

PSC CUNY 34 Final Report

Title: Developmental Changes in Friendship Alliance and its Impact on Early Adolescent
Cigarette and Alcohol Expectancies and Use

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Abstract

The purpose of this grant funded investigation was to examine the impact of friendship alliance in an early adolescent population on cigarette and alcohol variables. Sixth, seventh and eighth grade students from two urban areas completed a survey that addressed cigarette and alcohol attitudes, practices, expectancies and intentions. Only those students who had active written consent from parents or guardians participated in the investigation. The sample consisted of 847 sixth graders, 857 seventh graders, and 493 eighth graders. Each early adolescent reported the gender of their best friend and best friend alliances were grouped into boy-boy, girl-girl, or boy-girl best friends. Results indicated most early adolescents were engaged in same-sex best friendships but that there were a small group of cross-sex best friends. There was also a small group of individuals who changed the gender of their best friends over the three years of the study. The number of cross-sex best friends increased slightly from 7.7% in sixth grade to 10.8% in eighth grade. A cross-sex best friend alliance during early adolescence was significantly related to holding more positive expectancies toward both cigarettes and alcohol, having a non-smoker accept a cigarette from a best friend in sixth grade, and having a non-drinker accept an alcoholic drink from a best friend in seventh and eighth grades. For all early adolescents, the perception that their best friend smoked was significantly related to their own positive attitude toward cigarettes and the likelihood that they smoked. Findings from this report have shown the usefulness of breaking the peer influence variable of best friendship into three different friendship alliances. By analyzing the friendship alliances individually, factors associated with peer influence on cigarette and alcohol expectancies, intentions and use can be identified in order to make substance use prevention programs more meaningful. (Contains 12 references, 5 tables and 1 Appendix).

Developmental Changes in Friendship Alliance and its Impact on Early Adolescent Cigarette and Alcohol Expectancies and Use

Cigarette and alcohol research has found that initial experimentation typically takes place during early adolescence (Keefe, 1994; Quine & Stephenson, 1990). However, prior to experimentation, beliefs about these substances have been formed and modified. The beliefs the adolescent holds are investigated in the proposed research as expectancies. Expectancies are the learned associations of a behavior and its consequences and are often thought of as the individual's specific beliefs about what will occur when engaged in a behavior. Attitudes and expectancies have been found to follow a developmental path starting out negative, but adding on positive expectancies as children age (Johnson & Johnson, 1995). Research indicates that those students who expect positive consequences from a substance will begin to experiment and use that substance at a later date (Aas, Klepp, Laberg & Aaro, 1995). Thus, attitudes and expectancies precede behavior.

One influence on the acquisition of positive expectancies toward cigarettes and alcohol in an early adolescent population is friends. The evidence in the literature suggests that friends are the strongest social environmental risk factor for substance use; such as smoking cigarettes (Wang, Fitzhugh, Westerfield & Eddy, 1995) and drinking alcohol (Morgan & Grube, 1991). As the early adolescent moves from elementary school to middle school, the opportunity to engage in independent friendships, those friendships outside the control of their parents, expands. In this way, early adolescents are in a position to select friends and be influenced by friends. The processes of selection and influence contribute to the homogeneity of friendship groupings and

move friends to become similar and remain similar in regard to attitudes about cigarettes and alcohol (Ennett & Bauman, 1994; Urberg, 1992).

Research has shown that best friendship pairs during adolescence have a higher level of influence on attitudes and behavior in regard to smoking and drinking than a general group of friends (Urberg, 1992). The added degree of intimacy is thought to contribute to the pressure that the individual feels to remain similar in regard to attitudes and behavior. This finding has been implicated in an adolescent population; however, it is unclear as to whether this result also holds for an early adolescent population.

Additionally, research has found that boys are more likely to initiate smoking cigarettes (Lucas & Lloyd, 1999) and drinking alcohol (Johnson & Johnson, 1998) at younger ages than girls. These findings would suggest that boys hold more positive expectancies about cigarettes and alcohol at a younger age than girls do. As a result, it has been postulated that cross-sex best friendships may impose a substantial risk on the girls involved in them due to the exposure to positive beliefs about cigarettes and alcohol (Malow-Iroff & Saxman, 2002). However, it is unclear from the research which best friendship alliance (boy and boy, girl and girl, boy and girl) is the most deleterious in regard to placing the early adolescent at increased risk for experimentation with cigarettes and alcohol due to the changing belief system.

