

TITLE
**Customer Coproduction in Healthcare Service Delivery: Examining the Influencing
Effects of the Social Context**

Kofi Osei-Frimpong, Graeme McLean, Alan Wilson, Fred Lemke

ABSTRACT

This study furthers our understanding of service coproduction by examining some pertinent antecedents and the consequent effect on customer adherence to medical instructions in healthcare service delivery. Through a cross-sectional quantitative survey design, data collected from 594 healthcare customers were analysed through structural equation modelling using AMOS 23. The findings indicate significant influences of social context on participation in service coproduction and adherence. Additionally, the mediating effect of customer role clarity on social context (nature of interactions, access to healthcare information, service climate) and coproduction are established. This study also determined moderation effects of provider-customer orientation on the coproduction process. Further, customer health condition-type (acute or chronic) does not present different effects on their coproduction behaviours. From a social cognitive theoretical perspective, this study has established that customers' coproduction behaviours are motivated by the social system in relation to the social context.

Keywords:

Coproduction; Social Cognitive Theory; Social Context; Healthcare Service Delivery; Customer Adherence; Customer Role Clarity

1.0 INTRODUCTION

Service coproduction is considered critical in service delivery management and, particularly, in improving service efficiencies and outcomes. Recent advances in service research (including healthcare) present an interactive framework of value creation in service delivery (McColl-Kennedy, Hogan, Witell, & Snyder, 2017; Payne, Storbacka, & Frow, 2008). On this premise, service cannot be delivered without coproduction (Osborne & Strokosch, 2013). Here, customers are empowered to be actively involved in service coproduction, which blurs the provider-customer divide (Auh, Bell, McLeod, & Shih, 2007; Prigge, Dietz, Homburg, Hoyer, & Burton, 2015). Temerak, Winklhofer, and Hibbert (2018) identify some customer support activities (customer-to-customer interactions) that influence their operant resources to positively enhance their adherence behaviours. Their work gives prominence to a need for understanding the nested effects of social context on coproduction which is still unclear. Following Auh et al. (2007, p. 361), coproduction is defined as “constructive customer participation in the service creation and delivery process”, which “requires meaningful, cooperative contributions to the service process”. In this study, coproduction is viewed in two spheres, namely, the provider-customer sphere (service coproduction) and the customers’ sphere (adherence to professional advice) (Grönroos & Voima, 2013; Spanjol et al., 2015).

Recently, service research has paid particular attention to transformative service research (TSR; Anderson et al., 2013) to address service challenges in healthcare to promote active participation in coproduction and improved wellbeing (McColl-Kennedy, Hogan, et al., 2017). For instance, the literature is replete with works that have examined the influence of role clarity, motivation, provider-customer orientation, provider’s friendliness on customer production activities particularly with regard to adherence behaviours (e.g., Dellande, Gilly, & Graham, 2004; Lengnick-Hall, Claycomb, & Inks, 2000; Snell, White, & Dagger, 2014).

However, the effect of social context on coproduction (provider-customer sphere) and adherence has largely been overlooked. This oversight hinders the holistic understanding of coproduction in services. Service effectiveness is reliant on a social context of shared service provider expectations, access to healthcare information, nature of interactions, and organizational or service climate (Chan, Gong, Zhang, & Zhou, 2017; Ferris et al., 1998; Glisson et al., 2008; Osei-Frimpong, Wilson, & Owusu-Frimpong, 2015). Given the social interaction process of the social context (Osei-Frimpong et al., 2015), we consider the nature of interactions between actors, service climate, and access to healthcare information as key subdimensions of social context influencing the coproduction process.

Edvardsson, Tronvoll, and Gruber (2011) emphasise that social systems or context surrounding the involved actors and its implicit implications on coproduction influence service exchange and consumers' perceived value. However, empirical research focusing on the relative effects of social context on their participation in service coproduction and improved adherence to medical instructions remain scarce. For instance, Snell et al. (2014) call for more work in coproduction research and, more importantly, approaches that investigate customer attributes within the social context. This presents an interesting area on which to focus and examine how the social context influences customer's participation in coproduction (within the provider-customer sphere) and their adherence to medical instructions (coproduction within the customers' sphere). Against this backdrop, this study adopts social cognitive theory to examine the impact of social context and role clarity on customer coproduction activities and service outcomes (including improved adherence to medical instructions) in healthcare.

This study has the following objectives: first, to investigate empirically and assess the effects of social context (nature of interactions, service climate, and access to healthcare information) on participation in service coproduction and adherence. Secondly, to examine the mediating

effect of customer role clarity on coproduction. Thirdly, to examine the moderating effect of provider-customer orientation on coproduction. Finally, this study examines the relative effects of the nature of customer health condition (i.e., acute and chronic condition) on their participation in service coproduction and customer adherence. This is particularly important as most of the studies examining coproduction in healthcare largely focus on customers with chronic conditions.

This study contributes significantly to the coproduction and healthcare literature by establishing the relative effects of social context in driving customer coproduction behaviours, hence, building on Edvardsson et al. (2011) and Vermeire, Hearnshaw, Royen, and Royen (2001). Secondly, we respond to calls by McColl-Kennedy, Snyder, et al. (2017) to further understanding of the changing roles of healthcare customers and in particular, how these roles drive coproduction both within the customer-provider sphere and customer sphere. From a social cognitive theoretical perspective, this study has established that customers' behaviours are motivated or influenced by the social context, and contribute significantly to the coproduction conceptual domain. Furthermore, our study provides new empirical insights to operationalize and understand these pertinent influencing factors (social context, customer role clarity, provider-customer orientation) of customer coproduction.

The following sections discuss the theoretical background of the study, the model, and hypotheses development. The paper will continue with our methodological approach, data analytical techniques and research findings. Then, implications for researchers and practitioners, limitations and directions for future research are discussed.

2.0 THEORETICAL BACKGROUND

2.1 The Social Context

The social context plays an integral role in service effectiveness (Glisson et al., 2008), which is also reflective of the coproduction of the service. On this premise, Edvardsson et al. (2011, p. 334) underscore the importance of social context in service encounters and contend that it is essential to consider the “actors’ positions, roles and social interactions within social structures when designing resource constellations to realize value propositions”. As Solomon, Surprenant, Czepiel, and Gutman (1985, p. 102) explain, social role is “a cluster of social cues that guide and direct an individual’s behaviour in a given setting.” Interestingly, social roles in encounters project some behaviours which may also influence actor expectations (Akaka & Chandler, 2011). These social roles could also be likened to the service climate, nature of interactions, and actors’ increased access to healthcare information.

Edvardsson et al. (2011, p. 328) explain social context as one that “constitutes a system in which service is exchanged for service” leading to the coproduction of service outcomes. They further linked social context to the norms and values that impact on the service exchange and coproduction. For the purposes of this study, we define social context as *cues within the social system relating to increased access to healthcare information, nature of interactions, and service climate that have influence on the service delivery and coproduction process*. Conceptually, social system/interactions that ensue before, during and after encounters are critical to the social context (e.g., pre-encounter information search; nature of interactions with medical professionals, friends and family members; service climate; etc.). To this end, “social interactions embed triggers that give direction to customers, employees, or other actors” (Edvardsson et al., 2011, p. 331). These give eminence to role integration that affirms actor-to-actor relations in service coproduction (Akaka & Chandler, 2011). This study,

therefore, focuses on key subdimensions of social context – nature of interactions, service climate, and access to healthcare information (Ferris et al., 1998; Glisson et al., 2008; Osei-Frimpong et al., 2015) – as previous studies demonstrate their significance in potentially driving consumer coproduction behaviours (Chan et al., 2017; Grönroos, 2011; Osei-Frimpong, Wilson, & Lemke, 2018).

