Intimate Partner Violence Education for Pregnant and Postpartum Adolescents and Young Adults

Tatiana Filajdic

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Intimate Partner Violence Education for Pregnant and Postpartum Adolescents and Young Adults

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B. S. Nursing, University of Missouri-St. Louis, 2016

A Dissertation Submitted to The Graduate School at the University of Missouri-St. Louis in partial fulfillment of the requirements for the degree Doctor of Nursing Practice with an emphasis in Pediatric Nurse Practitioner

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Abstract

Problem The commencement of intimate partner violence (IPV) often begins with relationships during adolescence and young adulthood; hence, young age is a risk factor. Young adult females, pregnant and post-partum adolescents are at high risk of experiencing intimate partner violence (IPV).

Methods A prospective, descriptive design evaluating the impact of three IPV education sessions offered over a three-month period at a non-profit shelter specific for young adult, pregnant and post-partum adolescents.

Results Twelve participants attended the sessions (N=12), and seven (n=7, 61.5%) of shelter residents attended at least one IPV education session. A two-proportion z-test determined significance of score differences between the three sessions. Scores of session one were higher than session two (z = 2.52, p = .012, 95% CI = [0.06, 0.49]). Scores of session two was not different from session three (z = -1.46, p = .144, 95% CI = [-0.44, 0.06]). Finally, there was no difference between the scores of sessions one and three (z = 0.82, p = .411, 95% CI = [-0.12, 0.30]). Overall participants demonstrated understanding of concepts: Healthy and unhealthy relationship qualities, the definition of IPV and consent, and healthy communication techniques. Participants demonstrated a lack of understanding between abusive and unhealthy relationships, forms of abuse and reproductive coercion.

Implications for Practice While IPV education for adolescents with an interactive component minimally impacted awareness of healthy and unhealthy relationships,
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education specific for adolescents on IPV is recommended. More study is needed for methods of instruction affecting an adolescent’s understanding of IPV.
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Intimate Partner Violence Education for Pregnant and Postpartum Adolescents and Young Adults

Intimate Partner Violence (IPV) is a public health concern affecting millions of people in the United States each year and may involve acts of physical violence, sexual violence, stalking and/or psychological aggression. Risk factors for IPV include adolescence and young adulthood, low income, low education level, unemployment, and history of exposure to violence, child abuse, neglect and/or sexual violence (Niolon et al., 2017). There is a relationship between health and exposure to IPV as adolescent IPV may yield profound consequences such as poor health, risky sexual behavior, unplanned pregnancy, substance abuse, unhealthy weight control, sexually transmitted disease, post-traumatic stress disorder, suicide and/or homicide (Basile et al., 2016). IPV may occur more frequently in high-poverty, low-economic opportunity communities where economic inequality exists, which may contribute to higher adolescent pregnancy rates within those communities (Northridge, Silver, Talib & Coupey, 2017). Adjustment to life after IPV exposure can be difficult, impacting personal relationships, ability to attend work or school, and an overall sense of normalcy.

The prevalence of IPV in the United States is different for women and men, but both genders experience IPV. The National Intimate Partner and Sexual Violence Survey (NISVS) found one-in-four adult women and one-in-seven adult men in the United States have been victims of physical IPV in their lifetime (Niolon et al., 2017). Niolon et al (2017) also reported, 16% of women and 7% of men have experienced sexual violence, and 10% of women and 2% of men have reported being stalked. Additionally, 47% of women and men reported experiencing psychological aggression by an intimate partner.
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(Niolon et al., 2017). The NISVS also found IPV often originates during adolescence due to the commencement of dating and relationship formation. Approximately 8.5 million women and over 4 million men in the United States reported their first experience of physical violence, rape or stalking from an intimate partner before the age of 18-years (Niolon et al., 2017). According to the Department of Health and Human Services [HHS] (2017), IPV affects 1.5 million adolescents annually with one-in-three adolescents as victims of IPV. Of these, only 33% of adolescents report the offense (HHS, 2017). Furthermore, a correlation may exist between a history of physical and/or sexual abuse, repeat exposure to abuse, and adolescent pregnancy.