Therefore, it is important to investigate friendship alliances for the impact of influence on beliefs held and the use of cigarettes and alcohol. It is also important to note how these relationships change across the time period of early adolescence and whether or not these changes impact on the beliefs and behaviors of the individuals in the investigation. This study will then seek to extend knowledge of adolescent cigarette and alcohol expectancies, influence and use in regard to friendship alliances to an early adolescent population. Information

previously collected from a federally funded longitudinal study looking at sixth, seventh and eighth graders will provide the data for this investigation.

The following questions will guide the project and the data analyses:

1. Are the early adolescent's positive expectancies of cigarettes and alcohol different for each of the best friendship alliances (boy and boy, girl and girl, and boy and girl) across the three grade levels (sixth, seventh and eighth) investigated in this study?
2. Do best friendship alliances change for early adolescents across the three grade levels? (This question will only look at the data for which complete information had been obtained longitudinally, that is as the early adolescent moved from 6th to 7th to 8th grades.)
3. Does the perceived use of cigarettes by the best friend exert an influence on the attitudes toward and use of cigarettes by the early adolescent?
4. Will an early adolescent accept a cigarette to smoke or alcohol to drink from their best friend if they don't already indicate that they smoke or drink? Is this result dependent on the particular best friendship alliance that they are engaged in?

Method

Participants

The data for this investigation came from a federally funded longitudinal investigation known as the Teen Attitude Study (Johnson & Johnson, 1996) which began in the fall of 1997 and collected data over a three year period. This study tracked public school and catholic school sixth, seventh and eighth grade students in New York City and an urban area of Massachusetts (National Institute of Alcohol Abuse and Alcoholism Grant # R01 AA0 9924). As part of the data collection process, an active parental consent was used in order to determine which students could participate in the investigation. The total number of subjects with consent utilized in the

analysis for this project was 847 sixth grade students, 857 seventh grade students and 493 eighth grade students. As friendship alliance was an important component of the project, within each grade three self-reported best friend groupings were identified. For sixth grade: boy-boy, n=362; girl-girl, n=420; boy-girl, n=65. For seventh grade: boy-boy, n=342; girl-girl, n=439; boy-girl, n=76. For eighth grade: boy-boy, n=193; girl-girl, n=247; boy-girl, n=53.

Measure

The measure used in this investigation was a questionnaire that was compiled by the directors of the Teen Attitude Study (Johnson & Johnson, 1996). The questions used were based on items from other longitudinal studies investigating attitudes and lifestyle choices in this field of study. The specific items utilized on the questionnaire that pertain to this investigation address cigarette and alcohol attitudes and practices, the student's perception of their best friend's attitudes and practices, and the positive and negative expectancies held toward smoking cigarettes and drinking alcohol by the early adolescent (See Appendix A for a complete listing of questionnaire items utilized for this project). The questions were measured as either dichotomous variables or continuous variables on a Likert-type scale.

Procedure

The investigation consisted of the administration of a 152 question survey that addressed the student's attitudes and practices, the student's positive and negative expectancies, the student's perceptions of family beliefs and practices, and the student's perception of peer beliefs and practices about smoking cigarettes, drinking alcohol and smoking marijuana. Trained research assistants administered the survey to students during regular school hours. Prior to the administration of the survey, students were informed about the intent and purpose of the study,

the procedures used to guarantee anonymity and confidentiality, and their rights as a participant in a research study.

Data Analysis

As the survey was quite extensive, the questions important to this inquiry will be separated out and coded. The questions utilized for the study include the early adolescent's smoking expectancies, drinking expectancies, attitude toward smoking, use of cigarettes, and willingness to accept a cigarette or drink from a best friend. In addition, questions about the best friend's gender and the early adolescent's perception of the best friend's use of cigarettes and alcohol will be used. Each student's best friendship alliance will be coded as boy-boy, girl-girl, or boy-girl. The first two types of friendship alliance compose same-sex best friendship, whereas the third alliance is a cross-sex best friendship. Comparisons will be made among the various friendship alliances at the three different grade levels to investigate belief structures and the use of the substances under investigation. Finally, an analysis will be conducted of how the friendship alliances change over the course of the longitudinal study for those individuals that have complete sixth, seventh and eighth grade data.

