

**Beyond the Label: The Impact of Trailer Messaging and Gender on Engagement with the
Video Game *Fractured Minds***

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Abstract

Mental health difficulties among youth are a significant global burden, yet many remain reluctant to seek formal treatment. Applied video games offer a promising way to bridge this gap. However, their success depends on outreach that reaches diverse groups without adverse effects. Because no research has yet determined how gender and promotional framing interact to shape gameplay experience, this study addresses a knowledge gap. We explored whether gender moderates the effect of trailer messaging (explicit versus neutral) on engagement with the game *Fractured Minds*. The participants ($N = 139$), consisting of 101 women and 38 men, were randomly assigned to watch one of two trailer versions before playing. Engagement was assessed using measures of interest/enjoyment, cognitive and emotional involvement. Results showed that different promotional frames influenced engagement similarly for both men and women. Additionally, the promotional framing did not independently change how interested or involved players felt during play. These findings indicate that trailers do not significantly alter the actual interaction with the video game. Within this study, this suggests that engagement is consistent across genders and likely depends more on internal design than initial promotional framing, highlighting a potential boundary between the psychological processes of uptake and retention.

Keywords: serious games, gender, mental health, messaging

Beyond the Label: Examining the Impact of Trailer Messaging and Gender on Engagement with the Video Game *Fractured Minds*

Depression is the leading contributor to the global disease burden among young people aged 10 to 24 (Erskine et al., 2014). Despite this high burden a significant amount of youth with symptoms do not seek or access professional help for mental health problems (Radez et al., 2020). This creates an urgent need for accessible interventions that can engage those reluctant to seek help. Because video games are so widely used and are already a part of the daily routine for most youth, they offer a promising way to deliver mental health support (Li et al., 2014). This potential is also supported by data from the Entertainment Software Association (2021), which reported that almost half of all video game players identify as female. This gender balance indicates that game based tools could provide an inclusive way to bridge the treatment gap by reaching diverse groups of both men and women. Applied or serious games are interventions designed to achieve specific psychological or behavioral outcomes through an engaging format (Weerdmeester et al., in press). Evidence has confirmed that these game-based digital interventions are effective in alleviating symptoms of depression (Li et al., 2014). While research found that promoting a game with explicit mental health messaging can make these games more appealing to young adults experiencing elevated mental health symptoms (Poppelaars, Wols, et al., 2018), it remains unclear how different promotional frames influence the actual depth of gameplay engagement across genders. Identifying these gender-specific responses is an important next step in ensuring that digital mental health tools are both accessible and inclusive for all young adults.

Understanding gender specific responses is essential because individual characteristics shape how mental health interventions are initially perceived and ultimately received (Jacks & Lancaster, 2014). These differences are important because a user's initial attitude toward an intervention determines whether they will access it and how they will interact with its content (Cotton et al., 2006). For example, a consistent gender disparity in mental health literacy shows that

females are almost twice as likely as males to correctly identify depressive symptoms. While females are generally more likely to utilize professional mental health services, males typically show lower recognition of mental illness symptoms and often prefer informal sources of support, such as family or friends, over professional help (Cotton et al., 2006). Furthermore, Wols et al. (2021) found that factors, such as a person's initial expectations that the game will help is a powerful factor that often matters more for their recovery than the actual clinical techniques built into the game. This means that the user's beliefs about the efficacy of a game is a more powerful predictor of recovery than the actual evidence-based mechanisms, because these expectations drive the level of effort and time a player invests in the game. Because these factors are such a strong driver of success, the way a game is promoted must be carefully aligned with the user's gender and motivational orientation to make sure that the intervention is received positively from the start. Developing communication strategies that achieve this alignment is a core focus of persuasion research (Agnihotri et al., 2022), which is the study of how communication can be designed to effectively motivate behaviour change at a population level (Duthie et al., 2024).

Specifically, the theoretical framework within this field is regulatory fit, which suggests that when the framing of a message aligns with the recipient's personal motivational orientation, engagement increases because the information feels right (McKay-Nesbitt et al., 2012). Research by Jacks and Lancaster (2014) suggests that promotion-focused approaches, which are driven by growth and the pursuit of positive outcomes, resonate more with males. Prevention-focused approaches, which are driven by safety and the avoidance of negative outcomes, are often more effective for women. Beyond targeting motivational orientations, Poppelaars, Wols, et al. (2018) propose that entertainment-oriented "stealth" messaging can preserve a sense of autonomy and choice. Stealth messaging involves promoting an intervention, such as a mental health game, as a regular entertainment product without explicitly mentioning its therapeutic purposes in the promotional framing. This type of messaging can preserve a player's sense of autonomy and choice,

making the intervention more appealing to those who might avoid any resource they perceive as being mental-health focused.