Understanding the importance for early identification of IPV is essential. Exner-Cortens, Eckenrode, Bunge and Rothman (2016), found adult IPV is directly associated with adolescent IPV and those reporting adolescent dating violence were more likely to experience IPV later in life compared to those with no prior victimization. They concluded adolescent dating violence may become chronic and is an important risk factor for IPV in adulthood (Exner-Cortens et al., 2016). Hence, the recommended primary and secondary prevention strategies to stop the cycle of violence.

In a residential shelter for single women aged 16-22 years who are pregnant or immediate postpartum, there was an opportunity for improvement in IPV education. The Institute for Healthcare Improvements Model for Change served as the framework for this quality improvement project with a Plan Do Study Act (PDSA) cycle. The purpose of this project was to provide IPV education and resources for those who are at high risk of IPV. The aim of this project was for all residents to attend and engage in at least one educational session about IPV within a three-month period. The primary outcome
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measure was participant responses to interactive questions throughout the educational sessions. The secondary outcome measure of interest was attendance at an IPV education session. The question for study was: In pregnant and postpartum females aged 16-22 years living in a residential shelter, how does IPV education with an interactive component impact awareness of healthy and unhealthy relationships?

Review of Literature

To conduct the literature search, PubMed, Medline (EBSCO) and the Cochrane Library were utilized. Key search terms and phrases included adolescents, intimate partner violence, screening, resources, postpartum and pregnancy, with use of the Boolean operators AND and OR. Initially, 3,921 results were generated based on the key search terms and phrases. Inclusion criteria were studies from 2015 to 2020, published in the English language, and two age filters were applied including: 13-18 years and 19-24 years. Publications selected were all from the past five-years to ensure the most up to date information. Exclusion criteria were those publications with a male or older adult IPV focus, or not published in English. After inclusion and exclusion criteria were applied, 71 publications were generated, and 12 publications were selected for this review of literature.

Assessment and screening for adolescent IPV has been identified as a need in the United States. The use of a screening instrument may be the only opportunity for some adolescent females and young women to disclose their abuse. Those who are identified to be at risk for IPV may prompt conversation and promote referral to resources. Niolon et al. (2017) recommended education about and awareness of resources available to prevent depression, trauma, stress, and anxiety related to IPV.
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Despite the availability of validated IPV screening instruments, they appear to be underutilized in primary care practices. Sharpless, Nguyen, Singh, and Lin (2018), demonstrated the need for an improved IPV screening process in a primary care setting. Of 500 medical records audited, only 111 (22%) patients had been screened for IPV (Sharpless et al., 2018). Interestingly, the lowest number of screenings were completed on those 18-29 years, which is problematic when IPV is prevalent in those ages. Sharpless et al. (2018) concluded females of child bearing age should be screened for IPV at each visit, including adolescent well-visits. In low-income, urban, pregnant adolescents, Thomas et al. (2019) found 38% reported experiencing IPV in their third trimester when screened. Higher rates of depression and anxiety were also found in those who screened positive for IPV when compared to those who were not likely to be experiencing IPV (Thomas et al., 2019). Thomas et al. (2019) recommended community-based prevention efforts were equally important as screening, especially for vulnerable populations such as pregnant adolescents. Thus, primary prevention strategies (for those who have not yet experienced IPV) and secondary prevention strategies (for those who have experienced at least one episode of IPV) need to be considered in early adolescence.

The Healthy Relationships Quiz was created by the HHS as a free service for adolescents and is the first screening instrument specifically for this age group. There are 26 yes/no questions, which are scored and calculated for IPV risk (HHS, 2017). The Healthy Relationships Quiz was recently studied for its use as a screening instrument upon intake in an urban, Midwestern, residential shelter for pregnant and postpartum adolescent and young females. Of the 19 intake records reviewed, 18 reflected a score indicative of IPV risk, however, there were no scores indicative of immediate danger.
INTIMATE PARTNER VIOLENCE EDUCATION (Myers, 2020). This finding was consistent with Thomas et al. (2019) finding adolescents of childbearing age were at increased risk for IPV.

