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ORIGINAL ARTICLE

Parental Influences on Adolescent Major Depressive Symptoms and Marijuana Use

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Abstract

Adolescent depression is associated with many negative outcomes, including elevated marijuana use. Although parental influences on adolescent depressive symptoms and marijuana use have been examined independently, their interrelation remains understudied. The current research investigates the hypothesis that lower levels of parental monitoring and warmth are inversely associated with adolescent depressive symptoms and marijuana use. A path analytic approach ($N = 12{,}115$) on data from a representative US sample indicated depressive symptoms had an indirect effect on the relationship between parental warmth ($p < .001$), monitoring ($p = .013$), and adolescent marijuana use. Exploring relationships grouped by respondents' age (12–14 and 15–17 years, respectively) revealed minor differences. Depressive symptoms had significant indirect effects on parental warmth and marijuana use (both $p < .001$) and on parental monitoring and marijuana use (both $p < .05$). Parental influences appear to play an important role in marijuana use among adolescents with depressive symptoms.

Keywords Depressive symptoms · Marijuana · Adolescents · Parental monitoring · Parental warmth

With the medicalization, legalization, and decriminalization of marijuana in many US states rendering the substance more accessible, researchers and policy makers have become increasingly concerned with its effects on adolescents (Hayatbakhsh et al. 2013). This concern is further motivated by research that suggests a possible relation between depression and subsequent marijuana use (Ketcherside and Filbey 2015; Wilkinson et al. 2016). The relation of parental monitoring and warmth with adolescent depression and marijuana use may reveal a previously unexamined factor that may be important in understanding, influencing, and supporting youth during this critical developmental phase. The current research examines

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direct and indirect linkages of parental influences, youth depression, and marijuana use, which may prove useful in understanding the genesis and effects of depression, and to facilitate positive adolescent development through prevention of psychotropic substance use.

Depression is increasingly common among adolescents, and suicide stemming from depression is the third leading cause of death in the USA among 15 to 19 year-olds (Hallfors et al. 2004) and the second leading cause of death worldwide for 15 to 29 year-olds (World Health Organization 2018). Adolescents with depression are at greater risk than those without this condition to have serious episodes of depression in adulthood (National Institute of Mental Health 2011) and are more likely to become involved in the criminal justice system as adults (NIMH 2011). Mental Health America (2010) estimated that 12.5% of teenagers experienced clinical depression, and 67% reported major depressive episodes that had caused issues with school, work, friends, or family. Exacerbating problems of adolescent depression, teens often seek ways to self-medicate with marijuana to cope with stress and anxiety (Hooshmand et al. 2012; Shrier et al. 2014; Wilkinson et al. 2016). This can prove a risky and ineffective solution (e.g., Arendt et al. 2007).

Marijuana is the most common illicit substance used by adolescents in the US (Johnston et al. 2016). Roughly 14% of US adolescents report using marijuana between the ages of 14 and 16 (Wilkinson et al. 2016); the average age of marijuana initiation is 15 years (Hayatbakhsh et al. 2013). This is a troubling result, as heavy and consistent marijuana use can affect cognitive development, hindering associative learning processes and short-term memory (National Academies of Sciences, Engineering, and Medicine 2017; WHO 2014), and the consistent use of marijuana by youth has been associated with significantly higher odds of non-medical use of stimulants and opioids (Nakawaki and Crano 2015). Similar to adolescents with depression, adolescents who initiate marijuana early also are prone to lower educational attainment, delinquency, and other behavioral and mental health disorders (Copeland et al. 2013).

Adolescent Depression and Marijuana Use

Although adults often view adolescent marijuana use as a form of rebellion or to assimilate with peers, this substance often is used to self-medicate and relieve the burdens of depression (Grunberg et al. 2015; Wilkinson et al. 2016). Thus, it should not prove surprising that depression and marijuana use are related. Previous research has explored the marijuana-depression link, but these studies have been confined largely, though not exclusively, to adult samples (Buu et al. 2009; Consoli et al. 2013; Pacek et al. 2013). As adolescents with depression are twice as likely to use marijuana as their peers without depression (Office of National Drug Control Policy 2008), it is reasonable to explore this relationship. Further, exploring the depression-marijuana relationship with the associations of parental monitoring and warmth may further enhance our understanding of ways to mitigate this mental health-substance use link.