While stealth strategies may facilitate initial recruitment, the perceived relatability of in-game content could be equally vital for ensuring that both genders remain engaged during such an intervention. Relatability in this context refers to the degree to which in-game narratives, characters, and challenges align with the player's specific lived experiences and preferences. An example of this is seen in the evaluation of *Reach Out Central*, an online game for young people aged 16–25 that incorporated cognitive behavioral principles to teach practical coping skills for life stressors (Shandley et al., 2010). While the game improved mental health literacy overall, gender differences were observed. Females reported positive improvements across all measures, including help-seeking and coping, whereas males showed less benefit, with non-significant worsening effects in seeking support, avoidance, and resilience. Engagement patterns followed a similar pattern, with females playing an average of 91 cumulative minutes across 1.6 sessions, compared to 69 minutes across 1.5 sessions for males. The researchers suggested that although the online game format appeared to appeal to both genders, the storylines were less relevant or relatable to males. These findings suggest that gender specific responses to game content can create barriers to treatment efficacy. However, it remains unknown whether these gender engagement patterns are driven solely by the internal content or if they are triggered by earlier framing, which highlights the need to look beyond internal design elements to examine how promotional messaging shapes different stages of engagement.

Current evidence suggests that the impact of this messaging varies significantly across different forms of interaction. Elaborating on the previously mentioned work by Poppelaars, Wols, et al. (2018), the researchers found that participants who had elevated mental health symptoms were 3.71 times more likely to choose the game when marketed with an explicit mental health message compared to the subtle, entertainment-focused version. Notably, this preference for explicit

messaging was consistent across both males and females. A subtle approach is considered valuable because explicitly framed health messages can sometimes trigger psychological reactance, which is a motivational state that arises when individuals feel their freedom of choice is being threatened, or evoke perceived stigma, causing potential players to avoid the intervention altogether. However, the type of promotional message did not significantly affect core in-game experiences, such as gameplay duration, intrinsic motivation, autonomy, or competence. Complementing these findings, Wols et al. (2021) reported that while promotional trailers affected initial interest before play began, they did not influence in-game fun, positive affect, or specific player behaviors during the session. Furthermore, these results are complemented by additional research suggesting that an individual's readiness to change, would not predict game choice or the total duration of play (Wols et al., 2020). While these findings are based on a limited number of studies, this initial evidence suggests that messaging may effectively influence initial uptake, but has limited impact on sustained in-game behavior, pointing to a potential boundary between the psychological processes of uptake and retention.

Evidence from systematic reviews and meta-analyses further reinforce the capacity of game-based interventions to provide meaningful clinical benefits (Li et al., 2014). For example the neurofeedback game *MindLight* produced reductions in anxiety symptoms and increases in self-efficacy comparable to outcomes from cognitive-behavioral therapy programs (Schoneveld et al., 2017). Similarly, research into the serious game *Moving Stories* indicates its capacity to reduce personal stigma (Tuijnman et al., 2018). Despite these successes, maintaining player engagement remains a critical and ongoing challenge in real-world settings, as seen by the completion rates that are significantly lower than those seen in controlled trials (Fleming et al., 2025). This challenge of engagement connects to findings from the evaluation of *Reach Out Central*, which found that male participants played for significantly less time than their female counterparts (Shandley et al., 2010). The researchers suggested that while the digital format was appealing to both groups, a lack of

storyline relatability for males may have functioned as a barrier to their sustained engagement. This link is further supported by qualitative feedback from trials of *SPARX* further suggests that adherence often suffers when the design quality of a serious game fails to meet the high expectations youth have developed from playing commercial titles (Fleming et al., 2015). Consequently Fleming et al. (2021) argues that presenting mental health themes through engaging narratives, while avoiding an overtly clinical tone, is essential for reaching young people who might otherwise avoid traditional interventions. However, the effectiveness of these engaging narratives may be undermined before play even begins if the initial promotional framing creates a 'misfit' with the player's underlying motivational orientation (McKay-Nesbitt et al., 2012; Wols et al., 2020).

This conclusion is supported by research showing no significant differences between males and females in their selection of a game promoted with mental health versus entertainment trailers. In exploring the internal drivers of these choices the researchers utilized the Transtheoretical Model, which assesses a person's readiness to change, and Dweck's framework of implicit theories regarding the malleability of emotions and stress (Wols et al., 2020). Furthermore, according to self-determination theory (SDT), sustained engagement with an activity like gaming depends on the satisfaction of three basic psychological needs for autonomy, competence, and relatedness (Ryan et al., 2006). Within the context of digital interventions, research suggests that when a game is introduced with an explicit mental-health focused approach, players may report a lower sense of autonomy compared to those who receive an entertainment-focused introduction (Poppelaars, Lichtwarck-Aschoff et al., 2018). In contrast, stealth messaging, which involves promoting the intervention as a regular entertainment game without making the mental health objectives explicit, has been shown to maintain higher levels of autonomy compared to explicit mental health messaging. (Poppelaars, Lichtwarck-Aschoff, et al., 2018).

