

Increased absorption in Autonomous Sensory Meridian Response

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Background. Autonomous sensory meridian response (ASMR) is a cross-sensory phenomenon characterised by a static-like sensation which typically originates on the scalp and spreads throughout the body leading to a state of deep relaxation. It can be triggered by visual and auditory stimuli in real life, incidentally by various media and via intentionally created ASMR videos. Previously ASMR has been linked to a specific personality profile and this study aimed to further elucidate individual differences associated with this phenomenon. **Methods.** To this effect ASMR-Experiencers and age and gender matched controls were compared on measures of flow, absorption and mindfulness. **Results.** This revealed that ASMR was associated with elevated absorption but no group differences were found with respect to the other constructs, suggesting that the ability to get deeply immersed with the current experience accompanied by loss of reflective awareness may be an important factor contributing to the ability to experience ASMR.

1 **Increased absorption in Autonomous Sensory Meridian Response.**

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24 **Abstract**

25 **Background.** Autonomous sensory meridian response (ASMR) is a cross-sensory phenomenon
26 characterised by a static-like sensation which typically originates on the scalp and spreads
27 throughout the body leading to a state of deep relaxation. It can be triggered by visual and
28 auditory stimuli in real life, incidentally by various media and via intentionally created ASMR
29 videos. Previously ASMR has been linked to a specific personality profile and this study aimed
30 to further elucidate individual differences associated with this phenomenon. **Methods.** To this
31 effect ASMR-Experiencers and age and gender matched controls were compared on measures
32 of flow, absorption and mindfulness. **Results.** This revealed that ASMR was associated with
33 elevated absorption but no group differences were found with respect to the other constructs,
34 suggesting that the ability to get deeply immersed with the current experience accompanied by
35 loss of reflective awareness may be an important factor contributing to the ability to experience
36 ASMR.

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44 **Introduction**

45 Autonomous sensory meridian response (ASMR) is a multisensory phenomenon where
46 auditory and visual stimuli such as whisper or personal attention trigger a pleasant, static-like
47 tingling sensation which typically originates from the head and disperses throughout the body
48 resulting in a relaxed state (Barratt & Davis, 2015). Although ASMR can be experienced in
49 daily life, in recent years many ASMR-inducing YouTube channels have been created attracting
50 large audiences who watch such videos to experience the sensation, relax, and fall asleep and in
51 some cases to alleviate anxiety and stress (Barratt & Davis, 2015; Janik McErlean & Banissy,
52 2017; Poerio, Blakey, Hostler, & Veltri, 2018). Although the prevalence of ASMR is not
53 known, the popularity of ASMR media suggests that the phenomenon might be widespread.
54 However, it remains to be established what underpins the ability to experience ASMR and its
55 psychophysiological benefits.

56 One line of evidence suggests that ASMR-experiencers show a specific personality profile
57 which may facilitate ASMR. Specifically, ASMR has been linked to i) increased openness to
58 experience (Janik McErlean & Banissy, 2017; Fredborg, Clark, & Smith, 2017) which taps into
59 one's interest in novel experiences and propensity to fantasise (John, Naumann, & Soto, 2008),
60 ii) heightened fantasising (Janik McErlean & Banissy, 2017), which reflects an ability to
61 immerse oneself in a fictional reality (Davis, 1983), and iii) elevated mindfulness (Fredborg,
62 Clark and Smith, 2018), which entails concentrating on the present moment (Brown & Ryan,
63 2003). These findings are interesting taking into account that for many individuals ASMR is
64 triggered when focusing on the external triggers which resembles mindfulness practice
65 (Fredborg et al., 2018) and that ASMR videos, which often entail role plays, require
66 imaginatively transposing oneself into the virtual reality (Janik McErlean & Banissy, 2017).