The relation between depression and marijuana use may be bidirectional, fueling a vicious cycle of using marijuana to cope with depression, and depression becoming more severe as a result of marijuana use. For example, Taylor (2011) found that adolescents self-reported using marijuana to cope with feelings of sadness, and Moreira (2007) reported that consuming large amounts of marijuana was associated with more severe depression. Research also has shown that adolescents with depression who used marijuana regularly were at higher risk to develop

other mental illnesses (ONDCP 2008). This is not surprising, as research in adult populations has supported a tension-reduction hypothesis of substance use when individuals self-medicated with marijuana to reduce negative symptoms (Buckner, Bonn-Miller, Zvolensky, & Schmidt, 2007). Neurological research suggests that depressive symptomology may be caused by an "endocannabinoid deficiency," in which pain sensations, appetite, and memory cannot be processed properly in the brain and this may drive the use of marijuana to satiate such symptoms (Shonesy et al. 2014).

Parental Influence

Research on risky adolescent behaviors indicates that parental influence may be more important than previously thought. For example, the influence of parental monitoring and warmth on substance use has been well documented (Donaldson et al. 2015; Hemovich et al. 2011; Lac et al. 2009), and a meta-analysis revealed the preventive effects of parental monitoring on adolescent marijuana use (Lac and Crano 2009). Parent-child relationships and interactions influence not only risky behaviors, but also adolescents' well-being (e.g., Hemovich et al. 2011; Lac et al. 2009). Research on adolescents with depression revealed that parental absence or indifference was associated with deeper levels of depression (Hemovich and Crano 2009; Long et al. 2014); greater parental warmth was associated with lower depression levels in adolescents (Ozer et al. 2013). Field et al. (2001a) study of high school seniors above the clinical cutoff for depression reported that poorer parental relationships were associated with more suicidal ideation (Field et al. 2001b). Adolescents with depression not only had poorer relationships with their parents but also used more marijuana than their peers without depression (Field et al. 2001a). Parent-child interactions, especially those involving discussions of substance use, appear to reduce adolescents' substance use even without concomitant gains in perceived control over usage, suggesting the strong effect of parent-child interaction on marijuana use and prevention (Huansuriya et al. 2014; ONDCP 2008). Parents are critical in helping youth facing depression and considering marijuana as an adjunctive method of self-medication.

Current Study

Because some adolescent depression may be marked by substance use in the attempt to self-medicate, the present study was focused on understanding the relations among parental monitoring and warmth, adolescent depression, and marijuana use, a unique combination of factors not previously explored to the best of our knowledge. Covariate measures (i.e., respondents' age, sex, race, and household income) were expected to be linked to all of the critical variables under study.

> H1. We hypothesize that age and sex will be directly related to marijuana use: males, racial minority respondents, and older adolescents will be more likely to use marijuana. These hypotheses are based on considerable earlier research (e.g., Hemovich and Crano 2009). The research literature indicates effects of income and race on adolescents' marijuana use are variable, and so relations between these variables and marijuana usage are not advanced.

H2. We expect parental behaviors will be related to all four covariates: older adolescents, females, and those from minority (i.e., non-white) and lower income families are hypothesized to encounter more positive parental behaviors (monitoring and warmth; Hemovich et al. 2011).
H3. Age, sex, and race are expected to be linked to depression: older adolescents, females, and racial minorities are predicted to show higher levels of depression.
H4. Parents' behaviors (monitoring and warmth) are expected to affect their children's depressive symptoms; emotionally cold (H4a) or inattentive (H4b) perceptions of parental behaviors will predict higher levels of adolescent depressive symptoms.
H5. Adolescents' depressive symptoms will be a direct predictor of marijuana use.
H6. Parental monitoring and warmth will directly predict adolescents' marijuana use.
H7. Parental monitoring and warmth will have indirect effects on adolescents' marijuana use through depression.

Method

Procedure

Data were drawn from the 2014 National Survey on Drug Use and Health (NSDUH), a survey collected annually in the US. Among other variables, it contains information on tobacco, alcohol, and illicit substance use, along with mental health data collected via computer-assisted interviews from US citizens aged 12 and older. Selection is determined by random sampling of households. A second NSDUH dataset from 2013 also was analyzed, but as it produced results identical to those to be reported, we discuss only the more recent data.

