

iDove: Qualitative Development of a Text-Message-Based Intervention to Prevent Depression among High-Risk Adolescent Patients in the Emergency Department



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Background

- High-risk teens with a history of depression and exposure to violence are among the highest represented populations using the Emergency Department (ED) ¹⁻²
- The Emergency Department has been shown to be an apt environment for the delivery of prevention interventions ²
- Text-messaging has been shown to be an effective and useful tool for both health outcome improvement and behavior change interventions ³⁻⁴
- This study represents the trial phase of iDove and is, therefore, reporting the development of the study design and practice.

Objectives

- Aim 1: To improve the design of the text-message intervention, iDove, by conducting qualitative analysis of cognitive interviews completed by participants
- Aim 2: To recruit and enroll high-risk adolescent patients in the ED for the open trial iDove text-message based intervention.

Methods

- Aim 1:
- Recruitment of adolescent patients in Hasbro Pediatric ED using an anonymous iPad screening survey
 - Semi-structured cognitive interviews were conducted with enrolled patients to determine their attitudes towards proposed intervention goals and design, and collect and analyze suggestions for improvement, including the use of images and figures (Figure 1, 2)
 - Two or more research assistants independently analyzed the cognitive interviews using a coding scheme developed by Dr. Ranney and the research team. The research assistants then discussed, edited, and agreed upon the codes they applied to the transcripts.
 - Final codes were entered into NVivo and thematic analysis was conducted by comparing and organizing codes (Table 1)
- Aim 2:
- Recruit adolescent patients in the Hasbro Emergency Department using anonymous iPad screening survey
 - Enroll eligible patients in the iDove text-message intervention and follow-up with their progress using the program (Figure 3)

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References:
¹Cunningham et al. "Before and After the Trauma Bay: The Prevention of Violent Injury among Youth" *Annals of Emergency Medicine*. 53(4): 2009
²Chakravarty, B et al. "National differences between ED and ambulatory visits for suicidal ideation and attempts and depression." *American Journal of Emergency Medicine*. 32(4):2014.
³Cole-Lewis, Heather, Kershaw, Trace. "Text Messaging as a Tool for Behavior Change in Disease Prevention and Management." *Epidemiologic Review*. Johns Hopkins University. 2010: 10.1093/epirev/mxq004
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Selected Results

Figure 1, 2: Examples from "In-ED Presentation"