67 ASMR has also been previously likened to a state of flow (Barratt & Davis, 2015), which can be
68 measured both as a global construct and in terms of its underlying components including warped
69 passing of time (Ross & Keiser, 2014), complete absorption (Jackson, Thomas, Marsh, &
70 Smethurst, 2001), and intense concentration when fully engaged in optimally challenging and
71 intrinsically rewarding tasks (Csikszentmihalyi & Csikszentmihalyi, 1992). Flow has also been
72 conceptualised as a trait, whereby individuals with the so called autotelic personality (who are
73 intrinsically motivated) are more susceptible to experiencing flow (Csikszentmihalyi, 2000). To
74 date several measures have been developed which allow for measuring flow both as a state and a
75 trait (e.g. Jackson & Eklund, 2002, 2004). Barratt and Davis (2015) suggested that ASMR is a
76 ‘flow-like’ phenomenon achieved by watching others in a similar state. Interestingly, some of the
77 most popular ASMR triggers, such as watching someone making expert hand movements, are
78 typical examples of being in a state of flow (Janik McErlean & Banissy, 2017). Moreover,
79 individuals with greater susceptibility to flow have been found to report a greater number of
80 ASMR triggers highlighting a link between the two phenomena (Barratt & Davis, 2015).
81 Furthermore, a positive association between flow and a newly developed ASMR measure has
82 been recently reported (Roberts, Beath, & Boag, 2019). However, whether ASMR is associated
83 with increased levels of flow both in terms of intensity and prevalence compared to the general
84 population is currently not known. In addition, both Barratt and Davis (2015) and Roberts et al.,
85 (2019) used a modified version of the Flow State Scale (Jackson & Marsh, 1996) which only
86 taps into the passive aspects of flow. While this measure is more likely to be relevant in the
87 ASMR context which does not entail active engagement in activities, it does not capture the
88 other core components of the flow experience such as the balance between challenge and skill.

89 As such no study to date examined whether ASMR is associated with increased levels of flow
90 using the global measure of this construct.

91 The reported link between ASMR and flow is also interesting in the context of increased
92 mindfulness among ASMR-experiencers (Fredborg et al., 2018). Mindfulness, similarly to flow,
93 can be conceptualised as a trait and as a state. In Fredborg et al., (2018) study ASMR-
94 experiencers were found to score higher than controls in terms of trait mindfulness based on their
95 scores on the Mindful Attention Awareness Scale which taps into one's general disposition to
96 pay attention to and be aware of the present moment (Brown & Ryan, 2003). They also scored
97 higher on the Curiosity subscale of the state mindfulness measure called the Toronto
98 Mindfulness Scale which suggests increased interest in one's own inner experiences among the
99 ASMR group (Lau et al., 2006). Although mindfulness and flow are similar in terms of
100 concentrating on the present experience, they differ dramatically in terms of the role of self-
101 awareness which is enhanced in mindfulness and diminished in flow where loss of self-
102 consciousness is the central feature (Bishop, 2002; Bishop et al., 2004; Nakamura &
103 Csikszentmihalyi, 2009). Moreover, although existing research provides support for the positive
104 association between the global measure of flow comprising all underlying dimensions and
105 mindfulness (Thienot et al., 2014), recent findings suggest that this is driven only by the control
106 facet of flow which reflects a sense of agency and mastery over a task, whereas absorption which
107 is another core underlying dimension of flow is in fact negatively related to mindfulness
108 (Sheldon, Prentice, & Halusic, 2015).

109 Absorption as a key facet of flow is a trance-like state of consciousness characterised by an
110 ability to fully focus one's attention on a particular object or situation and to become
111 perceptually engrossed with the current experience (Tellegen, 1981, 1982; Tellegen &

112 Atkinson, 1974). It is also a stable personality trait typically measured with the Tellegen
113 Absorption Scale (Tellegen & Atkinson, 1974). Absorption has also been linked to
114 hypnotisability, imagery, day-dreaming, and openness to experience (Weilbel et al., 2010;
115 Glisky, Tataryn, Tobias, Kihlstrom, & McConkey, 1991). Recently, an association between
116 absorption propensity and ASMR has also been reported (Roberts et al., 2019). Taking into
117 account existing findings and the phenomenological similarities between absorption and the
118 immersive nature of ASMR, one may expect increased levels of absorption among ASMR-
119 experiencers compared to controls. However, considering previous reports of increased
120 mindfulness in ASMR (Fredborg et al., 2018) and the conceptual incompatibility between
121 mindfulness and absorption (Sheldon et al., 2015) it is essential to examine these constructs
122 together in the context of ASMR.

123 The purpose of this study was to investigate whether there are differences between ASMR-
124 experiencers and controls in terms of flow, absorption and mindfulness. This study also aimed
125 to elucidate the relationship between these constructs and ASMR characteristics such as
126 intensity, pleasantness, and ASMR videos viewing habits.

