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Beyond synchrony: Exploring the social relevance of complexity matching.

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Abstract

Interpersonal synchrony is a foundation of social interaction. However, as a form of coordination, synchrony is limited to regular, rhythmic actions. As such, research regarding the relationship between synchrony and social factors may not generalise to other forms of interpersonal behaviour. Here, we explored whether factors known to influence synchrony, also impact a complimentary form of coordination, *complexity matching*. When people interact, complex patterns of variability inherent to their individual behaviour can become more similar (i.e., more coordinated). In pairs, participants completed four walking trials that manipulated social interdependence while their gait patterns were captured. We also measured subclinical levels of social anxiety. Although data collection is ongoing, the results point to social anxiety having a detrimental effect on individual behavioural variability, and in turn, complexity matching. Effects of the interdependence manipulation were also evident, but await further data. These results are discussed with respect to theories of interpersonal dynamics.

Keywords: complexity matching; interdependence; behavioural variability; social anxiety

Introduction

A key component of effective social interaction is interpersonal coordination. By aligning thoughts, feelings and behaviours with others, individuals create a common ground on which to foster rapport and build social relationships (Marsh et al., 2009). Given the critical link between well-being and social behaviour (Holt-Lunstad et al., 2010), understanding how coordination facilitates social exchange is a key research priority. However, to date, evidence for the link between social factors and coordination has predominantly been drawn from studies of interpersonal synchrony, a form of coordination where movements are matched in time and space (Bernieri, 1988). While research focused on interpersonal synchrony has provided seminal contributions to the study of social behaviour (Schmidt & Richardson, 2008), important questions remain regarding generalisability (Abney et al., 2021). Synchrony is limited to the entrainment of repetitive, rhythmic actions (e.g., an audience clapping in time; Néda et al., 2000) and as such, does not capture a range of naturalistic everyday behaviours. The irregular timing of gaze dynamics (Göbel et al., 2015), complex patterns of postural sway (Zhou et al., 2017), or erratic changes in facial expression (Cohn et al., 2004) that pervade social interaction arguably bear little resemblance to the rhythmic actions that comprise interpersonal synchrony. What is more, when people interact, these key social behaviours can become coordinated, as revealed in patterns of joint attention (Tomasello, 1995), use of interpersonal space (Hall, 1966), or shared emotional experience (Saxbe & Repetti, 2010), events that are rarely perfectly synchronous. This raises an important question: do the positive social effects associated with interpersonal synchrony generalise to the interpersonal coordination of other, more variable, behaviours?

Complexity Matching as Coordination

Understanding whether the social factors that influence interpersonal coordination are limited to synchronous behaviour is a challenging research endeavour. Should the effects of synchrony be characteristic of a broader coordination-social interaction link, parsimony would point to the possibility of a common ontological basis – some form of shared underlying dynamic that unites ostensibly distinct forms of behavioural coordination. Identification of general candidate mechanisms would therefore help guide investigation.

Related work from complexity science raises an intriguing possibility. When complex systems interact, information is exchanged, whereby the systems tend to become more similar over time (West et al., 2008). Termed complexity matching, it is suggested that the degree of such information transfer provides an index of the extent to which the systems are coordinated (Marmelat & Delignières, 2012). Complexity matching is, therefore, a candidate for a more general interpersonal coordination dynamic (Abney et al., 2021).

Importantly, recent work has considered complexity matching in social situations (e.g., Abney et al., 2021; Almurad et al., 2018; Rigoli et al., 2020). A consistent theme to emerge from these studies is that real-time fluctuations in behaviour (i.e., behavioural variability), a property unique to each individual, tend to become more similar to that of an interaction partner, when people interact. The convergence of these initially disparate patterns of behaviour reveals complexity matching at work in social contexts. Capturing complexity matching, however, first requires means to conceptualise and quantify the information that is exchanged when people interact, that is, behavioural variability.

