Tapping into touch preferences and individual behaviours: assessing and improving the HandsOn mobile app

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Abstract. To address the pervasive issue of loneliness and enhance well-being through touch, it is crucial to understand individual needs and preferences regarding touch. Assessing these touch behaviors and preferences remotely requires innovative methods that enable the exploration and expression of feelings related to self-touch and touch from others. This study utilizes an existing 3D tool, previously employed in empirical research, and presents an improved version with various exercises designed to enhance user engagement and effectiveness. A comprehensive user experience (UX) study was conducted to identify potential improvements and evaluate the app's overall efficacy. The UX data revealed a generally positive reception, with users providing satisfactory ratings. However, feedback also indicated areas for enhancement, particularly concerning the app's user interface (UI) and overall user-friendliness. Additionally, comparing exercise types, we corroborate findings that show significant improvements to user wellbeing with self-touch and imagined touch exercises. These findings suggest that while the current version of the app is effective, there is substantial potential for improvement to better meet user needs and preferences. This study highlights the importance of continuous refinement and user-centered design in the development of digital tools aimed at reducing loneliness and promoting well-being through touch.

Keywords: mobile app, 3D tool, user experience, user interface, self-touch, affective touch. well-being.

1 Introduction

In a post-COVID world, we are more aware than ever of the important role that touch plays in our lives. However, it is through the lens of the pandemic and the *#metoo* era that preceded it, that the subjective nature of touch has been underlined. Specifically, although many felt the lack of touch acutely during the time of social isolation, others were able to use that time to consider what and how much touch they need and want. It is in light of this collective awakening to the relative importance of touch, that tools to probe individual preferences and behaviours relating to touch became more relevant than ever to the community of affective touch research.

Recent research has highlighted the importance of affective touch, which refers to intentional physical contact between humans that is driven by emotion [1]. Affective touch has been shown to be essential for the healthy development of infants [2,3] as well as the emotional regulation of adults [4,5]. It is differentiated from social touch, which signifies the exteroceptive aspect of affective touch through social interaction [1]. Nonetheless, despite being one of our most fundamental needs, our sense of touch has often been overlooked, and was previously considered solely as a discriminative sensory modality helping us to understand the world around us [6]. However, more recently, the role of the newly discovered subclass of unmyelinated C-tactile afferents (CT) and how they respond to stimuli typical of a caress has provided a putative mechanism to explain the benefits of affective and social touch [6,7]. The stimulation of CTs and the resulting pleasantness generated by affective touch have been found to be influenced by both bottom-up and top-down factors, including the body temperature of the person performing the touch, the speed of stroking, gender, and the nature of the physical touch [8-11].

Extended periods of social distancing and isolation lead to a deprivation of interpersonal touch which is linked to increased feelings of loneliness and anxiety [10,12,13], while it can impact cognitive ability and brain plasticity [14,15] among other psychological changes. Notably, though loneliness and physical isolation are strongly linked together, the latter is not the sole condition that leads to this experience, as loneliness has been described as the subjective perceived distance between oneself and others and one may feel alone even in the presence of a social group [16]. Affective tactile exchanges, in particular, can play a significant role in enhancing feelings of social connection and closeness, thus resulting in decreased stress reactivity and feeling of social exclusion, loneliness, and neglect [13,17,18]. To this end, and with the COVID-19 pandemic exacerbating the pre-existing issue of social touch being undervalued, there has been a growing effort to develop innovative and creative interventions aimed at assisting individuals in coping with touch deprivation.