Education has been identified as a need in both primary and secondary IPV prevention efforts and several programs have been investigated. De La Rue, Polanin, Espelage and Pigott (2017), discussed the Safe Dates Program, a school-based primary prevention intervention teaching adolescents to distinguish safe, healthy relationships from unhealthy relationships. The aim was to change gender role, sexual behavior and teen dating violence norms and improve conflict management skills (De La Rue et al., 2017). Miller, Jones, and McCauley (2019), investigated the Green Dot bystander behavior program, which has shown reductions in sexual violence, sexual harassment, stalking and dating violence. The Safe Dates Program and the Green Dot bystander behavior program are two common primary prevention programs.

Another educational program is Project Date SMART, which has a secondary prevention focus. This program utilizes cognitive behavioral therapy (CBT) to teach coping skills to females with a history of IPV exposure, which demonstrated a reduction in victimization and depression (Rizzo et al., 2018). Reidy, Holland, Cortina, Ball and Rosenbluth (2017) examined the efficacy of Expect Respect Support Groups (ERSG), a school-based violence prevention program for those with a history of exposure to violence in their home, school, or community. ERSG session attendance was correlated with declines in teen dating violence (TDV) and aggression due to education which allowed for increased awareness and reporting of TDV (Reidy et al., 2017).

While other programs have a school-based education focus, online education is an alternative method. Hegarty et al. (2019) investigated I-DECIDE, an online healthy
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relationship instrument and safety decision aid for women experiencing IPV. A two-group randomized control trial was utilized to determine its efficacy. While there was no difference in depression symptoms between the two groups, the intervention group found the modules supportive and motivating (Hegarty et al., 2019). This study had a focus on adult women, therefore further research is needed to determine the significance of the I-DECIDE instrument in adolescent females with a history of IPV exposure.

Insufficient funding is a problem across implementation of programming in schools nationwide. Educational programs are of particular importance as they help prevent IPV in adolescence, which continues into adulthood. Education can also help prevent recurrence in those with a history of exposure to IPV as they are at risk for subsequent violence. Through this review of literature, a need for increased focus on primary and secondary IPV prevention was highlighted. Such prevention should start as early as elementary and middle school years as 51% of 7th graders and 72% of 8th and 9th graders reported dating (HHS, 2017). Primary prevention assists in decreasing occurrence of IPV in adolescence and adulthood, while secondary prevention aids in prevention of trauma and victimization in those with a history of IPV exposure.

There have been potential interventions identified for those at risk for and those with a history of IPV exposure. A gap in the literature exists for IPV in pregnancy, however, reproductive coercion has been recognized as a concern for this population. Reproductive coercion is a form of IPV involving interference with contraceptive methods, such as discarding birth control pills, condom manipulation, and/or pregnancy pressure and may contribute to health disparities in adolescence such as high unintended pregnancy and sexually transmitted disease rates (Northridge et al., 2017). Of 149
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sexually active adolescent females aged 14-17 years surveyed, reproductive coercion was reported by 29 (19%) (Northridge et al., 2017). According to the NISVS (2017), at least 9% of women have experienced reproductive coercion, but few studies explore this concept in adolescent and young adult females.

Miller et al. (2017), utilized Addressing Reproductive Coercion in Health Settings (ARCHES), a prevention education and counseling intervention to help guide discussion about abuse and reproductive coercion. ARCHES provides reproductive coercion resources to females whether they choose to disclose information about their history of IPV or not (Miller et al., 2017). Miller et al. (2017) found an increase in self-efficacy to engage in harm-reducing behaviors and use of resources in adolescent females and young women after participating in the program.