Results

Positive Expectancies of Cigarettes and Alcohol

The first question in this investigation sought to determine if there was a difference in the positive expectancies held toward cigarettes and alcohol amongst the different friendship alliances and across the three grade levels under investigation. In order to accomplish this, a best friend alliance was computed for each early adolescent. The alliances constituted three distinct groups, a best friendship between two boys, a best friendship between two girls and a cross-sex group with a best friendship reported between a boy and a girl. Next, cigarette and alcohol

expectancies were computed for the early adolescents. In order to do this, the early adolescent's reported expectancy responses were summed to get an overall score which indicated positive and negative expectancies about cigarettes and positive and negative expectancies about alcohol (To view all items utilized in this composite score see Appendix A). To compare the differences amongst the three friendship alliances at each grade level (6th, 7th and 8th grade), a Kruskal-Wallis test was utilized. This non-parametric test compares more than two groups on one variable without the assumption of a normal distribution.

Results from the Kruskal-Wallis analysis indicated that there is a difference in positive expectancies for both cigarettes and alcohol in the three best friend alliances across all three grade levels. Findings indicate that for all three grade levels, early adolescents who report a cross-sex best friend alliance also report more positive expectancies towards both cigarettes and alcohol. These differences were evaluated utilizing a Chi-square analysis; however this difference was only significant in the 6th and 8th grades (See Table 1).

Changes in Best friend Alliances across Sixth, Seventh and Eighth Grades

The next question in this investigation looked at whether best friend alliances changed across the three grade levels as reported by the early adolescents. The first step in answering this question was to compare the reported instances of best friend alliance across the three grade levels (See Table 2). Although same-sex friend alliances are approximately the same across the three grade levels, an overall slight increasing trend is noted in cross-sex friendships. Cross-sex friendships constitute 7.7% of friendships in 6th grade, 8.9% of friendships in 7th grade, and 10.8% of friendships in 8th grade. In order to determine the reported change in best friendships over the course of the three years, only those individuals who had answered the survey in all three grades were used. The change in reported best friend alliances from one grade to another

was investigated utilizing McNemar's test. This procedure compares earlier responses to later responses in longitudinal data sets. Results from this analysis indicated that there were a small number of individuals who reported a change in best friend alliance over the three years they participated in this investigation. In the two survey administrations between sixth and seventh grades, 47 early adolescents changed their reported best friend alliance from a same-sex best friend to a cross-sex best friend, or vice-a-versa; while 327 early adolescents reported no change in their reported best friend alliance. Again, in the survey administrations between seventh and eighth grades, 38 early adolescents changed their reported best friend alliance from a same-sex best friend to a cross-sex best friend, or vice-a-versa; while 225 early adolescents reported no change in their reported best friend alliance. Although there was, as noted previously, a small number of individuals who changed best friend alliance over the course of the three years, results of McNemar's test found that the change in best friend alliances across grades was not significant.

Perceived Use of Cigarettes by a Best Friend

The third question in this investigation asks whether the perceived use of cigarettes by a best friend exerts an influence on the early adolescents' own attitudes toward and use of cigarettes. To answer this, the early adolescent's perception of whether or not their best friend smokes becomes important. There is some evidence in the literature that suggests that an individual's perception about another's behavior is an important contributor to the individual's cognitions, e.g. attitudes and expectancies. Thus, the questions on the survey about whether the best friend smokes is utilized in the prediction of the early adolescent's self-reported attitudes toward and use of cigarettes in each of the three grades under investigation. The analysis was conducted with an Ordinal Regression procedure.

Results of these sets of analysis indicate that for both dependent variables, cigarette attitude and cigarette use, and at all three grade levels (6th, 7th, & 8th grades), the best friend's perceived use of cigarettes has a significant influence on the dependent variables (See Table 3). That is, for early adolescents in sixth, seventh and eighth grade, the belief that their best friend smokes significantly predicted a positive general feeling toward cigarettes and the likelihood that the early adolescent smokes.

