliability of scales is based on Cronbach's alpha. Table 5 summarizes the mean scores, variances and reliability indices. Four of the scales meet or exceed the generally accepted guideline for exploratory research

of .70, originally attributed to Nunnally (1978). However, Lance, et al. stress that the .70 threshold is not an absolute cutoff criteria (2006).

Table 5 Mean, Variance and Cronbach's Alpha Coefficients

Scale	Mean	Variance	α
New Media Use (7 items)	1.98	14.14	.82
Mediated Sources of Learning Use (6 items)	1.88	3.03	.73
Information Seeking Behavior (3 items)	-.20	3.94	.61
Functional Drug Behavior (3 items)	-1.30	3.58	.65
Interpersonal Sources of Learning (4 items)	1.60	1.77	.70
Attitudes Toward Prescription Drugs (6 items)	.46	7.38	.70

The multiple regression analysis serves to answer the research questions, in which uncertainty is the dependent variable. The predictors were learning from parents, learning from friends, extent of new media use, time using new media, attitudes towards prescription drugs and attitudes toward prescription drug advertising. These predictors were entered into a stepwise multiple regression analysis to determine whether they made independent contributions to attitudes toward nonmedical prescription drug use. Table 6 provides R-square values, collinearity statistics and

coefficient estimates. Two variables had a positive effect on uncertainty regarding nonmedical use of prescription drugs: the extent of new media use and time spent using new media. These predictors were positively related to attitudes regarding nonmedical prescription drug use. This result indicates that attitudes toward nonmedical use of prescription drugs are related to the respondents' extent of new media use and the time spent using new media.

Table 6 Regression Analysis

	B	Std. Error	Beta	t	Sig.
Parents	.025	.231	.007	.109	.913
LearnFriends	-.326	.218	-.091	-1.494	.136
NEWMEDIA_XT	.300	.068	.322	4.401	.000*
NEWMEDIA_NT	.101	.036	.160	2.824	.005*
RX_ATT	-.026	.063	-.029	-.420	.675
ADAWAREATT	.158	.111	.085	1.432	.153

$R^2 .17$; Adjusted $R^2 .15$ * $p < .05$

Note: Dependent Variable: Uncertainty about prescription drug use; predictors are learn from parents, learn from friends, time with new media, extent of new media use, attitudes toward prescription drugs, awareness of prescription drug advertising

Discussion and conclusion

The aim of this study was to investigate the relationship between attitudes toward nonmedical use of prescription drugs among young adults and sources of learning - consumer socialization - about prescription drugs, including parents, peers, new and older media and advertising. The study is couched in consumer socialization theory that suggests young adults are entering a stage of life where they potentially have accumulated knowledge through interpersonal as well as mediated sources regarding prescription drugs. One major finding of the study is that young adults are uncertain about the nonmedical use of prescription drugs. This is an important finding as it raises the question regarding the sources of learning, in terms of consumer socialization, regarding ambivalent attitudes regarding nonmedical use of prescription.

Young adults also hold mixed to negative views of advertising and those attitudes correlate with negative attitudes toward prescription drug advertising and its ability to educate consumers. Their skepticism, it was expected, would fuel their uncertainty whether or not it is okay to take prescription drugs that have not been prescribed for them, to solve personal problem or simply to get high. They also expressed uncertainty regarding the use of prescription drugs to help them study, to help if they are depressed or anxious, even if the medications have not been prescribed for them. And, they also believe that prescription drugs are safe to take (not having the potential consequences of taking illicit drugs). Baca et al., suggest that skepticism is associated with education, but not age (2005). Young adults' uncertainty may be associated with their stage of life, that is, young adults for whom prescription drugs are not particularly salient, in which case they have the latitude to express attitudes that are reflective of the lack of relevance of messages regarding prescription drugs.

The study did not support the findings of other research regarding the influence of peers regarding nonmedical use of prescription drugs (Marin et al. 2014). And while the present study found that young adults learn about prescription drugs from their parents, they were not a factor when it came to young adult attitudes

toward the nonmedical use of prescription drugs. However, the study found that uncertainty among young adults regarding nonmedical use of prescription drugs is related to their use of newer digital media, in particular the time they spend with new media and the extent of their use of new media.

This uncertainty may be a by-product of the conflicted feelings young adults hold as they differentiate between illicit drugs and prescription drugs. But it also may be that a healthy dose of skepticism and related ambivalence and uncertainty is a good thing, as the overwhelming nature of information about prescription drugs comes from unreliable sources, including prescription drug advertising and social media. Lexchin and Mintzes point out, "for consumers advertising is the least trusted source of information for prescription drugs" (2002, p. 196). Beard concluded that cynicism and skepticism among members of Generation Y toward advertising is rooted in three issues that are salient: advertising of harmful products, lack of truthfulness, and manipulation of consumers (2003).

The current study had several limitations. First, with regard to the randomness of the sample, although it was anticipated that the centrality of the College Center would provide every student a chance of walking through, only those students who traveled to the center were able to participate in the study.

Second, participants in the current study consisted of a nonrandom sample of college students from a public university; thus generalizability beyond this sample is limited. When the questionnaire referred to prescription drugs, it explicitly stated "prescription drug." This was reinforced with the explanatory phrase, "drugs you can only get with a doctor's prescription," so to avoid any confusion with over-the-counter drugs. For the purpose of this research, young adults were defined as those between the ages of 18 and 24. Others may find it fruitful to use other recognized configurations of young adults, as some research includes 18 to 29 or 18 to 34 years of age. Extending the age range may allow researchers to see if there is greater consistency between age and other demographic variables such as marital status, income and education.

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