Another program, Domestic and Other Violence Emergencies (DOVE) intervention is a home-visit empowerment program where women receive three in home visits during pregnancy and three visits postpartum. Visits consist of routine prenatal care and empowerment interventions focusing on education and safety planning. The DOVE intervention was shown to significantly decrease IPV over time using the Conflict Tactics Scale (Chisholm, Bullock & Ferguson, 2017). Chisholm et al. (2017) identified the concept of psychological first aid as the need to help those at risk identify and understand abuse. The importance of screening women for past and current abuse is emphasized and supportive care should be provided to decrease violence and its subsequent complications.

Gender may influence the type of abuse experienced and perpetrated by an individual. Reidy et al. (2016), found females were more likely engage in psychological
and physical perpetration, while males were more likely to engage in sexual and physical IPV, which demonstrated the need to modify IPV prevention efforts based on gender. Niolon et al. (2017), found women-focused interventions helpful in improving both physical and emotional health and safety-promoting behaviors in females at high risk for IPV. Counseling was found beneficial in decreasing IPV, decreasing involvement in unsafe relationships and helpful in yielding positive birth outcomes (Nilon et al., 2017). Tailoring IPV interventions to meet an individuals’ needs is important in preventing long term consequences.

The Institute for Healthcare Improvements Model for Change is a common framework used for testing change. Cycles of PDSA enhance continuous systemic improvement and small-scale change (White, Dudley-Brown & Terhaar, 2019). Continuous, systemic improvement is relevant for an ongoing problem such as IPV where progress will continue beyond this cycle. PDSA cycles support ongoing adjustment and refinement, allowing for continuous improvement in hopes to break the cycle of IPV.

In summary, IPV in postpartum adolescent females and young women is a public health concern, however it is preventable with proper awareness, screening, education, and resources. Primary prevention through education and resources should be implemented in early adolescence to best prevent IPV from first occurring. Secondary prevention efforts help decrease revictimization and trauma in those with a history of IPV. Screening should be utilized as recommended to recognize those at risk for IPV and to support those in need of education and resources. Due to low reporting of abuse from adolescents, concern arises about the level of understanding of IPV, further signifying the
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need for screening and education. There are gaps in the literature on adolescent IPV and IPV in pregnancy despite these populations being at high risk for IPV. Understanding how adolescents perceive abuse and the language they use to define it is essential. Having such information will help guide the development of education best tailored to the needs of this population. Pregnant and postpartum adolescent females should be screened for IPV and provided with education and resources to help them identify healthy relationships and prevent IPV from occurring or reoccurring.

Methods

Design

This was a prospective, descriptive design examining the impact of IPV education on adolescent and young adult residents at the shelter. This was the second PDSA cycle to improve the identification, education and support for pregnant and parenting adolescent and young adult females. Three IPV interactive educational sessions with the use of the Mentimeter AB (Mentimeter) platform occurred April 2021 through May 2021.

Setting

An urban, non-profit, shelter for pregnant and postpartum adolescent and young adult females and their infants in a large Midwestern metropolitan area with a population of approximately 297,000. The shelter employs a program director, program service coordinator, family support coordinator, two program support aids, and 11 transitional living coaches. This non-profit shelter has served over 1,500 young mothers since 1993. In 2018 there were 4,109 births to teenagers in this setting’s state, with an average teen pregnancy rate of 43 pregnancies per 1,000 females (Power to Decide, 2020).
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Sample

This was a convenience sample of pregnant and postpartum adolescent and young adult females. Inclusion criteria was females aged 16-22 years and who were residents in the shelter from April, 2021 through May, 2021. Exclusion criteria were those younger than 16-years and older than 22-years, and those who were not residents in the shelter between April, 2021 and May, 2021.