127 **Materials & Methods**

128 *Participants*

129 Participants were recruited via websites dedicated to ASMR and among Psychology
130 students, who were offered credits for their participation. Participants were asked to indicate
131 whether they would classify themselves as controls or ASMR-experiencers based on the
132 description of the phenomenon (as per Janik McErlean & Banissy, 2017). To further verify that
133 participants in the ASMR group were genuine ASMR-experiencers they were asked to provide

134 a series of answers related to their ASMR experience (see Questionnaire). E.g. they were asked
135 to indicate the intensity of their ASMR when engaging with various stimuli. If a participant
136 indicated they did not experience ASMR in response to any of the popular triggers they were
137 excluded from the analysis. There were only two such individuals, who also happened to be
138 outliers in terms of their age. They were excluded from the analysis. A priori power analysis
139 revealed that suggested sample size to conduct MANOVA was 232 participants in order to
140 obtain statistical power at 0.90 level (Effect size = 0.06, $\alpha = 0.05$). Through opportunity
141 sampling, a total of 316 participants completed the survey (59% = ASMR-experiencers). In
142 order to reduce the imbalance between the group sizes and to match the two groups in terms of
143 age and gender 124 ASMR-experiencers (92 female, 30 male, 2 other, age $M = 21.79$, $SD =$
144 3.36) and 124 controls (92 female, 30 male, 2 other, age $M = 21.40$, $SD = 3.13$) were selected
145 from the total sample prior to data analysis resulting in the final sample of 248 individuals
146 which was used to compare the groups on absorption, flow and mindfulness. These participants
147 were first matched on gender and then within gender on age ± 2 years. Majority was matched
148 within ± 1 year and four participants who identified as non-binary in terms of gender were
149 matched within ± 4 years.

150 In addition, data contributed by those ASMR-experiencers who stated they watch ASMR
151 videos ($N = 149$, 121 female, 26 male, 2 other, age $M = 26.22$, $SD = 8.12$) was used in the
152 correlational analysis which aimed to examine the relationship between absorption, flow and
153 mindfulness and ASMR characteristics including pleasantness, intensity, number of videos
154 watched in a single session and frequency of watching ASMR videos.

155

156 *Measures*

157 The study employed an anonymous survey which was administered via Bristol Online
158 Survey and was approved by the Bath Spa University Ethics Committee. All participants were
159 asked to provide an electronic consent prior to taking this survey.

160 Tellegen Absorption Scale (TAS) employed in this study is a widely used measure of
161 absorption (Tellegen & Atkinson, 1974). It consists of 34 questions and the participants are
162 asked to indicate the degree to which they agree with each statement such as ‘While watching a
163 movie, TV show or a play, I may become so involved that I may forget about myself and my
164 surroundings and experience the story as if it were real and as if I were taking part in it’ on a
165 scale from 1 (disagree strongly) to 5 (agree strongly). A total score is calculated by summing
166 the scores for each question. Internal consistency of TAS in this study was $\alpha = .93$.

167 Mindful Attention and Awareness Scale (MAAS) is an established measure of mindfulness
168 (Brown & Ryan, 2003). It consists of 15 items such as ‘I could be experiencing some emotion
169 and not be conscious of it until sometime later’. Participants are asked to indicate how
170 frequently they have such experiences on a scale from 1 (almost always) to 6 (almost never).
171 The final MAAS score is calculated by averaging all individual answers. The internal
172 consistency of MAAS in this study was $\alpha = .79$.

173 Flow Questionnaire: Firstly, participants were presented with the description of flow (as per
174 Csikszentmihalyi & Csikszentmihalyi, 1988; Csikszentmihalyi, 1990) based on which they
175 indicated whether they have ever had similar experiences which allows for classifying
176 individuals into those capable of experiencing flow and those who are not. In order to avoid
177 false positive answers those who reported to experience flow were also asked to state what
178 activities they were engaged in when having such experiences. Subsequently, they were asked
179 to complete the Flow Experiences Scale (FES; Schwartz & Waterman, 2006) which consists of

180 eight statements corresponding to those originally outlined by Csikszentmihalyi and
181 Csikszentmihalyi (1988) and Csikszentmihalyi (1990) which inquire about different aspects of
182 the experience of flow including e.g. 'I lose track of time' to which participants provide a rating
183 on a scale from 1- not at all characteristic of me to 7- very characteristic of me. A total score
184 reflecting the extent to which flow is experienced is calculated by summing the scores for each
185 statement. Question 2 is reverse scored. The internal consistency for FES in this study was $\alpha =$
186 .74.