As part of the social context, the nature of interactions between actors in the service exchange remain one of the focal points in the coproduction process (Chen & Quester, 2006; Flint, 2006). Interaction is conceptualised as a reciprocal action between two or more actors that require “mutual trust and collaborative relationships” (Alam, 2013, p. 58), which directly or indirectly influence the coproduction process (Grönroos, 2011). Broderick (1998, p. 352) relates three key attributes of the nature of interaction between actors in service exchange to include “(a) the degree of contact intensity, (b) the extent of reciprocity in exchange patterns and (c) the level of co-operative behaviour adopted”. While this involves the initiation of action and response from actors, it provides the foundation of understanding actors’ behaviours in service exchange as a deeper insight into their participation in the coproduction process. The nature of interactions that ensue during service encounters is critical and central to the social context (Payne et al., 2008).

Relatedly, increased access to healthcare information within the social context is characterised by enhanced knowledge on the part of healthcare customers in understanding their healthcare needs. Role understanding could result in enhanced participatory customer behaviour in coproduction (Temerak et al., 2018). Health-information seeking is “verbal and nonverbal messages ascertained via everyday interaction, either purposeful or serendipitous, by members in a self-defined network, that serve not only to reduce uncertainty regarding health status, but also to construct a social and personal (cognitive) sense of health” (Tardy & Hale, 1998, p. 338). Given the social persuasion within the social context, individuals are encouraged to

develop certain habits for understanding their health issues, which invariably drive their active participation in the coproduction process.

In addition, the service climate is considered an important factor of the social context that directly or indirectly affects the attitudes and beliefs of actors (Ferris et al., 1998; Glisson et al., 2008). This is a factor that has received attention given its linkages with employee motives and performance, as well as with customer outcomes such as citizenship behaviours, satisfaction and loyalty (e.g., Chan et al., 2017; Kralj & Solnet, 2010). The service climate refers to cues, norms and shared perceptions and behaviours of actors in the service environment (Chan et al., 2017). In this case, the ‘focused policies, practices, procedures’ towards the delivery of excellent service as well as the employee behaviours and attitudes during service encounters enhance consumption experiences (Bowen & Schneider, 2014; Kralj & Solnet, 2010), which could elicit some coproduction behaviours. Wang (2015) explains that ‘macro-perceptions’ of the service climate within the work environment could motivate service providers to deliver service in a way that triggers customer reactions. Customers make decisions by assessing the social environment of their encounters. In this instance, the healthcare customer’s beliefs regarding employee behaviours and attitudes, and the service cues within the service context could impact on their coproduction behaviours.

From the above, social context (characterised by access to healthcare information, nature of interactions, and service climate) is envisaged to influence the actors’ roles in the context within which an encounter takes place (Akaka & Chandler, 2011; Edvardsson et al., 2011). Accordingly, social cognitive theory emphasizes the influencing role of social context on individual behaviours in service encounters (Seiders, Flynn, Berry, & Haws, 2015). Hence, social context could enhance the clarity of customer roles in service delivery. This could enhance customers’ participation in coproduction and adherence behaviours. We respond to Edvardsson et al.’s (2011) call for greater empirical understanding of social context in the

service coproduction process. In particular, we shed light on the provider-customer sphere and the customers' sphere in relation to the service coproduction process.

2.2 Coproduction in Healthcare

Coproduction practices in healthcare delivery influence service outcomes, particularly when customers are experiencing the full course of their health problem (Temerak et al., 2018). Relatedly, Spanjol et al. (2015) equate coproduction to adherence noting that customers' preparedness and ability to perform some specific tasks are critical in defining the effectiveness of coproduction. This study adopts Auh et al.'s (2007) definition of coproduction. While coproduction research has received much attention, the literature highlights a need to further understand the nested effects of social context on the coproduction process (e.g., Edvardsson et al., 2011; Temerak et al., 2018), which adds to the prominence of this study.

The healthcare delivery is a social setting with a set of guidelines, that requires knowledge and skills to engage the customer (Freidson, 2001) and here, Osei-Frimpong et al. (2015) note that service delivery could be limited or enhanced, depending on the social context of the actors. As healthcare consultations are mostly face-to-face encounters, the actions of one actor could affect the other within the provider-customer sphere. In this case, coproduction entails what transpires within the provider-customer sphere (Grönroos & Voima, 2013) as well as the customer's sphere, in which case the customer plays a role in adhering to professional advice (Spanjol et al., 2015). Consequently, understanding the cumulative effects of the social context on customer coproduction is particularly important, especially when the literature lacks a sound understanding in this regard.

In a related work, Seiders et al. (2015) present a comprehensive investigation to establish the influence of a professional's approaches (e.g., advice giving frequency) on customer outcomes

notably adherence, and examined how customer and professional efficacy moderate these approaches. In furtherance of their work, Prigge et al. (2015) clarify some important antecedents of patient empowerment (e.g., health involvement, self-efficacy, acceptance of physician authority) and their effects on therapy compliance. Further, a comprehensive work on co-creation practice styles in healthcare (McColl-Kennedy, Vargo, Dagger, Sweeney, & van Kasteren, 2012) identify a host of activities (including co-production, co-learning, cooperating) that need to be adapted by actors during service delivery for value co-creation and quality of life improvement. While these are important in understanding the coproduction conceptual domain, there still remain literature gaps in relation to how the process (within the provider-customer sphere and the customer's sphere) is influenced by the social context.

Active collaboration through provider-customer orientation of the actors occurs in clinical encounters, given that healthcare customers are becoming more demanding resulting from consumerism (Gabriel & Lang, 2008). Enhanced provider-customer orientation is likely to strengthen the collaboration between the actors in service coproduction resulting in the empowerment of customers and their motivation to manage their medical conditions. Consequently, the medical/healthcare literature is replete with works on patient involvement (Davis, Sevdalis, & Vincent, 2011; Smith, Dixon, Trevena, Nutbeam, & McCaffery, 2009), patient engagement (Carman et al., 2013; Coulter, 1999), and shared decision-making (Charles, Gafni, & Whelan, 1999; Elwyn et al., 2010). However, some questions still remain largely unanswered. For instance, how does social context drive the service coproduction process? How are the effects of social context on customer participation in service coproduction influenced by customer's role clarity, and provider-customer orientation?

2.3 Social Cognitive Theory and Adherence

Social Cognitive Theory (SCT) demonstrates how cognitive processes affect individuals' interest (Bagozzi & Lee, 2002) in relation to acquiring and maintaining certain behavioural patterns (Bandura, 1991). For instance, adherence to professional advice is considered as behavioural, which could be motivated by self-influence, be it external (e.g., the social context) or personal. Dellande et al. (2004) found that social forces within the environment/society influence behaviours, emotions, and actions of individuals. In view of this, a person's cognitive attitudes or behaviour (Bagozzi & Lee, 2002) could influence their adherence to medical instructions. Although SCT outlines the social factors that influence individuals' attitudes and behaviours, issues regarding non-adherence remain a complex and speculative concept in the literature.