A recent article [19] describes the implementation of a novel set of tools *The Virtual Touch Toolkit*[1] as part of a mobile phone application *HandsOn*, designed to address and highlight the significance of social and affective touch in a secure and digitized format, and its potential to combat the rising social isolation that stemmed from pandemic-related restrictions. The application is provided as an exercises toolkit with a primary focus on activating the affective touch and reward systems in a self-

[1] https://github.com/alinajm7/VirtualTouchToolkit

oriented manner through self-touch, vicarious touch, or imagined touch. While the exercises are designed for individual use, some may require the participation of partners or other users who have access to the application. The aim of the present study is to provide an analysis on the user experience (UX) of the *HandsOn* mobile application in order to identify and fix any issues and errors in its design and functionality, and test its usability, efficiency, and acceptance before rolling out a release for use in individual, clinical, or other settings.

2 Materials and Methods

2.1 Participants

Adult male and female participants were recruited through advertisement on university boards and through social media platforms. Data were obtained for a total of (n=137) participants (male=65, female=70, other=2) aged between 18 and 65+ years old. There were participants from 14 countries and various ethnicities participating in this study including the United Kingdom, Cyprus, Germany, Switzerland, Nepal, India. The majority had less than a high school degree education (n=91) and were either single (n=60) or in a relationship (n=49). Participants were familiar with the use of mobile applications but did not spend time playing mobile games. Participants' full demographic data are shown in detail in Table 1. App data (emotion score, exercise score) from 26 participants (male=5, female=19, other=2) were excluded from the app data analysis due to technical issues.

Written informed consent was obtained from all participants and the experiment was approved by the Universität der Bundeswehr München ethics committee. Participants did not receive any monetary compensation. However, participation credits were provided to student participants who required them as part of their academic coursework.

2.2 Application Design

The application consists of 16 exercises, a mood map feature, a link to the application YouTube channel with expert explainer videos, and a diary feature as well a subjective report rating function after each exercise. The 16 exercises of the application are divided across 5 exercise groups depending on certain distinguishing characteristics. They are classified as (1) 3D (The sound of my body, My body in your hands, Touch zones) taking approximately 7 minutes to complete all exercises in this group, (2) materials (Silky soft, Sadness sponge, Touch materials) taking approximately 5 minutes to complete, (3) touch and sound (Goldilocks effect, Lullaby) which takes approximately 8 minutes to complete, (4) imagined touch (Two types of touch, Silky soft, What's that letter, Imagine a hug) which takes approximately 7 minutes, and (5) self-touch (Temple rub, Rub away your stress, Give yourself a hug, The lion's mane, sadness sponge, Breathe with touch) which takes approximately 8 minutes to complete (Fig. 1).

2.3 Procedures

Recruitment and assignment of participants took place in various phases based on the 5 groups described above depending on the types of exercises (group1 = 3D, group2 = materials, group3 = touch and sound, group4 = imagined touch, and group5 = self-touch). Participants were recruited for one group before moving on to the next. Upon agreeing to take part in the study, participants were contacted by email and were provided with instructions on how to download and set up the application from the website. Next, they were asked to follow the task specific instructions that were related to the exercises they had to do based on the group they were assigned to. Based on their allocated group, participants were asked to complete a variety of tasks, examples of which can be found in Fig. 1 and further information can be found in [19]. These instructions were uploaded in pdf format on the website. They were asked to do the exercises at least once over a period of three weeks. A reminder was sent out weekly. Once these exercises were completed, participants were asked to fill out the user experience questionnaire (see section 3 Measurements).