Behavioural Variability and Complexity Matching

Without exception, behaviour exhibits variability (Riley & Turvey, 2002). Consider an individual's stride length while walking (Hausdorff et al., 1996), or reactions to repeated events (Amon et al., 2018). No two strides, or response times,

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are ever the same. Contrary to the common assumption that such variation is essentially noise or error (Sternad, 2018), considerable evidence indicates that variability within systems comprised of many interacting parts (i.e., complex systems), possesses a non-random, detectable structure (Van Orden et al., 2011). It is this structure which changes when complexity matching is observed.

When quantified as a scaling exponent alpha (α), patterns of behavioural variability exist on a continuum between unstructured random noise (i.e., white noise: there is no relationship between observations) and deterministic activity (i.e., brown noise: all observations are related). Between these extremes, behavioural variability can take on the properties of self-organisation, whereby the activity is said to exhibit 1/f scaling or fractal dynamics (i.e., pink noise: behavioural fluctuations repeat over multiple time scales). Fluctuations in behaviour that show 1/f scaling exhibit self-similarity, revealed by long-range correlations across a wide range of time scales (Van Orden et al., 2003).

Although the subject of debate (e.g., Wagenmakers et al., 2005), prominent theorising suggests that the presence of 1/f scaling is a characteristic property of effective self-organisation, marking a functional, adaptive, or healthy system, relative to task constraints and goals (Likens et al., 2015; Van Orden et al., 2003). In this way, the structure of behavioural variability can be seen to convey key information regarding system fitness and function (Van Orden et al., 2012). This structure can be perturbed by factors ranging from the acute effects of concurrent cognitive activity (e.g., Hausdorff, 2009) to the more slow-acting effects of aging (e.g., Doyle et al., 2004) and disease (e.g., Goldberger, 1997) or changes in ability (Wijnants et al., 2009). Indeed, interaction partners can also serve as perturbances to behavioural variability, which, as noted above, provides the basis for complexity matching to emerge.

Complexity Matching and Social Interaction

Theories of complexity matching suggest recursive system dynamics. Not only does information exchange give rise to complexity matching, but when system components share similar complexities, the capacity for the exchange of information is maximised (West et al., 2008). Comparable suggestions have been presented in the synchrony literature, in that interpersonal coordination functions to create a common ground to facilitate, and reinforce, interaction and information exchange (Macrae & Miles, 2012). It follows, therefore, that given an apparent common function (i.e., information exchange), factors that promote (or inhibit) synchrony may also impact complexity matching. Indeed, a small number of studies have considered the social relevance of complexity matching. For instance, Rigoli et al. (2020) had participants, both alone and in pairs, perform a series of everyday activities (e.g., walk across campus, search for items in a library) while their movements were captured. By comparing solo and joint activity, Rigoli et al., revealed that the structure of participants' behavioural variability was more similar when they acted together. Coaction revealed evidence of complexity matching when compared to working alone. Further, there is evidence that the type of interaction people have modulates the degree to which complexity matching is evident. Abney et al. (2014) found that complexity matching is present when people have affiliative, but not argumentative conversation, an effect consistent with findings in the synchrony literature (Paxton & Dale, 2013).

Taken together these studies suggest that complexity matching may covary with social factors in a similar manner to the effects of synchrony. To capitalise on this early work, it is important that the next steps in this line of research directly address gaps in the knowledge base. To date, two strong methodological themes evident in the synchrony literature: the systematic manipulation of social factors (e.g., social context; Miles et al., 2010), and the measurement of relevant individual differences (e.g., variation in psychopathology; Macpherson & Miles, 2023), have seen little attention in respect to complexity matching. A focus of the current research, therefore, is to address these openings in the literature, by manipulating a primary characteristic of social interaction, interdependence, and measuring a key individual difference relevant to social behaviour, variation in symptoms of social anxiety. For both of these factors, there is evidence to indicate effects on interpersonal synchrony (Allsop et al., 2016; Macpherson et al., 2020).

