Original Scientific Paper https://doi.org/10.24867/GRID-2026-p55

Designing Mental Well-Being Mobile Applications: Insights into User Preferences for User Interface Design

ABSTRACT

User interface design can influence how users perceive and evaluate mental well-being mobile applications. However, empirical evidence regarding users' preferences for specific visual interface characteristics remains limited. This paper presents an experimental evaluation of user preferences for alternative interface designs of a mental well-being mobile application prototype. The study focused on four visual characteristics: interface colour, colour palette, interface theme, and graphical elements. An A/B testing approach was used to compare alternative design solutions, with data collected through a questionnaire completed by 35 participants. Five interface colours were examined (blue, green, purple, red, and orange) together with contrasting and monochromatic palettes, light and dark themes, and illustrations versus photographs. The results showed the highest perceived attractiveness for blue and green interfaces, an overall preference for light themes, and a consistent preference for illustrations over photographs. A statistically significant association was also found between interface colour and preferred colour palette ($\chi^2(4) = 40.112$, $p < 0.001$, Cramer's $V = 0.239$). The findings provide practical insights into users' visual preferences for mental well-being mobile applications.

Gala Golubović
Saša Petrović
Sanja Cvetojević
Iva Juretić
Stefan Đurđević

University of Novi Sad, Faculty of Technical Sciences, Department of Graphic Engineering and Design, Novi Sad, Serbia

KEY WORDS
User interface design, mHealth, mental well-being, mobile applications

1. Introduction

The increasing use of mobile applications in the field of health and well-being has emphasized the importance of designing interfaces that are not only functional, but also visually appropriate, accessible, and supportive of a positive user experience. User interface design can influence users' perception, emotional responses, interaction with content and overall evaluation of an application. Among visual elements, colour plays an important role, affecting readability, visual hierarchy, navigation, emotional perception, and the perceived credibility of presented information (Garrett, 2011; Elliot & Maier, 2014; Park & Kang, 2017). Research has also shown that colour can have a particularly strong influence on users compared with other visual elements, while appropriate colour combinations can contribute to a more pleasant and comprehensible user experience (Pelet & Papadopoulou, 2012). These aspects are particularly important in mobile applications designed to support mental well-being, where users may interact with the application in emotionally sensitive situations. Colour associations can influence the perceived atmosphere of an interface, with blue and green commonly associated with safety, stability, and calmness, while cooler colours may support relaxation and introspection (Valdez & Mehrabian, 1994; Labrecque & Milne, 2012; Swasty & Adriyanto, 2017; Bargas-Avila & Hornbæk, 2011). At the same time, the design of health-related applications needs to account for accessibility, sufficient contrast, consistency, and the use of additional visual cues rather than relying exclusively on colour (Wiklund, Kendler & Strochlic, 2016; W3C, 2018). Cultural differences should also be considered, as the meanings and emotional associations of colours may vary across cultural contexts (Cyr, Head & Larios, 2010; Kondratova & Goldfarb, 2007).

Understanding users' preferences for UI design elements is therefore important when developing mental well-being mobile applications that are both usable and emotionally appropriate. Previous research emphasizes the importance of combining psychological, functional, cultural, and accessibility considerations when selecting visual characteristics for health-related interfaces (Nielsen & Budiu, 2013; Sutcliffe, 2022). Therefore, this study investigates user preferences regarding selected user interface characteristics of mental well-being mobile applications to identify visual design solutions that better reflect users' preferences and expectations.

2. Methods

2.1. Research Design

The study investigated users' preferences regarding selected user interface characteristics of a mental well-being mobile application. Based on the literature review, particular attention was given to colour, colour palettes, interface themes, and graphical content, as these visual characteristics can influence users' perception and overall impression of health-related mobile applications.

An A/B testing approach was employed to examine users' preferences by presenting pairs of alternative interface designs and recording their choices. Data were collected using a questionnaire consisting of 58 questions. In the A/B comparisons, participants evaluated the presented design alternatives for each of the five selected colours.