Despite the growing research on applied games, no study has yet directly examined how gender interacts with specific message framing to influence engagement. Addressing this gap is

significant because it can clarify whether engagement is primarily determined by the initial framing of the intervention as either an explicit mental health tool or a subtle entertainment-focused game or if these effects are moderated by individual player characteristics. Directly related to this framing is gender, as males and females often perceive and access mental health support in fundamentally different ways. Research on this subject is critical to inform strategies that enhance inclusivity, ensuring that digital mental health tools do not unintentionally reinforce existing disparities. If explicit messaging, which clearly labels the game as an intervention, primarily attracts individuals who are already open to seeking help, it could unintentionally reinforce gender disparities by leaving behind high-risk groups, such as young men (Cotton et al., 2006). Conversely, a stealth messaging approach may be more effective for reaching these reluctant populations, because it avoids triggering psychological reactance, while preserving a sense of autonomy and competence (Poppelaars, Lichtwarck-Aschoff, et al., 2018).

The current study aims to determine whether gender moderates the effect of promotional trailer messaging on engagement with a serious mental health game. Based on the reviewed literature, two competing hypotheses are proposed. First, women are expected to report higher levels of Interest/Enjoyment and Involvement with a game promoted using an explicit mental health message compared to a neutral, entertainment-focused message. This prediction is supported by findings that females demonstrate higher levels of mental health literacy and recognise symptoms more accurately than males (Cotton et al., 2006). This higher level of literacy can be theorized to enhance the personal relevance of explicit mental health framing, making the framing more persuasive. Consequently, women may be more attracted to interventions that clearly state mental health benefits, because these messages align with their greater awareness of mental health needs (Shandley et al., 2010). Second, and conversely, men are expected to report higher levels of Interest/Enjoyment and Involvement with a game promoted through a neutral or gameplay-focused message compared to an explicit mental health message (Shandley et al., 2010). This expectation is

grounded in regulatory focus theory, as males tend to be more promotion-focused, prioritising themes of advancement, growth, and accomplishment (McKay-Nesbitt et al., 2012). Because neutral or entertainment-focused trailers highlight action and mastery, they create regulatory fit for promotion-oriented males, increasing their persuasive impact (Jacks & Lancaster, 2014). Previous findings also suggest that they are less comfortable with therapeutic framing of storylines that they find less relatable or relevant (Shandley et al., 2010). Testing these hypotheses can clarify whether gender moderates the relationship between promotional framing and player engagement, helping to determine the most effective communication strategies for reaching different demographic groups.

Methods

Participants

A total of 144 participants took part in the study. All participants were undergraduate students enrolled in the Bachelor of Behavioral and Social Sciences program of the University of Groningen, with primarily first-year students. The sample included 101 women and 38 men and 5 non-binary/other gender participants, representing a gender imbalance with substantially more women than men participating. Most of the participants ($N=114$) completed the questionnaires in the English language, while 30 participants completed it in Dutch. Participants' gaming experience was diverse, 17.4% reported never playing video games, while 17.4% reported playing three or more times per week. The largest group (33.3%) played less than once a month.

Procedure

The current study was conducted as part of a larger research project, and although participants were required to complete a comprehensive battery of assessments, the present analysis focuses exclusively on parts of the questionnaire. The participants were recruited using the Faculty of Behavioral and Social Sciences (BSS) SONA system at the University of Groningen, and received course credits. First-year psychology students formed the target group. Inclusion criteria

required participants to be at least 16 years old and to have sufficient proficiency in English or Dutch to understand the study materials. No exclusion criteria were applied regarding mental or physical health.

Data collection took place in November 2025 at the research lab provided by University of Groningen, where participants were seated at computers in individual cubicles. Upon entering, participants were given both verbal and written information about the study and the chance to provide informed consent.

The questionnaires, were made available in both Dutch and English to allow participants to complete the study in the language in which they felt most proficient, thereby reducing the risk of participant misinterpretation of the items. For standardized questionnaires that did not have official Dutch versions, translations were sourced from previous research or translated by the Dutch researchers and checked by the supervisor to ensure linguistic equivalence. This process was implemented to ensure that the psychological constructs remained consistent. While many participants may have completed the questionnaires in their non-native language, the inclusion criteria specifically required a level of proficiency in either language to participate.

Participants first completed a short demographics questionnaire on the computer via Qualtrics. Participants who responded that they had already played the game were excluded from analyses, because prior exposure to the game could reduce the effectiveness of mental health messaging and lead to potential confounds. Participants were then randomly assigned to watch one of two trailers of the same video game, using blocked randomization to ensure an equal distribution across the two framing conditions. One of the trailers promoted the game as a mental health focused game. The other trailer focused on the game's entertainment value and did not contain any messaging related to mental health. These trailers were identical except for the framing of the text. However, the participants were not informed that different trailer versions existed or that the

messaging had been manipulated, in order to maintain the integrity of the experimental design and avoid expectancy effects.