Social Influences on Coordination

In social contexts, the behaviour of an individual will constrain possibilities for others, creating interdependence between their actions. The extent to which peoples' behaviour influences and is influenced by the behaviour of others limits some opportunities (e.g., inadvertently playing 'chicken' in the corridor) but creates others (e.g., carrying heavy furniture). In this way, interdependence can vary from a completely constrained situation such as a three-legged race where the actions of one person restrict the actions of the other to complete independence, behaviour absent of influence from others. Indeed, differences in interdependencies are known to shape teamwork and productivity, and interpersonal coordination (Allsop et al., 2016). By varying interdependency in the current study, the strength of the link, and therefore the potential for information exchange, between people can be systematically varied. Should complexity matching reflect social factors, it will be more apparent as interdependency is increased.

In addition to systematically structuring the nature of social interaction via manipulations of interdependence, the current work will also explore the influence of socially relevant individual differences on complexity matching. Specifically, following evidence that symptoms of social anxiety are associated with impairments to interpersonal synchrony, here we will examine the relationship between subclinical variation in social anxiety and complexity matching. Several studies have documented a negative association between symptoms of social anxiety and coordination stability, whereby higher levels of social anxiety predict breakdowns in interpersonal synchrony (e.g., Macpherson et al., 2020;

Varlet et al., 2014). If the effects of social anxiety on coordination generalise beyond instances of synchronous behaviour, it is likely to be revealed in terms of a negative association between symptom level and complexity matching.

Current Research

The current study aimed to extend the focus of the interpersonal coordination literature by considering whether complexity matching, as a form of coordination, is associated with variation in social behaviour. We employed a walking task designed to assess the structure of behavioural variability in gait and by extension, complexity matching, as a function of interdependence and subclinical variation in social anxiety. We chose walking as the behaviour of interest as the presence of 1/f scaling in gait is well documented (e.g., Almurad et al., 2018; Hausdorff et al., 1995, 1996); as is evidence for disruptions to this structure as a result of system perturbation (see Hausdorff, 2007, 2009 for reviews). Participants completed a series of four walking trials, the first by themselves (i.e., baseline condition) and the remaining three as a pair. We varied interdependence across the joint walking trials via a secondary word naming task. Gait patterns were tracked via accelerometers attached to each participant's waist. Participants also completed a self-report measure of social anxiety symptoms.

Of note, to detect complexity matching, initially estimates of the structure of the behavioural variability of each individual in the absence of the other must be established. This acts as a baseline, with which the effects of the manipulations of interdependence are compared. Therefore, in order to detect variation in complexity matching *between* people, it is first necessary to quantify the effects of the factors of interest on behavioural variability *within* the individual. What is more, the behaviour that we focus on here, walking, tends to show variability between random noise (i.e., white) and 1/f scaling, typically with a scaling exponent of around 0.8 (Hausdorff et al., 1995). Therefore, shifts toward more optimal function would be seen as an increase in the exponent (i.e., towards 1.0), while impaired functioning would decrease the exponent (i.e., towards 0.5).

In forming hypotheses, we drew on the general effects attributed to interpersonal synchrony such that we expect the level of interdependence to promote functional behaviour and coordination, while symptoms of social anxiety will be associated with more negative outcomes, disrupting underlying structure and complexity matching. Therefore, when considering the impact of interdependence on the structure of gait variability (i.e., alpha; α) at the level of the individual, we expect:

H1: More interdependence will shift variability (α) towards 1/f scaling (i.e., towards optimal function).

Relating to the effect of social anxiety on behavioural variability (α), we expect:

H2: Higher levels of social anxiety will be associated with variability (α) that exhibits a more random structure (i.e., white noise).

Pertaining to complexity matching, when considering the effect of the interdependence manipulation, we expect:

H3: More interdependence will be associated with more complexity matching.

Finally, for the effect of social anxiety on complexity matching, we expect:

H4: Higher levels of social anxiety will be associated with less complexity matching.