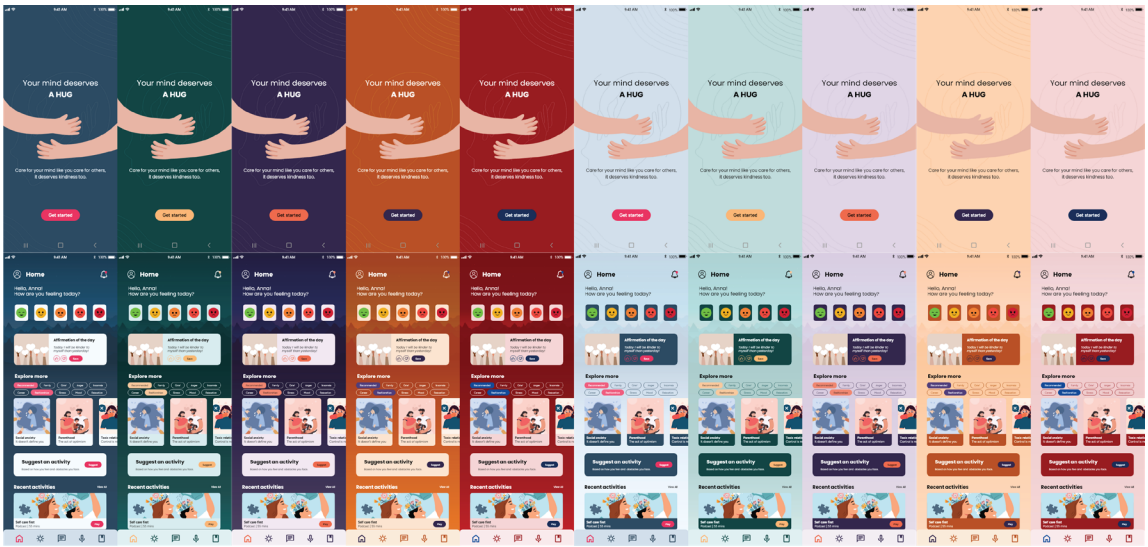
In addition to A/B comparisons, the questionnaire included questions concerning participants' gender and age, perceived attractiveness of the presented interfaces, and the extent to which the application was associated with the mental well-being domain.

2.2. Stimuli

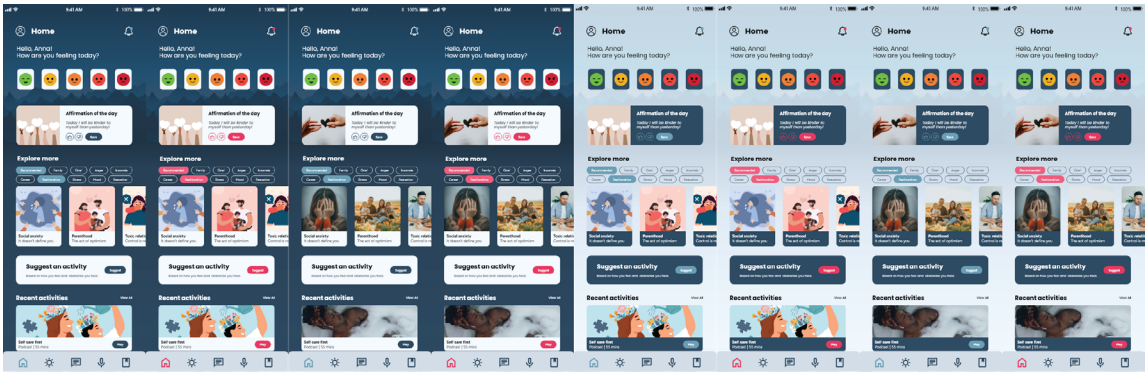
The stimuli were developed to examine preferences for five interface colours: green, blue, purple, red, and orange. The colours were selected based on recommendations for the use of colour in health-related mobile applications, with green and blue representing the most recommended colours, purple a neutral option, and red and orange the least recommended options. Accessibility considerations were also incorporated into the stimulus design, particularly regarding colour combinations that may be problematic for individuals with colour vision deficiencies. Adequate contrast between background and text was maintained throughout the designs.

Two types of application screens were designed: an onboarding screen and a home screen (Figure 1). Each screen was developed using all five selected colours in both light and dark themes.

To investigate preferences for colour palettes, each stimulus was additionally presented in contrasting and monochromatic variants in both light and dark themes. Since previous findings indicated that graphical content can affect users' overall impression of an application, an additional comparison examined preferences for illustrations versus photographs. These stimuli were likewise presented across both themes and colour palette variants (Figure 2).