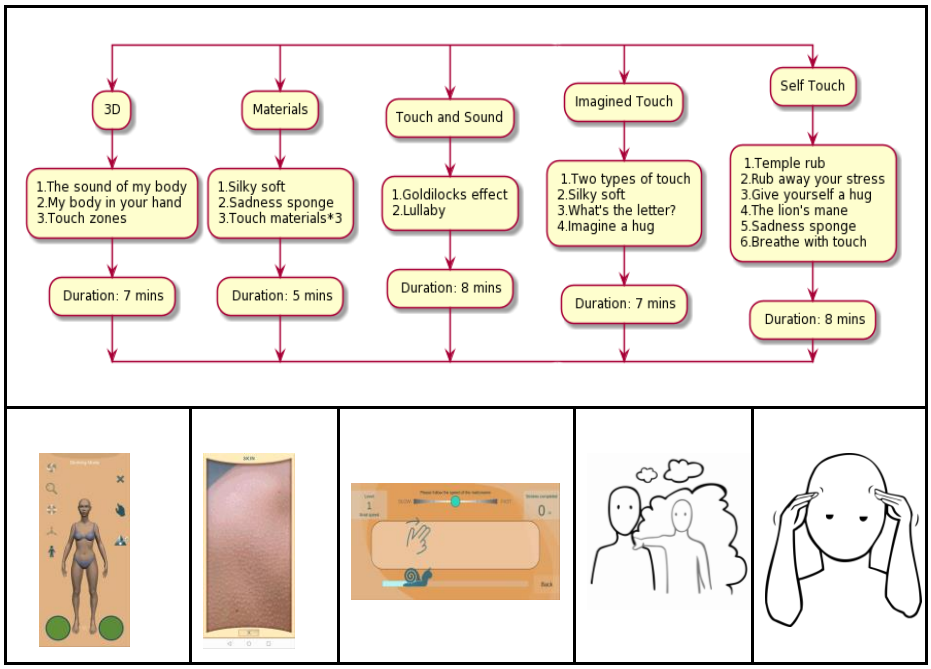

Fig. 1. The five types of exercises in the HandsOn Mobile Phone application and experimental groups. For the "3D tasks", participants were asked to imagine their own body and to either stroke a 3D model of their body or paint body parts that they would find pleasant to be touched. In the "Materials" tasks, participants were asked to stroke their touch screen on which different materials were presented (e.g. skin or wood) as if touching that material. In "Touch and Sound" participants were asked to stroke a demarcated panel either at a prescribed metronome speed or in time with different soundtracks. In the imagined tasks, participants were asked to imagine

different touch scenarios (e.g. “Imagine a hug”). In the “Self touch” group, participants were asked to physically engage in touch tasks (e.g. rubbing their temples).

3 Measurements

Emotion Score. When participants opened the application, they were first asked to rate their emotion levels. This was indicated on a visual mood map. Participants had the option to customize the emotions mood map with colours, words such as happy or sad or using emoticons [20]. The mood map was divided into 4 quadrants with two axes: valence and arousal. Both axes range from -2 to +2. The emotion data, including valence and arousal coordinates, was extracted in the form of binary data files (.hon). Based on these scores, a new variable (combined score) was calculated by adding valence and arousal scores for each participant.

Exercise Score. After completing each exercise in the group, participants were asked to rate their experience on a 5-point Likert scale. The question they were asked was: *“How do you feel after this exercise?”* where 1 indicates *‘Worse’*, 2 *‘Not better’*, 3 *‘Same’*, 4 *‘Better’*, and 5 *‘Much Better’*. The average score per participant per exercise was calculated in case they did an exercise many times.

User Experience Questionnaire (MARS). User experience was measured using the MARS [21] instrument, which is the most widely utilized scale for evaluating the quality and content of mobile health applications [22]. It consists of a total of 19 items covering four dimensions: (a) engagement (5 items: fun, interest, individual adaptability, interactivity, target group), (b) functionality (4 items: performance, usability, navigation, gestural design), (c) aesthetics (3 items: layout, graphics, visual appeal), and (d) information quality (5 items: accuracy of application description, goals, quality of information, quantity of information, quality of visual information).

Additional sections (e) subjective quality and (f) app-specific contain items that are adjusted and used to assess the perceived impact of the application on the user’s knowledge, attitudes, and intentions to change as well as the likelihood of actual change in the target health behavior. All items are assessed on a 5-point scale (1-inadequate, 2-poor, 3-acceptable, 4-good, and 5-excellent). Items assessing information quality can also be rated as not applicable (e.g., in case of missing evidence or missing visual information). Of these, participants were instructed to select what best applies to them. The questionnaire took approximately 15-20 minutes to complete.