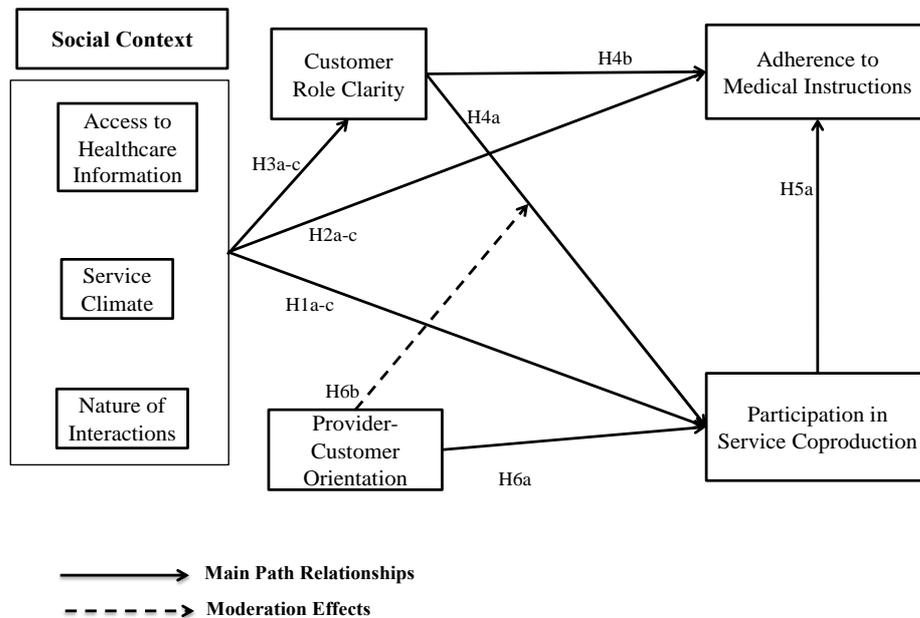
In relation to affective self-reaction (Bandura, 1991) and its association to adherence, the approach of the professional could contribute significantly in this endeavour. Further, behaviours toward adherence are often regarded as a function of the customer's behaviour, and environmental or social factors (Osei-Frimpong, McLean, & Famiyeh, 2020). SCT explains that external factors (the social context) drive behaviours directly or indirectly through their cognitive processes (Bandura, 2005). Hence, consumers' cognitive processes resulting from the social context could influence their coproduction behaviours in relation to adherence to medical instructions.

Recently, customer adherence to medical instructions is preferred to the term 'compliance', given that adherence offers avenues for patients' active involvement in decision-making. On the contrary, compliance assumes that customers receive medical instructions or advice passively by healthcare professionals. Transition from compliance to adherence demonstrates the essential value of customers' active participation in their health condition management

(Sandman, Granger, Ekman, & Munthe, 2012). This also underscores the importance of the coproduction concept in the healthcare setting. Customer adherence is defined as “customers’ coproduction activities that apply service guidelines, within the parameters for personalization, to progress toward desired service benefits” (Temerak et al., 2018, p. 266). This addresses the customers’ behaviours regarding the following of advice or instructions provided by a healthcare professional, which also highlights the active role of the patient in healthcare service delivery. Embracing the healthcare customer as an active coproducer of the service presents some level of responsibility on the part of the customer, which may enhance their commitment to adhering to medical advice.

The hypothesised model for the study is illustrated in Figure 1, and the following section discusses the model in detail.

Figure 1: Conceptual Model



2.4 Model Development and Hypotheses

As social context could be classified as an antecedent to coproduction, it is imperative to examine how this plays out in the clinical encounter and how it potentially influences or drives the coproduction process. From a social cognitive theory perspective, individual beliefs and motivation in participating in an activity are dependent on their cognized goals, outcome expectations and perceived environmental impediments and facilitators (Bandura, 1998). In this case, the social context (characterised by access to healthcare information, nature of interactions, and service climate) is likely to project some behaviours toward service coproduction.

For instance, the actors' roles and nature of interactions of the encounter context are likely to drive service coproduction toward goal achievement (Akaka & Chandler, 2011; Edvardsson et al., 2011). The changing nature of the interactive communication pattern during service encounters is particularly important in service coproduction (Ballantyne & Varey, 2006). The nature of interactions (where active) allow customers to share detailed information and encourages them to participate in service coproduction. Accordingly, the extent of reciprocity associated with exchange patterns as enshrined in the nature of interactions between actors (Broderick, 1998) appears as one focal point in coproduction (Flint, 2006).

Similarly, the service climate of the social context could trigger customers' service coproduction. Abdelhadi and Drach-Zahavy (2012) note that customers are more likely to adopt some pertinent behaviours (e.g., coproduction) when the healthcare service climate is explicit and service providers adhere to shared policies and procedures. Further, Chan et al. (2017) contend that the service climate could serve as an important social environmental cue that could influence customers' motives or behaviours. Consequently, it could be argued that the social cues available to the customer are more likely to influence behaviours in a manner

that would instil confidence and motivation to participate in the service coproduction process (Sproull & Kiesler, 1986).

Further, increased customer access to healthcare information has improved knowledge and empowered customers to participate actively in service coproduction (Osei-Frimpong et al., 2018). Payne et al. (2008) conceptualise access to healthcare information as a means through which customers could develop knowledge and skills to build their competences, and above all be able to integrate their cognized resources in service encounters. As a result, these attributes may drive customer service coproduction. Consequently, this study argues that the social context is likely to positively influence customers' participation in service coproduction activities within the customer-provider sphere. Thus, these following hypotheses are proposed:

H_{1a}: The nature of interactions of the social context is likely to positively enhance customers' participation in service coproduction.

H_{1b}: The service climate of the social context is likely to positively enhance customers' participation in service coproduction.

H_{1c}: Access to healthcare information of the social context is likely to positively enhance customers' participation in service coproduction.

The social context remains critical in influencing certain behaviours, and here, previous studies call for further investigation into its effects on adherence to medical instructions (Osei-Frimpong et al., 2015; Vermeire et al., 2001). The social cognitive theoretical perspective explains how social factors within the environment influence individual's cognitive processes (Bandura, 1991). While adherence behaviours could be considered as dependent on the customer's cognition and affective reactions, the influence of the social context in enhancing or influencing such behaviours cannot be undermined.

Within the social context, the nature of interactions during service encounters could play a critical role in customer adherence behaviours. It is argued that customer involvement in the

consultation process, driven by the nature of interactions, impacts on their behavioural intentions (Hsieh, Yen, & Chin, 2004). Given that adherence to medical instructions is behavioural, their active participation through interactions could instil a sense of responsibility in customers' attitudes towards following the healthcare provider's professional advice (Dellande et al., 2004; Osei-Frimpong et al., 2018).

The social cognitive theoretical perspective gives prominence to customer behavioural influence that results from their perceptions of the service providers' capabilities and attitudes towards service delivery (Seiders et al., 2015). While the effect of service climate on customer adherence to medical instructions has not been established, it could be inferred that the social cues and providers' general behaviours and attitudes toward delivery could drive consumption experience (Bowen & Schneider, 2014), which could impact on customer adherence behaviours. Interestingly, the consumption experience during clinical consultations partly elicited by the service climate is likely to drive customer outcomes such as improved adherence to clinical instructions, as Osei-Frimpong and Owusu-Frimpong (2017) explain. As a result, this study proposes that the service climate of the social context within which the service is delivered could influence customer behaviours toward adherence to medical instructions.

In a similar vein, increased access to healthcare information is likely to drive customer behaviours towards coproduction within their own sphere. Accordingly, it is expected that customers become more aware of the consequences of their inability to adhere to medical instructions, while recognizing the positive implications of adherence. The increased access to healthcare information serves as a key resource in improving customer knowledge, which is important in coproduction (Nambisan & Nambisan, 2009). In relation to healthcare, the acquisition of healthcare information could drive customer decision-making and behaviours (Gutierrez, Kindratt, Pagels, Foster, & Gimpel, 2014). However, there is limited empirical

research to establish the relative effects of access to healthcare information on adherence to medical instructions. Therefore, this study hypothesises that consumers' cognitive processes resulting from the social context are likely to drive their adherence behaviours:

H_{2a}: The nature of interaction of the social context is likely to positively enhance customers' commitment to adherence to medical instructions.

H_{2b}: The service climate of the social context is likely to positively enhance customers' commitment to adherence to medical instructions.

H_{2c}: Access to healthcare information of the social context is likely to positively enhance customers' commitment to adherence to medical instructions.