» **Figure 1:** *Onboarding and home screen stimuli*



» **Figure 2:** *Variations of the blue-colour stimuli used in the study*

3. Results and discussion

A total of 35 participants were part of the study, including 20 female (57%) and 15 male (43%) participants. The largest age group was participants aged 26–35, accounting for 54% of the sample.

3.1. Perceived attractiveness of interface colours

To examine the general preference for interface colours, participants evaluated five onboarding screen stimuli presented in the dark theme with a contrasting colour palette. The stimuli were rated individually on a five-point Likert scale, ranging from 1 (completely unattractive) to 5 (completely attractive).

The blue interface received the highest mean attractiveness rating (M = 4.11), followed closely by the green interface (M = 4.06). Purple received a mean rating of 3.71, while red and orange were rated lower, with mean scores of 3.51 and 3.31, respectively.

The higher attractiveness ratings of blue and green are consistent with previous research associating these colours with safety, stability, calmness, and trust, particularly in health-related contexts (Valdez & Mehrabian, 1994; Labrecque & Milne, 2012; Swasty & Adriyanto, 2017).

3.2. Preferences for colour palettes

The A/B tests examined participants' preferences between monochromatic and contrasting colour palettes, considering both light and dark themes and both onboarding and home screens. For each of the five colours, four stimulus pairs were compared, resulting in 20 A/B comparisons for each participant. The results presented below are the combined responses from all participants for the five colours.

When all five colours were considered together, the dark-theme onboarding screen showed a slight overall preference for the contrasting palette, with 91 selections compared with 84 for the monochromatic palette. At the individual colour level, contrasting palettes were preferred for blue and green, whereas monochromatic palettes were preferred for purple, orange, and red.

A similar, although weaker, tendency was observed for the light-theme onboarding screen, where the contrasting palette received 88 preferences compared with 87 for the monochromatic palette. At the individual level, blue was the only colour for which the contrasting palette was preferred.

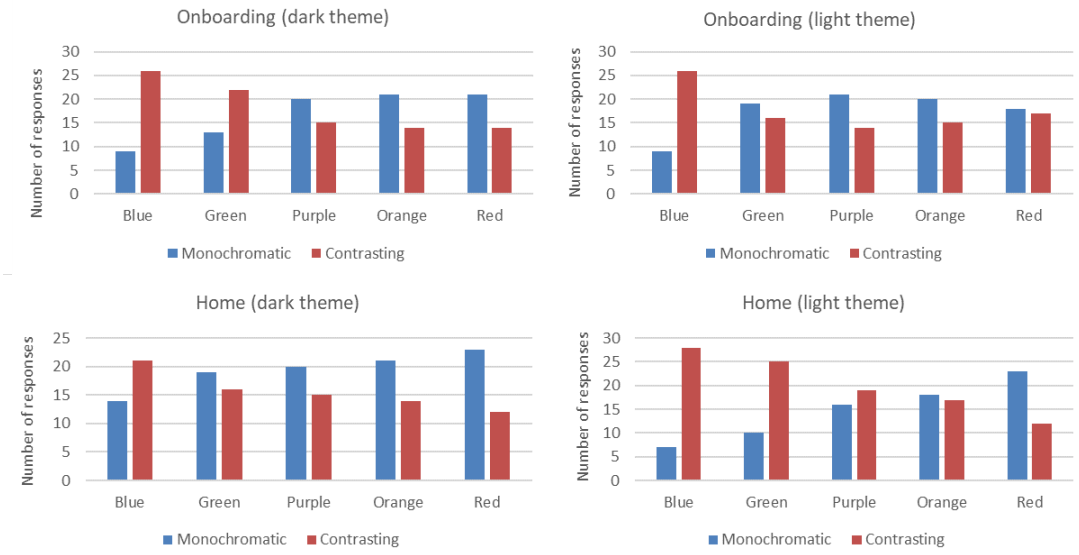
For the dark-theme home screen, the overall preference was reversed: participants selected the monochromatic palette 97 times compared with 78 selections for the contrasting palette. Blue was the only colour that deviated from this overall pattern.

In contrast, the light-theme home screen showed a clear preference for the contrasting palette, with 101 selections compared with 74 for the monochromatic palette. Contrasting palettes were preferred for blue, green, and purple at the individual colour level.

Overall, the results indicate that preference for monochromatic versus contrasting palettes was not uniform, but varied according to the interface screen, theme, and base colour (Figure 3).

