

Evidence from naturalistic studies can be strengthened by triangulation

Where possible, evidence from naturalistic studies should be triangulated with evidence from experimental laboratory studies to generate findings that are both robust and relevant for people and society.

Englund *et al.* [1] provide a valuable overview of the approaches they have taken to adapt their experimental research studies during the coronavirus disease (COVID-19) pandemic. Using case studies of gambling behaviour and virtual reality, opioid overdose in heroin-assisted treatment and cannabinoid psychopharmacology, they outline innovative solutions for how experimental research can continue to take place remotely. The lessons learned from these case studies provide insight for how other addiction research studies could be adapted in the case of future restrictions on in-person research.

When adapting their case studies, Englund *et al.* [1] point out that a range of different experimental procedures can be conducted in naturalistic settings. Overall, this type of approach can be seen as a 'hybrid' between experimental and naturalistic research designs. This may offer an ideal solution for allowing experimental studies to continue during extended restrictions on in-person research. As we move out of the COVID-19 pandemic, should this hybrid approach be encouraged more widely?

Englund *et al.* [1] point out that this type of study design may benefit from the strengths of both approaches by maintaining the high levels of control in experimental studies, yet also increasing ecological validity through its naturalistic setting. An alternative approach is to capitalise on the differences of experimental and naturalistic studies and to combine evidence from both designs through triangulation. As experimental and naturalistic studies have distinct strengths, weaknesses and sources of bias (e.g. confounding structures), there can be value in conducting parallel experimental and naturalistic studies to ask the same overarching research question. By triangulating evidence across these different methods, the conclusion about the association in question can be more robust [2].

Because a key strength of experimental studies is high levels of control, conducting these studies in the laboratory (rather than remotely) can allow researchers to fully maximise this strength relative to a naturalistic context. For example, it may be difficult to ensure that experimental procedures are completely followed in a naturalistic setting (e.g. in the home, participants might drink alcohol alongside

administration of heroin or cannabinoids). Similarly, because naturalistic studies afford high ecological validity it may be advantageous to conduct these without experimental procedures to maximise the real-world relevance of the behaviour being studied. The acceptability and feasibility of study procedures and incentives for participants would also be important to consider in both designs.

For example, an experimental cannabinoid psychopharmacology study conducted in the laboratory (with fixed doses) might be triangulated with a naturalistic study (where participants administer their own cannabis, using their typical method of use and dose). Previous research has shown that these two study designs can provide contrasting results to the same research question (e.g. how cannabidiol influences the effects of delta-9-tetrahydrocannabinol) [3,4]. This illustrates the value of triangulation across methodologies to generate robust conclusions. Similarly, a laboratory-based study of gambling behaviour and virtual reality might be triangulated with a naturalistic study in a casino or during online gambling remotely (without virtual reality) to enhance ecological validity. Experimental studies of opioid overdose in heroin assisted treatment [5] could be triangulated with naturalistic research to gain further insight into contextual variables preceding overdose in a real-world setting.

In conclusion, we welcome the solutions proposed by Englund *et al.* [1] for conducting experimental research in naturalistic settings during the COVID-19 pandemic. A 'hybrid' design applying experimental procedures in a naturalistic setting may be a valuable strategy, particularly during restrictions on in-person research. Learning from experiences during the COVID-19 pandemic, a shift toward conducting more addiction research remotely and in naturalistic settings could be of significant benefit to the field. Where sufficient resources are available, we suggest that naturalistic studies should be a complement to experimental studies conducted in the laboratory rather than a replacement for them. Triangulating evidence across methodologies (such as naturalistic and experimental studies) has the potential to generate findings that are both robust and relevant for people and society.

KEYWORDS

COVID-19, ecological validity, experimental control, experimental studies, naturalistic studies, triangulation

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DECLARATION OF INTERESTS

None.

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The advantages and downsides of online focus groups for conducting research on addictive online behaviours

As the coronavirus disease (COVID)-19 pandemic prompted new ways of doing research, Englund et al. [1] highlight the benefits and challenges that online experiments bring to the scientific investigation of addictive behaviours. Likewise, this commentary further reflects on how online focus groups may constitute particularly sound opportunities for studying addictive online behaviours.

Over the past decade, addiction research has been marked by increasing interest in examining the potentially harmful effects of excessive involvement in new forms of online activities (e.g. video gaming, cybersexual activities, social networking and streaming of TV series) [2-4]. There have been growing calls to conduct qualitative research to better understand maladaptive involvement in online behaviours [5-9]. Qualitative research is indeed needed to avoid perpetuating a 'confirmatory approach' that consists in focusing merely on the similarities between online addictive disorders and substance

use disorders [5-7]. Such research is about exploring the unique characteristics pertaining to these emerging and possible disorders, thereby ensuring an appropriate understanding of their genuine phenomenological nature.

Given its well-established proficiency at delivering rich qualitative insights into phenomena [10-12], the focus group method can be a valuable data collection strategy for this purpose, which, in our opinion, can be strategically implemented in a remote context. Specifically, online focus groups imply that, instead of gathering participants around a table with a focus group moderator and co-moderator as in a traditional in-person discussion session, everyone meets online on video-conferencing platforms, several of which (e.g. Zoom, Microsoft Teams and Webex) are still widely used for professional purposes in the post-COVID era. As in a typical face-to-face setting, participants are invited to share their thoughts and opinions on a number of topics.

The advantages of performing online over in-person focus groups overlap with those of online experiments depicted by Englund et al. [1]. Specifically, they involve three main areas of benefit: money savings,