A customer's social context is likely to clarify their roles in coproducing the service delivery. Customer role clarity is defined as the "extent to which the procedures, goals, criteria, and knowledge of consequences are clear to a customer" to guide their participation in service coproduction (Dong, Evans, & Zou, 2008, p. 126). Basically, it explains the customer's knowledge and understanding of their service encounter role (Temerak et al., 2018). Effectively, the nature of interactions within the social context could stir up the adoption of cooperative behaviours (Broderick, 1998) such as understanding their roles in such encounters. Accordingly, roles are created during service encounters through cognitive processes with varying degrees of expectations resulting from the actors' norms, attitudes and behaviours (Guirguis & Chewning, 2005). In such situations, it could be argued that the nature of interactions during the service encounter is likely to influence role clarity for customers.

In another instance, the service climate of the social context could shape customer behaviours in service encounters. Following the shared policies, procedures, and social cues of the healthcare organisation as well as the service providers' attitude, concern, and behaviours toward delivery of the service (Abdelhadi & Drach-Zahavy, 2012; Chan et al., 2017), customers are likely to notice some cues which could enhance their understanding of their role expectations. For instance, Chan et al. (2017) explain that the environmental cues could drive

customers motives, which could be channelled towards learning and understanding their respective roles in the service encounter. While this relationship is vague in the literature, we contend that the service climate of the social context is likely to influence customer role clarity in service encounters.

Customers require information to enhance their knowledge on health related issues and improve their performance or involvement in clinical encounters (Temerak et al., 2018; Yi & Gong, 2013). For instance, Gutierrez et al. (2014) assert that customers with limited health literacy could find it challenging in making some decisions about their health. Furthermore, they may not be able to understand their roles for active involvement in clinical encounters. Yi and Gong (2013) contend that customers' healthcare information seeking helps them develop and master their roles in service coproduction and become more integrated into the process. Hence, it could be argued that customers' exposure to healthcare information aided by their social context are more likely to enhance their role clarity in service coproduction within the customer-provider sphere.

From the above, this study proposes that the social context is likely to drive customer role clarity in service coproduction. Thus, we propose the following hypotheses:

H_{3a}: The nature of interaction of the social context is likely to positively enhance customers' role clarity.

H_{3b}: The service climate of the social context is likely to positively enhance customers' role clarity.

H_{3c}: Access to healthcare information of the social context is likely to positively enhance customers' role clarity.

The mediating effect of role clarity

One fundamental challenge in service coproduction between actors is the lack of role clarity, which can sometimes lead to negative experiences (Osei-Frimpong & Owusu-Frimpong,

2017). Hence, McColl-Kennedy, Snyder, et al. (2017) reiterate the importance of understanding the effects of the healthcare customers' changing role in service coproduction and outcomes, particularly as it changes from passive to active. In this vein, shedding light on the effects of customer role clarity on service coproduction (within the provider-customer sphere) and their adherence to medical instructions (coproduction within the customers' sphere) makes a significant attempt to respond to McColl-Kennedy, Snyder, et al.'s (2017) research agenda.

Relatedly, Dong et al. (2008) found a customer's role clarity enhances their ability to function efficiently and productively in the service delivery process, influencing their service coproduction. Accordingly, as customers' adherence to medical instructions are behavioural and attitudinally driven, enhancing role clarity increases their inherent motivations to assume certain behaviours (Dellande et al., 2004). Snell et al. (2014) highlight the importance of customer role clarity and its contribution to enhancing a customer's ability to follow healthcare providers' instructions. Hence, enhancing a customer's role clarity could increase their participation in coproduction and adherence to medical instructions. Our hypotheses are:

H_{4a}: The customers' role clarity is likely to positively enhance their participation in service coproduction.

H_{4b}: The customer's role clarity is likely to positively influence their adherence to medical instructions.

Conceptually, following the hypothesised effect of social context subdimensions on the customer's role clarity, and the effects of role clarity on service coproduction (H4a) and adherence (H4b), the social context (characterised by access to healthcare information, nature of interactions, and service climate) is expected to have significant indirect effects on customer coproduction (both within the customer-provider sphere and the customer's sphere). In effect, while these social context variables enhance customer's role clarity in coproduction, this in

turn shapes their participatory behaviours toward coproduction and adherence to medical instructions. For instance, Verleye (2015) note that customer role clarity helps them to participate actively and constructively in service coproduction. Further, in line with Zhao, Lynch Jr, and Chen (2010), the presence of a potential significant indirect effect indicates mediation. While this has not been established in the literature, this study proposes that role clarity will mediate the effect of social context on the participation in service coproduction. Thus, the following hypothesis is proposed:

H₄: The customer's role clarity significantly mediates the positive effect of social context (c. Nature of interactions; d. Service climate; e. Access to healthcare information) on their participation in service coproduction.

The mediating effect of service coproduction

Adhering to instructions of the healthcare service provider result in improved self-reports on individuals' perceptions of goal attainment, health status, and overall satisfaction with the service delivered (Dellande et al., 2004; DiMatteo, 2004). As customers get actively involved in service coproduction processes, they are motivated to play their respective roles; hence, this is likely to influence their behavioural intentions towards adherence (Seiders et al., 2015; Taylor, 2009). Osei-Frimpong et al. (2018) emphasise that customers' active participation in service coproduction can lead to a certain degree of responsibility regarding their ill-health management including potentially improving their commitment to adherence to medical instructions. In a related study, Deshpande, Menon, Perri III, and Zinkhan (2004) note that customers' increased participation in coproduction in healthcare service delivery could increase their commitment to adherence to medical instructions. On this premise, this hypothesis is developed:

H_{5a}: The customers' participation in service coproduction is likely to positively influence their adherence to medical instructions.

Following the hypothesised effect of the social context subdimensions on service coproduction, and coproduction on adherence (H5a), we conceptually propose a potential significant indirect effect of social context (characterised by nature of interactions; service climate; access to healthcare information) on adherence to medical instructions. In effect, while the social context influences behaviours and customer's cognition toward certain practices (Bandura, 1991), it is expected that the enhanced participatory behaviours in coproduction (within the customer-provider sphere) will be further enhanced within the customer's sphere. Accordingly, we posit that service coproduction (within the provider-customer sphere) will mediate the effect of social context on adherence to medical instructions (within the customer's sphere). Thus, the following hypothesis is proposed:

H₅: Customers' participation in service coproduction significantly mediates the positive effect of social context (b. Nature of interactions; c. Service climate; d. Access to healthcare information) on their adherence to medical instructions.

2.5 Moderation Effect of Provider-Customer Orientation

Based on our reasoning of the literature, we argue that a customer's role clarity influences their participation in service coproduction. While this is likely to cause a change in customer participatory behaviours in healthcare service delivery (Cascón-Pereira & Hallier, 2012; Osei-Frimpong et al., 2015), provider-customer orientation (PCO) is considered a critical factor in driving the collaborative efforts of the actors in the consulting room (Brach, Walsh, Hennig-Thurau, & Groth, 2015). Provider-customer orientation is defined as the service provider's capability to respond effectively to customers and their commitment to understanding and meeting the customer's needs (Bove & Johnson, 2000; Brach et al., 2015). Austin and Seitani (2012) assert that the dynamics of service coproduction changes as the relationship between partners evolves. So, a better understanding of the customers' changing behaviours require service providers to orient themselves to accommodate the changing customer

(Gabriel & Lang, 2008) and to streamline the process of service coproduction. For instance, Osei-Frimpong et al. (2015) found that doctors' misunderstanding of the changing healthcare customer negatively affects customer's participation in the consultation process as well as their service experience overall. This suggests that while customer's improved role clarity could enhance their participation in service coproduction, a significant effort is required of the service provider to strengthen the effect. From the role theoretical perspective, healthcare providers are expected to adopt behaviours that align to their roles and the customer's needs in service encounters (Solomon et al., 1985). On this basis, it could be argued that the provider-customer orientation demonstrated during consultations on the part of the provider could drive customer coproduction behaviours and as well reinforce the influence of a customers' role clarity on service coproduction participation. Thus, the following hypotheses are proposed:

H_{6a}: The customers' perception of provider-customer orientation is likely to positively enhance their participation in service coproduction.