Methods

Participants and Design[1]

One hundred and twelve participants have taken part in the study.[2] Participants were undergraduate students who took part in exchange for course credit and community members who were reimbursed for their time (A$20). Only individuals aged 18 and over with no substantial movement difficulties were eligible to take part. Data were excluded from six participants, two due to technical difficulties, two who failed to comply with task instructions, and two who reported familiarity with their interaction partner. The final sample consisted of 106 participants (68 female, 36 male, 1 non-binary, 1 transgender woman) aged 18-54 years (*M* = 20.1 years, *SD* = 5.1 years) who took part in 53 pairs[3]. The procedure comprised of four walking trials which varied in interdependency (solo, low, partial, high) in a within-participant manner (see Procedure for details of the manipulation). The study was reviewed and approved by the University of Western Australia's Human Research Ethics Committee (2022/ET000163).

Procedure

Upon arrival to the laboratory, participants provided informed consent and demographic information (i.e., age and gender using a free-response format). The experimenter then escorted the participants to the starting location of the walking trials. The walking path comprised a designated stretch of unobstructed paved area on the university campus with relatively little foot traffic. Testing sessions avoided periods of concentrated pedestrian activity that may have impacted the walking trials. Participants were required to walk along a straight path for 250m until they reached a designated turn around point, and then walk 250m back to the starting position (i.e., 500m total per trial). Participants were informed they would each be completing a series of four walking trials, the first by themselves (i.e., no interdependence) and the remaining three as a pair.

[1]The data reported here are part of a larger project concerning the role of complexity matching in social interaction. Participants completed a range of additional measures, however given the focus of the current research, here we only report social anxiety data.

[2] Data collection is ongoing. At present data has been collected from 53 pairs, with a minimum target sample size of 90.

[3] Within the final dataset, 31 trials (8.49% of full dataset) were excluded due to missing/incomplete data. All remaining data for those pairs was retained.

Interdependence level was manipulated during these joint trials (see below for further details).

The trials were conducted in a set order, from least to most interdependent, so as to avoid the possibility of carry-over social effects from more to less interdependent trials (see Allsop et al., 2016). Participants were informed that for each trial they should walk at a comfortable pace and refrain from using any other devices or engaging with passers-by. They were fitted with an iPhone 7 to the centre of their back at waist level using a lightweight waistband, which was used to track movement via the onboard accelerometer (sample rate = 100Hz). Participants began by either completing the solo walking trial or the Liebowitz Social Anxiety Scale (LSAS-SR; Liebowitz, 1987) as a measure of social anxiety symptoms (i.e., while one participant completed the walking trial, the other completed the LSAS and vice versa). The LSAS is routinely used in interpersonal coordination research to capture variation in social anxiety (e.g., Varlet et al., 2014). When considering the relationship between complexity matching and social anxiety, the collective symptomology level was estimated by summing the LSAS scores of each individual comprising a pair. Summary statistics for the LSAS are in Table 1.

Table 1: Summary statistics for LSAS.

	LSAS	$LSAS_{Pair}$
Range	13-116	43-225
Mean	55.67	111.33
Standard deviation	24.32	33.32
Skew	0.47	0.70
Kurtosis	-0.36	1.27

After both participants had completed the solo walking trial and the LSAS, they were introduced to the joint walking trials. In the first trial (i.e., low interdependence), participants were instructed to walk together along the path, but importantly, they were not permitted to speak or interact. This served as a means to evaluate whether complexity matching emerges at the lowest level of interdependence - social co-presence. To increase interdependence, for the next two joint walking trials, participants engaged in a word generation task. They were allocated a category (i.e., animals, food & drink, movies & TV shows) and asked to take turns naming items belonging to that category, without repeating any answers. For the partial interdependence trial, participants were given separate categories, whereby task success was contingent on turn-taking, but did not require consideration of the items named by the other participant. For the high interdependence trial, participants shared a category whereby, in addition to turn-taking, task success was also contingent on monitoring the other participant's contributions. Following the walking trials, participants were debriefed and dismissed. Each testing session lasted approximately 1 hour.