Owing to the complex sampling scheme used in the NSDUH, Mplus 7.3 was used in the data analysis, and the WLSMV estimator was used in all path analyses. The WLSMV is a robust estimator that does not assume a normal distribution of measures. It is the best alternative available when modeling categorical or continuous ordinal data (Brown 2006).

Measures

Measures of perceived parental monitoring, perceived parental warmth, depression, and marijuana use were collected, along with demographic information. Respondents were included in the final analyses if they answered all questions. In all, 203 respondents were dropped from the analyses (response rate = 98.35%). Sampling weights allowed for post-stratification adjustments for nonresponse.

Parental Monitoring Five questions were used to assess adolescents' perceptions of the extent to which parents monitored their activities. For example, "During the past 12 months, how often did your parents limit the amount of time you went out with friends on school nights?" Respondents answered on 4-point scales (1 = *Never* to 4 = *Always*).

Parental Warmth Two questions assessed the extent to which adolescents believed their parents displayed warmth toward them. For example, "During the past 12 months, how often did your parents tell you they were proud of something you had done?" Respondents answered on 4-point scales (1 = *Never* to 4 = *Always*).

Adolescent Depression Since 2004, the NSDUH has provided an adolescent depression variable code based on an age-appropriate depression questionnaire. For purposes of the current study, questions were used to classify adolescents as having had major depressive symptoms in the past year. Based on these reports, adolescents were classified as not having major depressive symptoms, having fewer than five depressive criteria of a possible nine, or if they reported none of five known "feelings," which included the following: (a) never encountering a time lasting at least several days when you felt "sad, empty, or depressed, discouraged or hopeless about how things were going in life, and lost interest and became bored with most things usually enjoyable." (b) Agreed with the previous question, except that depressive symptoms "did not last most of the day, almost every day for two weeks or longer." (c) The feelings in the first question were experienced, "most of the day, almost every day for two weeks or longer, but lasted less than an hour when mood was most severe and frequent." (d) "Experienced the feelings mentioned in question 1 most of the day, almost every day for two weeks or longer for at least an hour during those times when mood was most severe and frequent, but the bad feelings were mild, there was never a time when you felt so bad that nothing could cheer you up, and there was never a time when you felt so bad that you could not carry out you daily activities." (e) "Experienced the feelings mentioned in question 1 most of the day, almost every day for two weeks or longer for at least an hour with activities, but never had any other problems during those weeks" concerning a list of everyday functions and self-esteem.

Marijuana Use Marijuana use was measured by a single item that asked whether respondents had ever used marijuana/hashish (0 = *no*; 1 = *yes*).

Demographic Demographic questions included the respondent's age, sex, race, and family income. In our analyses, race was recoded into White and minority (see Table 1).

Results

Responses from 12,115 adolescents were included in the analyses. Reliabilities for parental warmth ($\alpha = 0.84$) and parental monitoring ($\alpha = 0.60$) were deemed acceptable. All other measures were single-item indicators. The hypothesized path model was statistically significant and produced acceptable fit based on a number of measures: comparative fit index (CFI), Tucker-Lewis index (TLI), a residual-based index (RMSEA), and chi-square difference test. The CFI and the TLI range from 0.00 to 1.00 under normal circumstances; higher values represent better fitting models (Ullman and Bentler 2003). The RMSEA indicates poor fit if it exceeds 0.10 (Browne and Cudeck 1993). A significant chi-square difference test indicated the fit of the original unrestricted model was superior to that of the constrained model. An alternative model reversing the order of depression and marijuana usage resulted in poorer fit indices, which is consistent with Leventhal et al.'s (2017) study examining anhedonia and marijuana use, and Wilkinson et al.'s (2016) research on depression and marijuana use. See Table 2 for fit indices for all models.

To provide a more complete picture, the standardized model was estimated after accounting for covariates, which included age (Hayatbakhsh et al. 2013), family income (Taylor et al. 2014), sex (Hallfors et al. 2004), and race (Donaldson et al. 2016). Nonsignificant paths were removed, and the modified model is presented in Fig. 1. Lower levels of parental monitoring and parental warmth were associated with major depressive symptoms in the past year.