H_{6b}: The effect of a customer's role clarity on their participation in service coproduction will be stronger when provider-customer orientation is demonstrated in such encounters.

2.6 Effect of Medical Condition

The present study included healthcare customers with acute conditions as well as chronic conditions to ascertain any potential differences in the pattern of adherence and coproduction behaviours. Acute condition is explained as conditions in which symptoms appear and change or worsen rapidly (e.g., malaria, minor trauma, infectious diseases). In contrast, a chronic condition develops and worsens over an extended time period (e.g., osteoporosis, hypertension, diabetes, cancers, etc.), according to MedlinePlus (2018). The general argument is that customers with chronic conditions are likely to be motivated to engage in coproduction practices during and after the service encounter as compared to those with acute conditions. As

a result, most of the previous research has focused on healthcare customers with chronic conditions (e.g., Dellande et al., 2004; McColl-Kennedy, Hogan, et al., 2017; Snell et al., 2014; Spanjol et al., 2015; Temerak et al., 2018). The assumption is that these customers tend to learn more about their health condition and adopt pragmatic measures to manage it. For instance, McColl-Kennedy, Snyder, et al. (2017) indicate that customers with acute conditions only experience health challenges for a short period. Therefore, they may not have a clear understanding of the condition and treatment plan when compared to customers with chronic conditions.

The literature is fragmented regarding the patterns of adherence between healthcare customers with chronic and acute conditions. For instance, while Billups, Malone, and Carter (2000) suggest higher adherence rates in acute therapies compared to chronic therapies, Arbuthnott and Sharpe (2009) found no moderation effects of patients' disease condition (be it acute or chronic) on adherence behaviours. Whereas acute therapies (e.g., antibiotic prescriptions) often last from five to fourteen days, chronic therapies (e.g., hypertension, diabetes) are managed over long time periods (e.g., for years or for a lifetime). By extension, customers with chronic conditions are expected to be informed of their conditions and the implications on their life should the condition not improve, and are therefore encouraged to adhere to the doctor's instructions (Arbuthnott & Sharpe, 2009; McColl-Kennedy, Snyder, et al., 2017). We argue that the same level of attention, information, encouragement, and motivation should be extended to healthcare customers with acute conditions, as is given to customers with chronic conditions. Uncompleted or missed therapies could lead to complications and morbidity. Given the increasing awareness of health issues, healthcare customers tend to develop behaviours that are likely to project positive attitudes towards managing their health conditions. This notwithstanding, we argue that there could be some differences in adherence

patterns and coproduction behaviours among customers with acute and chronic conditions. Hence, this study will test the model for patients with different conditions, chronic and acute.

3.0 METHODOLOGY

3.1 Research Approach

This study employed a face-to-face quantitative survey involving 594 outpatients selected from ten public health facilities randomly selected within the Accra and Tema metropolises in Ghana. Outpatients are defined as patients with both acute and chronic conditions who attend the hospital without staying overnight. Patients who had seen a doctor were selected, employing a systematic random sampling technique. In this sampling technique, the skip interval was calculated based on the daily average number of outpatients visiting the facility as provided by the hospital authorities.

Drawing from the hospitals included in the main study, 30 outpatients participated in the pilot study to pre-test the survey instrument. This step ensured the content validity and reliability of the scale items in this particular research context (Chen & Quester, 2006). All scales recorded Cronbach alpha $\alpha > 0.7$ with correlation significance at the level of $p < 0.05$, suggesting the scales' robustness (Bagozzi & Yi, 2012). In the main study, 599 out of the 670 outpatients recruited completed the questionnaires. Five completed questionnaires were rejected as a result of missing data. Overall, 594 valid questionnaires from outpatients were used in the analysis (88.7% valid response rate). The respondent characteristics are provided in Table 1.

Table 1: Characteristics of the respondents in the quantitative study

	Respondent characteristics	Frequency (n)	Percentage (%)
Gender	Male	276	46.5
	Female	318	53.5
Age (in years)	20 – 29	237	39.9
	30 – 39	177	29.8
	40 – 49	66	11.1
	50 – 59	114	19.2
Educational background	Senior High School	241	40.6
	Higher National Diploma	82	13.8
	Professional Qualification (e.g., ACCA, CIM, etc.)	38	6.4
	Undergraduate Student	51	8.6
	Bachelor's Degree	155	26.1
	Post-Graduate Qualification	27	4.5
Disease Type/Condition	Acute Condition	240	40.4
	Chronic Condition	354	59.6

3.2 Study Context

Contrary to healthcare systems in other developed economic jurisdictions where patients are required to make a prior appointment before attending the health facility, patients attend without prior appointment in Ghana. This means there is persistent pressure on the facilities and staff to perform medical treatment and consultations, with patients experiencing prolonged waiting times to see a doctor. The Ministry of Health (MoH) and the Ghana Health Service (GHS) have embarked on various health sector reforms since the 1990s towards the provision of quality healthcare in Ghana (Sika Avortri, Beke, & Abekah-Nkrumah, 2011). However, with a poor doctor to patient ratio of 1:8300 (Ghana Health Service, 2017), compared to the World Health Organisation recommended doctor-patient ratio of 1:1000, there is immense pressure on the doctors delivering patient-care. This has led to a situation where some patients are rushed through consultation processes and active collaboration in consultations has become a challenge, as a consequence. However, attempts are being made to improve service delivery in the healthcare sector by the MOH, together with the Institutional Care Division (ICD) of the GHS (Ghana Health Service, 2017).

3.3 Measures

Measurement scale items were drawn from related literature and sensitively modified to fit the research context (see Appendix 1). All variables were measured using a 5-point Likert-scale anchored with 1 (Strongly disagree), 3 (Uncertain), and 5 (Strongly agree).

3.4 Analysis and Results

Preliminary analysis had all scale items measuring a Cronbach alpha > 0.7 with a correlation significance at $p = 0.05$. As the scale items were slightly modified, an exploratory factor analysis (EFA) was conducted using principal component analysis and Varimax rotation (Osei-Frimpong et al., 2018). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.894, exceeding the cut-off value of 0.6 with a p -value $< .0001$ for Bartlett's Test of Sphericity (Kaiser, 1970). There was no evidence of cross-loadings and all items recorded factor loadings well above 0.5. In addition, a confirmatory factor analysis (CFA) was conducted using AMOS 23.0, employing the maximum likelihood estimation. The factor loadings (see Appendix 1) and the fit indices indicated good fit to the data ($\chi^2_{(300)} = 749.306$, $p = .0001$, $\chi^2/df = 2.498$; GFI = .915; CFI = .958; RMSEA = .050). In addition, we checked for multicollinearity of all the variables using variance inflation factor (VIF). The analysis recorded 2.032 as the highest value among the variables, which suggests that when compared to a cut-off point of 3.0 (Hair, Black, Babin, & Anderson, 2014), the assumption of multicollinearity was not violated.

Before the SEM model evaluation, discriminant and convergent validity of the measures were assessed following Fornell and Larcker's (1981) criterion. Table 2 presents results indicating that convergent and discriminant validity were satisfied. For instance, with regard to convergent validity, the average variance extracted (AVE) values were all above .50 and construct reliabilities $> .70$. Furthermore, discriminant validity was supported since the AVE

values for each construct were greater than the square of their correlations (Hair et al., 2014), and there was no evidence of cross-loadings.