After watching the trailer, participants completed two questions regarding their expectations of the game and whether they played *Fractured Minds* before. After participants completed these questions. Participants could play all six levels of the game, but were also allowed stop whenever they wanted. To ensure that participants did not exceed the 60 minute time slot of the experiment, the researcher(s) stepped in after 30 minutes of gameplay. Additionally, a “cheat sheet” of common issues was available to the participants, and the researcher(s) were available in case the participants had any further questions.

After the participants finished all levels of the game, they filled out the final set of questionnaires. These included the Interest/Enjoyment sub-scale of the IMI and the Cognitive Involvement and Emotional Involvement sub-scales of the Immersive Experience Questionnaire (IEQ). To explore participants’ awareness of the study’s aims, a self-formulated open question was included at the end of the study, namely: “*What do you think this study is about?*” The responses were analyzed for common themes, such as the portrayal of mental illness in video games and the impact of gameplay on perceptions of mental health. Participants ($N = 2$) who correctly identified the study’s aims were excluded from analyses to minimize potential demand characteristics. Finally, participants answered the final question for a manipulation check: what do they think the game was about?

At the end of the study, all participants received a comprehensive debriefing that explained the study aims, the manipulation of trailers, and the collection of mental health data. All participants received 1.5 course credits for their participation.

All participants provided informed consent prior to taking part in the study, and were asked to consent again at the end of the study considering the deception used. The study protocol was

reviewed and approved by the court Ethics Committee of the Faculty of Behavioral and Social Sciences at the University of Groningen (PSY-2526-S-0074).

Materials

The game used in this study is a commercial video game called "*Fractured Minds*", which was developed by Emily Mitchell and published by Wired Productions in 2017. It is described as "an immersive artistic short game, exploring anxiety and mental health issues" (https://store.steampowered.com/app/688740/Fractured_Minds/). Although it was originally designed as an awareness piece rather than a therapeutic game per se, the game provides experiential content that is aimed at evoking emotional states such as anxiety and feeling isolated, which is relevant to the study's aim of measuring how players engage with a mental-health focused/applied game. Even though the game has mental health focused topics, it was not meant as an applied game, which makes it very fitting in combination with the entertainment-focused framing as well. To achieve this the game is structured into six chapters. Each chapter represents a specific mental health obstacle, such as paranoia, or isolation. Gameplay involves interacting with the environment by solving a puzzle, while the game distorts reality. These shifts are specifically designed to stimulate the emotional states accompanying anxiety, loneliness or paranoia, providing an immersive representation of these conditions. In this study, participants played *Fractured Minds* for approximately 27 minutes, after having watched the trailer.

Two trailers were created for *Fractured Minds*, in order to manipulate participants' expectations before the game. Both trailers were approximately one minute long and used the same game footage, ensuring that any differences in participants' experiences could be attributed to the trailer messaging rather than to visual or narrative differences. In one condition, participants viewed a mental health trailer, which framed the game as being about mental health. This entailed messages such as "Rated 9/10 by psychologists" and "A must try for self-reflection". In the other condition,

participants viewed a commercial trailer, which framed the game as a regular commercial title without any mention of mental health. Here some of the messages were “Nintendo Switch Game of the Year” and “Stunning visuals with captivating puzzles”.

Intrinsic Motivation (Interest/Enjoyment)

Intrinsic motivation was assessed using the interest/enjoyment sub-scale from the Intrinsic Motivation Inventory (IMI; Ryan, 1982, Ryan & Deci, 2000; McAuley et al., 1989) after gameplay. Participants responded to seven items on a 7-point Likert scale, ranging from 1 = “*Not at all true*” to 7 = “*Very true.*” Examples of questions include “*I enjoyed this activity very much*” and “*I would describe this activity as very interesting.*” After reverse-coding two items, an overall mean ($\alpha = .89$) was calculated, with higher scores indicating higher intrinsic motivation.

Pre-play Participants' Expectations

Two items that assessed player expectations were adapted from Poppelaars, Wols, et al. (2018), including “*Please rate the attractiveness of the game based on the trailer you saw*” and “*How much fun do you think it is to play this game?*”. The participant’s expectation questions use a 10-point Likert scale, with the first item ranging from 1 = “*Not attractive*” to 10 = “*Very attractive*”, and the other item ranging from 1 = “*Not fun*” to 10 = “*Very fun.*”. The two items were strongly correlated ($r = .79, p < .001$) and demonstrated high internal consistency ($\alpha = .88$). These items were averaged to create a single Participants’ expectations score, with higher scores indicating higher expectations that the game would be attractive and fun.

Cognitive and Emotional Involvement

Participants’ engagement levels were assessed using the Immersive Experience Questionnaire (IEQ, Jennett et al., 2008). Specifically, two sub-scales were included, namely *Cognitive Involvement* and *Emotional Involvement*. Together they comprised 15 items, each rated on a 7-point Likert scale ranging from 1 = “*Strongly Disagree*” to 7 = “*Strongly Agree.*”. The

combined involvement scale demonstrates excellent internal consistency ($\alpha = .89$). Examples from the cognitive involvement sub-scale include “*The game had my full attention*” and “*I felt that I was making progress towards the end of the game.*” Examples from the emotional involvement sub scale include “*To what extent did you feel emotionally attached to the game?*” and “*At any point did you find yourself become so involved that you wanted to speak to the game directly?*”.