187 **ASMR Questionnaire:** In addition, ASMR-experiencers completed the self-designed ASMR
188 questionnaire which was based on items previously used in ASMR literature (Barratt & Davis,
189 2015; Janik McErlean & Banissy, 2017; Fredborg et al., 2018). Specifically, participants were
190 asked: 1) whether they watch ASMR videos (Yes/No), 2) why they watch ASMR videos (open
191 ended), 3) how often they watch ASMR videos: never, less than once a month, 2-3 times a
192 month, 2-3 times a week, daily, 4) whether they require specific conditions to achieve ASMR
193 (open ended), 5) to indicate the intensity of common triggers such as crisp sounds, personal
194 attention etc. using a scale from 0 (no tingles) to 6 (the most intense tingles) – ASMR intensity
195 score was calculated by averaging the scores across all listed triggers as per Fredborg et al.
196 (2018), 6) whether the intensity of these triggers varies from session to session (Yes/No); 7) to
197 indicate how pleasurable ASMR is from 1- Quite Uncomfortable to 5 - Quite pleasurable. Open
198 ended questions were coded prior to the analysis and the total intensity score was computed by
199 averaging the scores for all listed triggers.

200

201 **Results**

202 *Data Inspection and Assumptions Testing*

203 The data was normally distributed and no outliers were identified as all values fell within +/-
204 2.5 SD from the mean. However, as only 106 out of 248 (43%) participants reported to
205 experience flow it was not possible to conduct MANOVA due to the insufficient sample size.
206 Instead three separate independent samples t-tests were conducted to compare the groups on the
207 three personality traits.

208

209 *Comparison of ASMR-Experiencers and Controls on Personality Traits*

210 Three independent-samples t-tests revealed: i) a non-significant group difference $t(104) = -$
211 0.990 , $p = .324$, $d = 0.19$, 95% CI [-4.807; 1.606] between ASMR-experiencers ($M=36.49$,
212 $SD=8.16$) and controls ($M=38.09$, $SD=8.19$) in terms of flow, ii) a non-significant group
213 difference on mindfulness $t(246) = -0.715$, $p = .475$, $d = 0.09$, 95% CI [-0.273; 0.127] between
214 ASMR-experiencers ($M=3.20$, $SD=0.80$) and controls ($M=3.28$, $SD=0.79$), iii) a statistically
215 significant group difference on absorption $t(246) = 4.995$, $p < .001$, $d = 0.63$, 95% CI[8.979;
216 20.252] with ASMR-experiencers ($M=108.74$, $SD=23.80$) scoring higher than controls
217 ($M=94.22$, $SD=21.95$) (see Table 1 for Descriptive Statistics). Furthermore, chi-square analysis
218 revealed that the proportion of individuals who reported to experience flow was significantly
219 greater [$\chi^{2(1, N=248)} = 6.590$, $p = .010$] among ASMR-Experiencers (51%) compared to controls
220 (34%).

221 An additional analysis was conducted using the whole data set rather than just the subsample
222 of ASMR-experiencers and control participants who were matched for age and gender. This
223 analysis revealed qualitatively similar results to the ones reported above (see Supplemental
224 Results).

225

226 *Correlations between ASMR features and personality traits*

227 Pearson's correlations employed to examine the relationship between absorption, flow and
228 mindfulness and ASMR characteristics revealed a positive relationship between: i) absorption
229 and the intensity of ASMR ($r(149) = .180, p = .028$), ii) intensity and frequency of watching
230 ASMR videos ($r(149) = .354, p < .001$), iii) intensity and pleasantness ($r(149) = .389, p < .001$)
231 and iv) pleasantness and frequency of watching ASMR videos ($r(149) = .233, p = .004$). No
232 other correlations were statistically significant (Table 2; Figure 1).