Table 2: Validity and Construct Reliability Measures

	CR	AVE	MSV	MaxR(H)	ADH	PCO	PCP	CRC	AHI	INT	SVC
Adherence to Medical Instructions (ADH)	0.875	0.639	0.464	0.901	0.799						
Provider-Customer Orientation (PCO)	0.914	0.727	0.334	0.921	0.394	0.853					
Participation in Service Coproduction (PCP)	0.819	0.602	0.464	0.825	0.681	0.520	0.776				
Customer Role Clarity (CRC)	0.923	0.753	0.297	0.951	0.519	0.511	0.545	0.868			
Access to Healthcare Information (AHI)	0.781	0.544	0.176	0.791	0.136	0.349	0.301	0.273	0.738		
Nature of Interactions (INT)	0.843	0.576	0.334	0.860	0.342	0.578	0.480	0.378	0.420	0.759	
Service Climate (SVC)	0.917	0.735	0.160	0.922	0.215	0.264	0.218	0.251	0.396	0.400	0.857

*CR – Construct Reliability; AVE – Average Variance Extracted
MSV – Maximum Shared Variance; MaxR(H) – Maximum Reliability*

3.5 Structural Model Estimation

The hypothesised model was estimated using SEM AMOS 23.0. The results suggest an acceptable model fit to the data, with the following fit indices ($\chi^2_{(18)} = 21.761$, $p = .243$, $\chi^2/df = 1.209$, GFI = .993, AGFI = .977, CFI = .998, TLI = .995, RMSEA = .019, PCLOSE = .987). Table 3 presents a detailed list of standardized path coefficients with their respective t-values and R².

Table 3: Structural parameter estimates (standardized coefficients)

Paths	Focal Model		
	β	t-value	R ²
Nature of Interactions → Participation in Service Coproduction (H1a)	.253***	6.058	0.420
Service Climate → Participation in Service Coproduction (H1b)	.336***	10.459	
Access to Healthcare Information → Participation in Service Coproduction (H1c)	.494***	9.983	
Nature of Interactions → Adherence to Medical Instructions (H2a)	.038 ^{ns}	1.108	0.514
Service Climate → Adherence to Medical Instructions (H2b)	.109***	3.632	

Access to Healthcare Information → Adherence to Medical Instructions (H2c)	.173 ^{***}	5.571	
Nature of Interactions → Customer Role Clarity (H3a)	.335 ^{***}	7.346	0.166
Service Climate → Customer Role Clarity (H3b)	.069 ^{ns}	1.600	
Access to Healthcare Information → Customer Role Clarity (H3c)	.120 ^{**}	2.690	
Customer Role Clarity → Participation in Service Coproduction (H4a)	.381 ^{***}	10.810	
Customer Role Clarity → Adherence to Medical Instructions (H4b)	.169 ^{***}	5.203	
Participation in Service Coproduction → Adherence to Medical Instructions (H5a)	.709 ^{***}	11.157	
Provider Customer Orientation → Participation in Service Coproduction (H6a)	.207 ^{***}	5.047	
Control Variables			
Age → Participation in Service Coproduction	-.007 ^{ns}	-0.239	
Age → Adherence to Medical Instructions	.011 ^{ns}	0.420	
Gender → Participation in Service Coproduction	.041 ^{ns}	1.088	
Gender → Adherence to Medical Instructions	-.036 ^{ns}	-1.418	
Education → Participation in Service Coproduction	.005 ^{ns}	0.168	
Education → Adherence to Medical Instructions	-.022 ^{ns}	-0.877	

^{***} $p < 0.001$, ^{**} $p < 0.05$, *ns* – non-significant ($p > 0.05$)

3.6 Results

The results (Table 3) indicate that the control variables (Age, Gender, Education) had no significant effects on participation in coproduction and adherence to medical instructions, hence, these will not influence the findings. Effectively, all social context subdimensions had significant influence on participation in service coproduction [Nature of interactions – participation in service coproduction ($\beta = .253$, $p < 0.001$); Service climate – participation in service coproduction ($\beta = .336$, $p < 0.001$); Access to healthcare information – participation in service coproduction ($\beta = .494$, $p < 0.001$)], hence supporting hypotheses H1a, H1b and H1c respectively. This suggests the importance of these social context subdimensions in driving customer participation in service coproduction. In relation to the effects of social context on customer adherence to medical instructions, the findings suggest that while service climate had a significant effect ($\beta = .109$, $p < 0.001$), as well as access to healthcare information ($\beta = .173$, $p < 0.001$), the nature of interactions had no significant effect on

adherence to medical instructions ($\beta = .038, p > 0.05$). Following this, the results support hypotheses H2b and H2c, while hypothesis H2a is rejected. The results suggest that the service climate and access to information of the social context play a critical role in influencing customer behaviours toward their adherence to medical instructions. Furthermore, the results indicate a positive significant influence of the nature of interactions on customer role clarity ($\beta = .335, p < 0.001$). Similarly, access to healthcare information also significantly influenced customer role clarity ($\beta = .120, p < 0.05$). On the contrary, the service climate of the social context had no significant effect on customer role clarity ($\beta = .069, p > 0.05$), hence, while hypotheses H3a and H3c are supported, H3b is rejected. The findings suggest that while the nature of interactions and access to healthcare information of the social context significantly enhance customer role clarity, the service climate does not. The results largely support the critical role of the social context in contributing to the service coproduction process within the provider-customer sphere as well as the customer's sphere. Relatedly, customer role clarity was found to have a significant effect on their participation in service coproduction ($\beta = .381, p < 0.001$), and adherence to medical instructions ($\beta = .169, p < 0.001$), hence, supporting hypotheses H4a and H4b. As expected, participation in service coproduction had a significant influence on adherence to medical instructions ($\beta = .709, p < 0.001$), therefore, supporting hypothesis H5a. In addition, hypothesis H6a was also supported, suggesting that the provider-customer orientation significantly influences customers' participation in service coproduction ($\beta = .207, p < 0.001$).

Following Zhao et al. (2010) and Inoue, Funk, and McDonald (2017), we focused on the significance of the indirect effects to ascertain whether there is a mediated effect of role clarity and participation in service coproduction as specified in the hypotheses. The mediation test was performed with a two-tailed significance from 5,000 bootstrapping runs (cf., Inoue et al., 2017). The results indicate the indirect effects on the paths: Nature of Interactions – Customer

Role Clarity – Participation in Service Coproduction ($\beta = .128, p < 0.001$), and Access to Healthcare Information – Customer Role Clarity – Participation in Service Coproduction ($\beta = .046, p < 0.05$) are both statistically significant, hence, supporting hypotheses H4c and H4e. However, the path; Service Climate – Customer Role Clarity – Participation in Service Coproduction ($\beta = .026, p = 0.092$) is not statistically significant, hence, rejecting hypothesis H4d. The results suggest that while customer role clarity significantly mediates the effect between social context (nature of interactions, and access to healthcare information) and participation in service coproduction, it does not mediate the effect of service climate on participation in service coproduction.

Following the same procedure as outlined above, participation in service coproduction was found to significantly mediate the effect of social context (nature of interactions, service climate, and access to healthcare information) on customer adherence to medical instructions. The results suggest indirect effects on the paths: Nature of Interactions – Participation in Service Coproduction – Adherence to Medical Instructions ($\beta = .179, p < 0.001$), Service Climate – Participation in Service Coproduction – Adherence to Medical Instructions ($\beta = .238, p < 0.05$), and Access to Healthcare Information – Participation in Service Coproduction – Adherence to Medical Instructions ($\beta = .350, p < 0.05$). The mediation effects were all statistically significant, hence, providing support for hypotheses H5b, H5c and H5d. The result indicates the essential role of a customer's participation in service coproduction on their adherence behaviours toward medical instructions.