Open Questions Survey. Participants were additionally requested to answer an open-ended question about their overall rating of the application. They were asked to elaborate on various characteristics such as the glitches they encountered or parts of the application that were inaccessible, features that they would change to make the application more user-friendly and useful, what they liked the most and the least about the application, and to describe a situation where the application would be most useful to them personally.

4 Data Processing and Analysis

Participants' data were downloaded for analysis, which includes emotion data, and rating for each exercise. Valence and arousal are extracted from the emotion data for each participant that are recorded using the emotion map, exercise types and ratings for each type are extracted for each participant. For all three variables, the mean values are used where a participant gave multiple ratings.

Participants' scores for each of the 16 exercises, arousal, valence, as well as age and gender (with female as the default baseline) are entered into regression models. As mentioned previously, exercises were grouped depending on different features. This group factor was considered as a predictor to test if there were indeed any differences across these grouping features.

Exercise score is regressed against group, age, and gender in a linear mixed effect regression model. A random individual effect is included as each participant can contribute multiple ratings across different exercises, random baseline for each exercise is also included. Additional tests of estimated marginal means were performed to reveal the results of pairwise comparisons between groups.

Valence and arousal are each regressed against group, age, and gender in regressions. Simple linear models are used as each participant only has one score for valence and for arousal. Additional tests of estimated marginal means were performed to reveal the results of pairwise comparisons between groups.

Finally, Exercise score is regressed against arousal and valence in separate mixed effect regressions with random effects for each participant, group, and individual exercise.

5 Results

Exercise Score and Exercise Group. We observed some group effects on exercise scores. In particular, both group 4 (β=0.520, SE=0.139, $p<0.05$), and group 5 (β=0.447, SE=0.148, $p<0.05$) have higher exercise scores (Fig. 2) compared to group 1. See SM Table 2 for full results.

Exercise Ratings, Valence, and Arousal. Users registered their mood state when starting the app using a mood map that simultaneously captures arousal and valence. We explored the relationship between user mood state and exercise efficacy to show that valence scores (but not arousal) are predictive of exercise efficacy scores (β=0.049, SE=0.020, $p<0.05$) (Fig. 3). See SM Table 3 for full results.

MARS UX Questionnaire. Table 4 shows the medians and IQR for the different dimensions of the MARS questionnaire. Overall, the application scored average on engagement and the perceived impact of the application on users' knowledge, attitudes, and awareness on the importance of affective touch on well-being, and above average regarding its functionality and quality of information delivered to the user. Responses were mixed regarding aesthetics with respondents reporting room for improvement regarding the quality of the interface and overall design (buttons, screen, color scheme).

These findings are also supported after analyzing respondents' comments on the open question. We will describe these next.

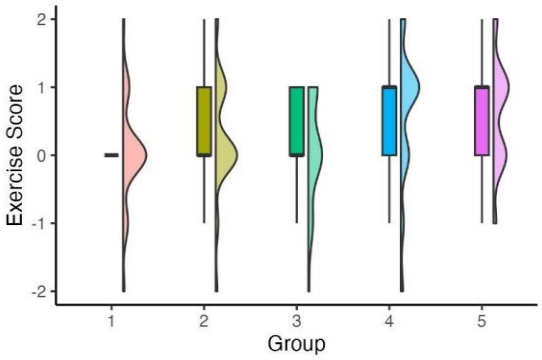

Fig. 2. Effect of exercise group: Boxplot and density plot for exercise scores per *group* showing significant difference between "imagined" group 4 and "self-touch" group 5 relative to "3D" group 1 exercises.