Data Collection and Analysis

There was no demographic data sought, however, attendance at a monthly IPV education session was documented. The education sessions were held virtually via Zoom. Several interactive questions and activities were conducted through Mentimeter and responses were documented. All responses were de-identified and coded. The data was coded as 1-1, 1-2, 1-3, and so on for the first session-first question, first session-second question, first session-third question, and so on. Likewise, coding for the second and third educational sessions was 2-1, 2-2, 2-3, and so on. Data analysis for this quality improvement project was a mixed methods data analysis. Utilization of a data matrix supported a qualitative analysis approach for participant’s responses and three separate two proportion z-tests with Intellectus Statistics software supported a quantitative analysis approach. Both were expected to aid in identifying themes in the understanding and perceptions of IPV in adolescent and young adult females.

Approval Processes

Approval from administration of the non-profit shelter for pregnant and postpartum adolescent females, the primary investigator’s (PI) Doctor of Nursing Practice (DNP) committee, the university’s graduate school, and the university’s
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Institutional review board (IRB) were obtained. The risks of the project were minimal with the benefit of this study providing secondary prevention through education to those at risk or have experienced IPV.

**Procedures**

A team of key stakeholders, including the PI, program director, and DNP project committee discussed the next cycle for improvement regarding IPV for adolescent and young adults. The team decided educational sessions on IPV was needed. Themes for educational sessions were determined to include healthy relationship information; understanding consent, documenting abuse, and building support systems; and seeking help, providing resources. The educational sessions were held virtually due to the Covid-19 pandemic, however, an interactive software platform (Mentimeter) was used to maintain the participants’ attention about the subject matter while evaluating overall responses to questions about the information presented. The clinical case manager of the shelter was present at all sessions due to the nature of the subject matter to help participants process any triggered emotions.

**Results**

Between April and May 2021, three IPV education sessions were conducted virtually via Zoom and Mentimeter at the shelter. Data from all three sessions was recorded with an evidence matrix. The total number of participants in all three sessions was 12 (N=12). Session one had six participants (n=6); session two had three participants (n=3) and session three had three participants (n=3). One participant attended all three sessions (n=1); three participants attended two sessions (n=3); and four participants attended one session (n=4) with a total of eight different participants (n=8). At the time of
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study, 13 women aged 16-21 years resided in the shelter; therefore, 61.5% of residents attended at least one IPV education session.

A total of six participants attended session one. When asked to list healthy relationship qualities, ten different qualities were provided. Of those, 66% \((n=4)\) of participants listed trust, 50% \((n=3)\) listed communication and 33% \((n=2)\) listed loyalty and honesty. When participants were asked to list unhealthy relationship traits, eight different qualities were provided, 66% \((n=4)\) of participants listed lack of communication, 50% \((n=2)\) listed arguing/fighting and 33% \((n=2)\) listed lack of trust. When asked to list warning signs of abuse, eight different signs were provided with zero in common. Three of four participants \((75\%)\) correctly provided more than one form of abuse, with emotional, physical, and sexual forms identified. When asked to define IPV 66% \((n=4)\) of participants provided a correct definition. Six relationship spectrum scenarios were provided asking participants to identify a situation as healthy, unhealthy, or abusive; 27 out of 32 answers were correct \((84.3\%)\) and five out of 32 answers were incorrect \((15.6\%)\) (Appendix A).

In session two, two participants attended the entire session, with one participant joining later. When asked to provide a definition of consent, 100% \((n=2)\) provided a correct definition. Participant understanding of how to document abuse was mixed, with 50% \((n=1)\) providing multiple correct ways to document abuse, and one participant unable to clearly list any. Participants also demonstrated mixed feelings when asked if they have a support system with 33% \((n=1)\) feeling they have a support system. Two out of the three \((66\%)\) participants demonstrated good understanding of how to set boundaries and identify conflict resolution strategies.
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Through six scenario questions, 66% (n=2) of participants demonstrated understanding of how to establish healthy boundaries and conflict resolution tactics, and 100% (n=3) of participants correctly identified issues in the relationship. Zero of three participants identified compromise tactics correctly or differentiated an abusive relationship from an unhealthy relationship.