Statistical Analyses

All statistical analyses were conducted using IBM SPSS Statistics version 28 (IBM Corp., 2021) and JASP version 0.16 (JASP Team, 2021). Before hypothesis testing, data were screened for missing values and outliers. Data were screened for missing values, outliers, and adherence to the previously mentioned exclusion criteria. Prior to conducting the main analyses, descriptive statistics, including mean, standard deviations, and frequencies, were calculated for all demographic variables and outcome measures.

To ensure the validity of random assignment, preliminary checks were conducted to confirm that participants in the two trailer conditions (mental health vs. commercial) did not differ significantly in gender or gaming experience. These checks were conducted using Chi-square tests for categorical variables. To describe the relationships between participants’ pre-play perceptions and post-play engagement, Pearson correlations were computed between participants’ ratings of player expectations prior to gameplay and their post-play engagement scores, including IMI Interest/Enjoyment and IEQ Cognitive and Emotional Involvement. The regression analyses examined whether gender moderates the effect of mental health–related messaging on engagement with the applied game. The assumptions of multiple linear regression including, normality of residuals, linearity, and homoscedasticity, were assessed through the inspection of Q–Q plots, residual plots, and scatterplots. In the case of significant interaction effects, simple effects were

examined to compare the impact of the trailer conditions separately for males and females to aid interpretation.

Engagement during gameplay was assessed using post-play measures, including the Intrinsic Motivation Inventory (IMI) Interest/Enjoyment sub-scale and the Immersive Experience Questionnaire (IEQ) Cognitive and Emotional Involvement sub-scales. In addition, participant expectations, including perceived game attractiveness and expected fun, were measured to capture participants' initial impressions prior to gameplay.

A series of hierarchical multiple linear regression were conducted, one for each engagement measure. In each model, engagement served as the dependent variable. Gender (coded 0 = male, 1 = female) was entered in the first step, messaging condition (coded 0 = neutral/gameplay-focused, 1 = mental-health-focused) was entered in the second step, and the interaction term between gender and messaging (Gender \times Messaging) was entered in the third step. The interaction term was calculated by creating a product variable of the two predictors, gender multiplied by messaging condition. Participants who did not identify as male or female were excluded from the regression analyses.

A significant positive interaction coefficient would indicate that women reported higher engagement when the game was promoted with mental health messaging, supporting the first hypothesis. A significant negative interaction would indicate that men reported higher engagement when the game was promoted with neutral or gameplay-focused messaging, supporting the second hypothesis. By examining these effects independently, the analysis can determine if both hypotheses are supported simultaneously or if the interaction is driven primarily by the response of one gender.

Across all analyses, the significance level was set at $\alpha = .05$ (two-tailed). Effect sizes and 95% confidence intervals were reported for all significant results. For *t*-tests, Cohen's *d* was reported; for correlations, Pearson's *r*; and for regressions, standardized β coefficients and R^2 . Effect

sizes were interpreted according to Cohen's (1988) guidelines: $d = 0.20$ small, 0.50 medium, 0.80 large; $r = 0.10$ small, 0.30 medium, 0.50 large.

Results

The final sample consisted of 144 participants, including 101 women, 38 men, and 5 participants identifying as non-binary or another gender. Because the hypotheses solely focus on females and males, and the rather small sample of non-binary or other gender participants the analyses used a sample of 139 participants. Descriptive statistics for all study variables are presented in Table 1.

Participants' pre-play expectations of the game were moderately positive, with the computed mean ratings for attractiveness and perceived fun falling slightly above the midpoint of the 10-point scale. Post-play engagement results suggested that participants experienced higher levels of cognitive involvement during gameplay, with average scores well above the scale midpoint. In contrast, levels of interest and enjoyment and emotional involvement were moderate and closer to the midpoint of the 7-point scale.

Table 1

Mean, standard deviation, minimum and maximum for pre-play impressions and engagement measures

	<i>M</i>	<i>SD</i>	Minimum	Maximum
Interest/ Enjoyment	3.74	0.83	1.57	5.71
Emotional involvement	3.89	1.27	1.00	7.00
Cognitive Involvement	5.69	0.77	3.11	7.00
Participants' expectations	6.20	1.95	1.00	10.00

Pearson correlation analyses were conducted to examine the associations between participants' pre-play expectations and post-play engagement measures. Participants' expectations showed significant moderate positive correlations with Interest/Enjoyment, Cognitive Involvement, and Emotional Involvement. These correlation coefficients indicate moderate associations. All correlation coefficients are presented in Table 2.

Table 2

Pearson correlation between the study variables

	1.	2.	3.	4.
1. Participants' expectations	-	-	-	-
2. Gender	-.09	-	-	-
3. Interest/enjoyment	.52***	-.05	-	-
4. Emotional involvement	.45***	-.11	.64***	-
5. Cognitive involvement	.37***	-.02	.60***	.58***

Note. $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$.