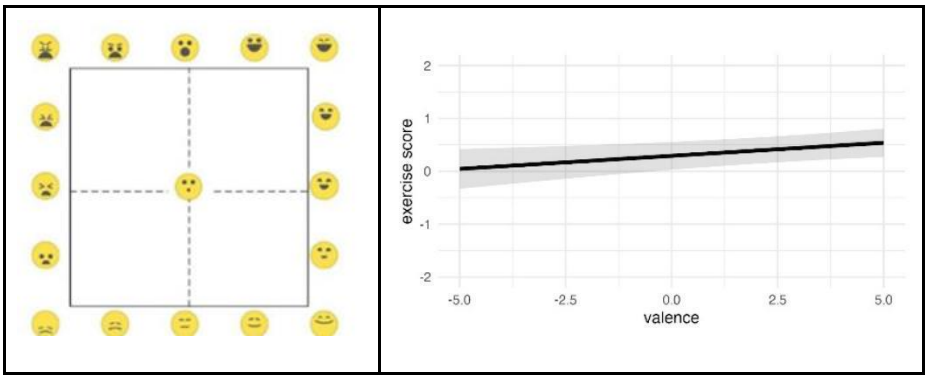

Fig. 3. Exercise efficacy predicted by mood map score: Valence but not arousal scores registered on the mood map at the start of the app predict exercise efficacy.

Survey. For better visualization of the data and to identify specific points for improvements for the developer team, we generated word clouds using the Python

libraries *WordCloud*[2], *pandas*[3], and *NumPy*[4]. All data was first cleaned and filtered. For example, no English comments were translated using *langdetect 1.0.9* [5], typos and other mistakes were corrected, American English was converted to British English to avoid having duplicate words. Stop words were imported from *nltk.corpus* [6]. Additional stop words were included because they appeared a lot in the text but did not contribute to the analysis. For example, words like 'app', and 'exercise(s)', 'sometimes' were all words that were used by many participants in sentences like *'The glitches I found in the app…'* or *'The exercise where I had to do…'*, etc. and did not necessarily contribute to words of meaning for the word cloud.

Participants were first asked to list any glitches or parts of the application that were inaccessible while using it. Though most users did not encounter any major problems while using the application, exercise-related drawbacks were identified with respect to using the touchscreen (buttons, scrolling, stroking). For example, comments included *'The avatar was moving while I was stroking', 'It did not identify my stroking correctly', 'The button presses would not respond'* etc. Sound was another major point for the different exercises, as participants reported that *'sound was not always in kin with instructions,' or 'the sound was broken,' 'there was no sound'* etc.

Participants were then asked to report what they would change about this application to make it more user-friendly and useful. The major issues were detected with respect to the overall design, including color scheme, interaction (buttons), instructions and video tutorials, as well the support of additional languages for non-native English speakers.

When participants were asked to describe a situation where this application could be the most useful to them, the majority described a stressful or lonely situation in their life but also to bring awareness and learn more about the importance of touch. Comments included *'On days with heavy work stress this was a good way to relax,' 'when looking for something to destress,' 'when stressed from work,' 'if lonely and depressed,' 'when feeling low and lonely'* etc.

Following the word cloud generator, we performed sentiment analysis on respondents' overall comments to detect data polarity using the VADER tool (Valence Aware Dictionary and sEntiment Reasoner) [23], which is a rule/lexicon-based, open-source sentiment analyzer pre-built library within NLTK. Compound scores used for VADER were positive sentiment (>= .05), neutral sentiment (> -.05) and (< .05),

[2] https://amueller.github.io/word_cloud/

[3] https://pandas.pydata.org/

[4] https://numpy.org/

[5] https://pypi.org/project/langdetect/

[6] https://www.nltk.org/api/nltk.corpus.html

negative sentiment (<= -.05). Fig. 4 shows the output of the sentiment analysis. In line with the responses from the user-experience questionnaire, the application was graded neutral (neither good nor bad).