Session three started with only one participant with two others joining the session later at different intervals. The one participant asked about reproductive coercion was unable to define it correctly. One of the two (50%) participants listed more than one form of IPV when asked. Both (100%) participants were able to correctly identify more than one warning sign of abuse and correctly defined consent when put in their own words. Neither (0%) of the two participants were able to list resources when asked to provide two or more. When provided a communication case scenario, two of the three (66%) participants demonstrated a good understanding of the importance of effective communication in relationships. All three (100%) participants indicated not talking at all is worse than having an argument, anger is not an excuse for abuse, and threatening a breakup and demanding responses from your partner is wrong. Neither (0%) of the two participants correctly identified an unhealthy versus abusive relationship. Finally, two of the two (100%) participants correctly identified healthy communication techniques.

In addition to the descriptive statistics, a total of three two proportion z-tests were conducted to examine whether there was a significant difference between the scores of session one, session two and session three. Based on an alpha value of 0.05, the scores of session one were higher than the scores of session two (z = 2.52, p = .012, 95% CI = [0.06, 0.49]). Scores in session one were approximately 2.5 standard deviations above the
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scores of session two. However, the scores of session two did not show a difference from the scores of session three ($z = -1.46, p = .144, 95\% \text{ CI} = [-0.44, 0.06]$). Session two scores were about 1.5 standard deviations below the mean of session three scores. Finally, there was no difference between the scores of session one and session three ($z = 0.82, p = .411, 95\% \text{ CI} = [-0.12, 0.30]$) (Appendix B). Session one scores were less than one standard deviation from session three scores.

**Discussion**

Education for IPV with an interactive component minimally impacted awareness of healthy and unhealthy relationships in pregnant and postpartum females aged 16-22 years living in a residential shelter. Overall, participants demonstrated good understanding of healthy and unhealthy relationship qualities, however questions from all three sessions determined a need for increased understanding of unhealthy versus abusive relationships on the relationship spectrum. In session one and three, each participant perceived different warning signs of abuse and many colloquialisms were used such as “acting crazy” and “guilt tripping”. In session one and three some understanding of different forms of abuse were demonstrated by participants, however, no participants identified financial, stalking, or digital forms abuse. Most participants demonstrated understanding of the definition of IPV, however, two out of six participants only used the word “toxic” in their definition.

Session two demonstrated participants have an overall good understanding of consent, and some understanding of how to provide evidence of abuse (e.g., taking photographs, saving text messages, etc.). There are opportunities to improve understanding in how to set boundaries, use compromise tactics and identify conflict
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resolution strategies. While only one participant attempted to define reproductive coercion, the definition was incorrect. This concept may not be well understood and may need to be further developed. Participants identified support systems and resources interchangeably and may not understand the difference between the two despite content coverage in education sessions. However, when provided a communication case scenario, participants demonstrated good understanding of the importance of effective communication in relationships and healthy communication techniques overall.

Limitations of this project included a small sample size ($N=12$) and minimal education opportunities. Attendance at education sessions was limited due to residents of the shelter having other obligations such as work, school, or the necessity to care for their child. Some children attended the sessions with their mothers which was distracting to participants, leaving some interactive questions unanswered. Another limitation was participants did not arrive on time to sessions and all three sessions started 15 to 20 minutes late, decreasing the time frame of sessions designed to last one hour. Some participants joined the sessions even later, leaving some interactive questions unanswered and content missed by participants. There was also a time constraint to complete sessions as the shelter unexpectedly closed to outside education for two weeks. Finally, the Covid-19 pandemic limited the ability to provide face-to-face IPV education and some participants had difficulty using the technology.

Recommendations for further study includes in person education to help eliminate distractions, and help with technology. Providing a debrief after each session is also recommended due to the subject matter of IPV education. Another recommendation is to provide the IPV education sessions in other settings such as high schools, community
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colleges and universities as these have a target audience in the same age range. Benefits
of the educational sessions may be increased if participants could attend all three sessions
as each session had a different topic focus. Finally, the questions posed in session three
brought together concepts from previous sessions, making it difficult for participants to
answer questions on unfamiliar, yet important topics.