Data Reduction and Analysis

To prepare the data for analysis, linear acceleration recorded across the x, y, and z planes was reduced to a single magnitude vector[4] and each resulting time series was filtered using a 4th order low-pass Butterworth filter with a 10Hz cut-off (see Rigoli et al., 2020). Next, the first and last step of each trial were identified using a custom-written MATLAB script, and the data between these points was subjected to Detrended Fluctuation Analysis (DFA; Peng et al., 1994). This resulted in estimates of the fractal structure of the timeseries via the exponent alpha (α) whereby $\alpha \approx 0.5$ corresponds to random, unstructured variability (i.e., white noise), $\alpha \approx 1$ corresponds to $1/f$ scaling or fractal variability (i.e., pink noise) and $\alpha \approx 1.5$ corresponds to a highly correlated pattern of variability (i.e., Brown noise). To estimate complexity matching, the absolute difference between α for each pair was calculated on a trial-by-trial basis and compared between conditions (Mironiuc et al., 2021). For the solo condition, the difference between participant α values represented the incidental or chance level of complexity matching (i.e., no interaction).

Results

Linear Mixed Models

To address the hypothesised effects, a series of LMMs were conducted that examined the influence of interdependence level (i.e., trial) and social anxiety traits (i.e., LSAS scores) on estimates of α and complexity matching respectively. Each model was constructed using the lme4 (Bates et al., 2015) and lmerTest (Kuznetsova et al., 2017) packages in R (v 4.1.3; R Core Team, 2022). All continuous predictor variables were centred prior to inclusion in the models[5]. Degrees of freedom and *p*-values were calculated using Satterthwaite approximations. Results of the LMMs are presented in Table 2. Given the exploratory nature of the work and that the target sample size has yet to be reached (current data represent 53 of a target sample size of 90 pairs), we elected to decompose effects of interest on occasions where these did not meet traditional criteria for statistical significance. As a result, caution is warranted when interpreting the current effects.

Individual Behavioural Variability (α)

First, we considered the effects of interdependence and social anxiety on variability (α). The model specified fixed effects of interdependence and LSAS score with α as the dependent variable. The random effects structure comprised a by-participant random intercept. No significant effect of interdependence was uncovered. However, inspection of

[4] Acceleration magnitude = $\sqrt{x^2 + y^2 + z^2}$

[5] For clarity, figures present continuous predictor variables as raw questionnaire data.

Figure 1 suggests a negative trend whereby as trials became more interdependent, α decreased, shifting towards random variation. These results are counter to H1.

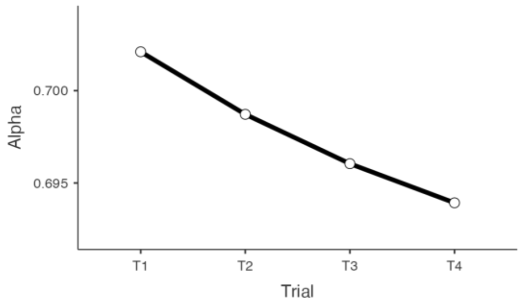

Figure 1: Estimates of behavioural variability (α) as a function of interdependence level (solo, low, partial, high).

Of note, a significant main effect of LSAS score was revealed (Figure 2). Here, higher levels of symptoms of social anxiety were associated with decreases in α (i.e., shifts towards a random structure), providing support for H2. The interaction between interdependence and LSAS score was non-significant.

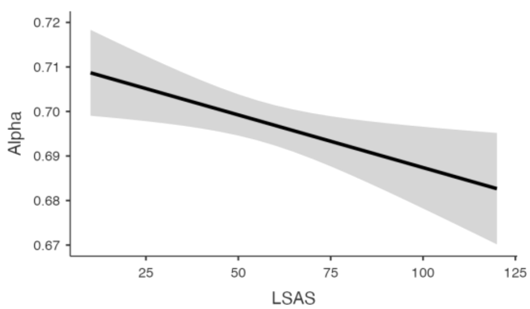

Figure 2: Estimates of behavioural variability (α) as a function of social anxiety level.

Complexity Matching

Next, we considered the effects of interdependence and social anxiety on complexity matching. This model specified fixed effects of interdependence and LSAS (summed across the pair) with complexity matching (i.e., trial specific difference between each participant's α) as the dependent variable. The random effects structure comprised a by-dyad random intercept. Results revealed no significant main effect of interdependence, and no support for H3.