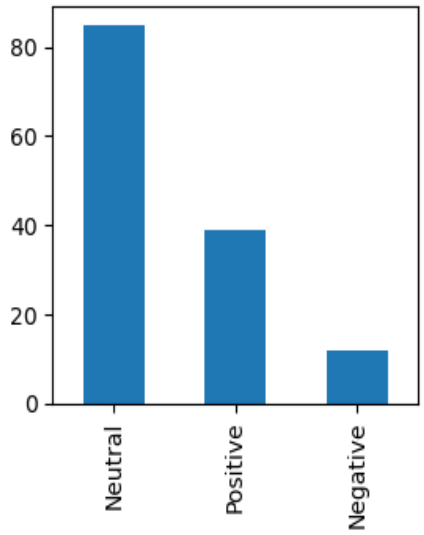

Fig. 4. Sentiment analysis using VADER.

6 Discussion

The present study intended to analyze the user experience and efficacy of the [19] application that was designed to promote self-discovering through and a better understanding of social, affective touch. The application includes a variety of features and exercise sets that are intended to activate the user's oxytocinergic and reward systems, as well as provide educational information on affective touch. We identify key features and exercises of the app that improve user wellbeing but also identify features for future development and improvement.

Comparing the range of exercises incorporated into the app, we explore both the relative efficacy of the exercise groups and how these post exercise scores relate to user mood state. Specifically, we show that exercises that target ‘self touch’ (group 5) and imagined or vicarious touch (group 4) yield highest post exercise scores with users reporting that they felt better than before the exercise. Although the function of self-touch remains unclear [24], studies have shown effects on interoceptive awareness [25]. Through the use of videos, many empirical studies have shown the behavioural and indeed neural similarity in individuals’ responses to observed compared to physical touch [26]. With similar ratings of perceived pleasantness for vicarious and physical touch, it is unsurprising that exercises that elicit an imagined touch event should result in higher ratings of wellbeing. We show further that these are significantly higher than

the 3D model exercises. In future studies, we would explore the efficacy of 3D model exercises at altering other metrics including bodily awareness with potential applications within clinical settings [27]. Finally, we show that those individuals who rated high valence mood states at the start of the app were more likely to report higher ratings after the exercise (higher exercise efficacy scores). It should be noted however that these effects were small (though significant). As such future studies should investigate more objective markers of exercise efficacy, specifically on changes in autonomic arousal, a marker for emotion regulation [28].

User experience (UX) was measured based on the MARS method which is a widely used scale for evaluating the quality and content of mobile health applications. Additional individual questionnaire items addressing emotional state (arousal, valence) and exercise-specific subjective ratings were embedded in the application itself and later analyzed. Based on the results presented above, the findings indicate positive feedback from users regarding overall engagement and functionality, with the design being a major concern requiring further attention in order to make the application more attractive and user-friendly. With respect to emotion scores, only two exercises were found to positively affect valence and arousal from the self-touch and imagined touch exercise groups. It appears that the exercises that resulted in negative scores were mostly those that involved users interacting with the mobile device by touching the screen or listening to sounds. Based on the results of the open interview, we believe that various glitches in this interactive component were responsible for these issues that need to be further addressed by the developers' team.

The study depends on subjective questionnaire ratings and has its limitations. The originally planned sample size of 200-250 participants was challenging to achieve and the resulting sample may not be entirely representative, as the study mainly recruited participants from student populations. Furthermore, the data was collected only at one time-point instead of the planned three-time intervals over a three-week period due to difficulties with participant engagement. Some participants dropped out or did not complete the exercises at the scheduled time-points, despite timely reminders.

In future studies, efforts will be made to increase the sample size for data collection and explore alternative usability testing methods. Specifically, although our sample includes data from over 15 countries, further efforts should be made to explore culturally relevant differences or overlap [29]. In order to do this, further iterations of the app should include interface language options and support. Additionally, the suggested modifications by users will be implemented and the application will be tested on specific populations with heightened touch deprivation, including elderly living alone or in care facilities, individuals with physical disabilities or mental health conditions, individuals in long-term hospital care and correctional facilities, and individuals in military settings who are deployed for extended periods without physical contact.