Further, following Karikari, Osei-Frimpong, and Owusu-Frimpong's (2017) procedure, a multi-group analysis was conducted to determine any potential differences between customers with acute conditions and those with chronic conditions on the paths examined in AMOS 23.0. Results indicate no significant difference for the groups ($\Delta\chi^2_{(21)} = 15.539, p = .759$). With 1

degree of freedom, the chi-square difference test performed on the respective paths was non-significant, with the exception of “Access to Healthcare Information → Customer Role Clarity” path ($\Delta\chi^2_{(1)} = 6.113, p = .013$). The result suggests that customers’ access to healthcare information seems to enhance their role clarity much better in the service coproduction process in customers with chronic conditions as compared to those with acute conditions.

3.7 Moderation test

Following the above model evaluation, we tested interaction effects of ‘Provider-Customer Orientation’ (PCO). The independent variable ‘Customer Role Clarity’ (CRC) and the moderating variable (PCO) were changed through mean centring, and created interactive terms by multiplying the independent variable and the moderating variable (Ranaweera & Jayawardhena, 2014). The dependent variable, ‘Participation in Service Coproduction’ (PCP) was regressed on the independent variable (CRC), the moderator (PCO), and the interactive term (CRC X PCO). The moderated full model evaluation presented the following acceptable fit indices ($\chi^2_{(11)} = 19.988, p = 0.046, \chi^2/df = 1.817, GFI = .992, CFI = .997, RMSEA = .037, PCLOSE = .773$). Table 4 gives a detailed list of unstandardized and standardized regression weights.

Table 4: Results of the Interaction Effects

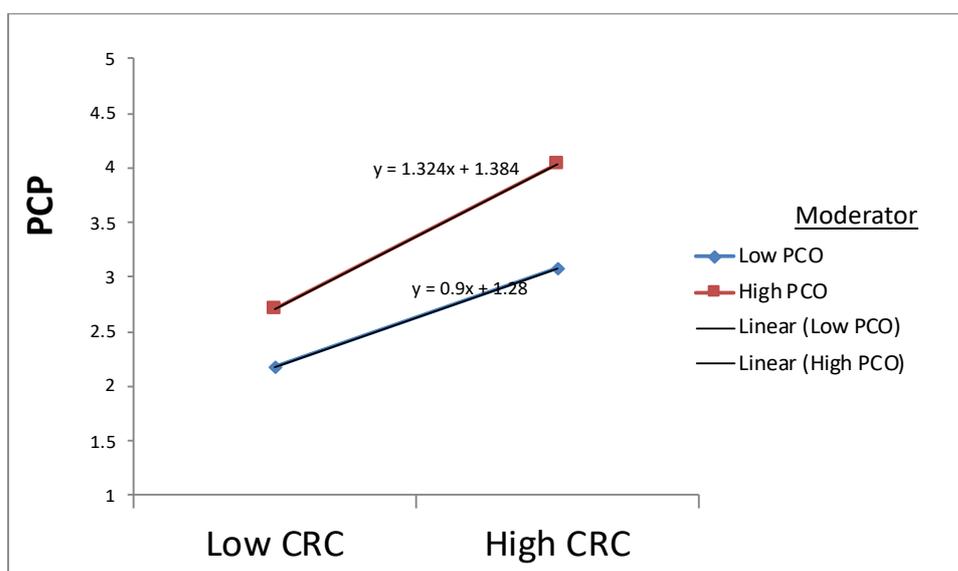
Paths	Focal Model			
	Unstandardized regression weights (α)	Standardised Regression weights (β)	t-value	R ²
Customer Role Clarity (CRC) → Participation in Service Coproduction (PCP)	.556	.610***	4.005	0.392
Provider-Customer Orientation (PCO) → Participation in Service Coproduction	.370	.594**	3.135	
CRC_X_PCO → Participation in Service Coproduction (PCP) (H6b)	.106	.163***	3.238	

*** $p < 0.001$, ** $p < 0.05$

The results (Table 4) indicate that Provider-Customer Orientation duly moderates the

significant association between Customer Role Clarity and Participation in Service Coproduction ($\beta = .163$, $p < 0.001$). The interaction effect of provider-customer orientation strengthens the influence of consumer role clarity on their participation in service coproduction processes, as illustrated in Figure 2, hence, supporting hypothesis H6b.

Figure 2: Moderation effect of Provider-Customer Orientation (PCO) on the Relationship Between Customer Role Clarity (CRC) and Participation in Service Coproduction (PCP)



4.0 Discussion and Implications

This study empirically examined the influence of social context on coproduction within the provider-customer sphere (participation in service coproduction) as well as the customer's sphere (adherence). The findings indicate a strong association between social context (driven by nature of interactions, service climate, and access to healthcare information) and a customer's participation in service coproduction and their adherence to medical instructions. Further, it was established that the social context subdimensions examined influence customer role clarity towards coproduction practices. In turn, customer role clarity significantly mediates

the effects of social context (nature of interactions, and access to healthcare information) on customer service coproduction. From a social cognitive theoretical perspective, this study has established that customers' behaviours are significantly influenced by the social context and contribute significantly to the coproduction conceptual domain. Extending on Temerak et al. (2018) and Snell et al. (2014), this study has established that the social context and role clarity of healthcare customers result in higher levels of participation in service coproduction within the provider-customer sphere and adherence to medical instructions (the customers' sphere).

The study results indicate that customer role clarity and social context (nature of interactions, service climate, access to healthcare information) significantly influence their participation in service coproduction within the provider-customer sphere. The findings support previous studies (e.g., Dellande et al., 2004; Dong et al., 2008; Edvardsson et al., 2011), suggesting that enhanced customer role clarity and their social context may motivate and influence their ability to actively participate in the coproduction process, particularly within the provider-customer sphere. The changing roles of healthcare customers has gained traction recently and the current study responds to McColl-Kennedy, Snyder, et al.'s (2017) call by establishing the effects of the changing roles of the healthcare customer (essentially, when these roles are clarified) on service delivery and outcomes. This study has also established the mediating role of 'role clarity' on the effects of social context on coproduction. We provide a new perspective into the understanding of coproduction and argue that while social context (nature of interactions, and access to healthcare information) enhances customers' role clarity in healthcare service delivery, these enhanced effects increase the influence of the social context on coproduction. On the contrary, the service climate of the social context has no significant influence on customer role clarity. While service climate drives customers' participation in service coproduction, we argue that social cues, patterns of behaviour and attitude of the service providers are insufficient to clearly define their roles in the service exchange.

In particular, provider-customer orientation on the part of the professional was found to strengthen or reinforce the significant association between customer role clarity and customer participation in coproduction. Although provider-customer orientation (PCO) has mainly been studied as an antecedent to coproduction and engagement (e.g., Brach et al., 2015), this study examined PCO as a moderating variable that strengthens the effect of customer role clarity on their participation in service coproduction. Accordingly, given the changing needs and behaviours of customers (Gabriel & Lang, 2008), there is a possibility of exhibiting certain consumerist behaviours in clinical consultations (cf. Osei-Frimpong et al., 2015). Consequently, the provider's ability to reorient and understand the changing behaviours is essential in eliciting a customer's level of participation in service coproduction particularly within the provider-customer sphere. Our conceptualisation of provider-customer orientation differs from previous works and provides new perspectives into the conceptual understanding of service coproduction.

In furtherance of the literature on coproduction particularly in healthcare, this study contends that there are no differences in the relative effects of a customer's health condition (be it acute or chronic) on their participation in service coproduction and adherence to medical instructions. This study lends support to Arbuthnott and Sharpe (2009), and provides good insights on the relative effects of customer health condition-type in coproduction in healthcare service. The differential effects of access to healthcare information on customer role clarity reported among customers with different conditions could be attributed to the understanding of health-related responsibilities, in particular during the service exchange. Thus, customers with chronic conditions are able to relate healthcare information better to their participation during consultations, partly due to their frequency of visits and perhaps due to the relationship they build with healthcare providers over time as compared to those with acute conditions.