Table 1 Descriptive statistics for NSDUH 2014 adolescents

N = 12,115		Subsample
Gender	Male	51.1%
Age	12	14.0%
	13	15.7%
	14	17.1%
	15	17.8%
	16	18.0%
	17	17.5%
Race	White/Caucasian	55.9%
	Black/African American	13.5%
	Native American/AK Native	0.5%
	Native HI/Pacific Islander	0.4%
	Asian	4.9%
	More than one race	3.1%
	Hispanic/Latino	21.7%
Family Income	Less than $20,000	16.4%
	$20,000–$49,999	28.3%
	$50,000–$74,999	15.5%
	$75,000 or more	39.9%
Major depressive episode		11.6%
Used marijuana		17.0%

Percentages reflect weighted estimates

Parental monitoring also was associated with an increased likelihood of an adolescent using marijuana. Parental monitoring and warmth were significantly related. Mediation analyses confirmed the predicted indirect effect of parental warmth on marijuana use though depression ($\beta = 0.03$, *S.E.* = 0.01, $p = .013$), and a significant indirect effect of parental monitoring on marijuana use through depression ($\beta = 0.02$, *S.E.* = 0.01, $p < .001$).

Several covariates were significant predictors of parental influences, depression, and marijuana use. Age was associated positively with greater parental monitoring, parental warmth, depression, and marijuana use. Sex was associated with parental warmth, depression, and negatively associated with marijuana use: females were more likely to view parents as warm and also to have had major depressive symptoms, and less likely to have used marijuana. Sex was not associated with parental monitoring. Race was associated with parental warmth: minority adolescents were more likely to view their parents as warm compared to their non-minority counterparts. Income was associated only with marijuana use: adolescents from lower income families were more likely to have used marijuana.

Table 2 Fit indices for all models

Model	χ^2 difference	CFI	TLI	RMSEA
Unrestricted modified	159.736	0.996	0.984	0.010 [0.001, 0.021]
Constrained	–	0.784	0.412	0.059 [0.052, 0.067]
Alternative	–	0.976	0.912	0.023 [0.014, 0.033]
Modified ages 12–14	173.360	0.993	0.984	0.011 [0.001, 0.021]
	–	0.778	0.601	0.050 [0.047, 0.061]
Modified ages 15–17	177.220	0.972	0.899	0.025 [0.016, 0.035]
	–	0.718	0.274	0.067 [0.059, 0.075]

χ^2 chi-square difference test, *CFI* comparative fit index, *TLI* Tucker-Lewis index, *RMSEA* root mean square error of approximation

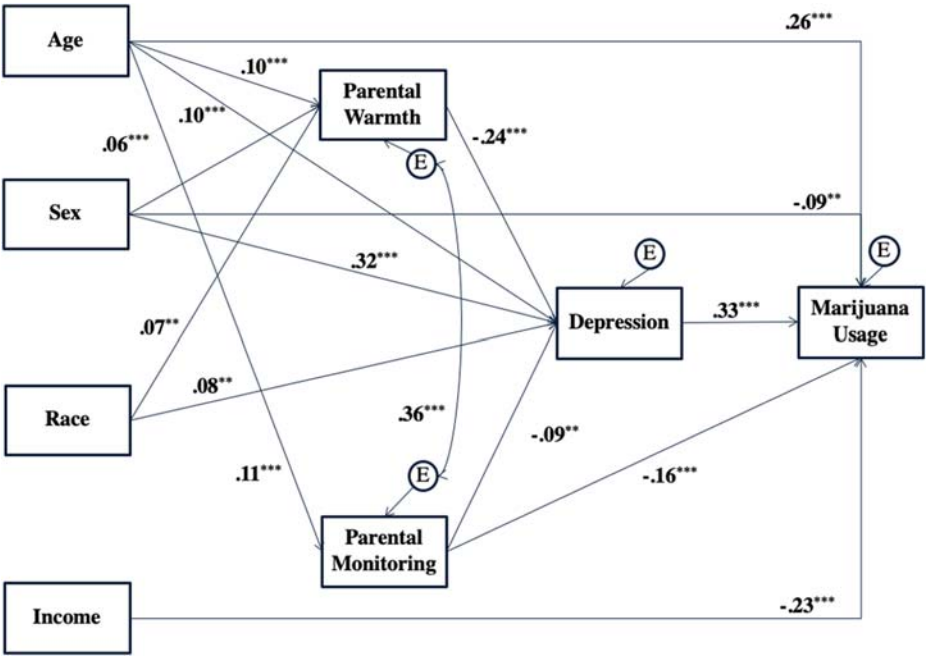

Fig. 1 Path analytic model across all respondents of relations involving parental warmth, parental monitoring, depression, and marijuana use with covariates of age, sex, race, and income. Non-significant paths were removed for clarity; $p < .05$*, $p < .01$**, $p < .001$***