Inspection of Figure 3 indicates a general trend whereby as interdependence level increased, the difference between α decreased (i.e., complexity matching increased). However, a clear anomaly can be seen in that complexity matching decreased with partial interdependence (i.e., participants had different categories in the word naming task). Finally, the results revealed no significant effect of $LSAS_{Pair}$ on complexity matching. However, inspection of Figure 4 indicates a general trend whereby pairs with higher combined levels of social anxiety showed lower levels of complexity matching (i.e., larger differences in α), lending tentative support for H4. The interaction between interdependence and $LSAS_{Pair}$ was non-significant.

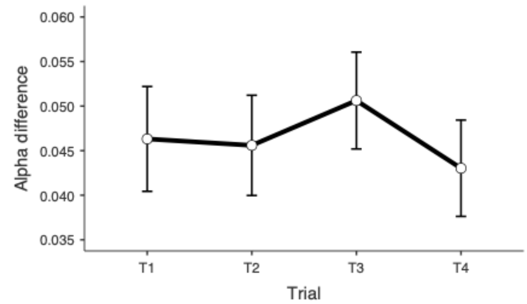

Figure 3: Alpha (α) difference (i.e., complexity matching) as a function of interdependence level (solo, low, partial, high). Larger differences indicate less complexity matching.

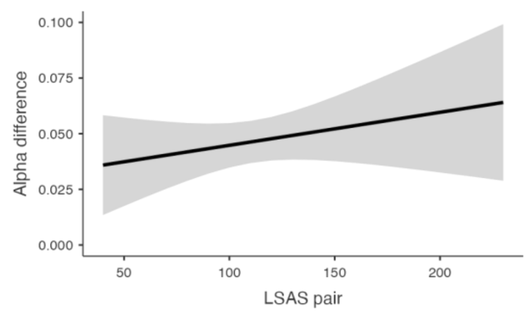

Figure 4: Alpha (α) difference (i.e., complexity matching) as a function of combined social anxiety level.

Discussion

The current study examined whether interdependence and social anxiety, two factors that impact interpersonal synchrony, also influence complexity matching. In terms of changes to behavioural variability (α), we uncovered no significant effect of interdependence. The structure of gait variability did not differ as interdependency increased. In terms of social anxiety, however, the results revealed a significant negative association between social anxiety and α. Specifically, higher levels of social anxiety were associated with shifts in the structure of gait variability away from 1/f scaling towards a more random (i.e., white noise) structure. Notably, to our knowledge this is the first empirical demonstration of social anxiety impacting the structure of behavioural variability. This finding extends the literature concerning the perturbing effect of physical health conditions on α, to also encompass mental health conditions. Moreover, these results are consistent with literature demonstrating a negative association between social anxiety and interpersonal synchrony (e.g., Macpherson & Miles, 2023; Varlet et al., 2014). The results did not reveal an interaction, indicating the relationship between social anxiety and α was consistent across interdependency level. Further, neither factor significantly impacted complexity matching.

Table 2: Fixed effects of the relationship between interdependence and LSAS on alpha and complexity matching.

	Alpha				Complexity matching			
Fixed effects	*b*	SE	*t*	*p*	*b*	SE	*t*	*p*
(Intercept)	0.70	0.00	148.45	<.001	0.05	0.01	8.04	<.001
Trial 2 – Trial 1	-0.00	0.01	-0.58	.563	-0.00	0.01	-0.22	.830
Trial 3 – Trial 1	-0.00	0.01	-0.98	.326	0.00	0.01	0.78	.434
Trial 4 – Trial 1	-0.00	0.01	-1.34	.180	-0.00	0.01	0.72	.473
LSAS	-0.00	0.00	-2.80	.005	0.00	0.00	1.09	.276
Trial 2 – Trial 1 * LSAS	0.00	0.00	1.86	.064	-0.00	0.00	-0.27	.789
Trial 3 – Trial 1 * LSAS	0.00	0.00	1.25	.211	-0.00	0.00	-0.58	.566
Trial 4 – Trial 1 * LSAS	0.00	0.00	1.45	.147	-0.00	0.00	-0.48	.632

Note. Trial 1 = Solo – no interdependence; Trial 2 = Joint – low interdependence; Trial 3 = Joint - partial interdependence; Trial 4 = Joint – high interdependence.