Hierarchical multiple linear regression analyses were conducted as described in the methods. Engagement was assessed using the IMI Interest/Enjoyment and IEQ Cognitive and Emotional Involvement subscales. Inspection of Q–Q plots and residual plots indicated that the assumptions of normality, linearity, and homoscedasticity for multiple linear regression were sufficiently met.

Across all engagement measures, gender alone did not significantly predict engagement in the first step of the models (all $p > .05$). Adding messaging condition in the second step did not significantly improve model fit, indicating no main effect of trailer condition on engagement when controlled for gender. Importantly, the interaction between gender and messaging condition was not

statistically significant for any of the engagement outcomes either (all $p > .05$). For example when interest/enjoyment was entered as the dependent variable, the interaction between gender and messaging condition was not significant, $b = 0.24$, $SE = 0.32$, $t(135) = 0.76$, $p = .79$

Across all hierarchical regression models for interest and enjoyment, cognitive involvement, emotional involvement, and participants' expectations, no significant main effects or interaction effects were observed for gender or messaging condition (all $p > .05$). Collectively, these results indicate that levels of engagement were similar across genders and did not differ based on whether the game was promoted through a mental health or a commercial gameplay-focused trailer.

Table 3

Hierarchical multiple linear regression predicting engagement outcomes

Interest/ Enjoyment	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>R</i> ²
Gender	-0.22	0.23	-0.98	.78	.003
Trailer condition	-0.14	0.27	-0.50	.78	.004
Gender x trailer	0.24	0.32	0.76	.79	.008
Cognitive involvement					
Gender	-0.06	0.21	-0.27	.96	.001
trailer	-0.01	0.25	-0.04	.96	.001
Gender x trailer	0.04	0.30	0.13	.99	.001
Emotional involvement					
Gender	-0.10	0.34	-0.28	.44	.012
trailer	0.34	0.41	0.82	.44	.012
Gender x trailer	-0.41	0.48	-0.85	.50	.017

Participant's expectations					
Gender	-0.43	0.53	-0.81	.15	.009
trailer	-0.53	0.63	-0.84	.15	.027
Gender x trailer	-0.01	0.74	-0.01	.28	.027

Discussion

This study examined effective strategies for engaging young people in digital mental health interventions, a task that is essential because depression is the leading cause of global disease burden for youth aged 10 to 24 (Erskine et al., 2014). Digital tools like applied or serious games are necessary to reach those who might otherwise avoid support. By exploring whether a game's promotional framing, specifically mental health-focused versus entertainment-focused messaging, changes how different genders engage with a game, this research can inform how to make mental health outreach more inclusive and accessible. The results revealed that the level of engagement with *Fractured Minds* did not significantly differ between men and women, nor was it influenced by the specific type of trailer framing used. The lack of significant results suggests that the expected misfit between gendered motivational orientations and message framing did not translate into a negative gameplay experience. Specifically, as participants across all conditions reported moderate levels of interest and involvement, these findings indicate that the mental health framing did not act as a deterrent for men, contrary to what Regulatory Fit Theory would predict for promotion-oriented individuals (Jacks & Lancaster, 2014). Regardless of the promotional message, participants reported similar levels of interest as well as enjoyment, and cognitive and emotional involvement after playing the game. These findings suggest that while promotional trailers might change

expectations, the specific framing does not significantly alter the depth of engagement during gameplay.

The results of this study did not support the gender-specific responses predicted in the two hypotheses, which shows that gender did not significantly change how the different trailer messages influenced a player's engagement. The initial idea on which the hypotheses were based was the concept of regulatory fit, which suggests that men and women may have different motivational orientations (McKay-Nesbitt et al., 2012). One possible explanation for the findings is that engagement with applied games is driven more by the satisfaction of basic psychological needs than by demographic categories, such as gender. According to the Self-Determination Theory framework, a game's motivational pull depends on its ability to fulfil the needs for autonomy and competence during play (Ryan et al., 2006). Because these needs are considered fundamental psychological needs for all individuals, regardless of gender, a game that successfully fulfils them through its mechanics will engage all players in a similar manner.

Furthermore, the results suggest that the mental health-focused messaging was equally acceptable to participants regardless of their gender. This aligns with research by Poppelaars, Wols, et al. (2018), which found that promoting a game with an explicit therapeutic claim did not decrease a player's intrinsic motivation, autonomy, or competence. In the current study, the consistent levels of interest, enjoyment and involvement across both promotional framing conditions indicate that the participants did not find the mental health framing to be discouraging to their experience. Because the explicit framing failed to reduce the engagement of male participants, it remained comparable to that of female participants. This likely explains why no gender-based differences occurred.