These results suggest that colour preference depends partly on how colours are combined within the interface. The significant association between interface colour and preferred palette supports this finding.

This is consistent with previous research on the importance of colour combinations and contrast for users' perception and overall experience (Pelet & Papadopoulou, 2012).



» **Figure 3:** *Preferences for monochromatic and contrasting colour palettes across interface themes and screens*

3.3. Preferences for interface theme

Participants also compared light and dark versions of the onboarding and home screens. For the onboarding screen, 96 responses indicated a preference for the light theme, compared with 79 for the dark theme. The preference for the light theme was particularly evident for the blue, orange, and red stimuli.

A comparable pattern was observed for the home screen, where the light theme received 93 preferences compared with 82 for the dark theme. At the individual colour level, the light theme was preferred for blue, red, and orange stimuli.

These findings indicate an overall preference for light interfaces across both types of screens (Figure 4).

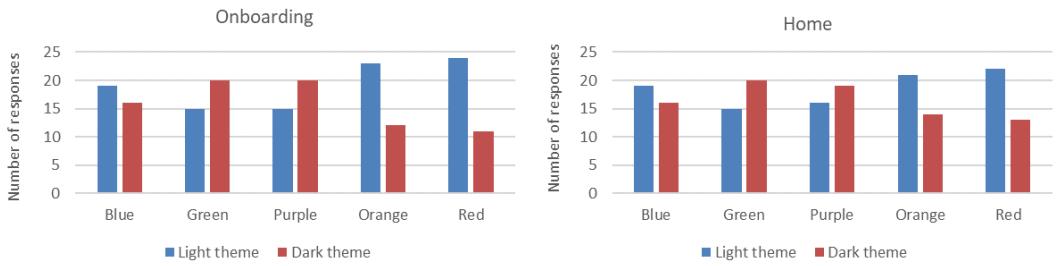
The preference for light interfaces is consistent with previous findings on the use of lighter background colours in interface design (Pelet & Papadopoulou, 2012). However, the absence of a statistically significant association between colour and theme suggests that the preference for light themes was not strongly dependent on the selected interface colour.

3.4. Preferences for graphical elements

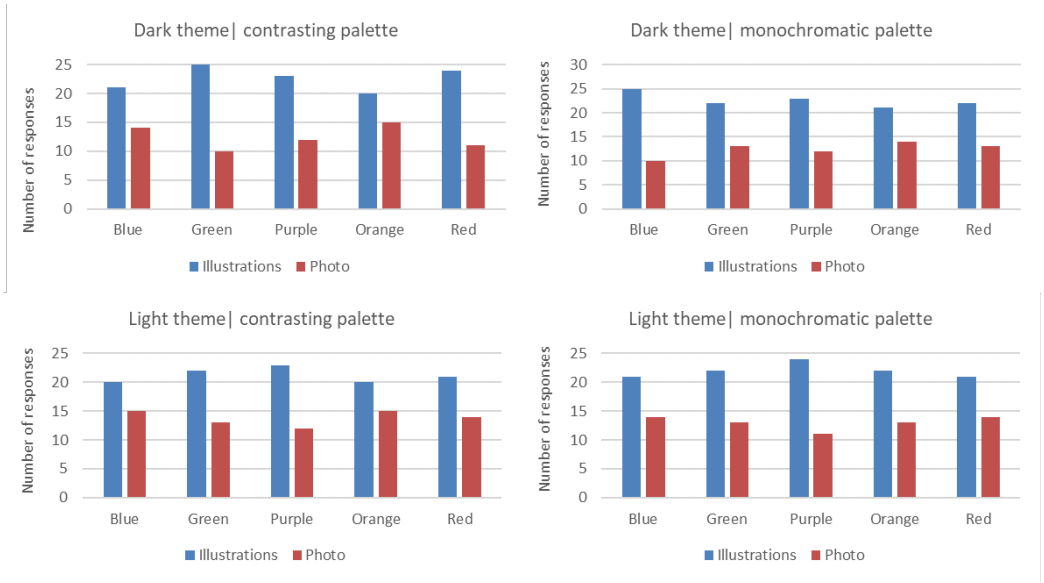
The final A/B comparison examined participants' preferences for illustrations versus photographs on the home screen. The comparison was performed separately for each colour, theme, and colour palette, resulting in 20 stimulus pairs.