Results by Age Group To explore the results further, two additional path models were examined by dividing adolescents into two age groups. This was done as marijuana use tends to increase as adolescents age, and parental monitoring is likely to lessen over time as adolescents are allowed more autonomy. We divided respondents by age, with 12–14 year-olds constituting the younger group and 15–17 year-olds the older group. As the average age of first use is 15 (Hayatbakhsh et al. 2013), this division was determined reasonable and has been used by Donaldson et al. (2015) in earlier research on adolescent substance use.

The model for the younger age group employed 5747 respondents (Fig. 2) and was statistically significant. It produced acceptable fit, compared to the constrained model. Lower levels of parental monitoring and warmth were associated with major depressive symptoms in the past year. Parental warmth and monitoring were once again positively related. Parental monitoring was associated with a greater likelihood of marijuana use, but parental warmth was not. Major depressive symptoms in the past year were associated with a higher likelihood of marijuana use. Mediation analyses confirmed the predicted indirect effect of depression on parental warmth and marijuana use ($\beta = 0.09$, *S.E.* = 0.02, $p < .001$), and the indirect effect of depression on parental monitoring and marijuana use ($\beta = 0.04$, *S.E.* = 0.01, $p = .004$). For the younger group, covariates differentially predicted parental influence, depression, and marijuana use. Females perceived parents as warmer and were more likely to have experienced major depressive symptoms in the past year. Sex was not associated with parental monitoring. Minorities were more likely to perceive parents as warm. Lower family income was associated with greater likelihood of using marijuana.

The model for the older group of 6368 respondents (Fig. 2) also was statistically significant and produced acceptable fit compared to the constrained model. Lower parental monitoring and warmth were associated with major depressive symptoms in the past year. Less parental monitoring

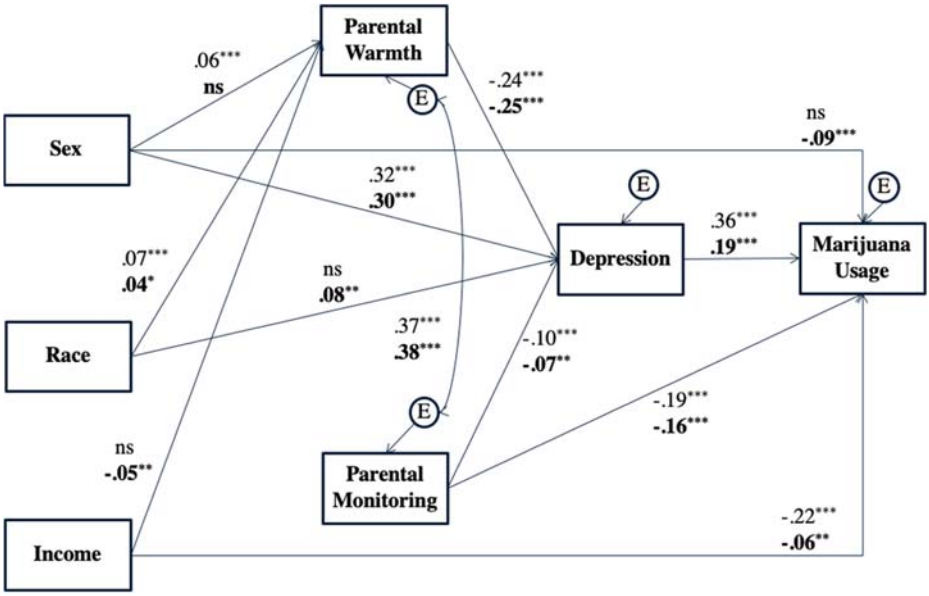

Fig. 2 Ages 12–14 (top) and 15–17 (bottom and bold) path analytic models of relations involving parental warmth, parental monitoring, depression, and marijuana use with covariates sex, race, and income. Non-significant paths were removed for clarity; $p < .05$*, $p < .01$**, $p < .001$***