Finally, the internal design of the game itself may have functioned as a means to reduce gender differences after gameplay. While a guided structure is not strictly necessary for every applied game, *Fractured Minds* did use a highly structured storyline. This provides a standardized

experience that likely minimized the impact of individual differences. Furthermore, as the sample included a significant number of infrequent gamers (17.4% who never played video games), the standardized chapter structure of *Fractured Minds* likely played a crucial role in ensuring a consistent experience, as engaging mechanics can override a lack of prior gaming expertise. This interpretation is supported by Wols et al. (2021) who showed that an applied game's internal mechanics can override initial player expectations induced by trailers. By manipulating participant expectations through trailers that framed the game as either mental health-focused or entertainment-focused, they discovered that they did not significantly change actual in-game fun, behaviour, or physiological responses. Their findings showed that sufficiently engaging mechanics ensure a consistent player experience regardless of how the game was promoted. Taken together, because neither gender nor the specific trailer condition significantly predicted engagement in this study, the results indicate that player engagement might be more dependent on the game's internal design than on the way the game is promoted.

A significant strength of this study is the use of a genuine commercial video game, *Fractured Minds*, which provides a credible and immersive experience. As noted by Poppelaars, Wols, et al. (2018), many digital health interventions are simply digitalized versions of manualized therapy protocols, which often fail to appeal to youth. Because *Fractured Minds* was designed as an entertainment game with mental health awareness at its core, it provides a more authentic gaming experience that reflects how young people actually interact with modern video games. Additionally the experimental control used in the trailers is a strength, because keeping the game footage identical between conditions allowed for any differences to be attributed to the specific framing rather than to visual or narrative variations. Furthermore, while the male sample was smaller than the female sample, the analyzed sample size of 139 participants is a strength, as it is a considerably large sample size, providing robust statistical power to explore potential effects.

Several methodological limitations should be considered when interpreting these results. The final sample of the study showed a clear imbalance in gender distribution, with substantially fewer men than women. This smaller male sample size may have significantly reduced the statistical power to detect potential interaction effects between gender and trailer framing. However, extremely small effect sizes were observed for the interaction terms. Given these effect sizes, a more balanced sample would likely only produce different results if the lack of findings in the current study was due to a measurement or design error, rather than a true absence of effect. Beyond this gender imbalance, the study included only five non-binary and other gender participants, which was a group too small to include in the statistical analyses. Consequently, this research cannot determine how gender-diverse individuals respond to different promotional frames, which might lead to different results. As noted by Fleming et al. (2025) gender-minority youth often experience higher rates of distress and significant barriers to care. Future research should intentionally recruit larger numbers of men and non-binary/other gender participants to allow for a more complete analysis.

Furthermore, the sample consisted primarily of first-year psychology students from the Netherlands, which limits the generalizability of the findings. This specific group is highly educated and may have higher mental health literacy. Additionally, they would probably have more positive attitudes towards innovative treatments than the general public since this is something they already have a high interest towards. These positive attitudes towards mental health care and awareness could explain why the female and male participants found the mental health messaging equally acceptable. Individuals from different educational or cultural backgrounds might experience higher levels of perceived stigma or psychological reactance when faced with explicit mental-health focused promotions. If this study were conducted with a non-academic population or with young people with lower literacy levels, the results would likely be different. In those conditions, explicit mental health labels might trigger psychological reactance, making stealth or gameplay-focused

messaging a more necessary strategy for engagement (Poppelaars, Wols, et al., 2018). Future research should test these effects in populations with lower mental health literacy or higher resistance to support to see if the stealth approach provides a more significant advantage in those contexts.

Taken together, these findings provide a valuable initial exploration of how promotional framing affects game engagement. While the results suggest a consistent response across gender, the limited power means that subtle differences cannot be entirely ruled out. Even a minor increase in a message's effectiveness could result in thousands more young people accessing mental health support. Furthermore, even a subtle preference is critical for reaching specific reluctant groups, such as young men, who face greater barriers to help-seeking (Cotton et al., 2006). This research serves as a starting point for understanding the psychological needs of players and how to effectively market applied video game interventions to youth. Because neither gender nor the specific trailer condition significantly predicted engagement, these findings suggest a potential boundary between processes of recruitment and retention. This indicates that while promotional trailers are essential for capturing initial interest and getting players to choose the intervention as shown by Poppelaars, Wols, et al. (2018), the internal design of the game is likely what sustains engagement once play begins (Wols et al., 2021). For mental health practice, this informs more effective marketing strategies by suggesting that applied interventions can use explicit mental health messaging to attract those who need it, without fearing that it will alienate certain genders. Since men and women reported similar levels of engagement regardless of the framing, there may not be a need to employ highly gendered stealth or explicit strategies to ensure inclusive engagement with digital mental health tools.