Table 1. Participant demographic data.

Variable	**Overall**	
n	**137**	**Median (IQR)**
age		
0 = Below 18 years old	89	
1 = 18-24 years old	34	
2 = 25-34 years old	7	1(1)
3 = 35-44 years old	2	
4 = 45-54 years old	4	
5 = 55-64 years old	1	
6 = Above 65 years old		
gender		
0 = Male	65	
1 = Female	70	
2 = Non-binary		
3 = Trans-gender		
4 = Prefer not to say	2	
ethnicity		
0 = Caucasian	81	
1 = African-American		
2 = Latino or Hispanic	1	
3 = Asian	15	0(6)
4 = Native American		
5 = Two or More	5	
6 = Other/Unknown	25	
7 = Prefer not to say	10	
education	91	
0 = Less than high school degree	16	
1 = High school degree or equivalent	16	
2 = Some college but no degree	2	0(1)
3 = Associate degree	8	
4 = Bachelor degree	4	
5 = Graduate degree		
relationship	60	
0 = Single	49	
1 = In a relationship	6	
2 = Engaged	14	
3 = Married		1(1)
4 = Widowed	4	
5 = Separated		
6 = Divorced		
7 = Civil Union	1	
8 = Domestic Partnership	3	

9 = Other 10 = Prefer not to say		
employment 0 = Employed Full-Time 1 = Employed Part-Time 2 = Seeking Opportunities 3 = Retired 4 = Prefer not to say	 120 6 6 1 4	0(0)
internet 0 = Less than 1 hour a day 1 = 1-2 hours 2 = 2-3 hours 3 = 3-4 hours 4 = More than 4 hours a day	 3 16 38 30 50	3(2)
familiarity Familiarity with mobile Apps: median (IQR) 1 = not at all familiar/5 = extremely familiar		4(1)
games Video game playing over week: 0 = 0 1 = 1-5 2 = 5-10 3 = 10-15 4 = >15		0(1)

Table 2. Mixed Effect Regression predicting exercise score with group, age, gender, with random effects for participants and individual exercises.

lmer(exercise score ~ group + (1|ID) + (1|exercise) + age + gender)				
	Estimate	**SE**	**p.value**	
(Intercept)	-0.057	0.204	0.781	
group2	0.171	0.119	0.191	
group3	0.125	0.204	0.543	
group4	0.520	0.138	0.002	****
group5	0.447	0.147	0.007	**
age	0.008	0.007	0.284	
gender - male	-0.172	0.113	0.129	
Conditional R2:	0.362			
Marginal R2:	0.082			
(Contrast)	**Estimate**	**SE**	**p.value**	
group1 - group2	-0.171	0.120	0.629	
group1 - group3	-0.125	0.205	0.972	
group1 - group4	-0.520	0.139	0.013	*
group1 - group5	-0.447	0.148	0.046	*
group2 - group3	0.045	0.202	0.999	
group2 - group4	-0.350	0.129	0.099	.
group2 - group5	-0.276	0.138	0.301	
group3 - group4	-0.395	0.207	0.326	
group3 - group5	-0.321	0.211	0.555	
group4 - group5	0.074	0.134	0.981	

Table 3. Mixed Effect Regression predicting exercise score with group, age, and gender, with random effects for participants and individual exercises.

lmer(exercise score ~ valence + arousal + (1|group) + (1|ID) + (1|exercise) + age + gender)

	Estimate	**SE**	**p.value**	
(Intercept)	0.089	0.216	0.682	
valence	0.049	0.020	0.014	*
arousal	0.008	0.019	0.6846	
age	0.008	0.007	0.2456	
gender - male	-0.162	0.110	0.1444	

Conditional R2:	0.360			
Marginal R2:	0.048			

Table 4. Median and IQR for each dimension of the MARS questionnaire.