was associated with higher likelihood of marijuana use; lower parental warmth was marginally associated with marijuana use. Parental monitoring and warmth were significantly related. Mediation analyses found indirect effects of depression on parental warmth and marijuana use ($\beta = 0.05$, *S.E.* = 0.01, $p < .001$), and an indirect effect of depression on parental monitoring and marijuana use ($\beta = 0.01$, *S.E.* = 0.01, $p = .026$). Covariates differentially predicted parental influences, depression, and marijuana use. Females were more likely to have had major depressive symptoms, but sex was not significantly associated with parental warmth or parental monitoring. Males were more likely to have tried marijuana. Minorities were more likely to have had major depressive symptoms and perceived greater parental warmth compared to White adolescents. Lower income was associated with greater parental warmth and a greater likelihood of marijuana use.

Discussion

By itself, adolescent depression is a serious concern, as suicide due to depression is a leading cause of deaths worldwide in this age group (Crano and Ruybal 2020; Hallfors et al. 2004; WHO 2018), and marijuana is clearly implicated in adolescent depression. An intensive and balanced review of the issues involving marijuana use suggested that marijuana could exacerbate mental health problems in adolescents (National Academies of Sciences, Engineering, and Medicine 2017). Further research indicates that adolescents who delay use of marijuana are less likely to develop later substance dependency issues (ONDCP 2008). The NSDUH showed that marijuana dependency was on the rise for adolescents, and dependency was associated with mental health issues in this population (ONDCP 2008). Not incidentally, marijuana is the most commonly used psychoactive substance in this age group (Johnston et al. 2016). Both depression and marijuana use are associated with poor educational outcomes, delinquency, and other

mental illnesses (Copeland et al. 2013). Past findings have indicated an association between marijuana use and depression (Consoli et al. 2013; Lac et al. 2009; Ozer et al. 2013). In addition, considerable research has revealed the powerful effects of parental monitoring and warmth on adolescent marijuana use (e.g., Donaldson et al. 2015; Siegel et al. 2015).

The current results help integrate these two intersecting streams of research. Building on prior evidence, the research examined parental influences on the relationship between adolescent depression and marijuana use. The original all-inclusive path model, as well as the two path models separated by age, produced nearly identical results and confirmed nearly all hypotheses.

Being older, male, or having a lower household income were associated with marijuana usage, partially supporting H1. Race had no influence on marijuana use in any of the models. Sex was not associated with marijuana use among younger adolescents, but in the older group, males were more likely to use marijuana. Older adolescents, females, and adolescents from non-white groups reported greater parental warmth, supporting H2; however, only age was positively linked to greater parental monitoring. Consistent with H3, females, older, and non-white adolescents appeared more likely to experience major depressive symptoms in the past year. Females were less likely to have tried marijuana. Among respondents 12–14 years of age, and in the all-inclusive model, females perceived more parental warmth than males. Overall higher family income was associated with less parental warmth and a lower likelihood of using marijuana. Both the all-inclusive and the 12–14 year-olds' models revealed a similar pattern for family income and parental monitoring: Higher income was associated with lower levels of parental warmth. This was found in the analysis of 15–17 year-olds, which also suggested no differences in monitoring based on income for the older adolescents.

Lower levels of parental warmth and parental monitoring were significantly related to their offspring having had major depressive symptoms in the past year, supporting H4a and H4b. Major depressive symptoms in the past year were related to marijuana use, supporting H5. Higher levels of parental warmth were associated with higher levels of parental monitoring. In the comprehensive model, parental monitoring but not parental warmth was related to a greater likelihood of having used marijuana, partially supporting H6: monitoring was a stronger preventive factor of usage, but warmth was more strongly related to lower levels of depression, the strongest predictor of marijuana use. Parental warmth and monitoring had an indirect association with adolescent marijuana use through their effect on major depressive symptoms across all analyses, supporting H7. Among older adolescents only, parental warmth had a marginally significant association with marijuana usage, which was not found in the other models. This result implies that parental warmth may be a more important buffer against marijuana usage for older (versus younger) adolescents—but this possibility is advanced tentatively, as it was neither predicted nor strongly supported in the analysis.