233

234 *Summary of responses to ASMR Questionnaire*

235 The main motivation behind watching ASMR videos was to relax (71%), followed by to fall
236 asleep (60.1%), to experience ASMR (54.1%), to improve mood, especially in relation to
237 anxiety and depression (12.8%), and to help concentrate on work or a task (6.8%). On average,
238 participants watched 3.3 videos per session. 42.3% reported to watch ASMR videos daily,
239 followed by to 2-3 times a week (30.9%), 2- 3 times a month (19.5%), and less than once a
240 month (7.4%). 49% of participants stated that they needed specific conditions to experience
241 ASMR. This included: a quiet room (71.23%), dim lighting (30.14%), to be alone or have no
242 distractions (26.03%), to be wearing headphones (20.55%), to be in bed or lying down (13.7%),
243 to have the room at a specific temperature (12.33%) to be in a real life setting (8.22%), comfort
244 (8.22%), which is largely consistent with the findings of Barratt, Spence, & Davis (2017). In
245 terms of the intensity on average whispering ($M = 4.03$) was rated to produce the most intense
246 ASMR, followed by personal attention ($M = 3.65$), crisp sounds ($M = 3.57$), paying attention to
247 detail, concentrating on something, slowly performing mundane actions or explaining
248 something ($M = 3.43$), role-play ($M = 3.15$), hair brushing ($M = 3.04$) and lastly people eating

249 (M = 1.34). 94% reported that the intensity of ASMR varies from session to session. The
250 majority of participants (60.4%) gave ASMR the highest rating in terms of how pleasurable it
251 is, followed by 35.6% rating ASMR as mildly pleasant, 2.7% as neutral, one participant
252 reported ASMR to be quite uncomfortable (0.7%) and another one as mildly uncomfortable
253 (0.7%).

254

255 **Discussion**

256 The purpose of this study was to further elucidate whether ASMR is associated with wider
257 differences in terms of personality traits. Current results demonstrate that ASMR-experiencers
258 show elevated absorption compared to age and gender matched controls, but no group
259 differences were found in terms of mindfulness or flow. This suggests that ASMR-experiencers
260 display increased readiness for experiential involvement and heightened ability to become fully
261 engaged with the current experience (Tellegen, 1981; Jamieson, 2005). This is interesting taking
262 into account that being immersed in the virtual reality appears to be a key component of
263 technologically-mediated ASMR and that increased absorption has been previously linked to a
264 more immersive virtual reality experience (Baños et al., 1999). Moreover, increased absorption
265 has been associated with elevated openness to experience (Weilbel, Wissmath, & Mast, 2010;
266 Glisky et al., 1991) which is also heightened among ASMR-experiencers (Janik McErlean &
267 Banissy, 2017; Fredborg et al., 2017). ASMR has also been linked to another trait relevant to
268 technologically-mediated ASMR i.e. increased fantasizing (Janik McErlean & Banissy, 2017)
269 which reflects heightened propensity to become imaginatively involved in a fictional reality. As
270 such, the combination of increased absorption, openness to experience and fantasizing may
271 contribute to the individual likelihood of experiencing ASMR. Moreover, when considering

272 those individuals who consume ASMR media to alleviate stress and anxiety it is possible that
273 for them becoming fully absorbed in ASMR videos may act as a form of distraction from
274 psychological distress which is similar to the well documented effect of virtual reality gaming
275 and other immersive methods as effective pain reduction strategies (Dahlquist et al., 2007;
276 Jameson, Trevena, & Swain, 2011).

277 The current study also found that ASMR-experiencers did not differ from controls in terms
278 of mindfulness, which is consistent with our results of increased absorption among ASMR-
279 experiencers and the reports of conceptual incompatibility between the two constructs (Brown
280 & Ryan, 2003; Sheldon et al., 2015). Moreover, the correlational analysis employed in this
281 study revealed no association between mindfulness and absorption further suggesting little
282 overlap between these psychological variables. It therefore appears that it is the total immersion
283 in the experience accompanied by a loss of self-awareness, which are core features of
284 absorption, rather than sustained consciousness of the current moment characteristic of
285 mindfulness that are features relevant to the ASMR experience. However, it is of note that these
286 results are inconsistent with previous findings of increased mindfulness in ASMR (Fredborg et
287 al., 2018). As both studies employed the same scale and participant recruitment method it is not
288 clear why different results were obtained. Although the sample size in this study was not as
289 large as in the other one, it was sufficiently large as determined by a priori power analysis.
290 However, it appears that the control participants sampled by Fredborg et al., (2018) scored
291 particularly low on MAAS ($M = 3.02$, $SD = 1.17$) compared to the control participants in the
292 present study ($M = 3.28$, $SD = 0.79$), which might explain the difference in results between the
293 two studies. Moreover, both the current and Fredborg et al., (2018)'s results pertaining to the
294 control sample are much lower than originally reported by the MAAS authors who found

295 average MAAS scores to be $M = 3.85$ ($SD = 0.68$) among undergraduate students and $M = 3.97$
296 ($SD = 0.64$) in a community sample (Brown & Ryan, 2003). It is not clear what drives this
297 discrepancy in findings between the three studies. As such, the potential link between ASMR
298 and mindfulness should be further explored in future research.