Further, in response to Vermeire et al. (2001), we established the critical importance of the social context (driven by service climate, and access to healthcare information) in influencing adherence behaviours on the part of the customer. From the social cognitive theory perspective (Bandura, 1991), the findings suggest that social cues within the social system drive healthcare customers' participatory behaviours in managing their health conditions. Building on Edvardsson et al. (2011), our research provides an empirical perspective and has established the critical role of social context in customer coproduction in healthcare service delivery. In contrast to Osei-Frimpong et al. (2018), the nature of interactions within the social context does not significantly influence customers' adherence behaviours toward medical instructions. This suggests that while the nature of interactions is important in the coproduction process, it may not be enough to change behaviours toward adherence. However, while nature of interactions has no direct effect on adherence to medical instructions, we found a significant indirect effect through their participation in service coproduction. Enhanced participation in service coproduction within the customer-provider sphere resulting from the social context in turn significantly and positively mediates the effects of social context (nature of interactions, service climate, access to healthcare information) on adherence to medical instructions. Effectively, this study provides new empirical insights to operationalize and understand these fundamental influencing factors in the customer coproduction conceptual domain.

4.1 Managerial Implications

Healthcare is a highly participatory service, and the success of the outcome regarding the customer's state of health relies on their active participation (McColl-Kennedy et al., 2012). As a consequence, understanding these fundamental factors (social context and customer role clarity) that influence customer participation in service coproduction is critical. Our conceptualization of coproduction (Figure 1) suggests that social context driven by the service

climate, nature of interactions, and access to healthcare information influences customer participation in service coproduction, their role clarity, and adherence to medical instructions. Of particular interest is the service climate of the social context. Managers should pay attention to the service climate level that elicit positive responses from customers in order to trigger their desire to actively participate in coproduction activities. Therefore, service providers (nurses, doctors, other health professionals) should be motivated to create a friendly service climate to engage with the customer and encourage their active participation in consultations. The findings suggest a positive effect of service climate on customers' adherence to medical instructions, which is critical in healthcare management. This suggests that social cues, norms, procedures, and motives of service providers contribute significantly to improving adherence behaviours of healthcare customers. Hence, in line with Chan et al. (2017), managers should invest in enhancing the service climate and leverage healthcare providers to motivate customers in such endeavours.

Further, while customers become enlightened and active, they are likely to exhibit some consumerist behaviours in the coproduction process (particularly within the provider-customer sphere) (Osei-Frimpong et al., 2015). In responding to these behaviours, healthcare professionals must reorient their perspective to better understand customers and, in particular, the emerging patterns in behaviours and attitudes. In light of this, providers are encouraged to provide a customer-centred consultation approach by incorporating essential behavioural and psychosocial aspects of the service experience. For instance, providing an environment that seeks to empower and encourage customers to share their views as part of the decision-making process and take responsibility in managing their own condition.

Social cognitive theory suggests the role of the environmental and personal determinants of health in improving outcomes and wellbeing (Bandura, 1998). Healthcare professionals can

change a customer's level of participation by paying more attention to changing their delivery approach, encouraging more active interaction, and creating a friendly service climate. This will provide increased confidence to the healthcare customer. As a result, healthcare providers should be mindful of the social context subdimensions examined in this study, as they impact significantly on customers' coproduction behaviours and adherence.

Further, the utilization of our model could be applicable in other service settings. For instance, in consultancy services, both actors (provider and customer) are expected to engage well and collaborate with each other, provide the enabling environment and participate actively in deliberations. Above all, both actors will have a mutual understanding about the process in order to effectively integrate available resources. This process could improve outcomes when the customer commits towards adhering to and implementing the professional advice.

4.2 Limitations and Future Research

The findings of this study offer strong support for the theoretical model and predicted relationships. However, we note limitations as the conclusions are drawn from one geographical region (Ghana). Here, the healthcare system and customer perceptions may differ from other countries, limiting the generalization of findings. Although the relative variations among customer groups in relation to their type of health condition (acute versus chronic) were examined, the longer-term relationship effects on coproduction and adherence behaviours were not considered. Further research is encouraged to closely examine this aspect with their physicians. In such studies, factors such as provider attributes (e.g., adaptability, attractiveness, etc.), beliefs and perceptions of customers, customer emotions, among others could be considered.

In a cross-sectional non-experimental research design, there could be limitations regarding claims of causality as tested in the measurement model. While key influencing factors of

concern in coproduction are examined, future research employing a longitudinal or experimental design is encouraged to help unravel the differential effects of access to healthcare information on customer role clarity among those with chronic and acute conditions. Likewise, more details are required to understand the lack of influence of service climate on customer role clarity, which may be a fruitful research area. Furthermore, future research could adopt a qualitative approach to expand on the social context factors that could influence customer coproduction behaviours.

Finally, this study relies solely on customer reports, which could limit our findings. Given that customers interact with multiple actors in healthcare service delivery, we encourage future researchers to investigate the effects of multiple actors' roles in coproducing the service. Examining multiple actors' roles in the coproduction process could present different effects in relation to the social context, which could contribute further to the understanding of coproduction behaviours.

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APPENDIX 1

Appendix 1: Items and Factor Loadings

Item	Factor Loading	CR	AVE
<i>Nature of Interactions (adapted from Chen and Quester (2006))</i>			
	0.843	0.576	
The interaction was more conversational than questions and answers	0.776		
The doctor greeted me in a way that made me feel pleased and at ease	0.671		
The doctor allowed me to speak my mind without reticence	0.719		
The doctor initiated and fostered dialogue with me	0.856		
<i>Service Climate in Hospital (adapted from Chan et al. (2017))</i>			
	0.917	0.735	
The staff work hard to meet the need of the customers	0.899		
It has clear performance standards for service quality	0.869		
Delivering high service quality is a top priority	0.803		
The staffs' contribution in delivering good service quality will be recognised	0.856		
<i>Access to Healthcare Information (adapted from Osei-Frimpong et al. (2018))</i>			
	0.781	0.544	
I seek interest in searching for information relating to healthcare from others	0.678		
I ask others for information on related health issues	0.802		
I read on health-related issues using online resources	0.728		
<i>Adherence (adapted from Seiders et al. (2015) and Hausman (2004))</i>			
	0.875	0.639	
I treat my doctor's advice seriously	0.705		
I return to the service provider based on the schedule he/she suggests	0.891		
I am inclined to follow the instructions from the service provider	0.874		
I make every effort to take all medication prescribed by my doctor	0.708		
<i>Provider-Patient Orientation (Adapted from Brach et al. (2013))</i>			
	0.914	0.727	
The Doctor tried to help me achieve my goals	0.792		
The Doctor got me to talk about my service needs with him/her	0.891		
The Doctor took a problem-solving approach with me	0.856		
The Doctor kept the best interests of the customer in mind	0.886		
The employee seemed to achieve his/her own goals by satisfying me.	0.773		
<i>Participation in Service Coproduction (adapted from McColl-Kennedy, Hogan, et al. (2017))</i>			
	0.819	0.602	
Been involved with decisions about my treatment with the doctor	0.753		
Made choices over medical decisions related to my treatment	0.748		
Actively made suggestions on some aspects of the treatment process	0.825		
<i>Customer Role Clarity (adapted from Verleye (2015))</i>			
	0.923	0.753	
I felt certain about my role	0.945		
I knew exactly what was expected of me	0.937		
Explanation of what had to be done was clear	0.855		
I knew what my responsibilities were	0.713		