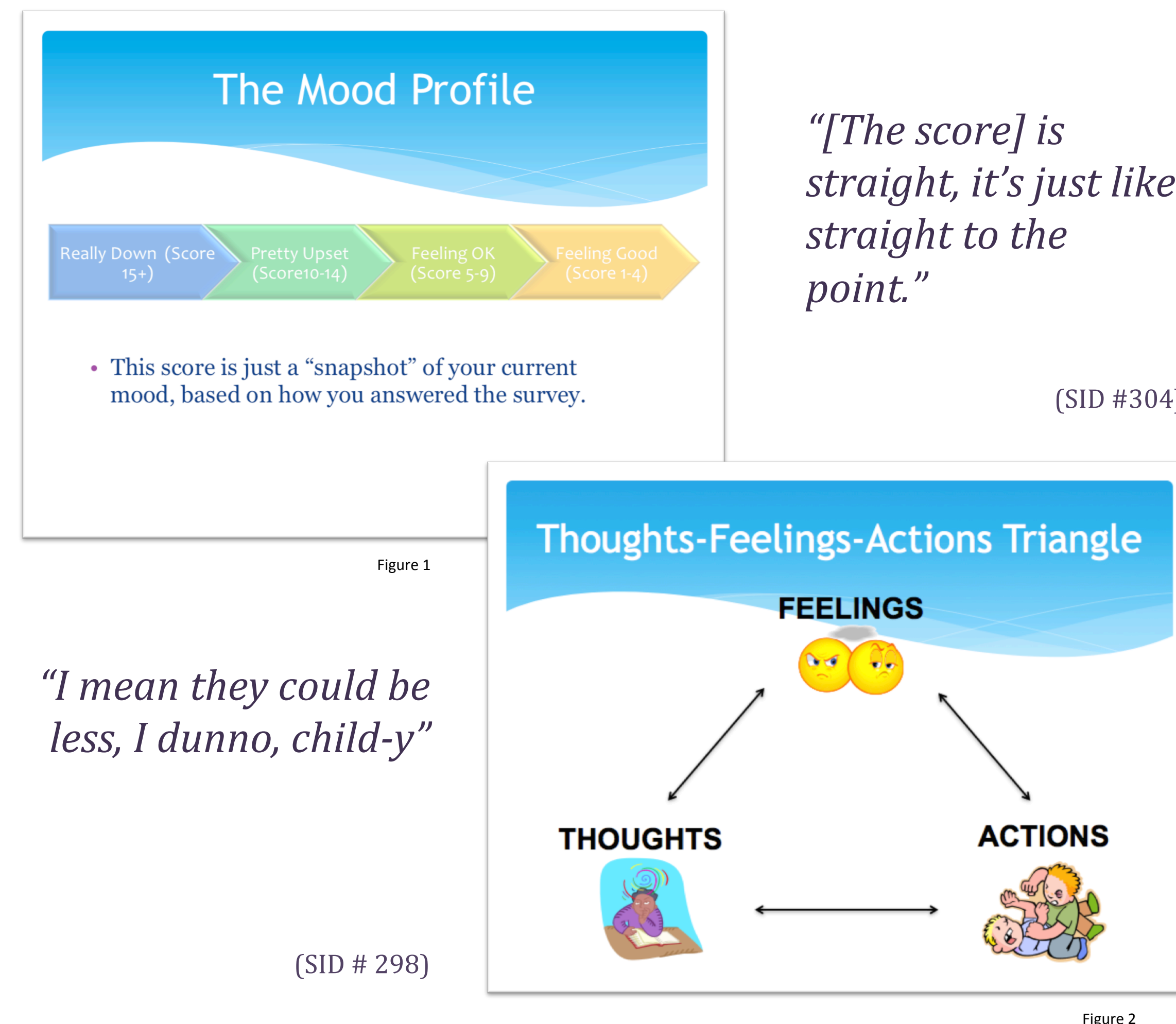
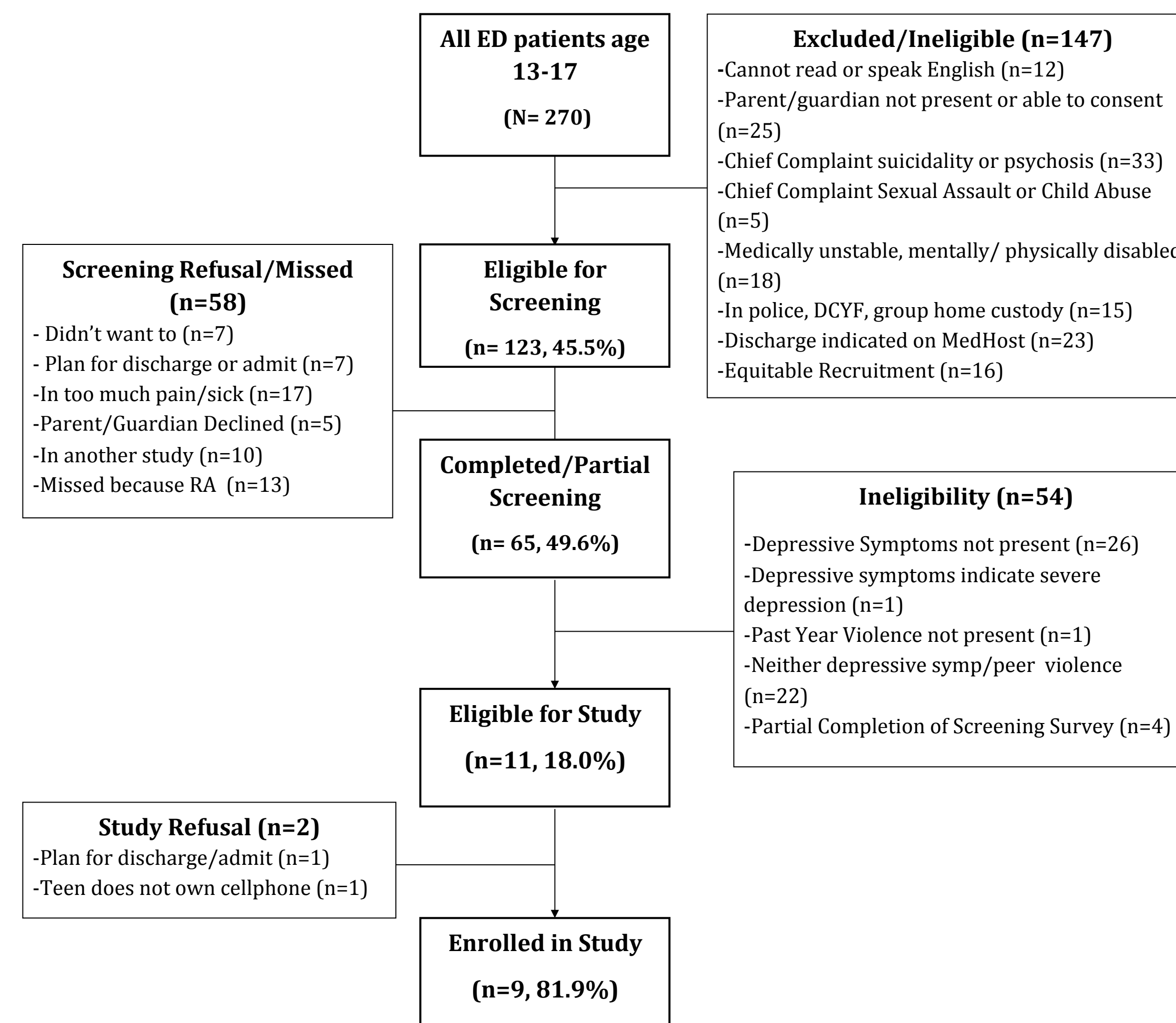