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Appendix A

JASP syntax:

```
jaspRegression::RegressionLinear(  
  version = "0.19",  
  formula = IEQ_Cognitive ~ gender_binary + TrailerCondition  
+ gender_binary : TrailerCondition,  
  collinearityStatistic = TRUE,  
  factors = list(types = list("nominal", "nominal"), value =  
list("gender_binary", "TrailerCondition")),  
  rSquaredChange = TRUE,  
  residualQqPlot = TRUE,  
  residualVsFittedPlot = TRUE,  
  weights = list(types = list(), value = "")
```

```
jaspRegression::RegressionLinear(  
  version = "0.19",  
  formula = IEQ_Emoional ~ gender_binary + TrailerCondition  
+ gender_binary : TrailerCondition,  
  collinearityStatistic = TRUE,  
  factors = list(types = list("nominal", "nominal"), value =  
list("gender_binary", "TrailerCondition")),  
  rSquaredChange = TRUE,  
  residualQqPlot = TRUE,  
  residualVsFittedPlot = TRUE,  
  weights = list(types = list(), value = "")
```

```
jaspRegression::RegressionLinear(  
  version = "0.19",  
  formula = `IMI_Enjoyment/` ~ gender_binary +  
TrailerCondition + gender_binary : TrailerCondition,  
  collinearityStatistic = TRUE,  
  factors = list(types = list("nominal", "nominal"), value =  
list("gender_binary", "TrailerCondition")),  
  rSquaredChange = TRUE,  
  residualQqPlot = TRUE,  
  residualVsFittedPlot = TRUE,  
  weights = list(types = list(), value = "")
```

```
jaspRegression::RegressionLinear(  
  version = "0.19",  
  formula = player_expectations ~ gender_binary +  
TrailerCondition + gender_binary : TrailerCondition,  
  collinearityStatistic = TRUE,  
  factors = list(types = list("nominal", "nominal"), value =  
list("gender_binary", "TrailerCondition")),  
  rSquaredChange = TRUE,  
  residualQqPlot = TRUE,  
  residualVsFittedPlot = TRUE,  
  weights = list(types = list(), value = "")
```

```
jaspRegression::Correlation(  
  version = "0.19",  
  assumptionCheckMultivariateShapiro = TRUE,  
  assumptionCheckPairwiseShapiro = TRUE,  
  ci = TRUE,  
  significanceFlagged = TRUE,  
  variables = list(types = list("scale", "scale", "scale",  
"scale", "scale"), value = list("player_expectations",  
"gender_binary", "IMI_Enjoyment/", "IEQ_Emoational",  
"IEQ_Cognitive")))
```

```
jaspDescriptives::Descriptives(  
  version = "0.19",  
  formula = ~ player_expectations + Attractiveness +  
Perceived_Fun + Finished + Duration_in_seconds_ + Progress +  
FirstLanguage + GamingFrequency + Played_game_before_ + GamDur,  
  densityPlotSeparate = list(types = list(), value = ""),  
  heatmapHorizontalAxis = list(types = list(), value = ""),  
  heatmapVerticalAxis = list(types = list(), value = ""),  
  splitBy = list(types = list(), value = ""))
```

```
jaspDescriptives::Descriptives(  
  version = "0.19",  
  formula = ~ `IMI_Enjoyment/` + IEQ_Emoational +  
IEQ_Cognitive + Attractiveness + Perceived_Fun,  
  densityPlotSeparate = list(types = list(), value = ""),  
  heatmapHorizontalAxis = list(types = list(), value = ""),  
  heatmapVerticalAxis = list(types = list(), value = ""),  
  splitBy = list(types = list(), value = ""))
```

```
jaspRegression::Correlation(  
  version = "0.19",  
  variables = list(types = list("scale", "scale"), value =  
list("Attractiveness", "Perceived_Fun")))
```

```
jaspFrequencies::BinomialTest(  
  version = "0.19",  
  formula = ~ GamingFrequency)
```

Appendix : AI Use Summary

- AI system: OpenAI – ChatGPT (<https://chat.openai.com>)
- Final prompts used:
 - Summarize the key principles of Regulatory Fit Theory and explain how it relates to gender differences in persuasion.
 - Generate possible academic thesis titles for a study examining gender differences and trailer messaging effects on engagement with a serious mental health game.
 - What statistical analysis should I use to test whether gender moderates the effect of promotional framing (two conditions) on engagement outcomes?
- Use case:
 - This prompt helped clarify the core assumptions of Regulatory Fit Theory and how it could be linked to gender-based motivational orientations. This supported the formulation of the hypotheses and strengthened the theoretical framework section.
 - This prompt was used to brainstorm possible thesis titles. The AI provided several alternative phrasings, which helped refine the wording and ensure the title clearly reflected the aim of the study and which variables were important.
 - This prompt was used to confirm which statistical method would be appropriate for testing a moderation effect with one categorical moderator and the messaging conditions. The AI suggested multiple linear regression.
- Modifications: I did not directly copy any AI-generated text. Instead, for the first prompt I rewrote the theoretical explanations in my own words, and ensured all claims were supported by appropriate citations. For the title of the thesis I used the suggestions as an inspiration and paid attention to the words that were important to include in my own generated title. For the statistical analysis I verified the suggestions with course literature and asked other people for help too. In the end I also received feedback from my supervisor, which formed the final statistical analysis used in this thesis.