Exploratory Analyses

Due to ongoing data collection, here we elected to take an exploratory stance to data analysis. When considering the effect of interdependence on behavioural variability a clear negative trend was evident (see Figure 1). Specifically, increased levels of interdependence were accompanied by decreases in α. Here, the structure of gait variability shifted towards random (i.e., white noise). This preliminary finding is consistent with literature demonstrating that physical task constraints can shift the structure of behavioural variability towards white noise (e.g., Hausdorff et al., 2009). In this context, interdependence resulting from social interaction may act in a similar manner to non-social task constraints.

When considering the effect of interdependence on complexity matching, Figure 3 indicates a negative trend whereby the difference between α decreased (i.e., complexity matching increased) as interdependency increased. Interestingly, however, there is an inconsistency at trial 3 (partial interdependence) whereby the difference between α increases (i.e., less complexity matching). We suspect the nature of the task for this trial (i.e., turn-taking on essentially unrelated word generation tasks) may have resulted in an unanticipated additional challenge for participants. Given they were required to adjust their gait to walk together while engaging in independent cognitive tasks, it is possible that these demands were sufficient to partially decouple dyad members. Confirmation of this effect awaits future research.

In terms of the relationship between social anxiety and complexity matching, a positive trend was evident whereby higher dyadic levels of social anxiety were associated with a larger α difference (i.e., less complexity matching). This provides a preliminary indication that the documented relationship between social anxiety and interpersonal synchrony (Macpherson & Miles, 2023; Varlet et al., 2014), may extend to complexity matching.

Given the exploratory nature of the present work, it is important to consider the potential for null effects once the full sample size is reached. One factor to consider lies in employing walking as the behaviour of interest. While evidence for 1/f scaling in gait is well documented as is the capacity to perturb this structure (Almurad et al., 2018), the degree of disruption due to our manipulation may not have been sufficient to disrupt such a stable, well-practiced behaviour. Recent related work posits that the influence of social factors on coordination are more apparent when the dynamics that govern behaviour are less stable (Macpherson & Miles, 2023). As such, walking may be less susceptible to perturbance than other, less stable activities. Indeed, robust effects within the complexity matching literature have been documented for behaviours that are inherently non-rhythmic (e.g., speech; Abney et al., 2014, tower building; Abney et al., 2021). However, it should be noted that at least one study indicates divergence between the interpersonal outcomes of synchrony and complexity matching. Counter to the prevailing synchrony literature (Atzil-Slonim et al., 2023), Mironiuc et al., (2021) reported no role of complexity matching in symptom reduction during psychotherapy.

Limitations

A limitation of the current work concerns the estimation of social anxiety at the collective level. Complexity matching as a metric of coordination is measured at the level of the dyad. Thus, to address the research questions, it was necessary to compare it to social anxiety traits also quantified at the dyadic level. Although similar combinatory approaches have been employed in previous research (e.g., Macpherson & Miles, 2023), they are limited in terms of understanding the social anxiety composition of each pair. For example, a dyad comprised of individuals high and low in social anxiety, is equivalent to a pair comprised of two individuals with medium levels. To circumvent this problem, an approach whereby each individual's level of social anxiety is compared the degree of change in behavioural variability is needed.

Conclusion

The current study provides initial evidence that socially relevant factors impact behavioural variability, a key precursor for changes in complexity matching. Consistent with effects in the synchrony literature, symptoms of social anxiety negatively impacted individual-level variability, with clear indication of associated reductions in complexity matching. Although preliminary, these results suggest that association between social factors and coordinated behaviour may extend beyond instances of interpersonal synchrony.

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