299 Furthermore, current results show similar levels of flow between ASMR-experiencers and
300 controls. This is consistent with existing literature demonstrating an association between the
301 global flow construct and mindfulness (Thienot et al., 2014) and current findings of no group
302 differences on either of these traits. This is also in line with the original conceptualisation of the
303 construct which emphasises that active engagement in activities is necessary for the experience
304 of flow (Csikszentmihalyi & Csikszentmihalyi, 1992) and research showing that flow has been
305 most commonly related to activities that are effortful and based on challenge, skill and intrinsic
306 motivation (Mauri, Cipresso, Balgera, Villamira, & Riva, 2011) whilst the experience of ASMR
307 is typically elicited through passively watching videos or by observing people in real life who
308 engage in ASMR-inducing activities. Therefore, ASMR appears to only reflect the passive
309 aspects of flow, which are more consistent with the construct of absorption (Jackson et al.,
310 2001). This is also in line with Barratt and Davis (2015) and Roberts et al., (2019) studies who
311 measured flow in terms of its passive component which was found to be positively associated
312 with the ASMR experience. Moreover, these results also fit with previous reports of elevated
313 fantasising and imaginative involvement in ASMR (Janik McErlean & Banissy, 2017) and the
314 fact that fantasy engagement and imagination are key characteristics of absorption but not flow
315 (Nakamura & Csikszentmihalyi, 2014). However, it is of note that substantially more ASMR-
316 experiencers reported to experience flow (51%) compared to controls (34%) suggesting that
317 while the extent to which both groups experience flow is similar, flow appears to be more

318 prevalent among ASMR-experiencers. Interestingly, the majority of ASMR sample reported to
319 experience flow when engaged in sport, music, art or when concentrating on a work-related task
320 which are typical examples of flow-inducing activities (Csikszentmihalyi & Rathunde, 1993)
321 and only five individuals reported to experience flow when consuming ASMR media. This
322 suggests that ASMR group appears to experience flow more readily than controls but rarely in
323 an ASMR context. However, it is of note that although previous research is quite inconsistent
324 when it comes to the prevalence of flow, the percentage of individuals identifying with the
325 experience in this study (both ASMR-experiencers and controls) is comparably low. For
326 instance, Moneta (2012) reports that about two-thirds of the general population are capable of
327 experiencing flow while some of the earlier studies suggest the experience to be universal with
328 prevalence rates of 97% among university students (Massimini, Csikszentmihalyi, & Delle
329 Fave, 1988). Although, Han (1988) reports that only 33% of elderly Korean immigrants in
330 America identified with the experience suggesting potential effects of age and culture.

331 This study also found that absorption was positively correlated with the intensity of ASMR
332 suggesting that this trait is linked to the extent to which ASMR is experienced. However, no
333 association was found between flow and mindfulness and ASMR features, further
334 demonstrating that these traits are not related to ASMR. In addition to this, our results suggest
335 that those who experience ASMR more intensely find it more pleasurable and also engage with
336 ASMR media more frequently. However, it is important to note that due to the correlational
337 nature of this research it is not possible to conclude that the trait of absorption predisposes
338 people to experience ASMR or that the ability to experience ASMR increases the propensity for
339 absorption. It is also possible that both absorption and ASMR are underlined by a third variable
340 such as openness to experience.

341 Furthermore, although one may suspect that the self-selection bias may have contributed to
342 the current results of increased absorption among ASMR-experiencers compared to controls as
343 75% of the ASMR sample whose data was used for comparison purposes and overall 80% of
344 the entire ASMR sample in this study (not just the ones matched for age and gender) reported to
345 watch ASMR-videos. However, we have found that ASMR-experiencers who watch ASMR
346 videos ($M = 108.31$, $M = 27.27$) and ASMR-experiencers who do not watch such videos ($M =$
347 108.04 , $SD = 25.679$) reported exactly the same level absorption suggesting that our results
348 pertain also to those ASMR-experiencers who do not engage with ASMR media.