The results showed a consistent preference for illustrations over photographs across all tested conditions (Figure 5). The same pattern was observed across the different colours, interface themes, and colour palettes. This indicates a consistent preference for illustrations in the tested application.

The consistency of this preference across all tested conditions is notable, as it suggests that the preference for illustrative content was relatively robust to changes in colour, theme, and palette. This suggests that graphical style may be an important UI characteristic alongside colour and theme.



» **Figure 4:** *Preferences for light and dark interface themes*

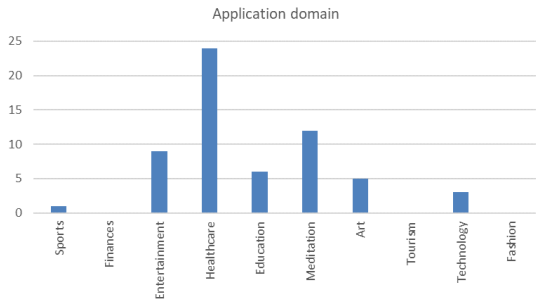


» **Figure 5:** *Preferences for illustrations and photographs across interface conditions*

3.5. Perceived application domain

Following the A/B comparisons, participants were asked to indicate which application domain they associated with the presented interface designs. They could select one or more predefined domains, including sport, finance, entertainment, healthcare, education, meditation, and art, as well as tourism, technology, and fashion.

Healthcare was the most frequently selected domain, with 24 responses, followed by meditation, with 12 responses (Figure 6). These results suggest that the visual characteristics of the stimuli were predominantly interpreted as belonging to the health-related domain, while the relatively high association with meditation further supports their relevance to the mental well-being context.



» **Figure 6:** *Participants' associations with the application domain*

3.6. Associations between interface characteristics

To further examine the relationships between the investigated interface characteristics, Pearson's chi-square tests of independence were conducted. The analyses examined associations between interface colour and colour palette, interface colour and theme, screen type and colour palette, screen type and interface theme, as well as colour palette and interface theme (Table 1).

A statistically significant association was found between interface colour and preferred colour palette, $\chi^2(4) = 40.112$, $p < 0.001$, with a Cramer's V of 0.239. Participants more frequently preferred contrasting palettes for blue and green interfaces, whereas monochromatic palettes were more frequently preferred for purple, orange, and red interfaces.

No statistically significant association was found between interface colour and preferred theme for either the home screen, $\chi^2(4) = 4.268$, $p = 0.371$, or the onboarding screen, $\chi^2(4) = 1.830$, $p = 0.767$. Similarly, no significant association was found between screen type and colour palette, $\chi^2(1) = 0.000$, $p = 1.000$, or between screen type and interface theme, $\chi^2(1) = 0.104$, $p = 0.748$.

Finally, the analyses conducted separately for each colour showed no statistically significant association between colour palette and interface theme (all $p > 0.05$). These findings indicate that, while colour was significantly associated with the preferred type of colour palette, preferences for interface theme were generally independent of the selected colour, colour palette, and screen type. In contrast, preferences for interface theme appeared relatively stable across colours and screen types.

Table 1
Associations between interface characteristics

Interface characteristic	χ^2	df	p
Colour × palette	40.112	4	<0.001
Colour × theme – Home	4.268	4	0.371
Colour × theme – Onboarding	1.830	4	0.767
Screen type × palette	0.000	1	1.000
Screen type × theme	0.104	1	0.748

4. Conclusions

This study investigated user preferences regarding selected user interface characteristics of mobile applications designed to support mental well-being, with particular emphasis on colour, colour palettes, interface themes, and graphical elements. Using an A/B testing approach, the study provided insights into how different visual solutions are perceived and preferred by users.

The results showed a clear preference for blue and green as the primary interface colours, which received the highest attractiveness ratings among the colours tested. This is consistent with previous research linking these colours with calmness, safety, stability, and health. The results further indicated that preferences for colour palettes varied according to the interface colour. A statistically significant association was found between interface colour and preferred colour palette ($\chi^2(4) = 40.112$, $p < 0.001$, Cramer's $V = 0.239$), with contrasting palettes more frequently preferred for blue and green, and monochromatic palettes more frequently preferred for purple, orange, and red. These findings suggest that colour and palette selection should be considered together when designing mental well-being mobile interfaces.