Limitations

Although the research largely supported the hypotheses, its limitations deserve consideration. One limitation derives from the self-report approach used in the NSDUH. Adolescents reported on sensitive topics, and the validity of their reports may be questioned. However, confidentiality was stressed, and research focused specifically on self-report validity indicates that youth reports in research on substance use are generally trustworthy (Fendrich et al. 2004).

A second limitation is that the adolescent respondents were not asked about their specific motives for using marijuana, nor did they report the extent or duration of their depression (which

could have influenced relationships with parents) or the extent of their marijuana usage behavior. This limitation is somewhat mitigated because the hypothesized depression-marijuana associations were found despite this lack of more fine-grained information, so the absence of more fine-grained information did not mask results on the issues of central concern. If the relation occurred only among long-term users or adolescents with severe depression, the strength of the findings would have been attenuated by inclusion of short-term users or youth whose depression was mild.

A third limitation is that the data used were cross-sectional, and as such, the research could not make use of temporal variation to confidently specify the likely cause-effect relationships that existed among the crucial variables (Crano and Lac 2012). Dependence on cross-sectional data is a limitation of many large datasets, however, as is the inability to specify the precise dependent measure variables that are collected in such research. This is a standard plaint of almost all secondary data analysts. However, the cost of this limitation is at least partially offset by the benefits of a large and nationally representative US sample, rendering findings generalizable to the US population. The costs of designing and mounting surveys of this magnitude could not have been borne by individual researchers.

Conclusions

The complementarity of findings of the present research with earlier studies argues in favor of the validity of the results reported herein. Prior research has investigated the relation of depression with marijuana use (Brook et al. 2002; Leventhal et al. 2017; Pacek et al. 2013; Taylor 2011), mental health issues with parental influences (Consoli et al. 2013; Field et al. 2001a; Hemovich et al. 2011; Lac and Crano 2009), and parental influences with substance use (Donaldson et al. 2015; Field et al. 2001a; Hemovich et al. 2011; Lac and Crano 2009). The current research was designed to investigate *all* of these factors in a single (path) model. The findings point to the mediating effects of parental influences on depression and marijuana use. By examining these mediating parental influence effects on depression and marijuana use, and the factors that might affect parents when dealing with marijuana use in their children, this research may open possibilities for educational programs or persuasive prevention campaigns.

Informative parent-targeted approaches may prove highly beneficial in stemming adolescent marijuana use, especially programs that help inculcate and promote effective and warm monitoring of adolescents with depressive symptoms. Over the years, we have witnessed many programs focused on direct persuasion and prevention targeted at adolescents. Influencing parents to deter adolescent marijuana use is a road less frequently traveled. The common emphasis on directly influencing adolescents, a group often shown resistant to persuasion, may prove strategically shortsighted. Involving parents as influence agents for marijuana prevention may prove a beneficial addition to the usual repertoire of prevention approaches. A campaign focused on educating parents on the stressors faced by adolescents that can lead to marijuana usage as well as addressing how to increase warmth and monitoring may prove beneficial.

These findings can also be used to promote interventions for adolescents with depression. Depression is likely a risk factor for marijuana use and marijuana use can then exacerbate negative mental health. By promoting healthy ways to deal with depressive symptoms, we may be able to prevent marijuana use and even prevent more severe issues such as suicide (Crano and Ruybal 2020). Further as both parental monitoring and warmth were related to depression, focusing on parents as well could help prevent depression as well as marijuana use, or at a minimum deal with depressive symptoms before marijuana use begins.

As this research is based on a representative sample of 12,115 US adolescents, the results obtained in the current research may be generalized to the US population of parents and their adolescent children. We are hopeful that the extension of these results may foster research in other countries as well and promote understanding of preventative measures that sever the linkage of depression with marijuana use by youth.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interest.

Ethical Approval Data for the 2014 NSDUH was collected by is the Substance Abuse and Mental Health Services Administration Center for Behavioral Health Statistics and Quality. This research project underwent IRB approval from the RTI International's Institutional Review Board.

Informed Consent All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (5). Informed consent was obtained from all patients for being included in the study.

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