Accepting a Cigarette or Alcohol from a Best Friend

The last question addressed in this investigation asked whether an early adolescent would accept a cigarette to smoke or a drink of alcohol from their best friend. To address the first part of this issue, a survey item which asked whether they would take a cigarette if offered by their best friend was looked at and compared against the early adolescent's response about whether or not they ever smoked. Utilizing a Chi-Square analysis, for all three grades, there was a significant relationship between having smoked a cigarette and accepting a cigarette from their best friend (6th grade – 197.78, $p \leq .00$; 7th grade – 234.90, $p \leq .00$; 8th grade – 121.63, $p \leq .00$).

The question was refined further to investigate whether the decision to take a cigarette from a best friend was dependent on a particular friendship alliance. To look at this relationship, only early adolescents who indicated that they did not smoke cigarettes were included in the analysis. Results from this analysis indicated that friendship alliance is important in the decision to accept a cigarette from a best friend only in sixth grade students. (See Table 4). Specifically, students in sixth grade who reported a cross-sex best friendship were more likely to accept a cigarette to smoke from a best friend even, when they do not smoke, than early adolescents with same-sex best friends. There is no significant relationship on this issue based on friendship alliance for seventh and eighth grades.

The analysis was repeated to investigate whether an early adolescent would take a drink of alcohol if offered by a best friend. A different analysis was conducted due to a difference in the response options given to the adolescent. For this group of variables, a Mann Whitney U test was performed. Results indicated that for seventh and eighth graders, those individuals who reported having drunk previously are more likely to accept a drink offered by a best friend than those who reported never having drunk any alcohol (6th grade – 14856.00, $p \leq .284$; 7th grade - 21810.00, $p \leq .00$; 8th grade – 6444.50, $p \leq .00$).

Again the question was further refined to determine whether the relationship was dependent on a particular best friend alliance. Only those cases who had indicated they never drank alcohol were used in this analysis. A Kruskal-Wallis test was computed for each grade; results are presented in Table 5. Findings indicated that if an early adolescent reports having never drank alcohol, the likelihood of them accepting a drink from their best friend is dependant on their best friend alliance in grades seven and eight. The best friend alliance that the result specifically points to is the cross-sex alliance. Thus, reporting a boy-girl best friendship in seventh and eighth grades is the alliance that is indicative of accepting a drink of alcohol from a best friend when they have not previously had a drink of alcohol.

Discussion

Findings from this grant funded project into early adolescent friendship alliance influences on cigarette and alcohol expectancies, attitudes, and use contribute to the extensive body of literature that already exists on substance use. In addition, this work extends previous work in a variety of ways. Although there is a body of literature which looks at friendship and best friendship implications in regard to substance use, there is not a body of work that breaks best friendship alliances into three distinct categories – boy-boy, girl-girl, and boy-girl.

Furthermore, there is not a body of literature that looks at the implications in being involved in these specific relationships.

For most early adolescents, similarity in friendship selection is the norm. During this developmental point, most boys have a boy as a best friend and most girls have a girl as a best friend. There is however a small contingent of individuals who for whatever reason choose to select a cross-sex individual as a best friend. It is within this small contingent of cross-sex best friends that cigarette and alcohol expectancies, attitudes and use differences have begun to emerge. It is also important to note that this investigation looked at peer influences within these friendship alliances as behavioral intentions.

One difficulty with the identification and analysis within the cross-sex best friend group is the small sample sizes. As noted in the results section, cross-sex friendships encompass 7.7% of all best friendships in 6th grade, 8.9% of best friendships in 7th grade, and 10.8% of best friendships in 8th grade. Although there is a slight increasing trend over the three years investigated, it is still a small number of participants which contribute to difficulty with analysis due to power issues.

Another difficulty that emerges when looking at friendship alliances in a longitudinal investigation is that friendship groupings may change over the course of the investigation. Early adolescents in particular may have more movement within friendship alliances as they are in a position of choosing who their friends are based on new considerations. These considerations may no longer include the children in closest proximity to their home, or other families that the parents like to socialize with. For many children, choosing a friend becomes an identity decision – what does the individual like to do, what attributes do they possess, and are they popular or smart or talented. One analysis indicated that there was a small group of early adolescents who

did change their friendship alliances from cross-sex best friendships to same-sex best friendships and vice-a-versa throughout the three year period that this investigation covered. Although there were not a significant number of changers, there was a small group within each grade who shifted their best friendship alliances.