Conclusion

While education for IPV with an interactive component minimally impacted
awareness of healthy and unhealthy relationships in pregnant and postpartum females in
this project, there is more to learn about adolescent and young adult female awareness of
IPV and the relationship spectrum. In the education sessions, many interactive questions
via Mentimeter demonstrated understanding of concepts such as healthy relationship
traits, but concepts such as unhealthy versus abusive relationships were less understood.
Furthermore, reproductive coercion was a concept not well understood. Overall,
education about IPV for adolescents and young adults is important, especially to those at
high risk for experiencing IPV. While is a difficult topic to discuss, the Centers for
Disease Control, the American Academy of Pediatrics, the Department of Health and
Human Services and other national organizations advocate for early education on IPV.
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References


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Appendix A

Figure 1. Correct and Incorrect Answers from Education Sessions

Note. Bar graph depicts correct, incorrect and total number of quantitative answers from each IPV education session. Session 1 had 58 total answers, session 2 had 30 total answers, and session 3 had 25 total answers.
Appendix B

Table 1. Summary Statistics

Summary Statistics Table for Interval and Ratio Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>$M$</th>
<th>$SD$</th>
<th>$n$</th>
<th>$SEM$</th>
<th>Min</th>
<th>Max</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct Answers</td>
<td>22.67</td>
<td>9.87</td>
<td>3</td>
<td>5.70</td>
<td>16.00</td>
<td>34.00</td>
<td>0.67</td>
<td>-1.50</td>
</tr>
<tr>
<td>Incorrect Answers</td>
<td>9.67</td>
<td>3.79</td>
<td>3</td>
<td>2.19</td>
<td>7.00</td>
<td>14.00</td>
<td>0.65</td>
<td>-1.50</td>
</tr>
</tbody>
</table>

*Note.* ‘-’ indicates the statistic is undefined due to constant data or an insufficient sample size.

Two Proportions z-Test for the Difference between Session 1 and Session 2

<table>
<thead>
<tr>
<th>Samples</th>
<th>Responses</th>
<th>$n$</th>
<th>Proportion</th>
<th>$SD$</th>
<th>$SE$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>34</td>
<td>42</td>
<td>0.81</td>
<td>0.39</td>
<td>0.06</td>
</tr>
<tr>
<td>Session 2</td>
<td>16</td>
<td>30</td>
<td>0.53</td>
<td>0.50</td>
<td>0.09</td>
</tr>
</tbody>
</table>

*Note.* $z = 2.52, p = .012, 95\% CI: [0.06, 0.49]$  

Two Proportions z-Test for the Difference between Session 2 and Session 3

<table>
<thead>
<tr>
<th>Samples</th>
<th>Responses</th>
<th>$n$</th>
<th>Proportion</th>
<th>$SD$</th>
<th>$SE$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 2</td>
<td>16</td>
<td>30</td>
<td>0.53</td>
<td>0.50</td>
<td>0.09</td>
</tr>
<tr>
<td>Session 3</td>
<td>18</td>
<td>25</td>
<td>0.72</td>
<td>0.45</td>
<td>0.09</td>
</tr>
</tbody>
</table>

*Note.* $z = -1.46, p = .144, 95\% CI: [-0.44, 0.06]$  

Two Proportions z-Test for the Difference between Session 1 and Session 3

<table>
<thead>
<tr>
<th>Samples</th>
<th>Responses</th>
<th>$n$</th>
<th>Proportion</th>
<th>$SD$</th>
<th>$SE$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>34</td>
<td>42</td>
<td>0.81</td>
<td>0.39</td>
<td>0.06</td>
</tr>
<tr>
<td>Session 3</td>
<td>18</td>
<td>25</td>
<td>0.72</td>
<td>0.45</td>
<td>0.09</td>
</tr>
</tbody>
</table>

*Note.* $z = 0.82, p = .411, 95\% CI: [-0.12, 0.30]$  

(Intellectus Statistics, 2021)