Figure 3. Aim 2 Recruitment Data: May-July 2014



Demographics of Cognitive Interview Participants

7 Participants

- Mean Age: 15.3
- Males : 57%
- Females: 43%
- White: 43%
- Hispanic: 29%
- Black: 29%
- Mean PHQ-9 Score: (9.71, range 5-18)
- Mean CTS-2 Score: (6.71, range 1-17)

Table 1: Selected Results of Qualitative Analysis of Cognitive Interviews

Topics	Themes	Quotes
Perceptions of Automated Texting System	All participants understood the use of automated texting service in the delivery of the intervention, though some felt that replacing a machine for an actual person compromised the genuineness of program	"It's just gonna feel like you're talking to a machine, because a machine...is not gonna be genuine." (#311) "I don't think it would really matter either way." (#290)
Understanding of "Mood Score" System	Many participants thought the mood score should report higher numbers to equate to more positive moods, and vice-versa	"Well, five and below is like bad, and then up is good." (#305) "I think a high score is: you're a very aggressive person, and...a low score is you're very docile." (#298)
Attitudes toward Images in In-ED Session	While there was a varied response towards the use of images in the "in-ED" presentation, many teens felt that the images would supplement the information provided in the mood and fight scores	"If you're trying to get them to be happy, I'd say yes, like a smiley face. [But] if you're trying to be serious with someone, no." (#304) "I think both [the score and the picture] would be helpful." (#298)

Conclusion

Aim 1: Through the process of cognitive interviewing, our intervention can be improved and designed to increase comprehension and acceptance among adolescents

Aim 2: Though the open trial stage is still ongoing, much can be learned about increasing the percentage of patients who complete the screen from our preliminary recruitment data