Participants also showed an overall preference for the light theme over the dark theme for both onboarding and home screens. In addition, the results demonstrated a consistent preference for illustrations over photographs, regardless of the colour, theme, or palette used. This suggests that graphical style should also be considered when designing mental well-being applications.

The findings suggest that the visual design of mental well-being applications should go beyond aesthetic considerations and account for users' preferences, accessibility, and the context in which the application is used. Based on the results, cooler colours, carefully selected contrasting elements, light interface themes, and coherent illustrative graphics can represent promising design directions for this type of application. At the same time, colour should be used consistently and in combination with other visual cues to ensure clarity and accessibility.

Overall, the study demonstrates that UI design choices can play an important role in shaping users' initial perceptions and preferences for mental well-being applications. The identified preferences can serve as practical guidelines for designers when developing interfaces intended to create a clear, accessible, visually appealing, and supportive user experience. The findings provide empirical support for considering colour and palette selection as interconnected aspects of UI design rather than independent design decisions. Future research could further investigate how these visual preferences relate to users' emotional responses, usability, engagement, and long-term acceptance of mental well-being applications.

5. Acknowledgments

This research has been supported by the Ministry of Science, Technological Development and Innovation (Contract No. 451-03-34/2026-03/200156) and the Faculty of Technical Sciences, University of Novi Sad through project "Scientific and Artistic Research Work of Researchers in Teaching and Associate Positions at the Faculty of Technical Sciences, University of Novi Sad 2026" (No. 01-3609/1).

6. References

Bargas-Avila, J.A. and Hornbæk, K. (2011) 'Old wine in new bottles or novel challenges: A critical analysis of empirical studies of user experience'. *In: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, pp. 2689–2698. DOI: 10.1145/1978942.1979336

Cyr, D., Head, M. and Larios, H. (2010) 'Colour appeal in website design within and across cultures: A multi-method evaluation', *International Journal of Human-Computer Studies*, 68(1–2), pp. 1–21. DOI: 10.1016/j.ijhcs.2009.08.005

Elliot, A.J. and Maier, M.A. (2014) 'Color psychology: Effects of perceiving color on psychological functioning in humans', *Annual Review of Psychology*, 65, pp. 95–120. DOI: 10.1146/annurev-psych-010213-115035

Garrett, J.J. (2011) *The Elements of User Experience: User-Centered Design for the Web and Beyond. Berkeley*, CA: New Riders.

Kondratova, I. and Goldfarb, I. (2007) 'Color Your Website: Use of Colors on the Web'. In: Aykin, N. (ed.) *Usability and Internationalization. Global and Local User Interfaces*. DOI: 10.1007/978-3-540-73289-1_16

Labrecque, L.I. and Milne, G.R. (2012) 'Exciting red and competent blue: The importance of color in marketing', *Journal of the Academy of Marketing Science*, 40(5), pp. 711–727. DOI: 10.1007/s11747-010-0245-y

Nielsen, J. and Budiu, R. (2013) *Mobile Usability*. Berkeley, CA: New Riders.

Park, H. and Kang, S. (2017) 'Color as design elements for healthcare websites'. In: *Proceedings of AIC 2017 Jeju*, pp. 36–39.
Pelet, J. and Papadopoulou, P. (2012) 'The effect of colors of e-commerce websites on consumer mood, memorization and buying intention', *European Journal of Information Systems*. DOI: 10.1057/ejis.2012.17
Sutcliffe, A. (2022) *Designing for User Engagement: Aesthetic and Attractive User Interfaces*. Cham: Springer Nature.
Swasty, W. and Adriyanto, A.R. (2017) 'Does color matter on web user interface design', *CommIT (Communication and Information Technology) Journal*, 11(1), pp. 17–24. DOI: 10.21512/commit.v11i1.2088
Valdez, P. and Mehrabian, A. (1994) 'Effects of color on emotions', *Journal of Experimental Psychology: General*, 123(4), pp. 394–409. DOI: 10.1037/0096-3445.123.4.394
Wiklund, M.E., Kendler, J. and Strochlic, A.Y. (2016) *Usability Testing of Medical Devices*. Boca Raton: CRC Press.



© 2026 Authors. Published by the University of Novi Sad, Faculty of Technical Sciences, Department of Graphic Engineering and Design. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license 4.0 Serbia (http://creativecommons.org/licenses/by/4.0/rs/).