349 In addition, consistently with previous research this study has found that the key reasons for
350 watching ASMR videos were to relax, fall asleep, to experience ASMR, and to help with stress
351 or anxiety (Barratt & Davis, 2015; Janik McErlean & Banissy, 2017). In addition, 6.7% of
352 participants reported to play ASMR videos in the background while studying or working.
353 Moreover, 49% of participants stated that they needed specific conditions, such as a quiet space
354 with few distractions, in order to experience ASMR which is consistent with the previous
355 studies (Barratt & Davis, 2015).

356 **Conclusions**

357 In summary, our findings contribute to the existing literature documenting individual
358 differences underpinning ASMR by showing that absorption proneness may be an important
359 factor contributing to the ability to experience ASMR and its therapeutic benefits. This study
360 also shows that the constructs of flow and mindfulness are not linked to the experience of
361 ASMR.

362

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- 473

Table 1 (on next page)

Means and Standard Deviations for ASMR-Experiencers and Controls on FES, MAAS and TAS

Note: FES = Flow Experiences Scale, MAAS = Mindful Attention and Awareness Scale, TAS = Tellegen Absorption Scale. N (MAAS, TAS): ASMR=124, Control = 124; N (FES): ASMR = 63, Control = 43.

1 Table 1

2 *Means and Standard Deviations for ASMR-Experiencers and Controls on FES, MAAS and TAS*

3

Variable	ASMR		Control	
	Mean	SD	Mean	SD
FES	36.49	8.16	38.09	8.19
MAAS	3.20	0.80	3.28	0.79
TAS	108.74	23.80	94.22	21.95

4 *Note:* FES = Flow Experiences Scale, MAAS = Mindful Attention and Awareness Scale, TAS =

5 Tellegen Absorption Scale. N (MAAS, TAS): ASMR=124, Control = 124; N (FES): ASMR =

6 63, Control = 43.

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Table 2 (on next page)

Correlations between ASMR intensity, number of videos watched in a single session, frequency of watching ASMR videos, pleasantness of ASMR and the scores on TAS, MAAS and FES.

Note: N (Intensity, Frequency, Pleasantness, TAS ad MAAS) = 149. N (Number) = 143. N (FES) = 72. TAS = Tellegen Absorption Scale, MAAS = Mindful Attention and Awareness Scale, FES = Flow Experiences Scale. * $p < .05$, ** $p < .01$, *** $p < .001$.

1 *Table 2*

2 *Correlations between ASMR intensity, number of videos watched in a single session, frequency*
 3 *of watching ASMR videos, pleasantness of ASMR and the scores on TAS, MAAS and FES.*

<i>Variable</i>	<i>Intensity</i>	<i>Number</i>	<i>Frequency</i>	<i>Pleasantness</i>	<i>TAS</i>	<i>MAAS</i>	<i>FES</i>
Intensity	-	-.005	.354***	.389***	.180*	.033	.207
Number	-.005	-	.111	-.030	-.061	-.040	-.232
Frequency	.354***	.111	-	.233**	-.009	-.072	.017
Pleasantness	.389***	-.030	.233**	-	.156	-.042	.168
TAS	.180*	-.061	-.009	.156	-	-.027	.156
MAAS	.033	-.040	-.072	-.042	-.027	-	.173
FES	.207	-.232	.017	.168	.156	.173	-

4 *Note:* N (Intensity, Frequency, Pleasantness, TAS ad MAAS) = 149. N (Number) = 143. N
 5 (FES) = 72. TAS = Tellegen Absorption Scale, MAAS = Mindful Attention and Awareness
 6 Scale, FES = Flow Experiences Scale. * $p < .05$, ** $p < .01$, *** $p < .001$.

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Figure 1

Figure 1

A) Relationship between ASMR Intensity and absorption (TAS), mindfulness (MAAS), and flow (FES) based on z scores, B) Relationship between ASMR Intensity and TAS based on original scores, C) Relationship between ASMR Intensity and MAAS based on original scores, D) Relationship between ASMR Intensity and FES based on original scores.