One interesting finding indicated that for all three grade levels, early adolescents who report a cross-sex best friend alliance also report more positive expectancies towards both cigarettes and alcohol. Although these differences were only found to be significant in the sixth and eighth grades, there were alliance differences across all three grade levels for both substances. The reason for the report of more positive expectancies in a cross-sex best friendship group cannot be identified due to the limitations of the current survey research, however speculation based on an extension of other research can be made. One such speculation can be based on the differences found in friendship styles among boys and girls. As stated previously, Maccoby (1988) has found gender differences in verbalization style and in peer influence. As specific gender differences have been found in various investigations of substance use, perhaps the cross-sex best friend alliance places individuals involved in these relationships at higher risk due to peer influence factors for exposure to attitudes, beliefs, and behaviors that they would not otherwise be exposed to.

As research has shown that boys smoke cigarettes (Kann et al., 1998) and drink alcohol (SAMSHA, 1998) more often and in larger quantities than girls, exposure to this model of behavior may contribute to positive expectancies, as occurred above in the cross-sex best friendship alliances, and was shown to be associated with positive attitudes and use. Results from this investigation also found that for early adolescents in sixth, seventh and eighth grades, the belief that a best friend smokes significantly predicts a positive general feeling toward

cigarettes and the likelihood that the early adolescent also smokes. Although behavioral similarity has been recognized as a factor in substance use, it is also important to recognize the impact on the individual's attitudes. Although a change in attitude and expectancy generally precedes adoption of a new behavior, exposure to other models of behavior and the belief that a best friend is smoking or drinking may lead the early adolescent into the adoption of an unhealthy behavior.

This idea is implicated in the behavioral intentions investigated as part of this study. Those early adolescents who had reported that they previously smoked cigarettes or had a drink of alcohol were the ones who indicated that they would accept a cigarette or a drink from a best friend. This finding was significant for all grade levels and substances, except for sixth graders offered a drink of alcohol. However when behavioral intention was examined for those individuals who never smoked or drank friendship alliance became an important factor at certain grade levels. Results from this analysis indicate that friendship alliance is important in the decision to accept a cigarette from a best friend only in sixth grade students. Specifically, students in sixth grade who report a cross-sex best friendship are more likely to accept a cigarette to smoke from a best friend when they do not smoke than early adolescents with same-sex best friendships. Also, findings indicated that if an early adolescent reports having never drunk alcohol, the likelihood of them accepting a drink from their best friend is dependant on their best friend alliance in grades seven and eight. Thus, reporting a boy-girl best friendship in seventh and eighth grades is the alliance that is indicative of accepting a drink of alcohol from a best friend when they have not previously had a drink of alcohol.

Although there are limitations inherent in survey research, there is also the opportunity to identify new associations and look at variables in a different way. This report has contributed to

the body of research by doing just that – looking at the variable of best friendship in a new way. By breaking best friendship into components of same and cross-sex relationships, gender differences and influences can begin to be identified as to their impact on cigarette and alcohol expectancies, intentions and use. In addition, by looking at issues associated with substance use during an early adolescent developmental period, factors associated with peer influence, such as friendship choices, can be examined in a way that is more meaningful for the individuals under investigation.

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Table 1.

Positive Expectancies for Cigarettes and Alcohol by Best Friend Alliance and GradeCigarettes

Best Friend Alliance	Grade	N	Rank	Chi-Square
Boy-Boy	6	326	347.98	
Girl-Girl	6	364	386.56	
Boy-Girl	6	57	442.61	12.11**
Boy-Boy	7	319	378.54	
Girl-Girl	7	410	408.39	
Boy-Girl	7	67	432.99	4.75
Boy-Boy	8	183	208.12	
Girl-Girl	8	231	241.80	
Boy-Girl	8	45	258.38	8.92*

Alcohol

Best Friend Alliance	Grade	N	Rank	Chi-Square
Boy-Boy	6	331	363.88	
Girl-Girl	6	381	392.06	
Boy-Girl	6	57	460.44	10.19**
Boy-Boy	7	331	396.93	
Girl-Girl	7	423	420.87	
Boy-Girl	7	74	456.64	4.45
Boy-Boy	8	187	214.62	
Girl-Girl	8	236	247.87	
Boy-Girl	8	47	256.47	7.53*

* $\leq .05$. ** $\leq .01$

Table 2.