Variable	Question	Median (IQR)
Engagement	Is the app fun/entertaining to use? Does it use any strategies to increase engagement through entertainment (e.g. through gamification)? *1-dull/ 5-highly entertaining*	3(1)
	Is the app interesting to use? Does it use any strategies to increase engagement by presenting its content in an interesting way? *1-not at all/ 5-very interesting*	3(2)
	Does it have the necessary settings/preferences for apps features (e.g. sound, content, etc.)? *1-not at all/ 5-very much customizable*	3(1)
	Does it have sufficient interactive features (allow user input, provide feedback, contain prompts? *1-not at all/ 5-very high-level interactivity*	3(1)
	Is the app content (i.e. visual information, language, design) appropriate for your intended use? *1-not at all/ 5-very much*	3(2)
Functionality		
	How accurately/fast do the app features and components (i.e., buttons/menus) work? *1-not at all/ 5-Very Much*	4(1)
	How easy is it to learn how to use the app; how clear are the menu labels/icons and instructions? *1-not at all/ 5-Very much*	4(1)
	Is moving between screens logical/accurate/appropriate/ uninterrupted; are all necessary screen links present? *1- different sections within the app seem logically disconnected and random/ confusing/navigation is difficult* *5-Perfectly logical, easy, clear and intuitive screen flow throughout, or offers shortcuts*	4(1)
	Are interactions (taps/swipes/pinches/scrolls) consistent and intuitive across all components/screens? *1-not at all/ 5-very much*	3(1)

Aesthetics		
	Is the arrangement and size of buttons/icons/menus/content on the screen appropriate or zoomable if needed? *1-not at all/ 5-very much*	4(1)
	How high is the quality/resolution of graphics used for buttons/icons/menus/content? *1-not at all/ 5-very much*	3(2)
	How good does the app look? *1-not appealing/ 5-very attractive*	3(1)
Information Quality		
	Does the app contain what is described? *1-5Misleading/ 5-Highly accurate*	4(1)
	Does the app have specific, measurable, and achievable goals? *1-not at all/ 5-very much/ 6 = n/a*	4(1)
	Is the app content correct, well written, and relevant to the goal/topic of the app? *1-5 not at all - very much 6 = N/A*	4(1)
	Is the content of the app comprehensive and concise? *1-not at all/ 5-very much/ 6 = n/a*	4(2)
	Is visual explanation of concepts – e.g. through charts/graphs/images/videos – clear, logical, correct? *1-not at all/ 5-very much/ 6 = n/a*	4(1)
Subjective Quality		
	Does the app contain what is described? *1-misleading/ 5-Highly accurate*	4(1)
	Does the app have specific, measurable, and achievable goals? *1-not at all/ 5-very much/ 6 = n/a*	4(1)
	Is the app content correct, well written, and relevant to the goal/topic of the app? *1-not at all/ 5-very much/ 6 = n/a*	4(1)
	Is the content of the app comprehensive and concise? *1-not at all/ 5-very much/ 6 = n/a*	4(2)

	Is visual explanation of concepts – e.g. through charts/graphs/images/videos – clear, logical, correct? *1-not at all/ 5-very much/ 6 = n/a*	4(1)
App-Specific		
	Would you recommend this app to people who might benefit from it? *1-not at all/ 5-very much*	3(1)
	What is your overall star rating of the app? *1-worst app/ 5-best app*	3(1)
	This app is likely to increase awareness of the importance of affective touch on well-being. *1-disagree/ 5-agree*	3(2)
	This app is likely to increase knowledge and understanding of the importance of affective touch on well-being. *1-disagree/ 5-agree*	3(2)
	This app is likely to change attitudes toward the importance of affective touch on well-being. *1-disagree/ 5-agree*	3(2)
	This app is likely to increase intentions/motivation to address the importance of affective touch on well-being. *1-disagree/ 5-agree*	3(2)
	Use of this app is likely to increase healthy touch behaviors that will have a positive impact on well-being. *1-disagree/ 5-agree*	3(2)

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