Self-Reported Best Friend Alliances in Sixth, Seventh and Eighth Grades

<u>Grade</u>	<u>Best Friend Alliance</u>		
	<u>(N / Percent Within Grade)</u>		
	<u>Boy-Boy</u>	<u>Girl-Girl</u>	<u>Boy-Girl</u>
6	362 / 42.7%	420 / 49.6%	65 / 7.7%
7	342 / 39.9%	439 / 51.2%	76 / 8.9%
8	193 / 39.1%	247 / 50.1%	53 / 10.8%

Table 3.

Prediction of Cigarette Attitude and Use by Perception of Use by Best Friend

<u>Attitude</u>					
Grade	-2 Log Likelihood	Chi-Square	df	Sig.	
6	34.10	16.04	1	.000	
7	27.99	55.45	2	.000	
8	31.82	23.55	1	.000	
<u>Use</u>					
Grade	-2 Log Likelihood	Chi-Square	df	Sig.	
6	45.04	40.51	1	.000	
7	66.96	90.59	1	.000	
8	72.23	59.53	1	.000	

Table 4.

Decision to Accept a Cigarette from a Best Friend by Best Friend Alliance

Grade	Best Friend Alliance	N / Percent Within	Chi-Square	df	sig.
6	Boy-Boy	3 / 1.3%	10.31	2	.006**
	Girl-Girl	5 / 1.8%			
	Boy-Girl	3 / 10.0%			
7	Boy-Boy	6 / 2.9%	1.14	2	.565
	Girl-Girl	4 / 1.5%			
	Boy-Girl	1 / 2.8%			
8	Boy-Boy	2 / 1.9%	1.18	2	.556
	Girl-Girl	5 / 4.3%			
	Boy-Girl	1 / 4.5%			

Note. Only individuals who indicated that they did not smoke but would accept a cigarette from a best friend were included in this analysis.

** $p \leq .01$.

Table 5.

Decision to Accept a Drink of Alcohol from a Best Friend by Best Friend Alliance

Grade	Best Friend Alliance	N	Chi-Square	df	sig.
6	Boy-Boy	132	.199	2	.905
	Girl-Girl	169			
	Boy-Girl	16			
7	Boy-Boy	164	7.26	2	.026*
	Girl-Girl	206			
	Boy-Girl	20			
8	Boy-Boy	68	6.96	2	.031*
	Girl-Girl	81			
	Boy-Girl	11			

Note. Only individuals who indicated that they did not drink included in this analysis.

* $p \leq .05$.

Appendix A

Questionnaire Items Used for Data Analysis in Current Investigation

Positive Expectancies about Cigarettes

If I smoke cigarettes:

I am more accepted by others
I feel good
I have a good time
I feel happy
I am more outgoing
It takes away my bad mood and feelings

Negative Expectancies about Cigarettes

If I smoke cigarettes:

I feel ashamed of myself
I feel guilty
I get a cough
I feel sad or depressed
I feel sick

Positive Expectancies about Alcohol

If I drink alcohol:

I am more accepted by others
I feel good
I have a good time
I feel happy
I am more outgoing
It takes away my bad mood and feelings

Negative Expectancies about Cigarettes

If I drink alcohol:

I feel ashamed of myself
I feel guilty
I get into fights
I feel sad or depressed
I feel sick
I become clumsy or uncoordinated
I can't concentrate
I get a hangover
I get mean

About how often have you smoked cigarettes?

0=Do not smoke at all through 7=Smoke everyday

About how often have you drunk any kind of alcoholic beverage (beer, wine or liquor)?

0=Do not drink alcoholic beverages at all through 7=Drink every day

If you drink, how much do you usually drink on one occasion?

0=Nothing through 4=Six to twenty drinks

Does your best friend smoke regularly?

0=No 1=Yes

What is your general feeling about smoking cigarettes? I think smoking cigarettes is:

1=Very bad 2=Bad 3=Good 4=Very good

If one of your best friends were to offer you a cigarette, would you smoke it?

0=No 1=Yes

If one of your best friends were to offer you a drink, would you drink it?

0=Definitely not 1=Maybe not 2=Don't know 3=Maybe yes 4=Definitely Yes

Are you:

1=Male 2=Female

Now think about your best friend, the person you spend most of your time with. Are they:

1=Male 2=Female